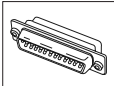
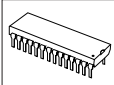
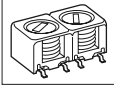
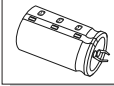
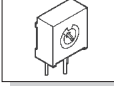
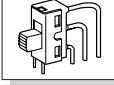
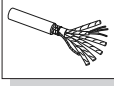
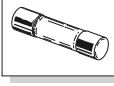
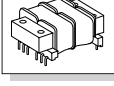
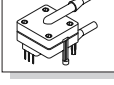
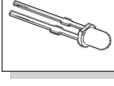


SECTION REFERENCE INDEX

	Connectors, Cable Assemblies, IC Sockets 18-262		A
	Semiconductors, ICs, Transistors, Diodes, Rectifiers 263-569		B
	Crystals, Oscillators 570-599		C
	Inductors, Coils, Filters 600-650		D
	Capacitors 651-748		E
	Resistors, Potentiometers, Thermistors, ZNRs 749-817		F
	Switches, Relays, Electromechanical 818-912		G
	Wire, Cable & Access., Buzzers, Mics, Speakers..... 913-940		H
	Prototyping, Tools, Solder, Test Equipment 941-999		I
	Batteries 1000-1009		J
	Fuses 1010-1031		K
	Fans..... 1032-1040		L
	Transformers, Power Supplies..... 1041-1072		M
	Sensors and Industrial Controls 1073-1117		N
	Optoelectronics, LEDs, LCDs, Lasers, Displays 1118-1168		O

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Fig.	Isolation Voltage	Current Transfer Ratio - Typ.	VCEO (Max.)	Typ. ton/off (μsec.)	Length L (mm)	Width W (mm)	Pitch P (mm)	Pkg.	Digi-Key Part No.	Price Each	1	10	100	Digi-Key Part No.	Tape & Reel	Size	Pricing
1	5000	80-600%	80	3/5	5.1	6.5	2.54	Dip	PS2501-1-ND	42	35	30	—	—	—	—	—
2	5000	80-600%	80	3/5	10.2	6.5	2.54	Dip	PS2501-2-ND	87	73	62	—	—	—	—	—
3	5000	80-600%	80	3/5	20.3	6.5	2.54	Dip	PS2501-4-ND	147	123	104	—	—	—	—	—
1	5000	80-600%	80	3/5	5.1	6.5	2.54	SMT	PS2501L-1-ND	51	43	36	—	—	—	—	—
2	5000	80-600%	80	3/5	10.2	6.5	2.54	SMT	PS2501L-2-ND	102	85	72	—	—	—	—	—
3	5000	80-600%	80	3/5	20.3	6.5	2.54	SMT	PS2501L-4-ND	192	160	136	—	—	—	—	—
4	5000	200-2000+%	40	100/100	5.1	6.5	2.54	Dip	PS2502-1-ND	60	50	43	—	—	—	—	—
5	5000	200-2000+%	40	100/100	10.2	6.5	2.54	Dip	PS2502-2-ND	144	120	102	—	—	—	—	—
6	5000	200-2000+%	40	100/100	20.3	6.5	2.54	Dip	PS2502-4-ND	215	194	165	—	—	—	—	—
7	5000	80-600%	80	3/5	5.1	6.5	2.54	Dip	PS2505-1-ND	51	43	36	—	—	—	—	—
8	5000	80-600%	80	3/5	10.2	6.5	2.54	Dip	PS2505-2-ND	117	98	83	—	—	—	—	—
9	5000	80-600%	80	3/5	20.3	6.5	2.54	Dip	PS2505-4-ND	237	198	167	—	—	—	—	—
7	5000	80-600%	80	3/5	5.1	6.5	2.54	SMT	PS2505L-1-ND	60	50	43	—	—	—	—	—
8	5000	80-600%	80	3/5	10.2	6.5	2.54	SMT	PS2505L-2-ND	123	103	87	—	—	—	—	—
9	5000	80-600%	80	3/5	20.3	6.5	2.54	SMT	PS2505L-4-ND	213	192	163	—	—	—	—	—
10	5000	200-2000+%	40	100/100	5.1	6.5	2.54	Dip	PS2506-1-ND	78	65	55	—	—	—	—	—
11	5000	200-2000+%	40	100/100	10.2	6.5	2.54	Dip	PS2506-2-ND	156	130	110	—	—	—	—	—
12	5000	200-2000+%	40	100/100	20.3	6.5	2.54	Dip	PS2506-4-ND	260	234	200	—	—	—	—	—
13	5000	1500-6500%	300	100/100	5.1	6.5	2.54	Dip	PS2532-1-ND	84	70	60	—	—	—	—	—
14	5000	1500-6500%	300	100/100	10.2	6.5	2.54	Dip	PS2532-2-ND	177	148	125	—	—	—	—	—
15	5000	1500-6500%	300	100/100	20.3	6.5	2.54	Dip	PS2532-4-ND	275	248	211	—	—	—	—	—
13	5000	1500-6500%	300	100/100	5.1	6.5	2.54	SMT	PS2532L-1-ND	93	78	66	—	—	—	—	—
14	5000	1500-6500%	300	100/100	10.2	6.5	2.54	SMT	PS2532L-2-ND	210	175	148	—	—	—	—	—
15	5000	1500-6500%	300	100/100	20.3	6.5	2.54	SMT	PS2532L-4-ND	355	320	273	—	—	—	—	—
13	5000	1500-6500%	350	100/100	5.1	6.5	2.54	Dip	PS2533-1-ND	150	125	106	—	—	—	—	—
14	5000	1500-6500%	350	100/100	10.2	6.5	2.54	Dip	PS2533-2-ND	298	268	229	—	—	—	—	—
1	5000	80-400%	80	3/5	5.1	6.5	2.54	Dip	PS2561-1-V-ND†	57	48	41	—	—	—	—	—
2	5000	80-400%	80	3/5	10.2	6.5	2.54	Dip	PS2561-2-V-ND†	114	95	81	—	—	—	—	—
3	5000	80-400%	80	3/5	20.3	6.5	2.54	Dip	PS2561-4-V-ND†	265	239	204	—	—	—	—	—
1	5000	80-400%	80	3/5	5.1	6.5	2.54	SMT	PS2561L-1-V-ND†	63	53	45	—	—	—	—	—
2	5000	80-400%	80	3/5	10.2	6.5	2.54	SMT	PS2561L-2-V-ND†	123	103	87	—	—	—	—	—
1	5000	80-400%	80	3/5	5.1	6.5	2.54	Dip	PS2561L1-1-V-ND*†	63	53	45	—	—	—	—	—
1	5000	80-400%	80	3/5	5.1	6.5	2.54	SMT	PS2561L2-1-V-ND*†	63	53	45	—	—	—	—	—
7	5000	80-400%	80	3/5	5.1	6.5	2.54	Dip	PS2565-1-V-ND†	69	58	49	—	—	—	—	—
8	5000	80-400%	80	3/5	10.2	6.5	2.54	Dip	PS2565-2-V-ND†	141	118	100	—	—	—	—	—
9	5000	80-400%	80	3/5	20.3	6.5	2.54	SMT	PS2565L-1-V-ND†	72	60	51	—	—	—	—	—
8	5000	80-400%	80	3/5	10.2	6.5	2.54	SMT	PS2565L-2-V-ND†	144	120	102	—	—	—	—	—
1	3750	50-300%	40	3/5	4.5	4.4	2.54	SMT	PS2701-1-ND	60	50	43	PS2701-1TR-ND	3,500	333.00/M	—	—
4	3750	200-2000+%	40	200/200	4.5	4.4	2.54	SMT	PS2702-1-ND	90	75	64	PS2702-1TR-ND	900	450.00	—	—
6	3750	200-2000+%	40	200/200	19.5	4.4	2.54	SMT	PS2702-4-ND	255	230	196	—	—	—	—	—
1	3750	50-400%	120	10/10	4.5	4.4	2.54	SMT	PS2703-1-ND	66	55	47	PS2703-1TR-ND	3,500	367.00/M	—	—
2	3750	50-400%	120	10/10	9.3	4.4	2.54	SMT	PS2703-2-ND	144	120	102	—	—	—	—	—
7	3750	50-300%	40	3/5	4.5	4.4	2.54	SMT	PS2705-1-ND	69	58	49	PS2705-1TR-ND	3,500	383.00/M	—	—
9	3750	50-300%	40	3/5	19.5	4.4	2.54	SMT	PS2705-4-ND	255	230	196	—	—	—	—	—
1	3750	50-400+%	40	4/5	4.0	4.4	2.54	SMT	PS2761-1-ND	60	50	43	PS2761-1TR-ND	3,500	315.00/M	—	—
7	3750	50-400+%	40	4/5	4.0	4.4	2.54	SMT	PS2765-1-ND	72	60	51	PS2765-1TR-ND	3,500	345.00/M	—	—
1	2500	80-600%	80	3/5	2.7	4.4	1.27	SMT	PS2801-1CT-ND†	75	63	53	PS2801-1TR-ND	3,500	417.00/M	—	—
3	2500	80-600%	80	3/5	10.3	4.4	1.27	SMT	PS2801-4-ND	288	259	221	PS2801-4TR-ND	2,500	1773.00/M	—	—
4	2500	200-2000+%	40	200/200	2.7	4.4	1.27	SMT	PS2802-1CT-ND†	165	138	117	PS2802-1TR-ND	3,500	825.00/M	—	—
6	2500	200-2000+%	40	200/200	10.3	4.4	1.27	SMT	PS2802-4-ND	275	248	211	PS2802-4TR-ND	2,500	1443.00/M	—	—
7	2500	80-600%	80	3/5	2.7	4.4	1.27	SMT	PS2805-1CT-ND†	93	78	66	PS2805-1TR-ND	3,500	517.00/M	—	—
9	2500	80-600%	80	3/5	10.3	4.4	1.27	SMT	PS2805-4-ND	350	315	269	—	—	—	—	—
10	2500	200-2000+%	40	200/200	2.7	4.4	1.27	SMT	PS2806-1CT-ND†	150	125	106	PS2806-1TR-ND	3,500	750.00/M	—	—
12	2500	200-2000+%	40	200/200	10.3	4.4	1.27	SMT	PS2806-4-ND	450	405	345	PS2806-4TR-ND	2,500	2353.00/M	—	—
1	2500	100-400+%	40	4/5	2.7	4.4	1.27	SMT	PS2811-1CT-ND†	75	63	53	PS2811-1TR-ND	3,500	975.00/M	—	—
3	2500	100-400+%	40	4/5	10.3	4.4	1.27	SMT	PS2811-4-ND	275	248	211	PS2811-4TR-ND	2,500	1443.00/M	—	—
7	2500	100-400+%	40	4/5	2.7	4.4	1.27	SMT	PS2815-1CT-ND†	132	110	93	PS2815-1TR-ND	3,500	660.00/M	—	—
9	2500	100-400+%	40	4/5	10.3	4.4	1.27	SMT	PS2815-4-ND	275	248	211	PS2815-4TR-ND	2,500	1443.00/M	—	—
13	2500	400-2000+%	300	100/100	2.7	4.4	1.27	SMT	PS2832-1CT-ND†	147	123	104	PS2832-1TR-ND	3,500	735.00/M	—	—
15	3750	400-2000+%	300	100/100	10.3	4.4	1.27	SMT	PS2832-4-ND	493	444	378	PS2832-4TR-ND	2,500	2587.00/M	—	—
13	2500	400-2000+%	350	100/100	2.7	4.4	1.27	SMT	PS2833-1CT-ND†	210	175	148	PS2833-1TR-ND	3,500	1050.00/M	—	—
1	2500	50-400+%	40	4/5	2.7	4.4	1.27	SMT	PS2861-1CT-ND†	96	80	68	PS2861-1TR-ND	3,500	480.00/M	—	—
7	2500	50-400+%	40	4/5	2.7	4.4	1.27	SMT	PS2865-1CT-ND†	102	85	72	PS2865-1TR-ND	3,500	510.00/M	—	—
1	2500	100-400+%	40	4/5	2.5	4.5	1.27	SMT	PS2911-1CT-ND†	96	80	68	PS2911-1TR-ND	3,500	480.00/M	—	—
7	2500	100-400+%	40	4/5	2.5	4.5	1.27	SMT	PS2915-1CT-ND†	135	113	95	PS2915-1TR-ND	3,500	675.00/M	—	—
13	2500	400-4500+%	300	20/5	2.5	4.5	1.27	SMT	PS2932-1CT-ND†	195	163	138	PS2932-1TR-ND	3,500	975.00/M	—	—

† Cut Tape pricing * 10.16mm (0.4") wide row spacing; standard spacing is 7.62mm (0.3") ‡ VDE Approved

High Speed Analog Output Optoisolators

Fig.	Isolation Voltage	CTRR	Vcc (Max.)	Typ. Prop Delay (μsec.)	Length L (mm)	Width W (mm)	Pitch P (mm)	Pkg.	Digi-Key Part No.	Price Each	1	10	100
16	5000	>15%	35	0.3/0.5	10.16	6.5	2.54	Dip	PS8601-ND	1.98	1.65	1.40	—
16	5000	>15%	35	0.3/0.5	10.16	6.5	2.54	SMT	PS8601L-ND	2.07	1.73	1.46	—
17	5000	>15%	35	0.3/0.5	10.16	6.5	2.54	Dip	PS8602-ND	1.95	1.63	1.38	—
17	5000	>15%	35	0.3/0.5	10.16	6.5	2.54	SMT	PS8602L-ND	2.10	1.75	1.48	—
18	2500	15%-35%	35	0.5/0.6	4.5	4.4	1.27	SMT	PS8701-ND	2.25	2.03	1.73	—

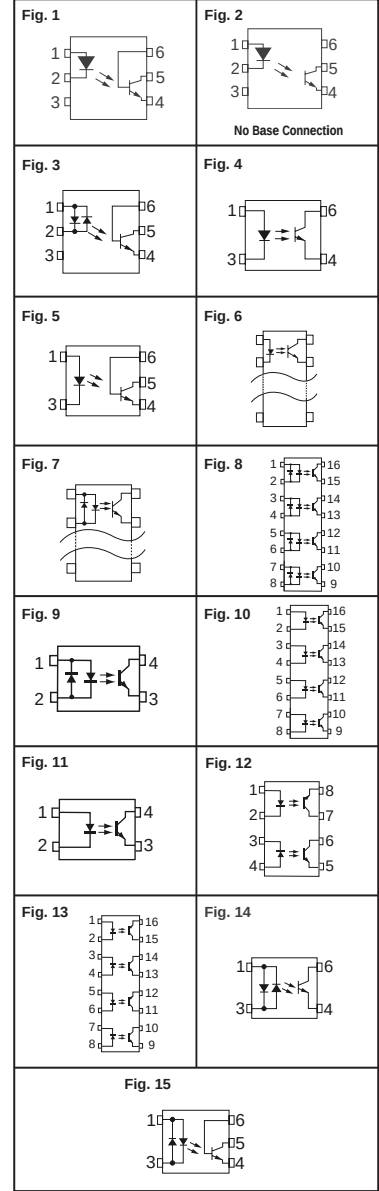
High Speed Digital

Fig.	Output Type	Isolation Voltage	Prop Delay t _{PHL}	Length L (mm)	Width W (mm)	Pitch P (mm)	Pkg.	Digi-Key Part No.	Price Each			Digi-Key Part No.	Tape & Reel		
									1	10	100		Size	Pricing	
19	OC	5000	50ns	50ns	10.16	6.5	2.54	Dip	PS9601-ND	2.31	1.93	1.63	—	—	—
19	OC	5000	50ns	50ns	10.16	6.5	2.54	SMT	PS9601L-ND	2.34	1.95	1.65	—	—	—
20	TP	3750	50ns	50ns	10.16	6.5	2.54	Dip	PS9611-ND	2.22	1.85	1.57	—	—	—
20	OC	5000	250ns	520ns	10.16	6.5	1.27	Dip	PS9613-ND	2.35	2.12	1.81	—	—	—
20	OC	5000	250ns	520ns	10.16	6.5	1.27	SMT	PS9613L-ND	2.38	2.14	1.83	—	—	—
21	OC	2500	50ns	50ns	4.5	4.4	1.27	SMT	PS9701-ND	2.31	1.93	1.63	—	—	—
21	TP	2500	35ns	40ns	4.5	4.4	1.27	SMT	PS9711-ND	2.38	2.14	1.83	—	—	—
21	OC	2500	250ns	520ns	4.5	4.4	1.27	SMT	PS9713CT-ND\$	2.53	2.28	1.94	PS9713TR-ND	3,500	1313.00/M
21	TP	2500	35ns	40ns	4.5	4.4	1.27	SMT	PS9715CT-ND\$	2.65	2.39	2.04	PS9715TR-ND	3,500	1378.00/M

TOSHIBA Transistor Output Optoisolators

Fig.	Pkg.	Current Transfer Ratio				Collector Breakdown V(BR)	Isolation Voltage (Vrms)	Digi-Key Part No.	Price Each			Digi-Key Part No.	Tape & Reel	
		Min. (%)	Max. (%)	@IF (ma)	VCE (V)				1	10	100		Size	Pricing
1	Dip	100	1200	1	0.5	55	5000	TLP331-ND	1.08	.90	.72	---	---	---
	Dip	50	600	5	5	55	5000	TLP631-ND	.75	.63	.50	---	---	---
	Dip	100	600	5	5	55	5000	TLP631GB-ND	.75	.63	.50	---	---	---
	Dip	50	600	5	5	80	4000	TLP731D4-GR-ND*	.86	.72	.57	---	---	---
	Dip	20	---	10	10	30	2500	4N25ASHORT-ND	.60	.45	.34	---	---	---
	Dip	20	---	10	10	30	2500	4N25SHORT-ND	.48	.36	.27	---	---	---
	Dip	20	100	10	10	30	2500	4N26SHORT-ND	.60	.45	.34	---	---	---
	Dip	100	---	10	10	30	2500	4N35SHORT-ND	.48	.36	.27	---	---	---
	Dip	100	---	10	10	30	2500	4N36SHORT-ND	.60	.45	.34	---	---	---
	Dip	10	---	10	10	80	2500	4N38SHORT-ND	.64	.49	.37	---	---	---
2	Dip	100	1200	1	0.5	55	5000	TLP332-ND	1.08	.90	.72	---	---	---
	Dip	50	600	5	5	55	5000	TLP632-ND	1.07	.89	.71	---	---	---
	Dip(4)	50	600	5	5	80	4000	TLP732D4-GR-LF2-ND	1.14	.95	.76	---	---	---
3	Dip	100	600	5	0.5	55	5000	TLP630GB-TAIE-ND	.75	.63	.50	---	---	---
	Dip	50	600	±5	5	55	5000	TLP630TAIE-ND	1.20	1.01	.81	---	---	---
4	SMD	100	1200	1	0.5	80	3750	TLP124-ND	.88	.66	.50	TLP124TR-ND	3,000	286.00/M
	SMD	200	1200	1	0.5	80	3750	TLP124BV-ND	.92	.69	.52	TLP124BVTNR-ND	3,000	299.00/M
	SMD	200	600	5	5	80	3750	TLP181BLCT-ND†	.48	.36	.27	TLP181BLTR-ND	3,000	156.00/M
	SMD	50	600	5	5	80	3750	TLP181CT-ND†	.48	.36	.27	TLP181TR-ND	3,000	156.00/M
	SMD	50	600	5	5	80	3750	TLP181-ND	.48	.36	.27	---	---	---
	SMD	100	600	5	5	80	3750	TLP181GB-ND	.48	.36	.27	---	---	---
	SMD	100	600	5	5	80	3750	TLP181GBCT-ND†	.48	.36	.27	TLP181GBTR-ND	3,000	156.00/M
	SMD	100	600	5	5	80	3750	TLP181GRCT-ND†	.48	.36	.27	TLP181GRTR-ND	3,000	156.00/M
	SMD	50	150	5	5	80	3750	TLP181YCT-ND†	.52	.39	.30	TLP181YTR-ND	3,000	169.00/M
	SMD	50	600	5	5	80	3750	TLP131-ND	.90	.75	.60	---	---	---
5	SMD	100	600	5	5	80	3750	TLP131GB-ND	.90	.75	.60	---	---	---
	SMD	100	600	5	5	80	3750	TLP131GBCT-ND†	.90	.75	.60	---	---	---
	SMD	100	1200	1	0.5	80	3750	TLP137-ND	.84	.70	.56	TLP137BTR-ND	3,000	390.00/M
	SMD	100	1200	1	0.5	80	3750	TLP621-ND	.69	.52	.39	---	---	---
6	Dip	50	600	5	---	55	5000	TLP621BLT-ND	.56	.42	.32	---	---	---
	Dip	200	600	5	---	55	5000	TLP621D4-TP1CT-ND*†	.75	.63	.50	---	---	---
	SMD	50	600	5	5	55	5000	TLP621D4-Y-ND*	.80	.60	.45	---	---	---
	Dip(4)	50	150	5	5	55	5000	TLP621D4-Y-LF2-ND*	.60	.45	.34	---	---	---
	Dip(4)	50	150	5	5	55	5000	TLP621D4-Y-LF2T-ND*	.56	.42	.32	---	---	---
	Dip	100	600	5	---	55	5000	TLP621GBT-ND	.52	.39	.30	---	---	---
	Dip	100	300	5	---	55	5000	TLP621GRT-ND	.52	.39	.30	---	---	---
	Dip	50	600	5	---	55	5000	TLP621-2-ND	1.38	1.16	.93	---	---	---
	Dip	100	600	5	---	55	5000	TLP621-2GB-ND	1.38	1.16	.93	---	---	---
	Dip	100	300	5	5	55	5000	TLP621-2GRT-ND	1.05	.88	.70	---	---	---
7	SMD	50	600	5	0.5	55	5000	TLP621LF1T-ND	.92	.69	.52	---	---	---
	Dip	50	600	5	---	55	5000	TLP621-4-ND	2.13	1.70	1.28	---	---	---
	Dip	100	600	5	---	55	5000	TLP621-4GB-ND	2.13	1.70	1.28	---	---	---
	SMD	100	1200	1	0.5	55	5000	TLP624LF1-ND	.75	.63	.50	---	---	---
	Dip	100	1200	1	---	55	5000	TLP624-ND	.96	.72	.54	---	---	---
	Dip	100	1200	1	---	55	5000	TLP624-2-ND	1.25	1.00	.75	---	---	---
	Dip	100	1200	1	---	55	5000	TLP624-4-ND	2.25	1.80	1.40	---	---	---
	Dip	100	1200	±1	---	55	5000	TLP626-ND	1.16	.97	.78	---	---	---
	Dip	200	1200	1	0.5	55	5000	TLP626BV-ND	1.40	1.12	.84	---	---	---
	Dip	50	600	±5	---	55	5000	TLP620-ND	.72	.54	.41	---	---	---
8	Dip	100	600	±5	---	55	5000	TLP620GB-ND	.84	.63	.48	---	---	---
	Dip	100	300	±5	---	55	5000	TLP620GR-ND	1.04	.78	.59	---	---	---
	Dip	50	600	±5	---	55	5000	TLP620-2-ND	1.26	1.05	.84	---	---	---
	Dip	100	600	±5	---	55	5000	TLP620-2GB-ND	1.46	1.22	.98	---	---	---
	Dip	50	600	±5	---	55	5000	TLP620-4-ND	2.32	1.86	1.39	---	---	---
	Dip	100	600	±5	---	55	5000	TLP620-4GB-ND	1.63	1.30	.98	---	---	---
	Dip	100	1200	±1	---	55	5000	TLP626-2-ND	2.55	2.04	1.53	---	---	---
	Dip	100	1200	±1	---	55	5000	TLP626-4-ND	3.87	3.10	2.41	---	---	---
	SMD	100	600	5	5	80	2500	TLP280-4GB-ND	2.13	1.70	1.28	TLP280-4GBTR-ND	2,500	1100.80/M
	SMD	100	600	5	5	80	2500	TLP280GB-ND	.88	.66	.50	TLP280GBTR-ND	2,500	286.00/M
9	SMD	100	600	5	5	80	2500	TLP281-4GB-ND	1.75	1.40	1.05	TLP281-4GBTR-ND	2,500	896.00/M
	SMD	100	600	5	5	80	2500	TLP281GB-ND	.72	.54	.41	TLP281GBTR-ND	2,500	234.00/M
	SMD	50	600	5	5	80	2500	TLP281GR-ND	.72	.54	.41	---	---	---
	Dip	100	300	5	5	55	4000	TLP721D4-GRLT-ND*	.64	.48	.36	---	---	---
	Dip	100	300	5	5	80	5000	TLP421GR-ND	.50	.40	.30	---	---	---
	Dip	50	600	5	5	55	2500	TLP504A-ND	1.26	1.05	.84	---	---	---
	Dip	50	600	5	5	55	2500	TLP504AGB-ND	1.26	1.05	.84	---	---	---
	Dip	50	600	5	5	55	2500	TLP504A-2-ND	2.10	1.68	1.26	---	---	---
	Dip	100	600	5	5	55	2500	TLP504A-2GB-ND	2.10	1.68	1.26	---	---	---
	SMD	50	600	5	5	80	3750	TLP180CT-ND†	.80	.60	.45	TLP180TR-ND	3,000	260.00/M
14	SMD	100	600	5	5	80	3750	TLP180GB-ND	.80	.60	.45	---	---	---
	SMD	100	1200	±1	0.5	80	3750	TLP126-ND	.90	.75	.60	---	---	---
	SMD	100	600	±5	5	80	3750	TLP130GB-ND	1.13	.94	.75	---	---	---

* VDE Approved † Cut Tape Pricing



Darlington Transistor Output

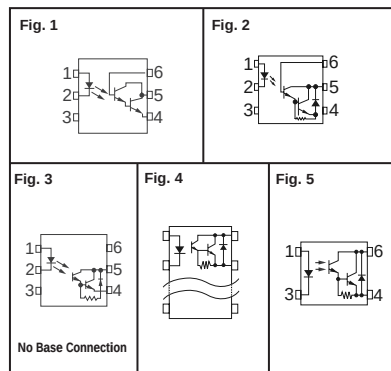


Fig.	Pkg.	Current Transfer Ratio				Saturation Voltage		Collector Breakdown V(BR)	Isolation Volt.	Digi-Key Part No.	Price Each			Digi-Key Part No.	Tape & Reel	
		Min. (%)	@IF (ma)	VCE (V)	Max. (V)	@IC (ma)	@IF (ma)				1	10	100		Size	Pricing
1	Dip	100	10	10	1	2	8	30	2500	4N29ASHORT-ND	.72	.54	.41	---	---	---
	Dip	100	10	10	1	2	8	30	2500	4N29SHORT-ND	.64	.48	.36	---	---	---
	Dip	500	10	10	1	2	8	30	2500	4N32SHORT-ND	.72	.54	.41	---	---	---
	Dip	500	10	10	1	2	8	30	2500	4N33SHORT-ND	.72	.54	.41	---	---	---
	Dip	1000	1	1	1.2	100	10	300	5000	TLP371-ND	.81	.68	.54	---	---	---
2	SMD	1000	1	1	1.2	100	10	300	5000	TLP371TP1CT-ND†	.87	.73	.58	TLP371TP1TR-ND	1,500	385.70/M
3	Dip	1000	1	1	1.2	100	10	300	5000	TLP372-ND	.90	.75	.60	---	---	---
4	Dip	1000	1	1	1.2	100	10	300	5000	TLP627-ND	.84	.70	.56	---	---	---
	Dip	1000	1	1	1.2	100	10	300	5000	TLP627-2-ND	1.30	1.04	.78	---	---	---
	Dip	1000	1	1	1.2	100	10	300	5000	TLP627-4-ND	2.25	1.80	1.35	---	---	---
	SMD	1000	1	1	1.2	100	10	300	5000	TLP627TP1CT-ND†	.87	.73	.58	TLP627TP1TR-ND	1,500	385.70/M
	SMD	1000	1	1	1.2	100	10	300	5000	TLP627TP1TCT-ND†	.84	.63	.48	TLP627TP1TTR-ND	1,000	279.30
5	SMD	1000	1	1	1.2	100	10	300	2500	TLP127-ND	.84	.70	.56	---	---	---
	SMD	1000	1	1	1.2	100	10	300	2500	TLP127CT-ND†	.84	.70	.56	TLP127TR-ND	3,000	364.00/M

† Cut Tape Pricing

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TOSHIBA Thyristor Output Optoisolators

Fig.	Pkg.	LED Trigger Current Max. (ma)	dV/dt Typical (V/μs)	Blocking Voltage	Isolation Voltage	Digi-Key Part No.	1	Price Each 10 100	Digi-Key Part No.	Tape & Reel Size Pricing
1	Dip	10	10	400	4000	TLP741GTAIE-ND†	1.03	.86 .69	—	—
	Dip	5	10	600	4000	TLP741JTAIE-ND†	1.13	.95 .76	—	—
	Dip	10	10	400	4000	TLP741GDA-TAIE-ND*†	1.13	.95 .76	—	—
	Dip	10	10	400	4000	TLP741GN-ND	1.50	1.20 .90	—	—
	Dip	10	10	400	4000	TLP741GTAIEN-ND	1.03	.86 .69	—	—
2	SMD	10	500	400	2500	TLP160G-ND	1.02	.85 .68	—	—
	SMD	10	500	600	2500	TLP160J-ND	1.05	.88 .70	—	—
	Dip	10	500	400	5000	TLP3022S-ND	.78	.65 .52	—	—
	Dip	5	500	400	5000	TLP3023S-ND	.81	.68 .54	—	—
	Dip	10	—	600	5000	TLP3052-ND	.96	.80 .64	—	—
	SMD	10	500	400	2500	TLP160GCT-ND†	1.02	.85 .68	TLP160GTR-ND	3,000 442.00/M
	Dip	10	500	400	5000	TLP3022-ND	.97	.81 .65	—	—
	Dip	5	500	400	5000	TLP3023-ND	1.07	.90 .72	—	—
	Dip	10	500	600	5000	TLP3052DAN-ND*	1.05	.88 .70	—	—
	Dip	10	500	600	4000	TLP762JF04-ND*	.99	.83 .66	—	—
3	Dip	10	500	600	4000	TLP762JD4-ND*	.96	.80 .64	—	—
	SMD	10	500	400	2500	TLP161G-ND	.90	.75 .60	—	—
	SMD	10	500	600	2500	TLP161J-ND	.90	.75 .60	TLP161JTR-ND	3,000 390.00/M
	Dip	10	500	400	5000	TLP3042S-ND#	.78	.65 .52	—	—
	Dip	5	500	400	5000	TLP3043S-ND#	.78	.65 .52	—	—
	Dip	10	500	600	5000	TLP3062S-ND#	.84	.70 .56	—	—
	Dip	5	500	600	5000	TLP3063S-ND#	.84	.70 .56	—	—
	SMD	5	500	600	5000	TLP168JCT-ND†	1.29	1.08 .86	—	—
	Dip	10	500	400	5000	TLP3042-ND	.97	.81 .65	TLP168JTR-ND	3,000 559.00/M
	Dip	5	500	400	5000	TLP3043-ND	1.03	.86 .69	—	—
4	Dip	5	500	600	5000	TLP3063-ND	.96	.80 .64	—	—
	SMD	5	500	600	5000	TLP3063D4-LF2-ND*	1.26	1.05 .84	—	—
	SMD	5	500	600	5000	TLP3063D4CT-ND*	1.25	1.00 .75	TLP3063D4TR-ND*	1,500 650.00/M
	SMD	5	500	600	5000	TLP3063LF1S-ND*	.96	.80 .64	—	—
	SMD	5	500	600	5000	TLP3063D4TSC-ND†	1.05	.88 .70	TLP3063D4TSTR-ND*	1,500 465.50/M
	SMD	5	500	600	5000	TLP3063TPTSC-ND†	.96	.80 .64	TLP3063TPTSTR-ND*	1,500 425.60/M
	Dip	10	500	600	4000	TLP763JD4-ND*	.96	.80 .64	—	—
	SMD	10	10	400	2500	TLP141GCT-ND†	1.38	1.15 .92	TLP141GTR-ND	3,000 598.00/M
	SMD	10	10	400	2500	TLP141G-ND	1.35	1.13 .90	—	—
	Dip	10	500	400	2500	TLP525G-ND	.90	.75 .60	—	—
5	Dip	10	500	400	2500	TLP525G-2-ND	1.50	1.20 .90	—	—

Fig. 1

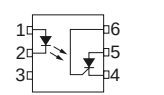


Fig. 2

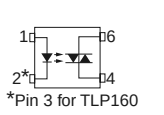


Fig. 3

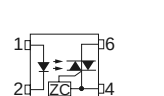


Fig. 4

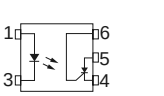
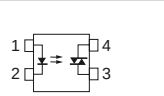


Fig. 5

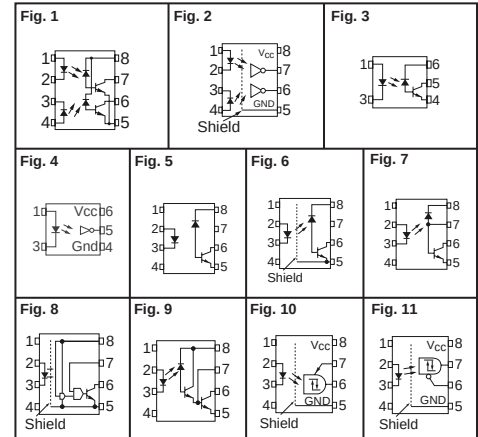


* VDE Approved # Zero Crossing
† Cut Tape Pricing ‡ SCR Output

High Speed Output Optoisolators

Fig.	Pkg.	Output Current Min. (ma) @IF (ma) @VO (V)	Data Rate Typical (bits)	Max. Supply Voltage (V)	Isolation Voltage (Vrms)	Digi-Key Part No.	1	Price Each 10 100	Digi-Key Part No.	Tape & Reel Size Pricing
1	Dip	1.12 16 0.4	1M	15	2500	TLP2530-ND	3.38	2.70 2.10	—	—
	Dip	3.04 16 0.4	1M	15	2500	TLP2531-ND	3.38	2.70 2.10	—	—
2	Dip	13 5 0.6	10M	5	2500	TLP2630-ND	3.38	2.70 2.10	—	—
	Dip	13 5 0.6	10M	5	2500	TLP2631-ND	3.38	2.70 2.10	—	—
3	SMD	1.6 16 0.4	1M	15	2500	TLP112-ND	1.61	1.29 .97	TLP112TR-ND	3,000 825.60/M
	SMD	3.2 16 0.4	1M	15	2500	TLP112A-ND	1.61	1.29 .97	TLP112ATR-ND	3,000 921.60/M
	SMD	3.2 16 0.4	1M	30	3750	TLP114ACT-ND†	2.13	1.70 1.28	TLP114ATR-ND	3,000 1088.00/M
	SMD	13 10 0.4	10M	5	2500	TLP113CT-ND†	1.75	1.40 1.05	TLP113TR-ND	3,000 896.00/M
4	SMD	13 10 0.4	10M	5	2500	TLP115-ND	2.66	2.13 1.66	TLP115TR-ND	3,000 1544.76/M
	SMD	13 5 0.4	10M	5	2500	TLP115A-ND	3.15	2.52 1.96	TLP115ATR-ND	3,000 1815.66/M
	SMD	13 5 0.4	10M	5	2500	TLP559-ND	1.38	1.10 .83	—	—
6	Dip	3.2 16 0.4	1M	15	2500	TLP559-ND	1.75	1.40 1.05	—	—
7	Dip	1.12 16 0.4	1M	15	2500	6N135T-ND	1.20	1.00 .80	—	—
	Dip	3.04 16 0.4	1M	15	2500	6N136T-ND	.96	.80 .64	—	—
8	Dip	13 5 0.6	10M	5	2500	6N137T-ND	.96	.80 .64	—	—
	Dip	13 5 0.6	10M	5	2500	TLP2601-ND	2.25	1.80 1.35	—	—
9	Dip	4.8 1.6 0.4	100K	7	2500	6N138T-ND	1.08	.90 .72	—	—
	Dip	2 0.5 0.4	100K	18	2500	6N139T-ND	.96	.80 .64	—	—
10	Dip	6.4 1.6 0.4	5M	20	2500	TLP558-ND	3.60	2.88 2.24	—	—
11	Dip	-2.6 0 2.4	5M	20	2500	TLP2200-ND	2.48	1.98 1.54	—	—

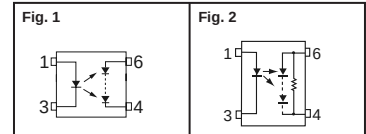
† Cut Tape pricing



Photovoltaic Coupler

Fig.	Pkg.	Short Current		Open Voltage Typ. (V)	Switching Time (@UF=20 mA, CL=1000pF)		Isolation Voltage (VRMS)	Digi-Key Part No.	Price Each			Digi-Key Part No.	Tape & Reel	
		Min. (uA)	@IF (mA)		T on (ms)	T off (ms)			1	10	100		Size	Pricing
1	SMD	12	10	8	0.2	2	2500	TLP190B-ND	2.70	2.16	1.68	—	—	—
	SMD	12	10	8	0.2	2	2500	TLP190BCT-ND†	2.70	2.16	1.68	TLP190BTR-ND	3,000	1512.00/M
2	SMD	24	20	8	0.2	2	2500	TLP191B-ND	2.93	2.34	1.82	TLP191BTR-ND	3,000	1638.00/M

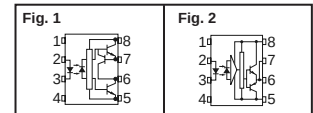
† Cut Tape Pricing



Power Transistor Outputs

† Cut Tape pricing

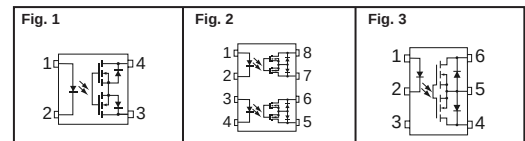
Fig.	Pkg.	Output Current IO (A) @IF (ma)	Propagation Delay Typical (us)	Max. Supply Voltage (V)	Isolation Voltage (VRMS)	Digi-Key Part No.	1	Price Each 10 100	Digi-Key Part No.	Tape & Reel Pricing 1,500
1	Dip	0.25 5	1	16	2500	TLP557-ND	1.80	1.44 1.08	—	—
	Dip	±0.5 5	0.2	35	2500	TLP250-ND	1.88	1.50 1.13	—	—
2	SMD	±1.5 5	0.15 @ 8mA	35	2500	TLP250CT-ND†	2.25	1.80 1.35	TLP250TR-ND	1170.00/M
	SMD	±0.4 5	0.25 @ 8mA	35	2500	TLP251CT-ND†	1.88	1.50 1.13	TLP251TR-ND	975.00/M



Solid State Relays

Input Current				Output Circuit Imax	Ton/Toff	Pkg.	Digi-Key Part No.	Price Each			Digi-Key Part No.	Tape & Reel Pricing 1,500	
Fig.	VF (Ved)	Imin (mA)	Imax					Vrange	1	10			100
1	1.15	5	25	0-280V	120	1ms/1ms	4-Dip	TLP227G-ND	1.88	1.50	1.13	—	—
2	1.15	7.5	25	0-320V	100	1ms/1ms	8-SMT	TLP296GTACT-ND†	4.95	3.96	3.08	TLP296GTATR-ND	2805.00/M
3	1.4	10	20	0-400V	150	1ms/1ms	6-Dip	TLP595G-ND	5.32	4.26	3.32	—	—
3	1.4	10	20	0-320V	150	1ms/1ms	6-Dip	TLP598G-ND	2.81	2.25	1.75	—	—

† Cut Tape pricing



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Optoisolators

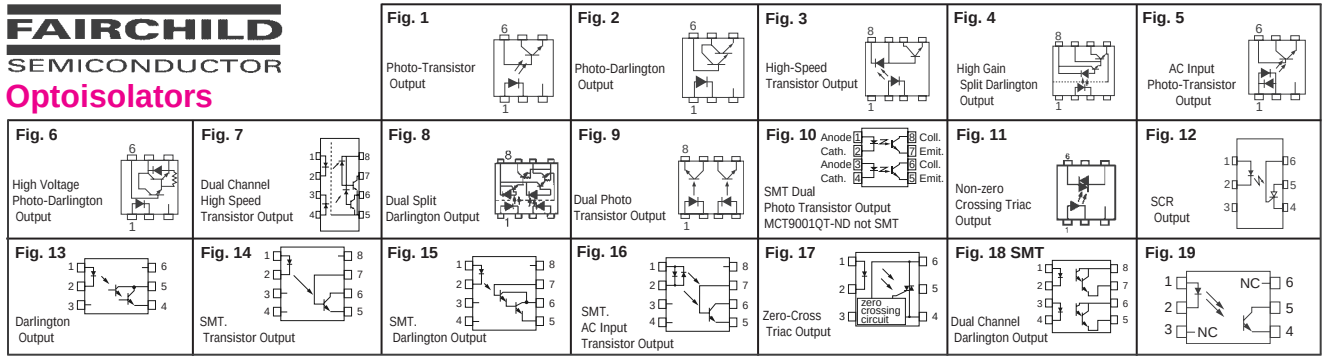


Photo Transistor Output Optoisolators

Fig.	Iso. Volt.	Current Transfer Ratio - Typ. (%)		V _{CE} (Max.)	Typ. I _{on} /I _{off} (μsec.)	Pkg. Type	Digi-Key Part No.	Price Each			
		(Min.	Typ. Max.)					1	10	100	
1	2500	20	50	—	30	2.5/2.6	DIP	4N25FS-ND	.48	.36	.27
1	5300	20	70	—	30	2.8/4.5	SMT	4N25SM-ND	.59	.47	.36
1	5300	20	70	—	30	2.8/4.5	DIP	4N25MFS-ND	.59	.47	.36
1	2500	20	50	—	30	3.0/3.0	DIP	4N26FS-ND	.48	.36	.27
1	5300	20	70	—	30	2.8/4.5	DIP	4N26MFS-ND	.59	.47	.36
1	2500	20	50	—	30	3.0/3.0	DIP	4N27-ND	.48	.36	.27
1	5300	10	50	—	30	2.8/4.5	DIP	4N27MFS-ND	.59	.47	.36
1	2500	20	50	—	30	2.5/2.6	DIP	4N28-ND	.48	.36	.27
1	5300	10	50	—	30	2.8/4.5	DIP	4N28MFS-ND	.59	.47	.36
2	2500	100	—	—	30	5.0/40	DIP	4N29-ND	.51	.39	.29
2	2500	100	—	—	30	5.0/40	DIP	4N30-ND	.51	.39	.29
2	2500	50	—	—	30	5.0/40	DIP	4N31-ND	.51	.39	.29
2	2500	500	—	—	30	5.0/100	DIP	4N32-ND	.51	.39	.29
2	5300	500	—	—	30	5.0/100	SMT	4N32S-ND	.51	.39	.29
2	5300	500	—	—	30	5.0/100	DIP	4N33-ND	.51	.39	.29
1	3550	100	300	—	30	5.0/5.0	DIP	4N35FS-ND	.48	.36	.27
1	5300	100	—	—	30	5.0/5.0	SMT	4N35SFS-ND	.48	.36	.27
1	5300	100	300	—	30	7.5/5.7	SMT	4N35SM-ND	.59	.47	.36
1	5300	100	300	—	30	7.5/5.7	DIP	4N35MFS-ND	.59	.47	.36
1	5300	100	—	—	30	5.0/5.0	DIP	4N35300-ND†	.48	.36	.27
1	2500	100	300	—	30	5.0/5.0	DIP	4N36-ND	.48	.36	.27
1	5300	100	300	—	30	7.5/5.7	DIP	4N36M-ND	.59	.47	.36
1	1500	100	300	—	30	5.0/5.0	DIP	4N37FS-ND	.48	.36	.27
1	5300	100	300	—	30	7.5/5.7	DIP	4N37MFS-ND	.59	.47	.36
1	5300	20	—	—	80	—	DIP	4N38-ND	.96	.72	.54
3	2500	7	18	50	15V	1.5/1.5	DIP	6N135QT-ND	.79	.66	.53
3	2500	19	27	50	15V	.8/8	DIP	6N136QT-ND	.79	.66	.53
4	2500	300	1300	—	7V	10/35	DIP	6N138QT-ND	.79	.66	.53
4	2500	400	1100	—	18V	1/7	DIP	6N139QT-ND	.79	.66	.53
19	5300	40	—	80	70	6.0/5.5	DIP	CNY171F5S-ND	.55	.42	.32
19	5300	63	—	125	70	6.0/5.5	DIP	CNY172F5S-ND	.55	.42	.32
19	5300	100	—	200	70	6.0/5.5	DIP	CNY173F5S-ND	.55	.42	.32
1	5300	40	—	80	70	6.0/5.5	DIP	CNY171F5S-ND	.55	.42	.32
1	5300	40	60	80	70	4.0/3.0	DIP	CNY171MFS-ND	.49	.37	.28
1	5300	63	100	125	70	4.0/3.0	DIP	CNY172M-ND	.49	.37	.28
1	5300	100	150	200	70	4.0/3.0	DIP	CNY173M-ND	.49	.37	.28
1	5300	40	60	80	70	2.0/11	DIP	CNY171300-ND †	.55	.42	.32
1	5300	63	100	125	70	10/10	DIP	CNY172F5S-ND	.55	.42	.32
1	5300	63	100	125	70	3.0/14	DIP	CNY172300-ND †	.55	.42	.32
1	5300	100	150	200	70	10/10	DIP	CNY173F5S-ND	.55	.42	.32
1	5300	100	150	200	70	3.0/14	DIP	CNY173300-ND †	.55	.42	.32
1	5300	160	—	320	70	10/10	DIP	CNY174F5S-ND	.55	.42	.32
1	5300	160	—	320	70	3.0/14	DIP	CNY174300-ND †	.55	.42	.32
1	5300	50	120	—	70	—	DIP	H11A1FS-ND	.48	.36	.27
1	5300	50	120	—	30	2.8/4.5	SMT	H11A1ISM-ND	.59	.47	.36
1	5300	50	120	—	30	2.8/4.5	DIP	H11A1MFS-ND	.59	.47	.36
1	5300	50	120	—	30	2.0/2.0	DIP	H11A1300-ND †	.48	.36	.27
1	5300	20	—	—	70	—	DIP	H11A2FS-ND	.48	.36	.27
1	5300	20	—	—	30	2.3/4.4	DIP	H11A3FS-ND	.48	.36	.27
1	2500	30	—	—	30	2.0/2.0	DIP	H11A5FS-ND	.48	.36	.27
5	5300	20	50	—	30	—	DIP	H11A1300-ND †	.65	.49	.37
5	2500	20	50	—	30	2.0/2.0	DIP	H11AA1-ND	.65	.49	.37
5	2500	10	20	—	30	2.0/2.0	DIP	H11AA2-ND	.71	.54	.41
5	2500	50	100	—	30	2.0/2.0	DIP	H11AA3-ND	.71	.54	.41
5	2500	100	150	—	30	2.0/2.0	DIP	H11AA4-ND	.78	.59	.44
1	4000	300	—	—	30	5.0/5.0	DIP	H11AG1-ND	.99	.75	.56
1	5300	100	150	300	70	5.0/4.0	DIP	H11AV1AM-ND*	.65	.49	.37
1	5300	100	150	300	70	5.0/4.0	DIP	H11AV1M-ND	.71	.54	.41
2	5300	500	—	—	25	—	DIP	H11B1-ND	.62	.47	.35
2	5300	500	—	—	25	—	DIP	H11B1300-ND †	.62	.47	.35
2	5300	200	—	—	25	—	DIP	H11B2-ND	.62	.47	.35
2	5300	100	—	—	55	25.0/18.0	DIP	H11B25S-ND	.62	.47	.35
1	4000	100	—	300	70	3.0/2.5	DIP	CNW11AV1-ND	.96	.80	.64
1	4000	50	—	—	70	3.0/2.5	DIP	CNW11AV2-ND	1.02	.86	.69
1	5300	20	—	—	300	—	DIP	H11D1FS-ND	.99	.75	.56
1	5300	20	—	—	300	5.0/5.0	DIP	H11D1300-ND †	.99	.75	.56
1	5300	20	—	—	300	—	DIP	H11D2-ND	.99	.75	.56
1	5300	20	—	—	300	5.0/5.0	DIP	H11D2300-ND †	.99	.75	.56
1	5300	20	—	—	200	—	DIP	H11D3-ND	.93	.70	.53
6	4000	1000	—	—	100	5/100	DIP	H11G1-ND	.94	.71	.53
6	5300	500	—	—	100	5.0/100	SMT	H11G1S-ND	.94	.71	.53
6	4000	1000	—	—	80	5/100	DIP	H11G2-ND	.94	.71	.53
6	5300	200	—	—	25	—	DIP	H11G3-ND	.87	.66	.50
6	4000	—	250	—	55	50/500	DIP	H11G4SQT-ND	1.40	1.12	.84
7	2500	12	27	—	15V	.8/8	DIP	HCPL2530QT-ND	.98	.82	.66
7	2500	16	18	—	—	1.5/1.5	DIP	HCPL2530-ND	1.94	1.56	1.17
7	2500	19	27	—	—	.8/8	DIP	HCPL2531-ND	2.06	1.65	1.24
8	2500	300	—	—	7V	20/35	DIP	HCPL2730QT-ND	1.79	1.43	1.08
8	2500	400	—	—	18V	2/10	DIP	HCPL2731QT-ND	2.06	1.65	1.24
1	2500	150	225	—	30	5/5	DIP	MCT210-ND	.94	.71	.53
1	5300	20	60	—	30	6/5	DIP	MCT2200300-ND †	.62	.47	.36
1	2500	20	50	—	30	5/5	DIP	MCT26QT-ND	.33	.31	.28
1	2500	45	67	—	30	7/7	DIP	MCT271-ND	.62	.47	.36

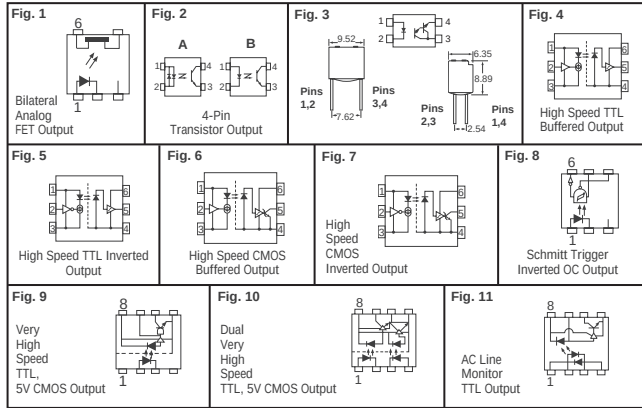
Fig.	Volt.	Current Transfer Iso. Ratio - Typ. (%)			V _{CE} (Max.)	Typ. I _{on} /I _{off} (μsec.)	Pkg. Type	Digi-Key Part No.	Price Each		
		Min.	Typ.	Max.					1	10	100
1	2500	20	60	—	30	5/5	DIP	MCT2E-ND	.53	.40	.30
1	5300	20	70	—	30	2.8/4.5	DIP	MCT2EM-ND	.53	.40	.30
1	2500	20	70	—	30	5/5	DIP	MCT2-ND	.53	.40	.30
1	5300	20	70	—	30	2.8/4.5	DIP	MCT2M-ND	.53	.40	.30
1	2500	120	225	—	30	6/19	DIP	MCT5201-ND	.76	.64	.51
1	2500	70	400	—	30	10/12	DIP	MCT5210-ND	.76	.64	.51
1	2500	150	350	—	30	20/20	DIP	MCT5211-ND	.81	.68	.54
9	2500	50	—	—	30	2.4/15	DIP	MCT61-ND	.87	.66	.50
9	2500	100	—	—	30	2.4/15	DIP	MCT62-ND	.94	.71	.53
9	2500	10	—	—	30	5.0/25.0	SMT	MCT62S-ND	.94	.71	.53
9	2500	20	—	—	30	2.4/15	DIP	MCT6-ND	.87	.66	.50
10	2500	50	—	600	55	2.4/2.4	DIP	MCT9001-ND	.96	.72	.54
1	5300	100	300	—	70	10/10	DIP	TIL111-ND	.69	.52	.39
13	5300	300	450	—	30	3.5/95	DIP	MOC119-ND	.69	.52	.39
14	3000	40	60	80	70	3.0/2.8	SMT	MOC205M-ND	.65	.49	.37
14	3000	63	94	125	70	3.0/2.8	SMT	MOC206M-ND	.65	.49	.37
14	3000	100	150	200	70	3.0/2.8	SMT	MOC207M-ND	.65	.49	.37
14	3000	40	80	125	70	3.0/2.8	SMT	MOC208M-ND	.65	.49	.37
14	3000	20	65	—	30	7.5/5.7	SMT	MOC211M-ND	.65	.49	.37
14	3000	50	90	—	30	7.5/5.7	SMT	MOC212M-ND	.65	.49	.37
14	3000	100	140	—	30	7.5/5.7	SMT	MOC213M-ND	.65	.49	.37
14	3000	20	50	—	30	7.5/5.7	SMT	MOC215M-ND	.65	.49	.37
14	3000	50	80	—	30	7.5/5.7	SMT	MOC216M-ND	.65	.49	.37
14	3000	100	130	—	30	7.5/5.7	SMT	MOC217M-ND	.65	.49	.37
15	3000	500	1000	—	30	3.5/95	SMT	MOC223M-ND	.96	.72	.54
16	3000	20	150	—	30	—	SMT	MOC256M-ND	.85	.71	.57
13	5300	500	—	—	50	3.5/95	DIP	MOC8020-MQT-ND	1.05	.99	.91
13	5300	500	—	—	50	3.5/95	DIP	MOC8020-ND	.69	.52	.39
13	5300	1000	—	—	50	3.5/95	DIP	MOC8021-ND	.69	.52	.39
13	5300	300	—	—	80	3.5/95	DIP	MOC8030-ND	.69	.52	.39
13	5300	500	—	—	80	3.5/95	DIP	MOC8050-ND	.71	.54	.41
1	5300	50	100	30	30	9.0/7.0	DIP	MOC8100M-ND	.49	.37	.28
19	5300	50	65	80	30	7.5/5.7	DIP	MOC8101-ND	.55	.42	.32
19	5300	50	—	150	70	7.5/5.7	DIP	MOC8106-ND	.55	.42	.32
19	5300	20	—	—	70	6.0/5.5	DIP	MOC8111-ND	.50	.38	.29
19	5300	50	—	—	70	6.0/5.5	DIP	MOC8112-ND	.50	.38	.29
19	5300	100	—	—	70	6.0/5.5	DIP	MOC8113-ND	.50	.38	.29
10	3000	100	150	200	70	3.0/2.8	SMT	MOC207M-ND	1.03	.86	.69
10	3000	40	—	125	70	3.0/2.8	SMT	MOC208M-ND	1.03	.86	.69
10	3000	20	65	—	30	7.5/5.7	SMT	MOC211M-ND	.90	.75	.60
10	3000	100	—	—	70	3.0/2.8	SMT	MOC213M-ND	.99	.83	.66
10	3000	100	130	—	30	7.5/5.7	SMT	MOC217M-ND	1.07	.90	.72
18	3000	500	1000	—	30	3.5/95	SMT	MOC223M-ND	1.03	.86	.69

† VDE approval * .4" Lead Spacing

SCR and Triac Output Optoisolators

Fig.	Iso. Volt.	Max If Trigger (mA)	Min. Blocking Voltage	Max. IDRM	Pkg. Type	Digi-Key Part No.	1	Price Each	100
11	5300	15	250V	.100	DIP	MOC3010M-ND	.87	.66	.50
11	5300	10	250V	.100	DIP	MOC3011M-ND	.94	.71	.53
11	5300	5	250V	.100	DIP	MOC3012M-ND	.93	.70	.53
11	5300	5	250V	.100	SMT	MOC3012SM-ND	.93	.70	.53
11	5300	30	400V	.100	DIP	MOC3020MFS-ND	.87	.66	.50
11	5300	15	400V	.100	DIP	MOC3021MFS-ND	.94	.71	.53
11	5300	10	400V	.100	DIP	MOC3022MFS-ND	.93	.70	.53
11	5300	10	400V	.100	DIP	MOC3022VM-ND †	.93	.70	.53
11	5300	5	400V	.100	SMT	MOC3023SM-ND	.93	.70	.53
11	5300	5	400V	.100	DIP	MOC3023TM-ND*	.93	.70	.53
11	5300	5	400V	.100	DIP	MOC3023MFS-ND	.93	.70	.53
12	5300	30	200V	.50	DIP	4N39-ND	1.12	.94	.75
12	5300	14	400V	.150	DIP	4N40QT-ND	1.12	.94	.75
12	5300	20	200V	.50	DIP	H11C1-ND	1.21	1.01	.81
12	5300	20	200V	.50	DIP	H11C2-ND	1.08	.90	.72
12	5300	30	200V	.50	DIP	H11C3-ND	1.08	.90	.72
12	5300	20	400V	.150	DIP	H11C4-ND	1.26	1.05	.84
12	5300	20	400V	.150	DIP	H11C5-ND	1.21	1.01	.81
12	5300	30	400V	.150	DIP	H11C6-ND	1.12	.94	.75
17	5300	15	250V	.100	DIP	MOC3031M-ND	.93	.78	.63
17	5300	10	250V	.100	DIP	MOC3032M-ND	.93	.78	.63
17	5300	5	250V	.100	DIP	MOC3033M-ND	.93	.78	.63
17	5300	15	400V	.100	DIP	MOC3041M-ND	.93	.78	.63
17	5300	10	400V	.100	DIP	MOC3042M-ND	.93	.78	.63
17	5300	5	400V	.100	DIP	MOC3043M-ND	.93	.78	.63
11	5300	15	600V	.100	DIP	MOC3051M-ND	.93	.78	.63
11	5300	10	600V	.100	DIP	MOC3052M-ND	.93	.78	.63
17	5300	15	600V	.500	DIP	MOC3061M-ND	1.03	.86	.69
17	5300	10	600V	.500	DIP	MOC3062M-ND	1.03	.86	.69
17	5300	5	600V	.500	DIP	MOC3063M-ND	1.03	.86	.69
17	5300	5	600V	.500	DIP	MOC3063TM-ND*	1.03	.86	.69
17	5300	15	800V	.500	DIP	MOC3081M-ND	1.40	1.17	.94
17	5300	10	800V	.500	DIP	MOC3082M-ND	1.40	1.17	.94
17	5300	5	800V	.500	DIP	MOC3083M-ND	1.40	1.17	.94
17	5300	10	600V	.100	DIP	MOC3162M-ND	1.03	.86	.69
17	5300	5	600V	.100	DIP	MOC3163M-ND	1.03	.86	.69

Optoisolators



4-Pin Couplers

Fig.	Isolation Voltage	Current Transfer Ratio	V _{CEO} (Max.)	Typ. t_{on}/t_{off} (μsec.)	Pkg. Type	Digi-Key Part No.	1	10	100
2A	5300	20-300%	35	2.4/2.4	DIP	H11AA814-ND	.56	.42	.32
	5300	50-150%	35	2.4/2.4	DIP	H11AA814A-ND	.56	.42	.32
2B	5300	50-600%	35	2.4/2.4	DIP	H11A817-ND	.45	.36	.27
	5300	80-160%	35	2.4/2.4	DIP	H11A817A-ND	.49	.39	.30
	5300	130-260%	35	2.4/2.4	DIP	H11A817B-ND	.49	.39	.30
	5300	200-400%	35	2.4/2.4	DIP	H11A817C-ND	.49	.39	.30
	5300	300-600%	35	2.4/2.4	DIP	H11A817D-ND	.56	.42	.32
3	5300	100% (Min.)	30	9.0/4.0	DIP	H24A1-ND	2.49	2.00	1.55

Logic Output Optoisolators

Fig.	Function	Input: LS TTL Output	15M Baud Rt. Output Configuration	Pkg. Type	Digi-Key Part No.	1	10	100
4	Buff. Buff.	TTL	Totem Pole	DIP	74OL6000-ND	3.21	2.57	2.00
			Totem Pole	SMT	74OL6000S-ND	3.21	2.57	2.00
5	Inv.	TTL	Totem Pole	DIP	74OL6001-ND	3.21	2.57	2.00
6	Buff.	CMOS	Open Collect.	DIP	74OL6010-ND	3.21	2.57	2.00
7	Inv.	CMOS	Open Collect.	DIP	74OL6011-ND	3.21	2.57	2.00

LITEON Optoisolators

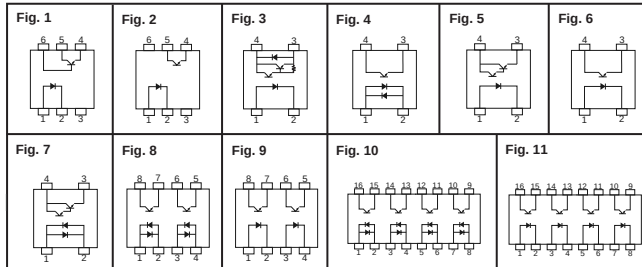


Fig.	Isolation Volt.	Current Transfer Ratio Min.	Current Transfer Ratio Max.	V _{CEO} (Max.)	Typ. t_{on}/t_{off} (μsec.)	Pkg. Type	Digi-Key Part No.	1	Price Each 10	100	Lite-On Part No.
1	2500	20%	—	30	3.0/3.0	DIP	160-1300-5-ND	.44	.33	.25	4N25
	2500	20%	—	30	3.0/3.0	SMT	160-1301-5-ND	.50	.38	.29	4N25S
	1500	20%	—	30	3.0/3.0	DIP	160-1302-5-ND	.44	.33	.25	4N26
	1500	20%	—	30	3.0/3.0	SMT	160-1303-5-ND	.50	.38	.29	4N26S
	3500	100%	—	30	3.0/3.0	DIP	160-1304-5-ND	.44	.33	.25	4N35
1	3500	100%	—	30	3.0/3.0	SMT	160-1305-5-ND	.50	.38	.29	4N35S
	1500	100%	—	30	3.0/3.0	DIP	160-1306-5-ND	.44	.33	.25	4N37
	1500	100%	—	30	3.0/3.0	SMT	160-1307-5-ND	.50	.38	.29	4N37S
	5000	40% 80%	70	5.0/5.0	DIP	160-1308-5-ND	.44	.33	.25	CNY17-1	
	5000	40% 80%	70	5.0/5.0	SMT	160-1309-5-ND	.50	.38	.29	CNY17-1S	
1	5000	63% 125%	70	5.0/5.0	DIP	160-1310-5-ND	.44	.33	.25	CNY17-2	
	5000	63% 125%	70	5.0/5.0	SMT	160-1311-5-ND	.50	.38	.29	CNY17-2S	
	5000	100% 200%	70	5.0/5.0	DIP	160-1312-5-ND	.44	.33	.25	CNY17-3	
	5000	100% 200%	70	5.0/5.0	SMT	160-1313-5-ND	.50	.38	.29	CNY17-3S	
	5000	160% 320%	70	5.0/5.0	DIP	160-1314-5-ND	.44	.33	.25	CNY17-4	
1	5000	160% 320%	70	5.0/5.0	SMT	160-1315-5-ND	.50	.38	.29	CNY17-4S	
2	5000	40% 80%	70	5.0/5.0	DIP	160-1316-5-ND	.44	.33	.25	CNY17F-1	
2	5000	40% 80%	70	5.0/5.0	SMT	160-1317-5-ND	.50	.38	.29	CNY17F-1S	
2	5000	63% 125%	70	5.0/5.0	DIP	160-1318-5-ND	.44	.33	.25	CNY17F-2	
2	5000	63% 125%	70	5.0/5.0	SMT	160-1319-5-ND	.50	.38	.29	CNY17F-2S	
2	5000	100% 200%	70	5.0/5.0	DIP	160-1320-5-ND	.44	.33	.25	CNY17F-3	
2	5000	100% 200%	70	5.0/5.0	SMT	160-1321-5-ND	.50	.38	.29	CNY17F-3S	
2	5000	160% 320%	70	5.0/5.0	DIP	160-1322-5-ND	.44	.33	.25	CNY17F-4	
2	5000	160% 320%	70	5.0/5.0	SMT	160-1323-5-ND	.50	.38	.29	CNY17F-4S	
1	5000	50%	—	30	2.8/4.5	DIP	160-1324-5-ND	.54	.41	.31	H11A1

Fig.	Iso. Volt.	I _{on} Current (Max.) mA	I _{CLL} (Max.)	Oper. Voltage (Max.)	Pkg. Type	Digi-Key Part No.	Price Each	Tape & Reel Pricing
8	5300	1.6	5	16V	SMT	H11L1SM-ND	.99 .83 .66	—
	5300	1.6	5	16V	DIP	H11L1-MQT-ND	.95 .79 .63	—
	5300	1.6	5	16V	DIP	H11L1V-MQT-ND†	.95 .79 .63	—
	5300	1.0	5	16V	SMT	H11L2S-ND	.86 .72 .58	—
	5300	1.0	5	16V	DIP	H11L2-MQT-ND	.86 .72 .58	—
	5300	5	5	16V	DIP	H11L3-MQT-ND	.90 .75 .60	—
	5300	3.2	10	16V	DIP	H11N1-MQT-ND	3.32 2.66 2.07	—
	5300	10	10	16V	DIP	H11N3-MQT-ND	2.72 2.18 1.70	—
	5300	4.0	5	16V	DIP	MOC5008M-ND	.90 .76 .61	—
	5300	10.0	5	16V	DIP	MOC5009M-ND	.86 .72 .58	—
8	7500	1.6	5	15V	DIP	H11L1M-ND	.99 .83 .66	—
	7500	6.0	5	15V	DIP	H11L1SR2MCT-ND*	1.01 .84 .68	446.88
	7500	1.6	5	15V	SMD	H11L1SR2VMCT-ND*	1.01 .84 .68	446.88
	7500	1.6	5	15V	SMD	H11L1SVM-ND†	.99 .83 .66	—
	7500	1.6	5	15V	DIP	H11L1TM-ND	.99 .83 .66	—
	7500	1.6	5	15V	DIP	H11L1TVM-ND†	.99 .83 .66	—
	7500	1.6	5	15V	DIP	H11L1VM-ND	.99 .83 .66	—
	7500	10.0	5	15V	DIP	H11L2M-ND	.90 .75 .60	—
	7500	10.0	5	15V	SMD	H11L2SM-ND	.90 .75 .60	—
	7500	10.0	5	15V	SMD	H11L2SR2MCT-ND*	.92 .77 .62	406.98
	7500	10.0	5	15V	SMD	H11L2SR2VMCT-ND*†	.92 .77 .62	406.98
	7500	10.0	5	15V	SMD	H11L2SVM-ND†	.90 .75 .60	—
	7500	10.0	5	15V	DIP	H11L2TM-ND	.90 .75 .60	—
	7500	10.0	5	15V	DIP	H11L2TVM-ND†	.90 .75 .60	—
	7500	10.0	5	15V	DIP	H11L2VM-ND†	.90 .75 .60	—
	7500	60	5	15V	DIP	H11L3M-ND	.94 .79 .63	—

* For Tape and Reel change CT-ND to TR-ND. † VDE approval

Fig.	Iso. Volt.	Max. Prop. Delay (ns)	Typ. CMR V/μsec.	I _C (mA)	Pkg. Type	Digi-Key Part No.	Price Each	Tape & Reel Pricing
9	2500	75	10,000	5	DIP	HCPL2601QT-ND	1.40 1.17 .94	—
	2500	75	10,000	5	DIP	HCPL2611-ND	1.36 1.09 .82	—
10	2500	75	10,000	5	DIP	HCPL2630QT-ND	2.43 1.95 1.46	—
	2500	75	10,000	5	DIP	HCPL2631QT-ND	2.36 1.89 1.47	—
9	2500	75	10,000	5	DIP	6N137QT-ND	1.21 1.01 .81	—

Fig.	Isolation Voltage	BV _{CEO} (Min.)	Typ. t_{on}/t_{off} (μsec.)	Pkg. Type	Digi-Key Part No.	Price Each	Tape & Reel Pricing
11	2500	5V	1/1	DIP	MID400-ND	2.88 2.30 1.79	—

FET Outputs

Fig.	Isolation Voltage	R _{DS(on)} (ohm)	V _{BR} (Min.)	Typ. t_{on}/t_{off} (μs)	Pkg. Type	Digi-Key Part No.	Price Each	Tape & Reel Pricing
1	5300	200	30	25/25	DIP	H11F1-ND	2.33 1.87 1.40	—
	5300	330	30	25/25	DIP	H11F2-ND	2.25 1.80 1.35	—
	5300	470	15	25/25	DIP	H11F3-ND	2.06 1.65 1.24	—

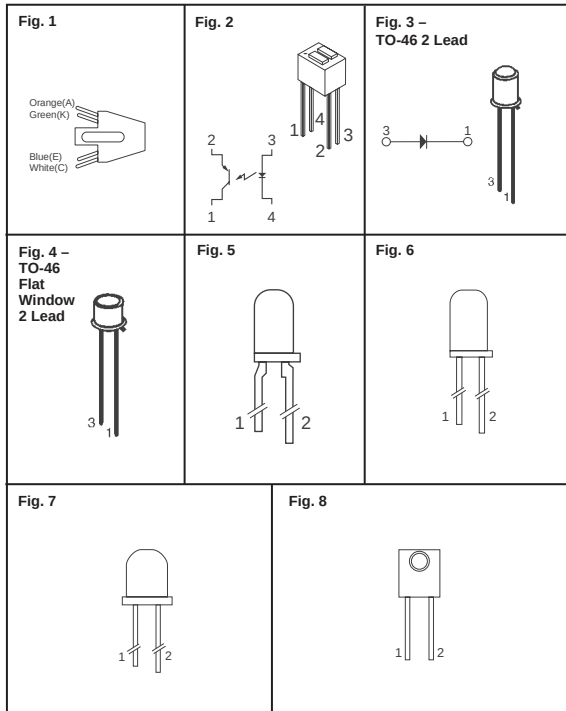
Fig.	Isolation Volt.	Current Transfer Ratio Min.	Current Transfer Ratio Max.	V _{CEO} (Max.)	Typ. t_{on}/t_{off} (μsec.)	Pkg. Type	Digi-Key Part No.	1	Price Each 10	100	Lite-On Part No.
1	5000	50%	—	30	2.8/4.5	SMT	160-1325-5-ND	.60	.45	.34	H11A1S
	5000	20%	—	30	2.8/4.5	DIP	160-1326-5-ND	.54	.41	.31	H11A2
	5000	20%	—	30	2.8/4.5	SMT	160-1327-5-ND	.60	.45	.34	H11A2S
	5000	20%	—	300	5.0/5.0	DIP	160-1328-5-ND	.87	.66	.49	H11D1
	5000	20%	—	300	5.0/5.0	SMT	160-1329-5-ND	.93	.70	.53	H11D1S
3	3750	1000%	—	300	100/20	SMT	160-1331-1-ND	.64	.53	.43	LTV-352T
3	3750	1000%	—	300	100/20	SMT	160-1331-2-ND*		238.50/750		LTV-352T
4	3750	20%	400%	35	4.0/3.0	SMT	160-1333-1-ND	.44	.37	.29	LTV-354T
4	3750	20%	400%	35	4.0/3.0	SMT	160-1333-2-ND*		163.13/750		LTV-354T
5	3750	600%	7500%	35	60/53	SMT	160-1335-1-ND	.44	.37	.29	LTV-355T
5	3750	600%	7500%	35	60/53	SMT	160-1335-2-ND*		163.13/750		LTV-355T
6	3750	50%	600%	80	4.0/3.0	SMT	160-1337-1-ND	.35	.30	.24	LTV-356T
6	3750	50%	600%	80	4.0/3.0	SMT	160-1337-2-ND*		132.75/750		LTV-356T
6	3750	50%	600%	35	4.0/3.0	SMT	160-1339-1-ND	.35	.30	.24	LTV-357T
6	3750	50%	600%	35	4.0/3.0	SMT	160-1339-2-ND*		132.75/750		LTV-357T
2	5000	40%	320%	70	2.0/2.0	DIP	160-1340-5-ND	.86	.65	.49	LTV-702F
2	5000	40%	320%	70	2.0/2.0	SMT	160-1341-5-ND	.92	.69	.52	LTV-702FS
1	5000	40%	320%	70	2.0/2.0	DIP	160-1342-5-ND	.80	.60	.45	LTV-702V
1	5000	40%	320%	70	2.0/2.0	SMT	160-1343-5-ND	.86	.65	.49	LTV-702VS
4	5000	20%	300%	35	4.0/3.0	DIP	160-1344-5-ND	.72	.54	.41	LTV-814
4	5000	20%	300%	35	4.0/3.0	SMT	160-1345-5-ND	.78	.59	.44	LTV-814S
8	5000	20%	300%	35	4.0/3.0	DIP	160-1346-5-ND	1.44	1.08	.81	LTV-824
8	5000	20%	300%	35	4.0/3.0	SMT	160-1347-5-ND	1.50	1.13	.85	LTV-824S
10	5000	20%	300%	35	4.0/3.0	DIP	160-1348-5-ND	2.88	2.16	1.62	LTV-844
10	5000	20%	300%	35	4.0/3.0	SMT	160-1349-5-ND	3.12	2.34	1.76	LTV-844S
4	5000	20%	80%	35	4.0/3.0	DIP	160-1350-5-ND	.84	.63	.48	LTV-814H
4	5000	20%	80%	35	4.0/3.0	SMT	160-1351-5-ND	.90	.68	.51	LTV-814HS
8	5000	20%	80%	35	4.0/3.0	DIP	160-1352-5-ND	1.68	1.26	.95	LTV-824H
8	5000	20%	80%	35	4.0/3.0	SMT	160-1353-5-ND	1.74	1.31	.98	LTV-824HS
10	5000	20%	80%	35	4.0/3.0	DIP	160-1354-5-ND	3.36	2.52	1.89	LTV-844H
10	5000	20%	80%	35	4.0/3.0	SMT	160-1355-5-ND	3.48	2.61	1.96	LTV-844HS
7	5000	600%	7500%	35	60/53	DIP	160-1356-5-ND	.96	.72	.54	LTV-814I
7	5000	600%	7500%	35	60/53	SMT	160-1357-5-ND	1.02	.77	.58	LTV-814IS
5	5000	600%	7500%	35	60/53	DIP	160-1358-5-ND	.80	.60	.45	LTV-815
5	5000	600%	7500%	35	60/53	SMT	160-1359-5-ND	.88	.66	.50	LTV-815S
6	5000	50%	600%	80	4.0/3.0	DIP	160-1360-5-ND	.56	.42	.32	LTV-816
6	5000	50%	600%	80	4.0/3.0	SMT	160-1361-5-ND	.62	.47	.35	LTV-816S
9	5000	50%	600%	80	4.0/3.0	DIP	160-1362-5-ND	1.12	.84	.63	LTV-826
9	5000	50%	600%	80	4.0/3.0	SMT	160-1363-5-ND	1.18	.89	.67	LTV-826S
11	5000	50%	600%	80	4.0/3.0	DIP	160-1364-5-ND	2.24	1.68	1.26	LTV-846
11	5000	50%	600%	80	4.0/3.0	SMT	160-1365-5-ND	2.30	1.73	1.30	LTV-846S
6	5000	50%	600%	35	4.0/3.0	DIP	160-1366-5-ND	.44	.33	.25	LTV-816I
6	5000	50%	600%	35	4.0/3.0	SMT	160-1367-5-ND	.50	.38	.29	LTV-816IS
9	5000	50%	600%	35	4.0/3.0	DIP	160-1368-5-ND	.88	.66	.50	LTV-827
9	5000	50%	600%	35	4.0/3.0	SMT	160-1369-5-ND	.94	.71	.53	LTV-827S
11	5000	50%	600%	35	4.0/3.0	DIP	160-1370-5-ND	1.76	1.32	.99	LTV-847
	5000	50%	600%	35	4.0/3.0	SMT	160-1371-5-ND	1.82	1.37	1.03	LTV-847S

LITEON Triac Output Optoisolators

	Isolation Voltage	Max. IF Trigger (mA)	Min. Blocking Voltage	Max. IR (μA)	Package Type	Digi-Key Part No.	Price Each			Lite-On Part No.
	5000	30	400V	10	DIP	160-1372-5-ND	.66	.50	.38	MOC3020
	5000	30	400V	10	SMT	160-1373-5-ND	.70	.53	.40	MOC3020S
	5000	15	400V	10	DIP	160-1374-5-ND	.66	.50	.38	MOC3021
	5000	15	400V	10	SMT	160-1375-5-ND	.70	.53	.40	MOC3021S
	5000	10	400V	10	DIP	160-1376-5-ND	.66	.50	.38	MOC3022
	5000	10	400V	10	SMT	160-1377-5-ND	.70	.53	.40	MOC3022S
	5000	5	400V	10	DIP	160-1378-5-ND	.70	.53	.40	MOC3023
	5000	5	400V	10	SMT	160-1379-5-ND	.74	.56	.42	MOC3023S

FAIRCHILD SEMICONDUCTOR

Infrared Photosensors and Emitters



Reflective Photosensors

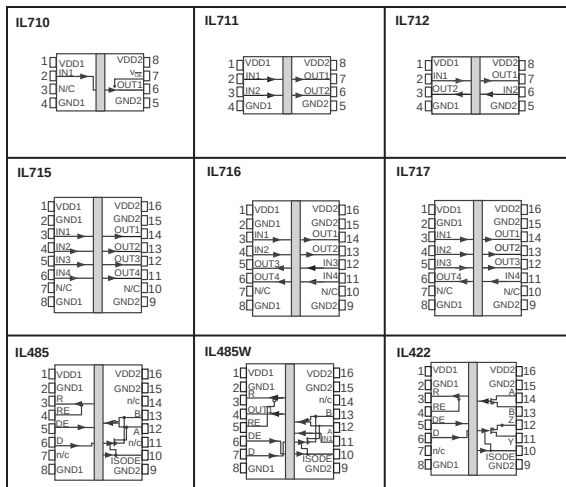
Fig.	Output Type	Min/Max Output Ic @ If	Optimum Sensing Distance	Termination	Digi-Key Part No.	Price Each			
						1	10	100	500
1	Transistor	.6/3 @ 40mA	3.81mm	Leads	QRB1114-ND	1.35	1.13	.90	.63
1	Transistor	.6/3 @ 40mA	3.81mm	Wires	QRB1134-ND	1.94	1.56	1.17	1.05
2	Transistor	1/5 @ 20mA	1.27mm	Leads	QRD1114-ND	.94	.79	.63	.44

Semiconductor Infrared Emitters (IRED LEDs)

Fig.	For. Volt. (V)	Max. Forward Current (mA)	Min. Power Output	Beam Angle +/-	Peak Wave-Length (nm)	Pkg. Type	Digi-Key Part No.	Price Each			
								1	10	100	500
3	1.7	100	6.0mW/sr	8	940	TO-46	1N6264-ND	1.79	1.43	1.08	.97
4	1.7	100	6.0mW	40	940	TO-46	1N6265-ND	1.75	1.41	1.06	.95
3	1.7	100	25.0mW/sr	10	940	TO-46	1N6266-ND	2.43	1.95	1.46	1.32
3	1.7	100	5.4mW	10	940	TO-46	CQX14-ND	1.94	1.56	1.17	1.05
4	1.7	100	5.4mW	40	940	TO-46	CQX15-ND	1.91	1.53	1.15	1.03
3	1.7	100	12.0mW	10	880	TO-46	F5D1-ND	2.13	1.71	1.28	1.16
3	1.7	100	9.0mW	10	880	TO-46	F5D2-ND	2.06	1.65	1.24	1.11
3	1.7	100	10.5mW	10	880	TO-46	F5D3-ND	2.09	1.68	1.26	1.13
4	1.7	100	12.0mW	40	880	TO-46	F5E1-ND	2.13	1.71	1.28	1.16
4	1.7	100	10.5mW	40	880	TO-46	F5E3-ND	2.09	1.68	1.26	1.13
3	1.7	100	1.5mW/sr	10	940	TO-46	LED56-ND	1.87	1.50	1.13	1.01
4	1.7	100	3.5mW/sr	40	940	TO-46	LED55BF-ND	1.87	1.50	1.13	1.01
3	1.7	100	3.5mW/sr	10	940	TO-46	LED55B-ND	1.91	1.53	1.15	1.03
3	1.7	100	5.4mW/sr	8	940	TO-46	LED55C-ND	1.94	1.56	1.17	1.05
5	1.7	50	14mW/sr	8	940	T-1	QEC113-ND	.51	.41	.31	.17
5	1.7	50	27mW/sr	8	880	T-1	QEC122-ND	.56	.42	.32	.20
6	1.5	100	80mW/sr	9	880	T-1 3/4	QED123-ND	.62	.47	.36	.22
6	1.7	100	16mW/sr	20	880	T-1 3/4	QED222-ND	.56	.42	.32	.20
6	1.7	100	25mW/sr	20	880	T-1 3/4	QED223-ND	.62	.47	.36	.22
6	1.5	100	10mW/sr	20	940	T-1 3/4	QED233-ND	.47	.38	.29	.16
6	1.5	100	27mW/sr	20	940	T-1 3/4	QED234-ND	.51	.41	.31	.17
7	1.7	100	18mW/sr	30	880	Plastic TO-46	QED423-ND	.62	.47	.36	.22
7	1.7	100	20mW/sr	15	880	Plastic TO-46	QED522-ND	.56	.42	.32	.20
7	1.7	100	40mW/sr	15	880	Plastic TO-46	QED523-ND	.62	.47	.36	.22
8	1.5	50	3mW/sr	25	940	SIDELOOK	QEE113-ND	.51	.41	.31	.17
8	1.7	50	8mW/sr	25	880	SIDELOOK	QEE123-ND	.56	.42	.32	.20

NVE CORPORATION

IsoLoop® High Performance Digital Isolators



IsoLoop® digital isolators from NVE are superior performance alternatives to traditional opto-couplers or optoisolators. These highly integrated devices deliver up to 100MBd of data per channel with only 2ns Pulse Width Distortion. They are available in single, dual and quad channel form factors. IsoLoop® bus isolators offer the designer highly compact, isolated RS 485 and RS 422 compliant devices. These high-speed products are ideal for many industrial communication applications, including PROFIBUS.

Features:

IL710, IL711, and IL712: • 100 Mbaud Data Rate • 2ns Pulse Width Distortion • 10ns Propagation Delay • 20kV/ms Transient Immunity • 2500 Vrms (1min.) • Dip & SOIC Package
IL715, IL716 and IL717: • 100 Mbaud Data Rate • 2ns Pulse Width Distortion • 10ns Propagation Delay • 20kV/ms Transient Immunity • 2500 Vrms (1min.) • Wide Body SOIC Package
IL422: • 2500 Vrms Isolation (1 min.) • 25ns Propagation Delay • 25 Mbaud Data Rate • 1 ns Skew • ±60 mA Driver Output Capability • Thermal Shutdown Protection • Meets or Exceeds EIA 422-B, EIA 485-A and ITU Recommendation VII • 16 Pin SOIC Package • UL 1577 Approval (pending)
IL485/IL485W: • 35 Mbaud Data Rate • 25ns Propagation Delay • 2500 Vrms Isolation (1 min.) • Wide Body SOIC Package • 20kV/ms Transient Immunity

Supply Voltage	Package Type	Temperature Range	Digi-Key Part No.	Price Each			NVE Part No.
				1	10	25	100
3.3/5.0V	8-Dip	-40°C to +100°C	390-1003-ND	3.40	3.15	2.74	2.36
3.3/5.0V	8-SOIC	-40°C to +100°C	390-1004-ND	3.40	3.15	2.74	2.36
3.3/5.0V	8-Dip	-40°C to +100°C	390-1005-ND	5.78	5.35	4.66	4.01
3.3/5.0V	8-SOIC	-40°C to +100°C	390-1006-ND	5.78	5.35	4.66	4.01
3.3/5.0V	8-Dip	-40°C to +100°C	390-1007-ND	5.78	5.35	4.66	4.01
3.3/5.0V	8-SOIC	-40°C to +100°C	390-1008-ND	5.78	5.35	4.66	4.01
3.3/5.0V	16-SOICW	-40°C to +100°C	390-1009-ND	7.46	6.91	6.02	5.18
3.3/5.0V	16-SOICW	-40°C to +100°C	390-1010-ND	7.46	6.91	6.02	5.18
3.3/5.0V	16-SOICW	-40°C to +100°C	390-1011-ND	7.46	6.91	6.02	5.18
3.3/5.0V	16-SOICW	-40°C to +100°C	390-1012-ND	7.46	6.91	6.02	5.18
3.3/5.0V	16-SOIC	-40°C to +85°C	390-1013-ND	7.46	6.91	6.02	5.18
3.3/5.0V	16-SOIC	-40°C to +85°C	390-1014-ND	7.46	6.91	6.02	5.18
5.0V	16-SOICW	-40°C to +85°C	390-1000-ND	8.66	8.02	6.98	6.01
5.0V	16-SOICW	-40°C to +85°C	390-1001-ND	8.42	7.79	6.79	5.85
5.0V	16-SOICW	-40°C to +85°C	390-1002-ND	8.90	8.24	7.18	6.18

More Product Available Online: www.digikey.com

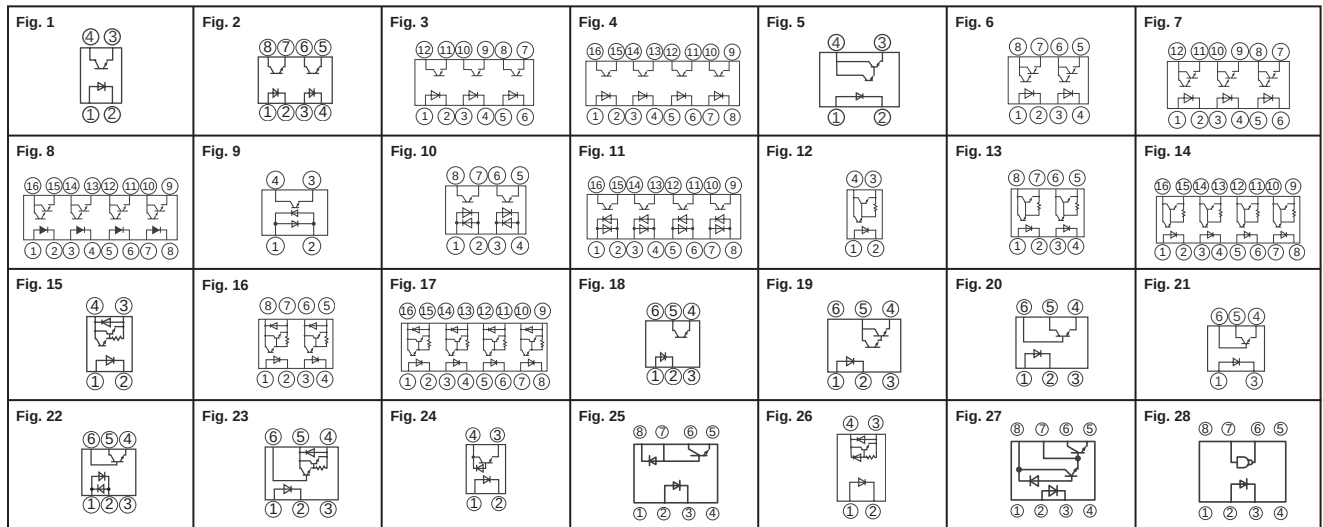


Fig.	Output		Current Transfer Ratio				Isolation Voltage (Vrms)	Dimensions - mm			Package Type	Digi-Key Part No.	Tube Price Each			Sharp Part No.
	Vceo (V) Max.	IC (mA) Max.	Min. (%)	Max. (%)	@ IF (mA)	@ Vce (V)		Length	Width	Pitch			1	10	100	
Tube																
1	35	20	10	100	20	5	5000	6.0	16.2	2.54	4-Dip	425-1406-5-ND*	2.18	1.74	1.44	PC512
	35	50	10	100	1	0.4	5000	4.58	6.5	2.54	4-Dip	425-1472-5-ND	1.28	1.02	.85	PC818
	35	50	10	100	1	0.4	5000	4.58	6.5	2.54	4-SMT	425-1473-5-ND	1.02	.85	.68	PC818I
	35	50	10	100	1	0.4	5000	4.58	6.5	2.54	4-Dip	425-1475-5-ND*	1.60	1.28	1.06	PC818Y
	35	50	20	200	1	5	5000	9.66	6.5	2.54	8-Dip	425-1476-5-ND†	2.90	2.39	1.94	PC823
	35	50	50	600	5	5	5000	4.58	6.5	2.54	4-Dip	425-1464-5-ND	.44	.31	.22	PC817X
	35	50	50	600	5	5	5000	4.58	6.5	2.54	4-SMD	425-1455-5-ND	.48	.33	.24	PC817XI
	35	50	60	120	1	0.4	5000	4.58	6.5	2.54	4-SMD	425-1435-5-ND	1.50	1.25	1.00	PC810AI
	35	50	60	200	1	0.4	5000	4.58	6.5	2.54	6-Dip	425-1434-5-ND	1.35	1.13	.90	PC810
	35	50	60	200	1	0.4	5000	4.58	6.5	2.54	4-SMD	425-1436-5-ND	1.43	1.14	.95	PC810I
	35	50	80	160	5	5	5000	4.58	6.5	2.54	4-Dip	425-1465-5-ND	.48	.33	.24	PC817X1
	35	50	80	160	5	5	5000	4.58	6.5	2.54	4-SMD	425-1470-5-ND	.52	.36	.26	PC817X1I
	35	50	130	260	5	5	5000	4.58	6.5	2.54	4-Dip	425-1466-5-ND	.48	.33	.24	PC817X2
	35	50	130	260	5	5	5000	4.58	6.5	2.54	4-SMD	425-1471-5-ND	.52	.36	.26	PC817X2I
	35	50	200	400	5	5	5000	4.58	6.5	2.54	4-Dip	425-1467-5-ND	.48	.33	.24	PC817X3
	35	50	200	600	5	5	5000	4.58	6.5	2.54	4-Dip	425-1469-5-ND	.52	.36	.26	PC817X7
	35	50	300	600	5	5	5000	4.58	6.5	2.54	4-Dip	425-1468-5-ND	.48	.33	.24	PC817X4
	70	50	50	150	0.5	5	5000	4.58	6.5	2.54	4-Dip	425-1311-5-ND	.68	.47	.34	PC123A
	70	50	50	150	5	5	5000	4.58	6.5	2.54	4-Dip	425-1318-5-ND*	.80	.55	.40	PC123Y1
	70	50	50	400	0.5	5	5000	4.58	6.5	2.54	4-Dip	425-1310-5-ND	.72	.50	.36	PC12311NSZ
	70	50	50	400	0.5	5	5000	4.58	6.5	2.54	4-Dip	425-1309-5-ND	.68	.47	.34	PC12310NSZ
	70	50	50	400	5	5	5000	4.58	6.5	2.54	4-Dip	425-1308-5-ND	.60	.42	.30	PC123
	70	50	50	400	5	5	5000	4.58	6.5	2.54	4-Dip	425-1317-5-ND*	.76	.53	.38	PC123Y
	70	50	100	200	0.5	5	5000	4.58	6.5	2.54	4-Dip	425-1316-5-ND	.76	.53	.38	PC123S
	70	50	100	200	5	5	5000	4.58	6.5	2.54	4-Dip	425-1320-5-ND*	.84	.58	.42	PC123YS
	70	50	100	250	0.5	5	5000	4.58	6.5	2.54	4-Dip	425-1312-5-ND	.68	.47	.34	PC123B
	70	50	100	250	5	5	5000	4.58	6.5	2.54	4-Dip	425-1319-5-ND*	.80	.55	.40	PC123Y2
	70	50	100	500	.1	5	5000	4.58	6.5	2.54	4-Dip	425-1463-5-ND	.76	.53	.38	PC81720NSZ
	70	50	100	600	.5	5	5000	4.58	6.5	2.54	4-Dip	425-1456-5-ND	.64	.44	.32	PC81710NSZ
	70	50	120	300	.5	5	5000	4.58	6.5	2.54	4-Dip	425-1458-5-ND	.64	.44	.32	PC81711NSZ
	70	50	160	400	.5	5	5000	4.58	6.5	2.54	4-Dip	425-1460-5-ND	.64	.44	.32	PC81712NSZ
	70	50	200	500	.5	5	5000	4.58	6.5	2.54	4-Dip	425-1462-5-ND	.64	.44	.32	PC81713NSZ
	350	50	40	80 Typ.	5	5	5000	4.58	6.5	2.54	4-Dip	425-1503-5-ND	.80	.55	.40	PC851X
	350	50	40	80 Typ.	5	5	5000	4.58	6.5	2.54	4-SMD	425-1504-5-ND	.88	.61	.44	PC851XI
2	35	50	50	400	5	5	5000	9.66	6.5	2.54	8-Dip	425-1486-5-ND	1.32	1.10	.88	PC829
	35	50	50	400	5	5	5000	9.66	6.5	2.54	8-Dip	425-1487-5-ND*	1.35	1.08	.90	PC829Y
	35	50	50	600	5	5	5000	9.66	6.5	2.54	8-Dip	425-1481-5-ND	.84	.70	.56	PC827
	35	50	80	260	5	5	5000	9.66	6.5	2.54	8-Dip	425-1482-5-ND	.93	.78	.62	PC827AB
	35	50	80	600	5	5	5000	9.66	6.5	2.54	8-Dip	425-1483-5-ND	.87	.73	.58	PC827AD
	35	50	130	600	5	5	5000	9.66	6.5	2.54	8-Dip	425-1484-5-ND	.87	.73	.58	PC827BD
	35	50	200	600	5	5	5000	9.66	6.5	2.54	8-Dip	425-1485-5-ND	.90	.75	.60	PC827CD
	80	50	100	—	1	.5	5000	9.66	6.5	2.54	8-Dip	425-1514-5-ND	1.20	1.00	.80	PC8D66
3	80	50	1000	—	1	.5	5000	4.58	6.5	2.54	4-Dip	425-1509-5-ND	.76	.53	.38	PC866
	80	50	1000	—	1	.5	5000	4.58	6.5	2.54	4-Dip	425-1510-5-ND‡	.88	.61	.44	PC866Q
	35	50	50	600	5	5	5000	14.74	6.5	2.54	12-Dip	425-1490-5-ND	1.44	1.20	.96	PC837
	35	50	50	600	5	5	5000	14.74	6.5	2.54	12-Dip	425-1492-5-ND*	1.55	1.24	1.03	PC837Y
4	35	50	50	400	5	5	5000	19.82	6.5	2.54	16-Dip	425-1501-5-ND	2.20	1.76	1.46	PC849
	35	50	50	400	5	5	5000	19.82	6.5	2.54	16-Dip	425-1502-5-ND*	2.43	2.00	1.62	PC849Y
	70	50	50	600	5	5	5000	19.82	6.5	2.54	16-Dip	425-1499-5-ND	1.35	1.13	.90	PC847X
	70	50	200	600	5	5	5000	19.82	6.5	2.54	16-Dip	425-1500-5-ND	1.35	1.13	.90	PC847X7
	80	50	100	—	1	.5	5000	19.82	6.5	2.54	16-Dip	425-1518-5-ND	2.03	1.62	1.34	PC8Q66
	300	50	40	80 Typ.	5	5	5000	19.82	6.5	2.54	16-Dip	425-1516-5-ND	6.12	5.04	4.08	PC8Q51

† AC Input

Darlington Output

* Din/VDE 0884

‡ Burn-in type

(Continued)

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Fig.	Output		Current Transfer Ratio				Isolation Voltage (Vrms)	Dimensions - mm			Package Type	Digi-Key Part No.	Tube Price Each			Sharp Part No.
	V _{CEO} (V) Max.	I _C (mA) Max.	Min. (%)	Max. (%)	@ I _F (mA)	@ V _{CE} (V)		Length	Width	Pitch			1	10	100	
5	35	80	600	7500	1	2	5000	4.58	6.5	2.54	4-Dip	425-1450-5-ND#	.93	.78	.62	PC815
	35	80	600	7500	1	2	5000	4.58	6.5	2.54	4-SMD	425-1452-5-ND#	.96	.80	.64	PC815I
	35	80	600	7500	1	2	5000	4.58	6.5	2.54	4-SMD	425-1453-5-ND*#	1.28	1.02	.85	PC815IY
	35	80	600	7500	1	2	5000	4.58	6.5	2.54	4-SMD	425-1454-5-ND*#	1.29	1.08	.86	PC815Y
	35	80	600	12000	.5	2	5000	4.58	6.5	2.54	4-Dip	425-1451-5-ND#	.96	.66	.48	PC81510NSZ
6	35	80	600	7500	1	2	5000	9.66	6.5	2.54	8-Dip	425-1479-5-ND#	1.43	1.14	.95	PC825
	35	80	600	7500	1	2	5000	9.66	6.5	2.54	8-Dip	425-1480-5-ND*#	1.83	1.46	1.21	PC825Y
7	35	80	600	7500	1	2	5000	14.74	6.5	2.54	12-Dip	425-1488-5-ND#	2.20	1.76	1.46	PC835
	35	80	600	7500	1	2	5000	14.74	6.5	2.54	12-Dip	425-1489-5-ND*#	2.54	2.10	1.70	PC835Y
8	35	80	600	7500	1	2	5000	19.82	6.5	2.54	16-Dip	425-1496-5-ND#	2.79	2.30	1.86	PC845
	35	80	600	7500	1	2	5000	19.82	6.5	2.54	16-SMD	425-1497-5-ND#	2.32	1.91	1.55	PC845I
	35	80	600	7500	1	2	5000	19.82	6.5	2.54	16-Dip	425-1498-5-ND*#	3.08	2.54	2.06	PC845Y
9	35	50	20	300	1	5	5000	4.58	6.5	2.54	4-Dip	425-1446-5-ND†	.56	.39	.28	PC814X
	35	50	50	150	1	5	5000	4.58	6.5	2.54	4-Dip	425-1447-5-ND†	.60	.42	.30	PC814X1
	70	50	50	400	.5	5	5000	4.58	6.5	2.54	4-Dip	425-1444-5-ND†	.80	.55	.40	PC81410NSZ
	70	50	100	300	.5	5	5000	4.58	6.5	2.54	4-Dip	425-1445-5-ND†	.88	.61	.44	PC81411NSZ
10	35	50	20	300	1	5	5000	9.66	6.5	2.54	8-Dip	425-1477-5-ND†	1.32	1.10	.88	PC824
	35	50	50	150	1	5	5000	9.66	6.5	2.54	8-Dip	425-1478-5-ND†	1.08	.90	.72	PC824A
11	35	50	20	300	1	5	5000	19.82	6.5	2.54	16-SMD	425-1493-5-ND	1.40	1.12	.93	PC844I1J1
	35	50	20	300	1	5	5000	19.82	6.5	2.54	16-Dip	425-1494-5-ND	1.38	1.10	.91	PC844X
	35	50	150	300	1	5	5000	19.82	6.5	2.54	16-Dip	425-1495-5-ND	1.48	1.18	.98	PC844X1
12	70	80	1000	8000	1	2	5000	4.58	6.5	2.54	4-Dip	425-1508-5-ND#	.96	.80	.64	PC865
13	70	80	1000	8000	1	2	5000	9.66	6.5	2.54	8-Dip	425-1511-5-ND	1.65	1.32	1.09	PC875
14	70	80	1000	8000	1	2	5000	19.82	6.5	2.54	16-Dip	425-1512-5-ND	2.97	2.45	1.98	PC895
15	350	150	1000	15000	1	2	5000	4.58	6.5	2.54	4-Dip	425-1773-5-ND#	.88	.61	.44	PC852X
	350	150	1000	15000	1	2	5000	4.58	6.5	2.54	4-SMD	425-1505-5-ND#0	.96	.66	.48	PC852X1
	350	150	1000	15000	1	2	5000	4.58	6.5	2.54	4-Dip	425-1506-5-ND#	.92	.64	.46	PC853X
16	300	150	1000	15000	1	2	5000	4.58	6.5	2.54	4-SMD	425-1507-5-ND#0	1.00	.69	.50	PC853X1
17	300	150	1000	15000	1	2	5000	9.66	6.5	2.54	8-Dip	425-1513-5-ND	2.81	2.32	1.88	PC8052
	300	150	1000	15000	1	2	5000	19.82	6.5	2.54	16-Dip	425-1517-5-ND#	4.59	3.78	3.06	PC8052
18	35	50	50	600	5	5	5000	7.12	6.5	2.54	6-Dip	425-1418-5-ND	.76	.53	.38	PC714VONSZX
	35	50	50	600	5	5	5000	7.12	6.5	2.54	6-Dip	425-1419-5-ND*	.84	.58	.42	PC714VOYSZX
	35	80	20	80	100	2	5000	7.12	6.5	2.54	6-Dip	425-1426-5-ND*	.88	.61	.44	PC724VONSZX
19	35	80	600	7500	1	2	5000	7.12	6.5	2.54	6-Dip	425-1420-5-ND#	.88	.61	.44	PC715VONSZX
	35	80	600	7500	1	2	5000	7.12	6.5	2.54	6-Dip	425-1421-5-ND*#	.96	.66	.48	PC715VOYSZX
	35	200	1000	15000	1	2	5000	7.12	6.5	2.54	6-Dip	425-1422-5-ND#	.81	.68	.54	PC716VONSZX
	35	200	1000	15000	1	2	5000	7.12	6.5	2.54	6-Dip	425-1423-5-ND*#	.84	.70	.56	PC716VOYSZX
20	35	50	50	600	5	5	5000	7.12	6.5	2.54	6-Dip	425-1416-5-ND	.80	.55	.40	PC713VONSZX
	35	50	50	600	5	5	5000	7.12	6.5	2.54	6-Dip	425-1417-5-ND*	.84	.58	.42	PC713VOYSZX
	70	50	40	320	10	5	5000	7.12	6.5	2.54	6-Dip	425-1411-5-ND	.88	.61	.44	PC702VONSZX
	70	50	40	320	10	5	5000	7.12	6.5	2.54	6-Dip	425-1412-5-ND*	.96	.66	.48	PC702VOYSZX
	70	50	40	320	10	5	5000	7.12	6.5	2.54	6-SMD	425-1413-5-ND	.92	.64	.46	PC703VONI2X
	70	50	40	320	10	5	5000	7.12	6.5	2.54	6-Dip	425-1414-5-ND	.88	.61	.44	PC703VONSZX
	70	50	40	320	10	5	5000	7.12	6.5	2.54	6-Dip	425-1415-5-ND*	.92	.64	.46	PC703VOYSZX
	80	50	50	400	5	5	5000	7.12	6.5	2.54	6-Dip	425-1424-5-ND	.96	.66	.48	PC723VONSZX
	80	50	50	400	5	5	5000	7.12	6.5	2.54	6-Dip	425-1425-5-ND*	1.00	.69	.50	PC723VOYSZX
	300	150	1000	15000	1	2	5000	7.12	6.5	2.54	6-SMD	425-1427-5-ND#	1.20	1.00	.80	PC725VONI2X
22	35	50	15	300	1	5	5000	9.22	6.5	2.54	6-Dip	425-1431-5-ND†	1.35	1.08	.90	PC733
	35	80	20	80	100	2	5000	9.22	6.5	2.54	6-Dip	425-1432-5-ND†	1.53	1.22	1.01	PC733H
	35	80	20	80	100	2	5000	9.22	6.5	2.54	6-SMD	425-1433-5-ND†	1.53	1.22	1.01	PC733H1
23	300	150	1000	15000	1	2	5000	7.12	6.5	2.54	6-Dip	425-1428-5-ND#	1.17	.98	.78	PC725VONSZX
	300	150	1000	15000	1	2	5000	7.12	6.5	2.54	6-Dip	425-1429-5-ND*	1.20	1.00	.80	PC725VOYSZX
	300	150	1000	15000	1	2	5000	7.12	6.5	2.54	6-SMD	425-1430-5-ND*	1.23	1.03	.82	PC725VOYUZX
25	15VCC	25	19	40 Typ.	16	4.5	2500	9.22	6.5	2.54	8-Dip	425-1798-5-ND	1.75	1.40	1.16	PC6N136X
26	70	30	50	400	5	5	5000	4.58	6.5	2.54	4-Dip	425-1437-5-ND	.84	.58	.42	PC81100NSZ
	70	30	60	120	5	5	5000	4.58	6.5	2.54	4-Dip	425-1438-5-ND	.88	.61	.44	PC81101NSZ
	70	30	60	200	5	5	5000	4.58	6.5	2.54	4-Dip	425-1441-5-ND	.84	.58	.42	PC81105NSZ
	70	30	60	300	5	5	5000	4.58	6.5	2.54	4-Dip	425-1443-5-ND	.84	.58	.42	PC81108NSZ
	70	30	100	200	5	5	5000	4.58	6.5	2.54	4-Dip	425-1439-5-ND	.88	.61	.44	PC81102NSZ
	70	30	100	300	5	5	5000	4.58	6.5	2.54	4-Dip	425-1442-5-ND	.84	.58	.42	PC81106NSZ
27	70	30	150	300	5	5	5000	4.58	6.5	2.54	4-Dip	425-1440-5-ND	.88	.61	.44	PC81103NSZ
	7VCC	20	300	—	1.6	4.5	2500	9.22	6.5	2.54	8-Dip	425-1800-5-ND	1.98	1.58	1.31	PC6N138X
	18VCC	20	500	—	1.6	4.5	2500	9.22	6.5	2.54	8-Dip	425-1801-5-ND	1.88	1.50	1.24	PC6N139X
28	7VCC	20	—	—	—	—	2500	9.22	6.5	2.54	8-Dip	425-1799-5-ND	1.78	1.42	1.18	PC6N137X

† AC Input # Darlington Output * Din/VDE 0884 ‡ Burn-in type ◊ Power dissipation: PC852X1: 200 and PC853X1: 320

Fig.	Output		Current Transfer Ratio				Isolation Voltage (Vrms)	Dimensions - mm			Package Type	Digi-Key Part No.	Cut Tape Price Each			Digi-Key Part No.	Tape & Reel		Sharp Part No.
	V _{CEO} (V) Max.	I _C (mA) Max.	Min. (%)	Max. (%)	@ I _F (mA)	@ V _{CE} (V)		Length	Width	Pitch			1	10	100		Size	Pricing	
	Cut Tape / Tape & Reel																		
1	35	50	50	600	5	5	3750	3.6	4.4	2.54	4-SMD	425-1328-1-ND	.48	.40	.32	425-1328-2-ND	3,000	224.00/M	PC357N
	35	50	50	600	5	5	3750	3.6	4.4	2.54	4-SMD	425-1334-1-ND	.51	.43	.34	425-1334-2-ND	750	178.50	PC357NT
	35	50	80	160	5	5	3750	3.6	4.4	2.54	4-SMD	425-1330-1-ND	.51	.43	.34	425-1330-2-ND	3,000	238.00/M	PC357N1
	35	50	80	600	5	5	3750	3.6	4.4	2.54	4-SMD	425-1329-1-ND	.51	.43	.34	425-1329-2-ND	3,000	238.00/M	PC357N0
	35	50	130	260	5	5	3750	3.6	4.4	2.54	4-SMD	425-1331-1-ND	.51	.43	.34	425-1331-2-ND	3,000	238.00/M	PC357N2
	35	50	200	400	5	5	3750	3.6	4.4	2.54	4-SMD	425-1332-1-ND	.51	.43	.34	425-1332-2-ND	3,000	238.00/M	PC357N3
	35	50	300	600	5	5	3750	3.6	4.4	2.54	4-SMD	425-1333-1-ND	.51	.43	.34	425-1333-2-ND	3,000	238.00/M	PC357N4
	70	50	20	400	1	5	2500	2.6	4.4	1.27	4-SMD	425-1341-1-ND†	.51	.43	.34	425-1341-2-ND†	3,000	238.00/M	PC3H4
	70	50	20	400	1	5	2500	2.6	4.4	1.27	4-SMD	425-1347-1-ND	.45	.38	.30	425-1347-2-ND	3,000	210.00/M	PC3H7
	70	50	35	70	1	5	2500	2.6	4.4	1.27	4-SMD	425-1352-1-ND	.51	.43	.34	425-1352-2-ND	3,000	238.00/M	PC3H7A
	70	50	50	100	1	5	2500	2.6	4.4	1.27	4-SMD	425-1353-1-ND	.51	.43	.34	425-1353-2-ND	3,000	238.00/M	PC3H7B
	70	50	50	400	0.5	5	5000	4.58	6.5	2.54	4-SMD	425-1313-1-ND	.48	.40	.32	425-1313-2-ND	2,000	224.00/M	PC123P
	70	50	50	400	5	5	5000	4.58	6.5	2.54	4-SMD	425-1321-1-ND*	.48	.40	.32	425-1321-2-ND*	2,000	224.00/M	PC123ZY2
	70	50	80	160	1	5	2500	2.6	4.4	1.27	4-SMD	425-1354-1-ND	.51	.43	.34	425-1354-2-ND	3,000	238.00/M	PC3H7C
	70	50	100	250	0.5	5	5000	4.58	6.5	2.54	4-SMD	425-1315-1-ND*	.72	.60	.48	425-1315-2-ND*	2,000	336.00/M	PC123PY2
	70	50	100	250	0.5	5	5000	4.58	6.5	2.54	4-SMD	425-1314-1-ND	.51	.43	.34	425-1314-2-ND	2,000	238.00/M	PC123P2
70	50	100	500	0.5	5	3750	3.6	4.4	2.54	4-SMD	425-1338-1-ND	.51	.43	.34	425-1338-2-ND	3,000	238.00/M	PC367N	
70	50	100	600	0.5	5	5000	4.58	6.5	2.54	4-SMD	425-1383-1-ND	.57	.48	.38	425-1383-2-ND	2,000	266.00/M	PC81710NIP	
70	50	100	600	0.5	5	2500	10.3	4.4	1.27	16-SMD	425-1361-1-ND	2.04	1.79	1.43	425-1361-2-ND	1,000	1291.32	PC3Q710NIP	
70	50	100	700	0.5	5	2500	2.6	4.4	1.27	4-SMD	425-1348-1-ND	.54	.45	.36	425-1348-2-ND	3,000	252.00/M	PC3H710NIP	
70	50	120	240	1	5	2500	2.6	4.4	1.27	4-SMD	425-1355-1-ND	.51	.43	.34	425-1355-2-ND	3,000	238.00/M	PC3H7D	

Output			Current Transfer Ratio				Isolation Voltage (Vrms)	Dimensions - mm			Package Type	Digi-Key Part No.	Cut Tape Price Each			Digi-Key Part No.	Tape & Reel		Sharp Part No.
Fig.	V _{CEO} (V) Max.	I _C (mA) Max.	Min. (%)	Max. (%)	@ I _F (mA)	@ V _{CE} (V)		Length	Width	Pitch			1	10	100		Size	Pricing	
Cut Tape / Tape & Reel (cont.)																			
1	70	50	120	300	0.5	5	5000	4.58	6.5	2.54	4-SMD	425-1457-1-ND	.60	.50	.40	425-1457-2-ND	2,000	280.00/M	PC81711NIP
	70	50	140	350	0.5	5	2500	2.6	4.4	1.27	4-SMD	425-1349-1-ND	.60	.50	.40	425-1349-2-ND	3,000	280.00/M	PC3H711NIP
	70	50	140	500	0.5	5	2500	2.6	4.4	1.27	4-SMD	425-1351-1-ND	.60	.50	.40	425-1351-2-ND	3,000	280.00/M	PC3H715NIP
	70	50	150	300	0.5	5	3750	3.6	4.4	2.54	4-SMD	425-1339-1-ND	.57	.48	.38	425-1339-2-ND	3,000	266.00/M	PC367NI
	70	50	160	400	0.5	5	5000	4.58	6.5	2.54	4-SMD	425-1459-1-ND	.60	.50	.40	425-1459-2-ND	2,000	280.00/M	PC81712NIP
	70	50	200	400	0.5	5	3750	3.6	4.4	2.54	4-SMD	425-1340-1-ND	.54	.45	.36	425-1340-2-ND	3,000	252.00/M	PC367N2
	70	50	200	500	0.5	5	2500	2.6	4.4	1.27	4-SMD	425-1350-1-ND	.60	.50	.40	425-1350-2-ND	3,000	280.00/M	PC3H712NIP
	70	50	200	500	0.5	5	5000	4.58	6.5	2.54	4-SMD	425-1461-1-ND	.57	.48	.38	425-1461-2-ND	2,000	266.00/M	PC81713NIP
	350	50	40	80 Typ.	5	5	3750	3.6	4.4	2.54	4-SMD	425-1525-1-ND	.99	.83	.66	425-1525-2-ND	3,000	429.00/M	PC451
	350	50	40	240	5	5	2500	2.6	4.4	1.27	4-SMD	425-1378-1-ND	.69	.58	.46	425-1378-2-ND	3,000	322.00/M	PC4H510NIP
4	35	50	50	600	5	5	2500	10.3	4.4	1.27	16-SMD	425-1360-1-ND	2.10	1.84	1.47	425-1360-2-ND	1,000	1329.30	PC3Q67
5	35	80	600	7500	1.0	2	3750	3.6	4.4	2.54	4-SMD	425-1326-1-ND#	.72	.60	.48	425-1326-2-ND#	3,000	336.00/M	PC355N
	35	80	600	7500	1	2	2500	2.6	4.4	1.27	4-SMD	425-1345-1-ND#	.63	.53	.42	425-1345-2-ND#	3,000	294.00/M	PC3H5
	35	80	600	12000	0.5	2	3750	3.6	4.4	2.54	4-SMD	425-1337-1-ND#	.60	.50	.40	425-1337-2-ND#	3,000	280.00/M	PC365N
	35	80	600	12000	0.5	2	2500	2.6	4.4	1.27	4-SMD	425-1346-1-ND#	.69	.58	.46	425-1346-2-ND#	3,000	322.00/M	PC3H510NIP
8	35	80	600	7500	1	2	2500	10.3	4.4	1.27	16-SMD	425-1359-1-ND#	2.12	1.86	1.49	425-1359-2-ND#	1,000	1341.96	PC3Q65
	35	80	600	12000	0.5	2	2500	10.3	4.4	1.27	16-SMD	425-1357-1-ND#	2.26	1.98	1.59	425-1357-2-ND#	1,000	1430.58	PC3Q6510NIP
9	35	50	20	300	1	5	5000	4.58	6.5	2.54	4-SMD	425-1448-1-ND†	.63	.53	.42	425-1448-2-ND†	2,000	294.00/M	PC814XP
	35	50	20	400	1.0	5	3750	3.6	4.4	2.54	4-SMD	425-1324-1-ND†	.51	.43	.34	425-1324-2-ND†	3,000	238.00/M	PC354N
	35	50	50	150	1.0	5	3750	3.6	4.4	2.54	4-SMD	425-1325-1-ND†	.72	.60	.48	425-1325-2-ND†	3,000	336.00/M	PC354N1
	35	50	50	150	1	5	5000	4.58	6.5	2.54	4-SMD	425-1449-1-ND	.63	.53	.42	425-1449-2-ND	2,000	294.00/M	PC814XP1
	70	50	50	400	0.5	5	3750	3.6	4.4	2.54	4-SMD	425-1335-1-ND†	.69	.58	.46	425-1335-2-ND†	3,000	322.00/M	PC364N
	70	50	50	400	0.5	5	2500	2.6	4.4	1.27	4-SMD	425-1342-1-ND†	.69	.58	.46	425-1342-2-ND†	3,000	322.00/M	PC3H410NIP
	70	50	100	300	0.5	5	3750	3.6	4.4	2.54	4-SMD	425-1336-1-ND†	.72	.60	.48	425-1336-2-ND†	3,000	336.00/M	PC364N1
	70	50	100	300	0.5	5	2500	2.6	4.4	1.27	4-SMD	425-1343-1-ND†	.69	.58	.46	425-1343-2-ND†	3,000	322.00/M	PC3H411NIP
	35	50	20	400	1	5	2500	10.3	4.4	1.27	16-SMD	425-1358-1-ND†	2.54	2.23	1.78	425-1358-2-ND†	1,000	1607.82	PC3Q64
	70	50	50	150	1	5	2500	2.6	4.4	1.27	4-SMD	425-1344-1-ND†	.54	.45	.36	425-1344-2-ND†	3,000	252.00/M	PC3H4A
11	70	50	50	400	0.5	5	2500	10.3	4.4	1.27	16-SMD	425-1356-1-ND†	2.54	2.23	1.78	425-1356-2-ND†	1,000	1607.82	PC3Q410NIP
	300	150	1000	—	1	2	3750	3.6	4.4	2.54	4-SMD	425-1526-1-ND	1.17	.98	.78	425-1526-2-ND	3,000	507.00/M	PC452
15	350	120	1000	12000	1	2	2500	2.6	4.4	1.27	4-SMD	425-1379-1-ND	.78	.65	.52	425-1379-2-ND	3,000	338.00/M	PC4H520NIP
18	35	80	20	80	100	2	5000	7.12	6.5	2.54	6-SMD	425-1382-1-ND	.78	.65	.52	425-1382-2-ND	1,000	338.00	PC724VONIPX
21	80	50	50	600	5	5	3750	3.6	4.4	1.27	5-SMD	425-1323-1-ND	.93	.78	.62	425-1323-2-ND	750	302.25	PC353T
24	6	150	1500	—	5	2	3750	3.6	4.4	2.54	4-SMD	425-1524-1-ND	1.23	1.03	.82	425-1524-2-ND	750	399.75	PC450T11
† AC Input			# Darlington Output				* Din/VDE 0884												

† AC Input # Darlington Output * Din/VDE 0884

OPIC™ Photocoupler

Fig. 1: Voltage regulator and Amp. Pins: 1, 3, 4, 5, 6.

Fig. 2: Amp. Pins: 1, 3, 4, 5, 6.

Fig. 3: Amp. Pins: 1, 3, 4, 5, 6.

Fig. 4: Amp. Pins: 1, 2, 3, 4, 5, 6, 7, 8.

Fig. 5: Amp. Pins: 1, 2, 3, 4, 5, 6, 7, 8.

Fig. 6: Tr.1, Interface, Amp. Pins: 1, 2, 3, 4, 5, 6, 7, 8.

Fig. 7: Tr.1, Interface, Amp. Pins: 1, 2, 3, 4, 5, 6, 7, 8.

Fig. 8: Amp. Pins: 1, 2, 3, 4, 5, 6, 7, 8.

Fig. 9: Amp. Pins: 1, 2, 3, 4, 5, 6, 7, 8.

Fig. 10: Amp. Pins: 1, 2, 3, 4, 5, 6, 7, 8.

Fig. 11: Amp. Pins: 1, 2, 3, 4, 5, 6, 7, 8.

Fig.	Vcc Max. (V)	Prop Delay		Isolation Voltage (Vrms)	Dimensions- mm			Package Type	Digi-Key Part No.	Tube Price Each			Sharp Part No.
		H-L (us) Typ.	L-H (us) Typ.		Length	Width	Pitch			1	10	100	
Tube													
4	7	.048	.05	5000	9.66	6.5	2.54	8-Dip	425-1533-5-ND	1.53	1.22	1.01	PC910LONSZ
	7	.048	.05	5000	9.66	6.5	2.54	8-Dip	425-1534-5-ND*	1.58	1.26	1.04	PC910LOYSZ
5	5.5	.02	.023	5000	9.66	6.5	2.54	8-Dip	425-1535-5-ND	4.37	3.59	2.91	PC912LONSZ
6	13	2	2	5000	9.66	6.5	2.54	8-SMD	425-1537-5-ND	1.43	1.14	.95	PC922XI
	30	1	1	5000	9.66	6.5	2.54	8-Dip	425-1541-5-ND	1.50	1.20	.99	PC924X
	30	1	1	5000	9.66	6.5	2.54	8-SMD	425-1542-5-ND	1.68	1.34	1.11	PC924XI
	13	2	2	5000	9.66	6.5	2.54	8-Dip	425-1545-5-ND	1.20	1.00	.80	PC942
7	30	.3	.3	5000	9.66	6.5	2.54	8-Dip	425-1538-5-ND	2.08	1.66	1.37	PC923X
	30	.3	.3	5000	9.66	6.5	2.54	8-SMD	425-1540-5-ND	2.30	1.84	1.52	PC923XI
8	30	.2	.6	5000	9.66	6.5	2.54	8-Dip	425-1546-5-ND	1.33	1.06	.88	PC957LONSZ
	30	.2	.6	5000	9.66	6.5	2.54	8-Dip	425-1547-5-ND*	1.38	1.10	.91	PC957LOYSZ
9	7	.050	.050	2500	9.22	6.5	2.54	8-Dip	425-1548-5-ND	4.50	3.70	3.00	PC9D10
10	15	.3	.3	2500	9.22	6.5	2.54	8-Dip	425-1549-5-ND	3.24	2.67	2.16	PC9D17
11	15	1	2	5000	7.12	6.5	2.54	6-SMD	425-1529-5-ND	1.17	.98	.78	PC900VONIZX
	15	1	2	5000	7.12	6.5	2.54	6-Dip	425-1530-5-ND#	.87	.73	.58	PC900VONSZX
	15	1	2	5000	7.12	6.5	2.54	6-Dip	425-1531-5-ND*	1.17	.98	.78	PC900VOYSZX
	15	1	2	5000	7.12	6.5	2.54	6-Dip	425-1532-5-ND†	1.20	1.00	.80	PC901VONSZX
	30	1	1	4000	9.22	6.5	1.27	14-SMD	425-1543-5-ND	2.50	2.06	1.67	PC928
13	30	.3	.3	4000	9.22	6.5	1.27	14-SMD	425-1544-5-ND	2.93	2.41	1.95	PC929

Fig. 12: IGBT protector circuit. Pins: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14.

Fig. 13: IGBT protector circuit. Pins: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14.

Fig.	Vcc (V) Max.	Prop Delay		Isolation Voltage (Vrms)	Dimensions- mm			Package Type	Digi-Key Part No.	Cut Tape Price Each			Digi-Key Part No.	Tape & Reel		Sharp Part No.
		H-L	L-H		Length	Width	Pitch			1	10	100		Reel Size	Pricing	
		(us)	Typ.													
Cut Tape / Tape & Reel																
1	15	1	2	3750	3.6	4.4	1.27	6-SMD	425-1520-1-ND	1.70	1.36	1.02	425-1520-2-ND	3,000	867.00/M	PC400
		2	1						425-1521-1-ND	1.70	1.36	1.02	425-1521-2-ND	3,000	867.00/M	PC401
2	7	.048	.05	3750	3.6	4.4	1.27	6-SMD	425-1522-1-ND	1.50	1.20	.90	425-1522-2-ND	3,000	765.00/M	PC410LONIP
									425-1523-1-ND*	1.90	1.52	1.14	425-1523-2-ND*	3,000	969.00/M	PC410LOYIP
3	30	.2	.6	3750	3.6	4.4	1.27	6-SMD	425-1527-1-ND	1.38	1.10	.83	425-1527-2-ND*	3,000	701.25/M	PC457LONIP
									425-1528-1-ND*	1.75	1.40	1.05	425-1528-2-ND*	3,000	892.50/M	PC457LOYIP

* Din/VDE 0884 # Output, I_{ccH} (typ.): 1.0 † Output, I_{ccH} (typ.): 2.7More Product Available Online: www.digikey.com

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SHARP MICROELECTRONICS OF THE AMERICAS Photocoupler - Thyristor Output

Fig.	Voltage Typ.	Input		Voltage Vrms Max.	Output		Holding Current Max. (mA)	Isolation Voltage Max. (Vrms)	Dimensions - mm			Package Type	Digi-Key Part No.	Price Each			Sharp Part No.
		Current Min. (mA)	Max. (mA)		Current IT (RMS) Max. (mA)	1								10	100		
		Tube															
1	1.2	10	50	280	100	3.5	5000	7.12	6.5	2.54	6-Dip	425-1322-5-ND#	.81	.68	.54	PC2SD11NTZA	
		5	50	420	100	3.5	5000	7.12	6.5	2.54	6-Dip	425-1363-5-ND	.93	.78	.62	PC3SD11NTZC	
		5	50	420	100	3.5	5000	7.12	6.5	2.54	6-SMD	425-1364-5-ND	.99	.83	.66	PC3SD11NXZC	
		7	50	420	100	3.5	5000	7.12	6.5	2.54	6-Dip	425-1362-5-ND	.93	.78	.62	PC3SD11NTZB	
		7	50	420	100	3.5	5000	7.12	6.5	2.54	6-SMD	425-1365-5-ND	.96	.80	.64	PC3SD11NXZB	
		10	50	420	100	3.5	5000	7.12	6.5	2.54	6-Dip	425-1366-5-ND	.87	.73	.58	PC3SD12NTZA	
		10	50	420	100	3.5	5000	7.12	6.5	2.54	6-SMD	425-1367-5-ND	.90	.75	.60	PC3SD12NXZA	
		10	50	420	100	3.5	5000	7.12	6.5	2.54	6-Dip	425-1772-5-ND†	1.40	1.12	.93	S21MD3YY	
		15	50	420	100	3.5	5000	7.12	6.5	2.54	6-Dip	425-1270-5-ND†	1.58	1.26	1.04	S21MD3VY	
		3	50	420	100	3.5	5000	7.12	6.5	2.54	6-Dip	425-1370-5-ND*	1.08	.90	.72	PC3SD21NTZD	
2	1.2	3	50	420	100	3.5	5000	7.12	6.5	2.54	6-Dip	425-1373-5-ND*†	1.11	.93	.74	PC3SD21YTZD	
		3	50	420	100	3.5	5000	7.12	6.5	2.54	6-SMD	425-1375-5-ND*†	1.14	.95	.76	PC3SD21YXZD	
		5	50	420	100	3.5	5000	7.12	6.5	2.54	6-Dip	425-1369-5-ND*	.96	.80	.64	PC3SD21NTZC	
		5	50	420	100	3.5	5000	7.12	6.5	2.54	6-SMD	425-1371-5-ND*	.99	.83	.66	PC3SD21NXZC	
		5	50	420	100	3.5	5000	7.12	6.5	2.54	6-Dip	425-1372-5-ND*†	.99	.83	.66	PC3SD21YTZC	
		5	50	420	100	3.5	5000	7.12	6.5	2.54	6-SMD	425-1374-5-ND*†	1.02	.85	.68	PC3SD21YXZC	
		5	50	420	50	3.5	3750	4.4	3.6	2.54	4-SMD	425-1300-5-ND†	.96	.80	.64	S2S3LY	
		5	50	420	50	3.5	3750	4.4	3.6	2.54	4-SMD	425-1306-5-ND*†	1.05	.88	.70	S2S4LY	
		7	50	420	100	3.5	5000	7.12	6.5	2.54	6-Dip	425-1368-5-ND*	.93	.78	.62	PC3SD21NTZB	
		7	50	420	100	3.5	5000	9.22	6.5	2.54	6-Dip	425-1271-5-ND‡	1.58	1.26	1.04	S21ME3	
		7	50	420	100	3.5	5000	9.22	6.5	2.54	6-Dip	425-1274-5-ND††	1.68	1.34	1.11	S21ME3Y	
		7	50	420	100	3.5	5000	9.22	6.5	2.54	6-Dip	425-1275-5-ND*	2.03	1.62	1.34	S21ME4	
		7	50	420	100	3.5	5000	9.22	6.5	2.54	6-Dip	425-1276-5-ND*#	1.85	1.48	1.23	S21ME4F	
		7	50	420	100	3.5	5000	9.22	6.5	2.54	6-Dip	425-1277-5-ND*†	1.93	1.54	1.28	S21ME4Y	
		7	50	420	50	3.5	3750	4.4	3.6	2.54	4-SMD	425-1301-5-ND†	.93	.78	.62	S2S3RY	
		10	50	420	100	3.5	5000	6.5	4.58	2.54	4-Dip	425-1282-5-ND*	1.44	1.20	.96	S21ME6	
		10	50	420	100	3.5	5000	6.5	4.58	2.54	4-Dip	425-1283-5-ND*#	1.47	1.23	.98	S21ME6F	
		10	50	420	100	3.5	5000	6.5	4.58	2.54	4-Dip	425-1284-5-ND*#†	1.30	1.04	.86	S21ME6FY	
		10	50	420	100	3.5	5000	6.5	4.58	2.54	4-SMD	425-1285-5-ND*†	1.43	1.14	.95	S21ME6Y	
		10	50	420	100	3.5	5000	6.5	4.58	2.54	4-Dip	425-1286-5-ND*†	1.28	1.02	.85	S21ME6Y	
		10	50	420	100	3.5	5000	6.5	4.58	2.54	4-Dip	425-1292-5-ND*	1.11	.93	.74	S21MT2	
		10	50	420	50	3.5	3750	4.4	3.6	2.54	4-SMD	425-1297-5-ND	.84	.70	.56	S2S3	
		10	50	420	50	3.5	3750	4.4	3.6	2.54	4-SMD	425-1302-5-ND†	.78	.65	.52	S2S3Y	
		10	50	420	50	3.5	3750	4.4	3.6	2.54	4-SMD	425-1303-5-ND*	1.05	.88	.70	S2S4	
		3	50	560	100	3.5	5000	7.12	6.5	2.54	6-Dip	425-1405-5-ND*	1.41	1.18	.94	PC4SD21NTZD	
		3.0	15	560	100	3.5	5000	9.22	6.5	2.54	6-Dip	425-1287-5-ND*	2.33	1.86	1.54	S21ME8	
		3.0	15	560	100	3.5	5000	9.22	6.5	2.54	6-Dip	425-1288-5-ND*#†	2.38	1.90	1.57	S21ME8FY	
		3.0	15	560	100	3.5	5000	9.22	6.5	2.54	6-Dip	425-1289-5-ND*†	2.48	1.98	1.64	S21ME8Y	
5	50	560	100	3.5	5000	7.12	6.5	2.54	6-Dip	425-1403-5-ND	1.26	1.05	.84	PC4SD11NTZC			
5	50	560	100	3.5	5000	7.12	6.5	2.54	6-Dip	425-1404-5-ND*	1.32	1.10	.88	PC4SD21NTZC			
7	50	560	100	3.5	5000	7.12	6.5	2.54	6-Dip	425-1402-5-ND	1.17	.98	.78	PC4SD11NTZB			
3	1.2	10	50	420	50	3.5	3750	4.4	3.6	2.54	4-SMD	425-1376-5-ND	1.40	1.12	.93	PC3SG11YIZ	
10	50	420	50	3.5	3750	4.4	3.6	2.54	4-SMD	425-1377-5-ND*	1.53	1.22	1.01	PC3SG21YIZ			
4	1.2	10	50	280	100	3.5	5000	6.5	4.58	2.54	4-Dip	425-1230-5-ND	1.44	1.20	.96	S21ME5	
		10	50	420	100	3.5	5000	6.5	4.58	2.54	4-Dip	425-1278-5-ND	1.23	1.03	.82	S21ME5	
		10	50	420	100	3.5	5000	6.5	4.58	2.54	4-Dip	425-1279-5-ND#	1.44	1.20	.96	S21ME5F	
		10	50	420	100	3.5	5000	6.5	4.58	2.54	4-Dip	425-1280-5-ND†#	1.41	1.18	.94	S21ME5FY	
		10	50	420	100	3.5	5000	6.5	4.58	2.54	4-Dip	425-1281-5-ND†	1.35	1.13	.90	S21ME5Y	
		10	50	420	100	3.5	5000	6.5	4.58	2.54	4-Dip	425-1291-5-ND	.93	.78	.62	S21MT1	
5	1.2	15	50	280	200	1.0	5000	7.12	6.5	2.54	6-Dip	425-1774-5-ND	1.41	1.18	.94	S12MD1V	
		10	50	420	200	1.0	5000	7.12	6.5	2.54	6-Dip	425-1775-5-ND	1.40	1.12	.93	S22MD1V	
		10	50	420	200	1.0	5000	7.12	6.5	2.54	6-SMD	425-1293-5-ND	1.45	1.16	.96	S22MD1V1	
6	1.2	10	50	280	200	1.0	4000	9.22	6.5	2.54	6-Dip	425-1239-5-ND†#	1.70	1.36	1.13	S12ME1FY	
		15	50	280	200	1.0	5000	9.22	6.5	2.54	6-Dip	425-1238-5-ND	2.41	1.98	1.61	S12MD3	
		10	50	420	200	1.0	2500	9.22	6.5	2.54	8-Dip	425-1296-5-ND	2.43	2.00	1.62	S22MD3	
7	1.2	8	50	420	200	1.0	5000	9.22	6.5	2.54	8-Dip	425-1295-5-ND	4.57	3.76	3.05	S22MD2	
Cut Tape																	
1	1.2	10	50	280	100	3.5	5000	7.12	6.5	2.54	6-SMD	425-1229-1-ND	1.44	—	.96	S11MD5P	
		7	50	420	100	3.5	5000	9.22	6.5	2.54	6-SMD	425-1272-1-ND#	1.85	1.48	1.11	S21ME3FP	
2	1.2	7	50	420	100	3.5	5000	9.22	6.5	2.54	6-SMD	425-1273-1-ND	1.85	1.48	1.11	S21ME3P	
		5	50	420	50	3.5	3750	4.4	3.6	2.54	4-SMD	425-1299-1-ND	.87	—	.58	S2S3LB	
		10	50	420	50	3.5	3750	4.4	3.6	2.54	4-SMD	425-1305-1-ND*†	1.05	—	.70	S2S4BY	
4	1.2	10	50	420	50	3.5	3750	4.4	3.6	2.54	4-SMD	425-1307-1-ND	.66	.55	.44	S2S5A	
		10	50	420	100	3.5	5000	6.5	4.58	2.54	4-SMD	425-1381-1-ND†	1.44	1.20	.96	S21ME5PY	

Fig.	Input				Output			Isolation Voltage Max. (Vrms)	Dimensions - mm			Package Type	Digi-Key Part No.	Tape & Reel		Sharp Part No.
	Voltage Typ.	Current		Voltage Vrms Max.	Current IT (RMS) Max. (mA)	Holding Current Max. (mA)										
		Min. (mA)	Max. (mA)													
Tape & Reel																
1	1.2	10	50	280	100	3.5	5000	7.12	6.5	2.54	6-SMD	425-1229-2-ND	1,000	624.00	S11MD5P	
2	1.2	7	50	420	100	3.5	5000	9.22	6.5	2.54	6-SMD	425-1272-2-ND#	1,000	943.50	S21ME3FP	
		7	50	420	100	3.5	5000	9.22	6.5	2.54	6-SMD	425-1273-2-ND	1,000	943.50	S21ME3P	
		10	50	420	50	3.5	3750	4.4	3.6	2.54	4-SMD	425-1297-2-ND	750	273.00	S2S3B	
		5	50	420	50	3.5	3750	4.4	3.6	2.54	4-SMD	425-1299-2-ND	3,000	377.00/M	S2S3LB	
		10	50	420	50	3.5	3750	4.4	3.6	2.54	4-SMD	425-1303-2-ND*	750	341.25	S2S4B	
		10	50	420	50	3.5	3750	4.4	3.6	2.54	4-SMD	425-1305-2-ND†	3,000	455.00/M	S2S4BY	
4	1.2	10	50	420	100	3.5	5000	6.5	4.58	2.54	4-SMD	425-1381-2-ND†	2,000	624.00/M	S21ME5PY	
		10	50	420	200	1.0	5000	7.12	6.5	2.54	6-SMD	425-1293-2-ND	1,000	701.25	S22MD1P	

Photointerrupter

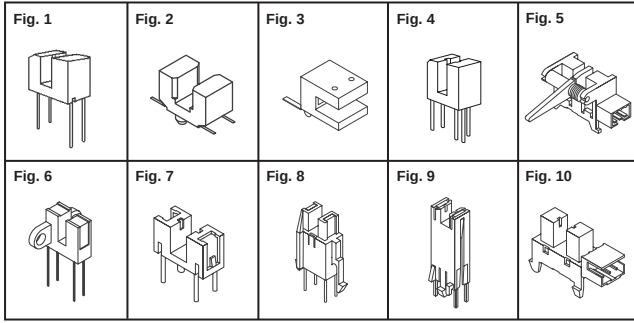


Fig.	Detector		Rise/Fall (μs) Typ.	Sensing Distance (mm)	Terminal Type	Digi-Key Part No.	Tube Price Each			Sharp Part No.
	V _{ceo} (V) Max.	I _c (mA) Max.					1	10	100	
1	35	20	3/4	3.0	PCB	425-1050-5-ND	.90	.75	.60	GP1S52V
			3/4	4.2	PCB	425-1058-5-ND	1.14	.95	.76	GP1S59
			3/4	5.0	PCB	425-1051-5-ND	.87	.73	.58	GP1S53V
			35/35	1.6	PCB	425-1062-5-ND	1.23	1.03	.82	GP1S95
			38/48	2.0	PCB	425-1052-5-ND	1.47	1.23	.98	GP1S560
	35	20	38/48	2.0	PCB	425-1056-5-ND	.99	.83	.66	GP1S56T
			50/50	1.0	PCB	425-1041-5-ND	.56	.39	.28	GP1S096HCZ
			50/50	1.2	PCB	425-1044-5-ND	1.02	.85	.68	GP1S34
			50/50	2.0	PCB	425-1039-5-ND*	.56	.39	.28	GP1S093HCZ
			50/50	2.0	PCB	425-1042-5-ND	.56	.39	.28	GP1S097HCZ
2	35	20	50/50	3.0	PCB	425-1040-5-ND	.56	.39	.28	GP1S094HCZ
			80/70	5.0	PCB	425-1035-5-ND	1.02	.85	.68	GP1L53V
3	35	20	130/100	10	PCB	425-1036-5-ND	1.75	1.40	1.16	GP1L57
			50/50	2.0	SMD	425-1038-1-ND†	.54	.45	.36	GP1S092HCPI
4	35	20	50/50	2.0	SMD	425-1038-2-ND#	504.00/2,000			
			50/50	2.0	SMD	425-1043-5-ND	1.29	1.08	.86	GP1S25
5	35	20	80/70	3.0	PCB	425-1034-5-ND	1.14	.95	.76	GP1L52V
			50/50	1.5	PCB	425-1046-5-ND	1.33	1.06	.88	GP1S39
6	35	20	—	—	Conn.	425-1047-ND†\$	2.48	1.98	1.64	GP1S44S1
			3/4	3.0	Conn.	425-1048-5-ND	1.05	.88	.70	GP1S51V
7	35	20	3/4	3.0	PCB	425-1053-5-ND	.99	.83	.66	GP1S561
			5.0	5.0	PCB	425-1057-5-ND	.90	.75	.60	GP1S58V
8	35	20	3/4	3.0	PCB	425-1054-5-ND	1.20	1.00	.80	GP1S562
			3/4	3.0	PCB	425-1055-5-ND	.81	.68	.54	GP1S563
10	35	20	3/4	5.0	Conn.	425-1059-5-ND	1.29	1.08	.86	GP1S73P

* Low profile † Tray (not a tube) ‡ Cut Tape # Tape & Reel \$ With actuator

Reflective Photointerrupter

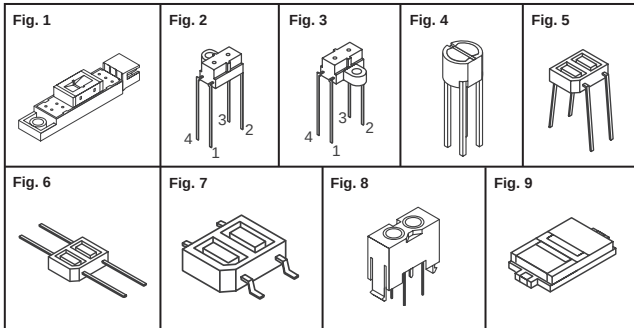


Fig.	Detector		Rise/Fall (μs) Typ.	Sensing Distance (mm)	Terminal Type	Digi-Key Part No.	Tube Price Each			Sharp Part No.
	V _{ceo} (V) Max.	I _c (mA) Max.					1	10	100	
1	7 VCC	30	1000	5-15	PCB	425-1086-5-ND	4.66	3.83	3.11	GP2A200LCS
2	35	20	80/70	3-7	PCB	425-1087-5-ND	4.46	3.67	2.97	GP2A25
3	35	20	80/70	13	PCB	425-1088-5-ND*	1.85	1.48	1.23	GP2L20L
4	35	20	80/70	13	PCB	425-1089-5-ND*	1.90	1.52	1.26	GP2L20R
5	35	20	80/70	.6	PCB	425-1090-5-ND*	1.35	1.08	.90	GP2L22
6	35	20	20/20	.6 to .8	PCB	425-1093-5-ND	.84	.70	.56	GP2S24
			50/50	1.5 to 6.5	PCB	425-1096-5-ND	1.60	1.28	1.06	GP2S40
7	35	20	80/70	.6 to .8	PCB	425-1091-5-ND*	.96	.80	.64	GP2L24
			50	.6 to .8	SMD	425-1092-5-ND*	1.11	.93	.74	GP2L26
8	35	20	20/20	.6 to .8	SMD	425-1094-1-ND ‡	1.11	.93	.74	GP2S27T
			20/30	6	SMD	425-1094-2-ND#	481.00/1,000			
9	35	20	20/20	1	PCB	425-1095-5-ND	1.28	1.02	.85	GP2S28
			20/20	1	SMD	425-1097-1-ND ‡	.51	.43	.34	GP2S60
10	35	20	20/20	1	SMD	425-1097-2-ND#	476.00/2,000			

* Darlington ‡ Cut Tape # Tape & Reel

OPIC™ Photointerrupter

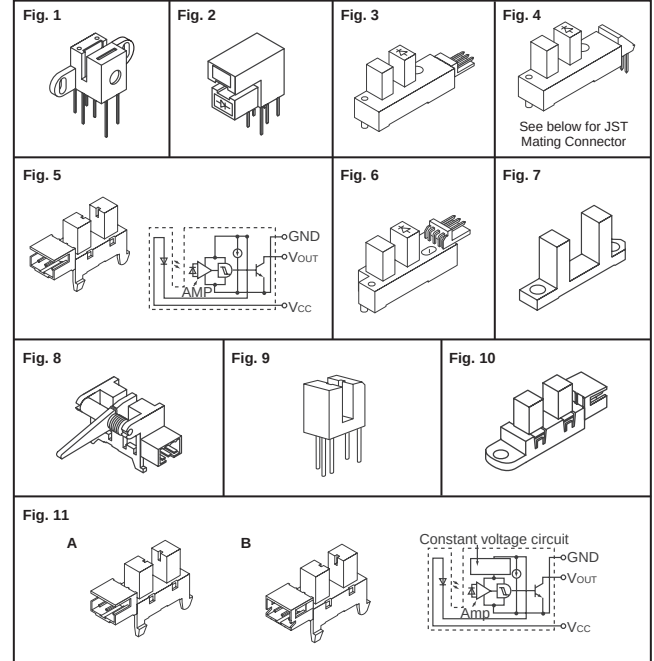


Fig.	Detector		Sensing Distance (mm)	Terminal Type	Digi-Key Part No.	Tube Price Each			Sharp Part No.
	V _{CC} (V) Typ.	I _{CC} (mA) Max.				1	10	100	
1	5	20	3.5	PCB	425-1063-5-ND	7.16	5.89	4.77	GP1A30R
			3.4	PCB	425-1064-ND†	6.37	5.24	4.25	GP1A35RV
			3.0	PCB	425-1074-5-ND	1.41	1.18	.94	GP1A51HR
2	5	20	2.0	PCB	425-1065-5-ND‡	3.83	3.15	2.55	GP1A70R
			2.0	PCB	425-1066-5-ND‡	4.59	3.78	3.06	GP1A71R
3	5	30	5.0	Connector	425-1067-5-ND	2.25	1.80	1.49	GP1A05
4	5	30	5.0	Connector	425-1071-5-ND	3.71	3.06	2.48	GP1A23LC
5	5	16.5	5.0	Connector	425-1771-5-ND\$	1.17	.98	.78	GP1A073LCS
6	24	30	5.0	Connector	425-1069-5-ND	3.26	2.69	2.18	GP1A57HR
7	5	50	3.0	PCB	425-1073-5-ND	1.28	1.02	.85	GP1A10
7	5	50	10.0	PCB	425-1070-5-ND	2.88	2.37	1.92	GP1A17
8	5	20	—	Connector	425-1072-5-ND*	2.48	2.04	1.65	GP1A44E1
9	5	—	10.0	PCB	425-1078-5-ND	1.95	1.56	1.29	GP1A57HR
			2.0	PCB	425-1084-5-ND‡	1.02	.85	.68	GP1A91LC
			2.0	PCB	425-1085-5-ND	1.02	.85	.68	GP1A91LR
			20	PCB	425-1079-5-ND	1.55	1.24	1.03	GP1A58HR
			50	PCB	425-1075-5-ND	1.50	1.25	1.00	GP1A52HR
			50	PCB	425-1076-5-ND#	1.50	1.25	1.00	GP1A52LR
11A	5	16.5	5.0	Connector	425-1081-5-ND	1.35	1.08	.90	GP1A73A
11B	5	16.5	5.0	Connector	425-1082-5-ND	1.41	1.18	.94	GP1A74A1
10	5	20	5.0	Connector	425-1083-5-ND	1.41	1.18	.94	GP1A75E

† Tray (not tube) ‡ GP1A70R: 1.14mm disk slit pitch and GP1A71R: 0.7mm disk slit pitch \$ Inverted
* With actuator † Internal 15K resistor # Inverted type of the HR

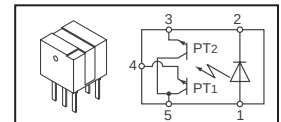
NEW! JST Mating Connector, Contact and Crimp Tool

Description	Digi-Key Part No.	Pricing			T & R Pricing	JST Part No.
3-Pos., 2.5mm, Disconnectable Crimp Style NH Connector	455-1120-ND	.63	5.24	20.97	—	H3P-SHF-AA
22-28 AWG, Tin-Plated Phosphor Bronze Crimp Contact	455-1121-1-ND*	—	5.48	24.19	130.00/5,000	SHF-001T-0.8BS
Crimp Tool w/Die for 22-28 AWG Contacts	455-1122-ND	367.01	Each	—	—	WC-122

* For Tape and Reel part number change "-1-ND" to "-2-ND"

SHARP MICROELECTRONICS OF THE AMERICAS Tilt Sensor

Features: • Subminiature • 2-phase output type • Able to detect the tilt direction of both side (±90°) by the position of rolling ball • High reliability due to non-contact structure
Applications: • Digital cameras • Camcorders



Detector		Rise/Fall (μs) Typ.	Terminal Type	Digi-Key Part No.	Tube Price Each			Sharp Part No.
V _{ceo} (V) Max.	I _c (mA) Max.				1	10	100	
35	20	50/50	PCB	425-1037-5-ND*	2.45	1.96	1.62	GP1S036HEZ
				425-1045-5-ND	1.95	1.56	1.29	GP1S36

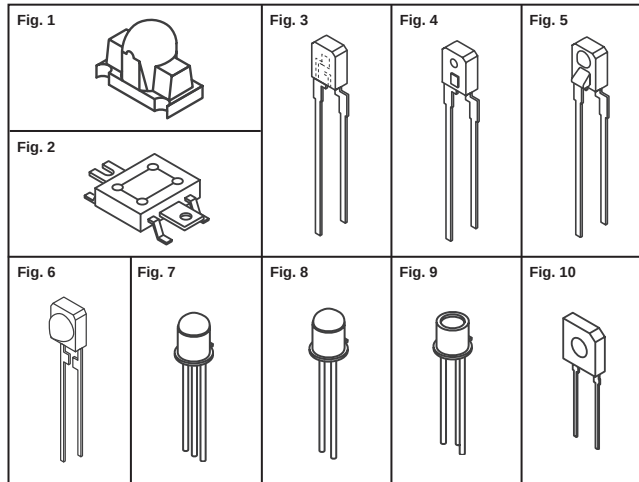
* 4-way tilt

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SHARP MICROELECTRONICS OF THE AMERICAS IR Emitters, Photo Transistors and Diodes



IR Emitters

Fig.	Forward Volt. (V) Typ.	Forward Current (mA) Max.	Optical Power Output (mW) Max.	Beam Angle (2x Theta)	Peak Wave-length (nm) Typ.	Digi-Key Part No.	Tube Price Each 1 10 100	Sharp Part No.
1	1.2	50	3.0	20	940	425-1022-1-ND†	.36 .30 .24	GL100MNOMP
	1.2	50	6.0	20	940	425-1022-2-ND#	336.00/2,000	
3	1.2	50	2.0	180	950	425-1023-1-ND†	.54 .45 .36	GL100MN1MP
	1.2	50	3.0	60	950	425-1023-2-ND#	504.00/2,000	
4	1.2	50	3.0	60	950	425-1024-5-ND†	.56 .39 .28	GL4100
5	1.2	50	3.0	26	950	425-1026-5-ND*	.48 .33 .24	GL4800
	1.2	50	3.0	26	950	425-1025-5-ND*	.48 .33 .24	GL480

† Cut Tape # Tape & Reel † Pale red transparent resin * Pink transparent resin

Photo Transistors

Fig.	Vceo Max. (V)	Ic Max. (mA)	Peak Sensitivity Wavelength (nm) Typ.	Rise/Fall Typ. (µs)	Beam Angle (2x Theta)	Digi-Key Part No.	Tube Price Each 1 10 100	Sharp Part No.
1	35	20	900	5.0/6.0	30	425-1005-1-ND†	.36 .30 .24	PT100MCOMP
	35	20	910	5.0/6.0	30	425-1005-2-ND#	336.00/2,000	
4	35	20	910	5.0/6.0	30	425-1006-1-ND†	.36 .30 .24	PT100MFOMP
	35	20	910	5.0/6.0	30	425-1006-2-ND#	336.00/2,000	
5	35	20	910	5.0/6.0	30	425-1007-1-ND†	.36 .30 .24	PT100MFOMP1
	35	20	910	5.0/6.0	30	425-1007-2-ND#	252.00/1,500	
7	35	20	800	3.0/3.5	70	425-1009-5-ND	.48 .33 .24	PT4800
	35	20	860	3.0/3.5	70	425-1010-5-ND	.56 .39 .28	PT4800F
8	35	20	800	80/70	70	425-1014-5-ND*	.60 .42 .30	PT4810
	35	20	860	80/70	70	425-1015-5-ND*	.60 .42 .30	PT4810F
9	35	20	800	3.0/3.5	26	425-1008-5-ND	.48 .33 .24	PT480
	35	20	860	3.0/3.5	26	425-1012-5-ND	.52 .36 .26	PT480F
10	35	20	800	80/70	26	425-1013-5-ND	.52 .36 .26	PT481
	35	20	860	80/70	26	425-1016-5-ND	.60 .42 .30	PT481F
11	35	20	800	2/3	12	425-1019-5-ND	2.43 2.00 1.62	PT510
	35	20	800	350/300	12	425-1020-5-ND	8.57 7.05 5.72	PT550
12	35	20	800	10/10	12	425-1017-5-ND	2.38 1.90 1.57	PT501
	35	20	800	10/10	12	425-1018-5-ND	2.13 1.70 1.41	PT501A
13	35	20	800	350/300	100	425-1021-5-ND	7.43 6.11 4.95	PT550F

† Cut Tape # Tape & Reel \$ Transparent blue resin ◇ Visible Light cut-off resin (black) * Darlington

Photo Diodes

Fig.	Vr Max. (V)	Short Circuit Current Is (µA) Typ.	Dark Current Id (nA) Max.	Peak Sensitivity Wavelength (nm) Typ.	Rise/Fall Typ. (ns)	Beam Angle (2x Theta)	Digi-Key Part No.	Tube Price Each 1 10 100	Sharp Part No.
1	20	.9	10	820	10	40	425-1027-1-ND†	.36 .30 .24	PD100MCOMP
	20	.9	10	820	10	40	425-1027-2-ND#	336.00/2,000	
2	20	.6	10	850	10	40	425-1028-1-ND†	.36 .30 .24	PD100MFOMP
	20	.6	10	850	10	40	425-1028-2-ND#	336.00/2,000	
3	30	9.2	2.0	940	5	—	425-1030-5-ND	1.11 .93 .74	PD3122F
4	30	.45	1.0	820	—	—	425-1029-5-ND	1.14 .95 .76	PD101SCOSS
5	20	1.7	10	950	100	40	425-1032-5-ND	.96 .80 .64	PD480PI
6	32	5.4	10	960	200	90	425-1031-5-ND	.92 .64 .46	PD413PI
7	10	32	5	30	—	115	425-1033-5-ND	1.05 .88 .70	PD481PI

† Cut Tape # Tape & Reel ◇ Visible Light cut-off resin (black)

Blue Sensitive Photodiodes

Features:

- Spectral sensitivity characteristics akin to that of human eye
- Compact flat package
- Low dark current
- Infrared light cut-off type

Applications:

- AE (automatic exposure) system and ES (electronic shutter) system for cameras
- Stroboscopes
- Precise optical instruments

Short Cir. Current Is Typ. (µA)	Dark Current Id Typ. (A)	Peak Sensitivity Wavelength Typ. (nm)	Reverse Voltage Vr (V) Max.	Active Area (mm sq.)	Digi-Key Part No.	Tube Price Each 1 10 100	Sharp Part No.
0.16	3x10 ⁻¹²	560	10	1.55	425-1001-5-ND	1.95 1.56 1.29	BS120
0.55	3x10 ⁻¹²	560	10	5.34	425-1004-5-ND	2.27 1.87 1.52	BS520

OPIC™ Light Detector

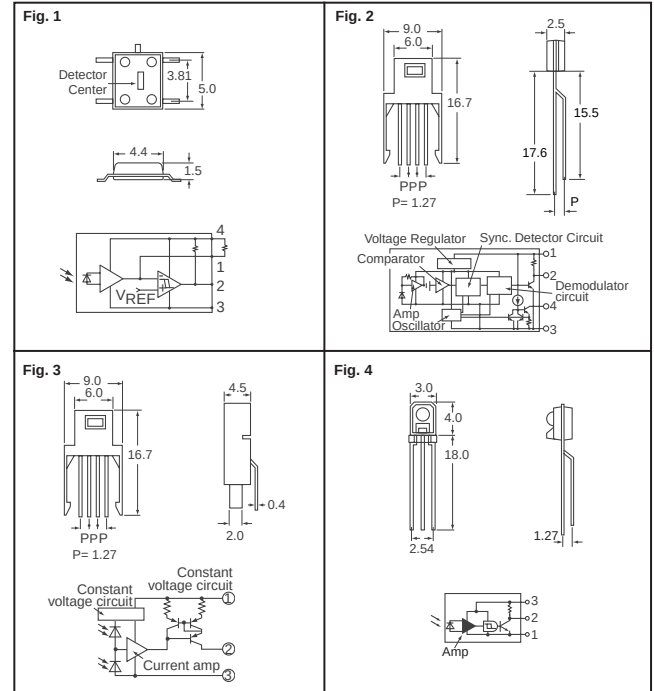


Fig.	Vcc (V)	Output Current Max. (mA)	Rise/Fall Typ. (µs)	Beam Angle (2x Theta)	Peak Wave-length (nm) Typ.	Digi-Key Part No.	Tube Price Each 1 10 100	Sharp Part No.
1	5	—	.06/02	—	660	425-1177-5-ND	2.54 2.10 1.70	IS456
2	4.5 to 16	50	400/400	110	940	425-1178-5-ND*	2.72 2.24 1.82	IS471F
3	5	-10	12/30	70	550	425-1179-5-ND	2.63 2.17 1.76	IS474
						425-1180-5-ND†	2.95 2.43 1.97	IS474SI
4	1.4 to 7.0	2	0.1/06	30	900	425-1181-5-ND	.92 .64 .46	IS489

† Straight lead version * Visible light cut-off resin (black)

Compact Dust Sensor

- Features:** • Compact, thin type (58 x 38 x 20.7mm) • Low dissipation current (Icc: MAX. 20mA) • Single-shot detection of house dust
- Applications:** • Air conditioners • Air cleaner

Vcc (V)	Digi-Key Part No.	Price Each 1 25 50	Sharp Part No.
12	425-1169-ND	17.20 13.76 12.04	GP2Y1001AU

NEW! JST Mating Connector, Contact and Crimp Tool

Description	Digi-Key Part No.	Pricing 10 100 500	Tape & Reel Pricing	JST Part No.
6-Pos., 1.5mm, Disconnectable Crimp Style ZH Connector	455-1129-ND	.76 6.33 25.31	—	ZHR-6
26-28 AWG, Tin-Plated Phosphor Bronze Crimp Contact	455-1130-1-ND*	— 2.19 9.66	130.00/13,000	SZH-002T-P0.5
Crimp Tool with Die for 26-28 AWG Contacts	455-1131-ND	367.01 Each	—	WC-491

* For Tape and Reel part number change "-1-ND" to "-2-ND"

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Distance Measuring Sensor

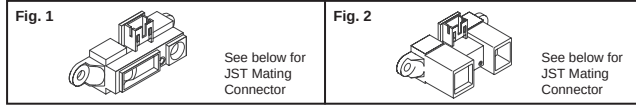


Fig.	Vcc (V)	Distance Measuring Range (cm) Typ.	Diff. of Output Voltage (V) Typ.	Output Current ICC (mA) Typ.	Output Type	Digi-Key Part No.	1	Tray Price Each 25	50	Sharp Part No.
1	5	4 to 30	2.25	33	Analog	425-1162-ND	10.58	8.46	7.41	GP2D120
		10 to 80	2.0	33		425-1161-ND	10.58	8.46	7.41	GP2D12
		10 to 80	1.9	30		425-1166-ND	10.95	8.76	7.67	GP2Y0A21YK
		15	—	33	Digital	425-1164-5-ND†	13.23	10.58	9.26	GP2D150A
2	5	24	—	33		425-1163-ND	10.58	8.46	7.41	GP2D15
		24	—	30		425-1168-ND	10.95	8.76	7.67	GP2Y0D21YK
		20 to 150	2.05	33	Analog	425-1165-ND	15.63	12.50	10.94	GP2Y0A02YK
		80	—	33		425-1167-ND	15.63	12.50	10.94	GP2Y0D02YK

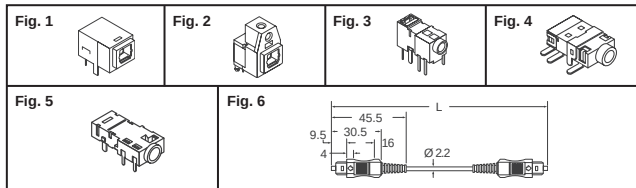
† Tube (not a tray)

NEW! JST Mating Connector, Contact and Crimp Tool

Description	Digi-Key Part No.	10	Pricing 100	500	T & R	JST Part No.
3-Pos., 2.0mm, Disconnectable Crimp Style PH Connector	455-1126-ND	.42	3.53	14.11	—	PHR-3
24-30 AWG, Tin-Plated Phosphor Bronze Crimp Contact	455-1127-1-ND*	—	3.43	15.11	128.00/8,000	SPH-002T-P0.5S
Crimp Tool w/Die for 24-30 AWG Contacts	455-1128-ND	—	367.01	Each	—	WC-240

* For Tape and Reel part number change "-1-ND" to "-2-ND"

Fiber Optics



Transmitters

Fig.	Vcc Typ. (V)	V _{IH} Min. (V)	V _{IL} Max. (V)	Peak Wave-length (nm) Typ.	Operating Transfer Rate (Mbps) Max.	Digi-Key Part No.	1	Tray Price Each 10	100	Sharp Part No.
1	5	2	0.8	660	8	425-1098-5-ND	4.32	3.56	2.88	GP1F31T
						425-1103-5-ND*	2.13	1.70	1.41	GP1FH500TZ
2	2.7 to 3.6	2	0.8	660	8	425-1099-5-ND	1.90	1.52	1.26	GP1FA350TZ
						425-1100-5-ND#	1.58	1.26	1.04	GP1FA511TZ
						425-1101-5-ND	1.75	1.40	1.16	GP1FA551TZ
						425-1102-ND†	2.52	2.08	1.68	GP1FE500TK

* Low profile † Tray (not a tube) # With shutter

Receivers

Fig.	Vcc Typ. (V)	VoH Min. (V)	VoL Max. (V)	Peak Wave-length (nm) Typ.	Operating Transfer Rate (Mbps) Max.	Digi-Key Part No.	1	Tray Price Each 10	100	Sharp Part No.
1	5	2.7	0.4	700	8	425-1104-5-ND	4.28	3.52	2.85	GP1F31R
						425-1111-5-ND*	2.72	2.24	1.82	GP1FH500RZ
2	2.7 to 3.6	2.7	0.4	700	8	425-1107-5-ND	2.48	1.98	1.64	GP1FA350RZ
						425-1105-5-ND	2.68	2.21	1.79	GP1F37R
						425-1108-5-ND#	2.15	1.72	1.42	GP1FA511RZ
						425-1109-5-ND	2.38	1.90	1.57	GP1FA551RZ
3	5	2.7	0.4	700	8	425-1110-ND†	3.24	2.67	2.16	GP1FE500RK
						425-1106-5-ND	5.72	4.70	3.81	GP1F595R

* Low profile † Tray (not a tube) # With shutter

Mini-Jack for Digital Audio (electrical and optical transmission)

Fig.	Vcc (V)	Peak Wavelength (nm) Typ.	Operating Transfer Rate (Mbps) Max.	Digi-Key Part No.	1	Tube Price Each 10100	Sharp Part No.
Transmitter							
5	2.3 to 2.8 2.7 to 3.6	660	8	425-1112-5-ND	2.72	2.24	1.82
				425-1113-5-ND	2.72	2.24	1.82
Receiver							
5	2.3 to 2.8 2.7 to 3.6	700	8	425-1114-5-ND	3.29	2.71	2.19
				425-1115-ND†	4.46	3.67	2.97

† Tray (not a tube)

NEW! Cable

Fig.	L (meters)	Digi-Key Part No.	1	Price Each 10	100	Sharp Part No.
6	0.6	425-1802-ND	5.41	4.45	3.38	GP1C331A
	2.0	425-1803-ND	7.87	6.48	4.92	GP1C332
	5.0	425-1804-ND	12.68	10.43	7.92	GP1C335

Remote Control Receivers

Supply Voltage 2.7 to 5.5V

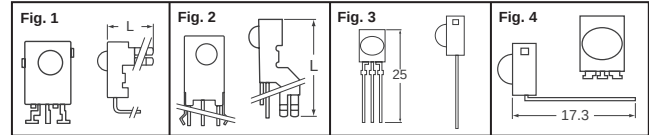


Fig.	Detecting Window	B.P.F. to (kHz) Typ.	Current Dissipation Icc (mA) Max.	Length (mm)	Digi-Key Part No.	1	Price Each 10	100	Sharp Part No.
1	Top	36.7	2	8.8	425-1117-ND	1.33	1.06	.88	GP1UD262YK
		36.7	1.5	8.8	425-1134-ND	1.33	1.06	.88	GP1UM262YK
		36.7	1.5	13.8	425-1141-ND#	1.33	1.06	.88	GP1UM272RK
		36.7	1.5	13.8	425-1142-ND	1.33	1.06	.88	GP1UM272YK
		36.7	2	14	425-1121-ND	1.33	1.06	.88	GP1UD272YK
		36.7	1.5	17.8	425-1150-ND#	1.33	1.06	.88	GP1UM282RK
		36.7	1.5	17.8	425-1151-ND	1.33	1.06	.88	GP1UM282YK
		36.7	2	18	425-1126-ND	1.33	1.06	.88	GP1UD282YK
		38	2	8.8	425-1116-ND	1.33	1.06	.88	GP1UD261YK
		38	1.5	8.8	425-1132-ND#	1.33	1.06	.88	GP1UM261YK
		38	1.5	8.8	425-1133-ND	1.33	1.06	.88	GP1UM261YK
		38	1.5	13.8	425-1139-ND#	1.33	1.06	.88	GP1UM271RK
		38	1.5	13.8	425-1140-ND	1.33	1.06	.88	GP1UM271YK
		38	2	14	425-1120-ND	1.33	1.06	.88	GP1UD271YK
		38	2	18	425-1124-ND	1.33	1.06	.88	GP1UD281YK
		40	2	8.8	425-1119-ND	1.33	1.06	.88	GP1UD26XK
		40	1.5	8.8	425-1137-ND#	1.33	1.06	.88	GP1UM26RK
		40	1.5	8.8	425-1138-ND	1.33	1.06	.88	GP1UM26XK
		40	1.5	13.8	425-1145-ND#	1.33	1.06	.88	GP1UM27RK
		40	1.5	13.8	425-1146-ND	1.33	1.06	.88	GP1UM27XK
		40	2	14	425-1123-ND	1.33	1.06	.88	GP1UD27XK
		40	1.5	17.8	425-1158-ND#	1.33	1.06	.88	GP1UM28RK
		40	1.5	17.8	425-1159-ND	1.33	1.06	.88	GP1UM28XK
		40	2	18	425-1130-ND	1.33	1.06	.88	GP1UD28XK
		56.8	2	8.8	425-1118-ND	1.33	1.06	.88	GP1UD267YK
		56.8	1.5	8.8	425-1135-ND#	1.33	1.06	.88	GP1UM267RK
		56.8	1.5	8.8	425-1136-ND	1.33	1.06	.88	GP1UM267YK
		56.8	1.5	13.8	425-1143-ND#	1.33	1.06	.88	GP1UM277RK
		56.8	1.5	13.8	425-1144-ND	1.33	1.06	.88	GP1UM277YK
		56.8	2	14	425-1122-ND	1.33	1.06	.88	GP1UD277XK
		56.8	1.5	17.8	425-1154-ND#	1.33	1.06	.88	GP1UM287RK
		56.8	1.5	17.8	425-1155-ND	1.33	1.06	.88	GP1UM287YK
		56.8	2	18	425-1128-ND	1.33	1.06	.88	GP1UD287YK
2	Side	36.7	1.5	16.1	425-1149-ND#	1.33	1.06	.88	GP1UM282QK
		36.7	1.5	16.1	425-1152-ND	1.33	1.06	.88	GP1UM282YK
		36.7	2	16.6	425-1127-ND	1.33	1.06	.88	GP1UD282YK
		38	1.5	16.1	425-1147-ND#	1.26	1.05	.84	GP1UM281QK
		38	1.5	16.1	425-1148-ND	1.33	1.06	.88	GP1UM281YK
		38	2	16.6	425-1125-ND	1.33	1.06	.88	GP1UD281YK
		40	1.5	16.1	425-1157-ND#	1.33	1.06	.88	GP1UM28QK
		40	1.5	16.1	425-1160-ND	1.33	1.06	.88	GP1UM28YK
		40	2	16.6	425-1131-ND	1.33	1.06	.88	GP1UD28YK
		56.8	1.5	16.1	425-1153-ND#	1.33	1.06	.88	GP1UM287QK
		56.8	1.5	16.1	425-1156-ND	1.33	1.06	.88	GP1UM287YK
		56.8	2	16.6	425-1129-ND	1.33	1.06	.88	GP1UD287YK
3	Side	38	4.5	25	425-1175-5-ND†	2.25	1.80	1.49	IS1U621
4	Top	38	4.5	17.3	425-1176-5-ND†*	2.03	1.62	1.34	IS1U621L

† Tube * Bent Leads # With mesh

IrDA Transceiver Module

Sharp's opto-wireless transceiver module is compatible with IrDA standard.

Applications: • Cellular phones • PDA • Personal computers

Data Vcc (V)	Transfer Rate SIR (kbps)	FIR (Mbps)	Digi-Key Part No.	Cut Tape Price Each 1	10	100	Tape & Reel† 2,000 Pricing	Sharp Part No.
IrDA 115 Kbit/s, 1 Meter								
2.4 to 5.5	2.4 to 115.2	—	425-1170-1-ND	2.98	2.61	2.09	1886.34/M	GP2W0004YP
IrDA 115 Kbit/s, 1 Meter and 4 Mbit/s, 1 Meter								
2.7 to 5.5	9.6 to 115.2	1.152 to 4	425-1171-1-ND	4.52	3.96	3.17	2861.16/M	GP2W1001YP
IrDA 115 Kbit/s, 20cm								
2.0 to 3.6	2.4 to 115.2	1.152 to 4	425-1172-1-ND	2.28	2.00	1.60	1443.24/M	GP2W0110YPS
1.7 to 2.5	2.4 to 115.2	1.152 to 4	425-1173-1-ND	2.16	1.89	1.52	1367.28/M	GP2W0112YP

† For Tape & Reel part number change 1-ND to 2-ND

NEW! IrDA Transceiver Module

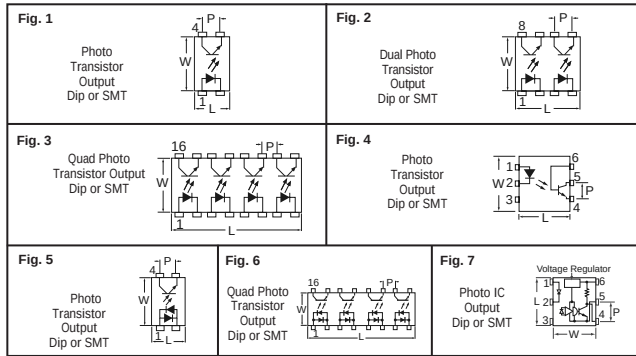
The ZILOG ZHX1820 is a low-profile version of ZILOG's popular ZHX1010 1-meter transceiver. Packaged in the "top-look" configuration, the transceiver is mechanically enhanced for ultra compact, power-conscious portable products, such as portable printers, handheld computers, and personal data assistants (PDAs). Designed to operate using the IrDA-Data mode, the transceiver combines an infrared emitting diode (IRED) emitter, a PIN photodiode detector, a digital AC coupled LED driver, and a receiver/decoder in a single package. **Features:** • 2.4 to 5.5V • 0 to 1 meter minimum link distance; 0 to 1.5 meters typical (-30°C to +85°C) • 0 to 80 cm minimum link distance; 0 to 1.2 meters typical (below 30°C) **Specifications:** • Rx/D Pulse Width: 1µs

Data Vcc (V)	Transfer Rate SIR (kbps)	FIR (Mbps)	Digi-Key Part No.	Cut Tape Price Each 1	25	100	Tape & Reel 2,000 Pricing	Sharp Part No.
2.4-5.5	115.2	—	269-3126-1-ND	4.05	3.04	2.08	—	ZHX1820TV115THTR
			269-3126-2-ND	—	—	—	1795.50/M	ZHX1820TV115THTR

More Product Available Online: www.digikey.com



Optolinks



Optoisolators with Photo-Transistor Output

SPECIFICATIONS: • Isolation Voltage: 5000
• V_{CEO} (Max.): 60V • Typ. tr_{trf}: 5 µs/4 µs

Fig.	Current Transfer Ratio Min-Max.	Length L (mm)	Width W (mm)	Pitch P (mm)	Pkg.	Digi-Key Part No.	Price Each 10	Tape and Reel Pricing† 1,000	Lumex Part No.
1	60-600%	4.60	6.50	2.54	Dip	67-1560-5-ND	.51	.43	—
	60-600%	4.60	6.50	2.54	SMT	67-1613-1-ND	.51	.43	—
2	60-600%	9.68	6.50	2.54	Dip	67-1561-5-ND	1.05	.88	—
	60-600%	9.68	6.50	2.54	SMT	67-1614-1-ND	1.05	.88	—
3	60-600%	19.84	6.50	2.54	Dip	67-1562-5-ND	1.83	1.53	—
	60-600%	19.84	6.50	2.54	SMT	67-1618-5-ND	1.83	1.53	—
4	60-600%	7.30	6.50	2.54	Dip	67-1563-5-ND	.39	.33	—
	60-600%	7.30	6.50	2.54	SMT	67-1615-1-ND	.39	.33	—
5	60-600%	4.60	6.50	2.54	Dip	67-1564-5-ND	.63	.53	—
	60-600%	4.60	6.50	2.54	SMT	67-1616-1-ND	.63	.53	—
6	60-600%	19.84	6.50	2.54	Dip	67-1565-5-ND	2.89	2.41	—
	60-600%	19.84	6.50	2.54	SMT	67-1619-5-ND	2.89	2.41	—

Optoisolators with Photo-IC Output

Fig.	Isolation Voltage	Prop Delay t _{PHL} (µs)	Length L (mm)	Width W (mm)	Pitch P (mm)	Pkg.	Digi-Key Part No.	Price Each 10	Tape and Reel Pricing† 1,000	Lumex Part No.
7	5000	5/3	7.3	6.5	2.54	Dip	67-1566-5-ND	1.64	1.37	—
	5000	5/3	7.3	6.5	2.54	SMT	67-1617-1-ND	1.64	1.37	—

† For Tape and Reel part number, change -1-ND to -2-ND



Semiconductor Interrupter Modules

Fig.	Circuit	Output Type	I _C (mA) min.	Test Conditions I _{FF} /V _{CE}	Slot Width (mm)	Lead Spacing (mm)	Digi-Key Part No.	1	Price Each 10	100	500
5	A	Darlington	3.0	5mA @ 5V	3.99	10.16	QCK4-ND	1.21	1.01	.81	.57
3	B	Transistor	1.0	20mA @ 5V	3.18	5.59	QVA11134-ND	1.17	.98	.78	.55
2	B	Transistor	1.0	20mA @ 5V	3.18	5.59	QVB11134-ND	1.12	.94	.75	.53
4	C	Transistor	0.5	20mA @ 5V	3.81	7.62	QVE11233-ND	.99	.83	.66	.47
1	B	Transistor	1.0	20mA @ 5V	3.15	7.24	H21A1-ND	.99	.83	.66	.47
1	B	Transistor	2.0	20mA @ 5V	3.15	7.24	H21A2-ND	1.03	.86	.69	.49
1	B	Transistor	4.0	20mA @ 5V	3.15	7.24	H21A3-ND	1.08	.90	.72	.51
3	B	Transistor	1.0	20mA @ 5V	3.15	7.24	H22A1-ND	.85	.71	.57	.40
3	B	Transistor	2.0	20mA @ 5V	3.15	7.24	H22A2-ND	.90	.75	.60	.42
3	B	Transistor	4.0	20mA @ 5V	3.15	7.24	H22A3-ND	.94	.79	.63	.44
1	A	Darlington	2.5	5mA @ 1.5V	3.15	7.24	H21B1-ND	1.08	.90	.72	.51
3	A	Darlington	2.5	5mA @ 1.5V	3.15	7.24	H22B1-ND	.85	.71	.57	.40

Optologic Interrupter Modules

Fig.	Circuit	Output Type	V _{CC}	Max Output Current (mA)	Rise/Fall (ns)	Digi-Key Part No.	1	Price Each 10	100	500
14	K	T.P. BUFF	4.5-16.0	50	70	H21LTB-ND	1.21	1.01	.81	.57
14	L	T.P. INV	4.5-16.0	50	70	H21LTI-ND	1.21	1.01	.81	.57
14	M	O.C. BUFF	4.5-16.0	50	70	H21LOB-ND	1.21	1.01	.81	.57
14	N	O.C. INV	4.5-16.0	50	70	H21LOI-ND	1.21	1.01	.81	.57
15	K	T.P. BUFF	4.5-16.0	50	70	H22LTB-ND	1.17	.98	.78	.55
15	L	T.P. INV	4.5-16.0	50	70	H22LTI-ND	1.17	.98	.78	.55
15	M	O.C. BUFF	4.5-16.0	50	70	H22LOB-ND	1.17	.98	.78	.55
15	N	O.C. INV	4.5-16.0	50	70	H22LOI-ND	1.17	.98	.78	.55

Semiconductor Matched Emitter Detector Pairs

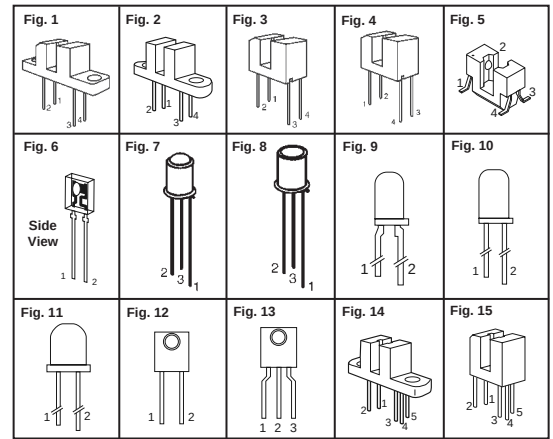
Fig.	Circuit	Output Type	I _C Min (mA)	Forward Voltage	Separation (mm)	Digi-Key Part No.	1	Price Each 10	100	500
6	E	Darlington	7.5	1.7	3.94	H23B1-ND	.90	.75	.60	.42

Semiconductor Infrared Photo Detectors

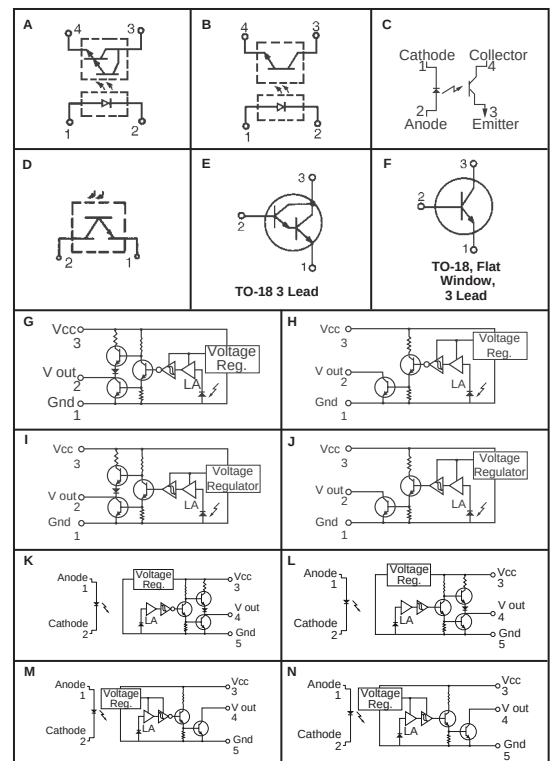
Fig.	Circuit	BV _{CEO} (V)	Min. I _C @ 5V _{CE} (mA)	Rise/Fall (µ sec)	Reception Angle +/-	Peak Wavelength Sensitivity	Digi-Key Part No.	1	Price Each 10	100	500
7	F	45	6	8/7	—	880	BPW36-ND	1.65	1.32	.99	.89
7	F	45	3	8/7	—	880	BPW37-ND	1.65	1.32	.99	.89
8	F	50	1	5/5	60	880	L14C1-ND	1.72	1.38	1.03	.93
8	F	50	0.5	5/5	60	880	L14C2-ND	1.65	1.32	.99	.89
7	F	45	6	8/7	—	880	L14G1-ND	1.65	1.32	.99	.89
7	F	45	3	8/7	—	880	L14G2-ND	1.61	1.29	.97	.87
7	F	45	12	8/7	—	880	L14G3-ND	1.68	1.35	1.01	.91
8	F	30	3	10/12	30	880	L14N1-ND	1.68	1.35	1.01	.91
8	F	30	6	14/16	30	880	L14N2-ND	1.87	1.50	1.13	1.01
7	F	30	4	10/12	12	880	L14P1-ND	1.72	1.38	1.03	.93
7	F	30	8	14/16	12	880	L14P2-ND	1.87	1.50	1.13	1.01
7	E	25	3	300/250	8	880	BPW38-ND	1.75	1.41	1.06	.95
7	E	25	3	300/250	8	880	L14F1-ND	1.75	1.41	1.06	.95
7	E	25	1	300/250	8	880	L14F2-ND	1.61	1.29	.97	.87
9	D	30	1	5/5	8	880	QSC112-ND	.43	.35	.26	.15
9	D	30	2	5/5	8	880	QSC113-ND	.47	.38	.29	.16
9	D	30	4	5/5	8	880	QSC114-ND	.51	.41	.31	.17
10	D	30	1.6	7/7	12	880	QSD122-ND	.59	.47	.36	.20
10	D	30	3.2	7/7	12	880	QSD123-ND	.50	.38	.29	.18
10	D	30	7.5	7/7	12	880	QSD124-ND	.53	.40	.30	.19
11	D	30	1.2	8/8	12	880	QSD722-ND	.59	.47	.36	.20
11	D	30	3	8/8	12	880	QSD723-ND	.50	.38	.29	.18
12	D	30	0.64	8/8	8	880	QSE113-ND	.51	.41	.31	.17
12	D	30	1.28	8/8	8	880	QSE114-ND	.55	.44	.33	.19

Logic Detectors

Fig.	Circuit	Output Type	V _{CC}	I _{isink} (mA)	I _{source} (mA)	Rise/Fall (ns)	Reception Angle +/-	Peak Wavelength Sensitivity	Digi-Key Part No.	1	Price Each 10	100	500
13	G	T.P. BUFF	4.5-16	50	10	70	25	935	QSE156-ND	.94	.71	.53	.33
13	I	T.P. INV	4.5-16	50	10	70	25	935	QSE157-ND	.94	.71	.53	.33
13	H	O.C. BUFF	4.5-16	50	—	100	25	935	QSE158-ND	.94	.71	.53	.33
13	J	O.C. INV	4.5-16	50	—	100	25	935	QSE159-ND	.94	.71	.53	.33



Circuits

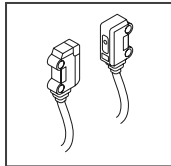


More Product Available Online: www.digikey.com



Amplified Mini Optical Sensors with Pin Point Beam

9297B-ND Omron Industrial Opto Sensor, Data Book \$2.00



Miniature optical sensor with "Pin-point" beam for sensing minute objects (1-2mm dia.). Use both indoors or outdoors for detecting where small body size is desired. Perfect for security, conveyor detection as well as emergency stop detection and limit control and more. Sensor not affected by ambient light. Comes standard with 2 meter molded cords attached.

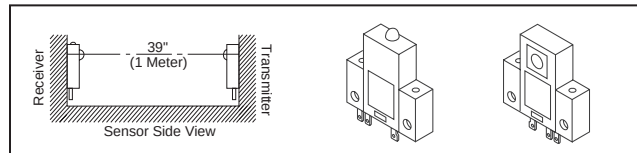
Terminal Type: 2m Cable

Sensing Method	Mounting Type/Features	Dist. In. (max.) (M/mm)	Digi-Key Part No.	1	Price Each 25	100	Omron Part No.
Through-Beam	Side/Light-On	393.7 1M	OR591-ND	102.48	92.24	87.11	E3T-ST11
	Side/Dark-On	393.7 1M	OR592-ND	102.48	92.24	87.11	E3T-ST12
Reflect., Retro	Side/Light-On	7.87 200mm	OR593-ND	95.76	86.19	81.40	E3T-SR11
	Side/Dark-On	7.87 200mm	OR594-ND	95.76	86.19	81.40	E3T-SR12
Reflect., Diff.	Flat/Light-On	1.18 30mm	OR595-ND	93.52	84.17	79.50	E3T-FD11N
	Flat/Dark-On	1.18 30mm	OR596-ND	90.16	81.15	76.64	E3T-FD12N
Convergent Beam	Light-On	.59 15mm	Z1104-ND	63.50	58.80	50.96	E3T-SL11
	Dark-On	.59 15mm	Z1105-ND	63.50	58.80	50.96	E3T-SL12

Amplified Optical Sensors

1 Meter (39 Inches) Sensing Distance!

- One meter sensing distance
- Supply voltage of 5 to 24 VDC for easy interface with TTL circuits, relays and programmable controllers
- IP60 sealability rating. Comes with two — 2m cables with connectors



Description	Digi-Key Part No.	Price Each	Omron Part No.
Through-Beam Receiver/Transmitter Pair - Dark on	OR544-ND	99.49	EE-SPW311
Through-Beam Receiver/Transmitter Pair - Light on	OR545-ND	99.49	EE-SPW411

Long Distance Amplified Optical Sensors

9297B-ND Omron Industrial Opto Sensor, Data Book \$2.00

These General Purpose Optical Sensors are small DC Sensors (10-30VDC Input) available in both a transmitter-receiver pair or a reflected beam type with sensing distances of 23 feet (7 meters). Ideal for conveyor systems and doorway sensing with direct interface to PLC's. Meets NEMA 4X, 6 and IP67 standards. Through-beam sensors include separate transmitter and receiver. Reflective sensors include transceiver and E39-R1 reflector. Horizontal mount sensors include mounting bracket. All sensors include mounting hardware.

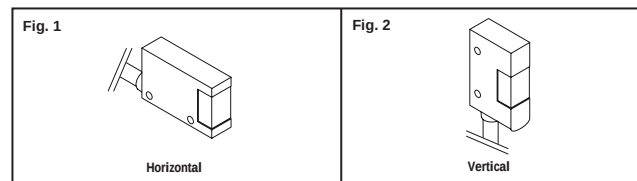


Fig.	Sensing Method	Mounting/Type Features	Dist. (max.) Ft. (M)	Terminal Type	Digi-Key Part No.	Price Each 1 25 100	Omron Part No.
1	Through-Beam Reflective	Horizontal	22.97 7 6.56 2	2m Cable	OR584-ND OR585-ND	153.44 138.10 130.43 131.04 117.94 111.39	E3S-AT11 E3S-AR11
2	Through-Beam Reflective	Vertical	22.97 7 6.56 2	2m Cable	OR586-ND OR587-ND	153.44 138.10 130.43 131.04 117.94 111.39	E3S-AT61 E3S-AR61
—	Mounting Bracket for Vertical Sensors (2 required for Through-Beam Type)				OR588-ND	5.04 4.54 4.29	E39-L59
—	Light Reflector for Confirming Optical Alignment during Setup (Clips onto Receiver)				OR589-ND	14.46 13.02 12.30	E39-R5
—	Light Interference Filter Eliminates Ambient Light Problems (Snaps onto Receiver)				OR590-ND	25.48 22.94 21.66	E39-E6



Amplified Optical Sensors

EE-SPX74/84 series of optical sensors feature a snap in connector which provides excellent shock and vibration resistance and prevents accidental disconnection of the sensor.

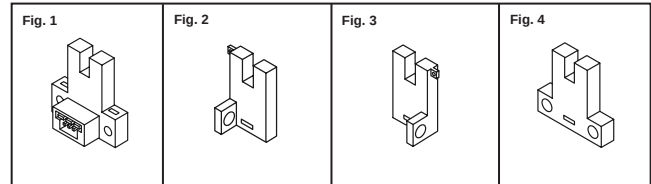


Fig.	Sensing Method	Sensing Distance	Output Type	Output	Digi-Key Part No.	1	Price Each 25	50	Omron Part No.
1	Slot	3.6mm	NPN	Dark-On	OR615-ND	80.02	72.02	64.02	EE-SPX740
				Light-On	OR616-ND	80.02	72.02	64.02	EE-SPX840
2	Slot	3.6mm	NPN	Dark-On	OR617-ND	80.02	72.02	64.02	EE-SPX742
				Light-On	OR618-ND	80.02	72.02	64.02	EE-SPX842
3	Slot	3.6mm	NPN	Dark-On	OR619-ND	80.02	72.02	64.02	EE-SPX743
				Light-On	OR620-ND	80.02	72.02	64.02	EE-SPX843
4	Slot	3.6mm	NPN	Dark-On	OR621-ND	80.02	72.02	64.02	EE-SPX741
				Light-On	OR622-ND	80.02	72.02	64.02	EE-SPX841
Snap-In connector with cable for EE-SPX74/84 Series					OR623-ND	5.13	4.62	4.10	EE-1013

Non-Amplified Optical Sensors

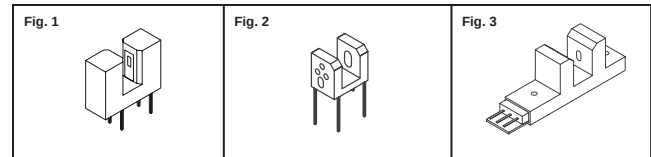
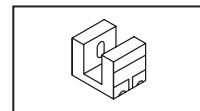


Fig.	Sensing Method	Sensing Distance	Terminal Type	Type On/Off	Digi-Key Part No.	1	Price Each 25	50	Omron Part No.
1	Slot	5mm	PC Board	4/4	OR627-ND	1.75	1.58	1.40	EE-SX1081
		2mm			OR624-ND	1.75	1.58	1.40	EE-SX1018
		5mm			OR625-ND	1.75	1.58	1.40	EE-SX1041
		3.4mm			OR626-ND	1.75	1.58	1.40	EE-SX1071
		3mm			OR631-ND	1.75	1.58	1.40	EE-SX198
		3mm			OR632-ND	1.75	1.58	1.40	EE-SX199
2	Slot	2mm	PC Board	10/10	OR633-ND	1.28	1.15	1.02	EE-SX1103
		2mm			OR634-ND	1.28	1.15	1.02	EE-SX1105
		3mm			OR635-ND	1.28	1.15	1.02	EE-SX1106
3	Slot	5mm	AMP Connect Molex Connect	3Khz	OR629-ND	3.78	3.40	3.02	EE-SX4009-P1
					OR630-ND	4.68	4.21	3.74	EE-SX4009-P10

Non-Amplified Optical Sensors SMT



SMT compact size makes these sensors ideal for use in applications with restricted space.

Dual channel model (EE-SX1131) is ideal for encoder applications.

Sensing Method	Sensing Dist.	Term. Type	Type On/Off	Digi-Key Part No.	Cut Tape Price Each 1 25 50	Digi-Key Part No.	Tape & Reel Size Pricing	Omron Part No.
Slot (Dual)	2mm	SMT	10/10	OR628CT-ND	1.28 1.15 1.02	OR628TR-ND	2,000 637.50/M	EE-SX1131
Slot	1mm	SMT	10/10	OR636CT-ND	1.28 1.15 1.02	OR636TR-ND	2,500 637.50/M	EE-SX1107
	2mm			OR637CT-ND	1.28 1.15 1.02	OR637TR-ND	2,000 637.50/M	EE-SX1108
	3mm			OR638CT-ND	1.28 1.15 1.02	OR638TR-ND	1,000 637.50	EE-SX1109

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Silicon Detectors and Emitters

Fig. 1 – Plastic Pkg. NEW!

Fig. 2 – Flat Top NEW!

Fig. 3 – Plastic Sidelooker NEW!

Fig. 4 – Plastic Sidelooker NEW!

Fig. 5 – Ceramic, Epoxy Globe

Fig. 6 – Ceramic, Epoxy Filled

Fig. 7 – Ceramic Pkg. NEW!

Fig. 8 – Mini SMT Pkg. NEW!

Fig. 9 – Mini SMT Pkg. NEW!

Fig. 10 – 32 Element Array

Fig. 11 – 16 Element Array

Fig. 12 – Solderable Photo Cell

Fig. 13 – Solderable Photo Cell

Fig. 14 – Lens Window

Fig. 15 – Flat Window

Fig. 16 NEW!

Fig. 17

Fig. 18 NEW!

Curve Graph

A(–) U.V. Enhanced Silicon Detectors
B(–) Blue Enhanced Silicon Detectors
C(–) Silicon Carbide U.V. Detectors
D(–) Visible Light Detectors
E(–) Daylight Filter Detectors
F(–) GaAlAs Photodiodes
G(★) CdS Photoconductive Cells (relative responsivity)

Photo Detectors

Fig.	Active Area (mm sq)	Short Circuit Current (Isc) (uA) Typ.	Dark Current (Id) (nA) Max	Sensitivity Wavelength (nm)			Junction Capacitance (pF) Typ.	Response RL=1KOhm (ns) Typ.	Viewing Angle (2x Theta)	Digi-Key Part No.	Price Each								
				Min.	Peak	Max.					1	25	100	250					
Blue Enhanced Photoconductive Detectors, Curve Line B																			
1	1.55	60	30	400	950	1100	6	10	30	PDB-C134-ND NEW!	.85	.80	.76	.72					
1	4.10	150	30				18	50	40	PDB-C142-ND NEW!	1.50	1.45	1.37	1.30					
2	4.10	67	30				18	50	61	PDB-C139-ND NEW!	1.50	1.45	1.37	1.30					
3	9.00	145	30				10	50	120	PDB-C158-ND NEW!	1.00	.95	.90	.85					
4	8.02	90	15				10	15	120	PDB-C156-ND NEW!	1.00	.95	.90	.85					
5	17.74	235	50				100	20		PDB-C107-ND	2.25	1.91	1.86	1.76					
5	7.95	110	30	350	950	1100	60	16	120	PDB-C113-ND	1.65	1.50	1.40	1.30					
5	29.02	400	25				200	18		PDB-C140-ND	3.99	3.60	3.25	2.90					
6	100	1300	30				300	25		PDB-C110-ND	46.32	37.06	32.94	30.88					
8	0.74	10		400	950	1100	15	50	120	PDB-C152SMCT-ND NEW!	.85	.80	.76	.68					
8	0.74	10					15	50	120	PDB-C152SMTR-ND NEW!			1699.77/3,000						
9	2.10	25					4	10	—	PDB-C154SMCT-ND NEW!	.95	.90	.85	.80					
9	2.10	25					4	10	—	PDB-C154SMTR-ND NEW!			1376.47/3,000						
NEW! Photo Conductive Detectors with Daylight Filter, Curve Line E NEW!																			
1	1.55	60	30	700	950	1100	6	10	30	PDB-C134F-ND	.85	.80	.76	.72					
1	4.10	150	30				18	50	40	PDB-C142F-ND	1.50	1.45	1.37	1.30					
2	4.10	67	30				18	50	61	PDB-C139F-ND	1.50	1.45	1.37	1.30					
3	9.00	145	30				10	50	120	PDB-C158F-ND	1.00	.95	.90	.85					
4	8.02	90	15				10	15	120	PDB-C156F-ND	1.00	.95	.90	.85					
8	0.74	10		700	950	1000	15	50	120	PDB-C152SMFCT-ND	.85	.80	.76	.68					
8	0.74	10	10				15	50	120	PDB-C152SMFTR-ND			1699.77/3,000						
9	2.10	25					4	10	—	PDB-C154SMFCT-ND	.95	.90	.85	.80					
9	2.10	25					4	10	—	PDB-C154SMFTR-ND			1376.47/3,000						
Blue Enhanced Photovoltaic Detectors, Curve Line B																			
5	17.74	200	0.8	350	950	1100	2000	1000	120	PDB-V107-ND	2.19	1.85	1.80	1.70					
5	7.95	80	0.5				800	750		PDB-V113-ND	1.41	1.31	1.21	1.11					
6	100.00	1200	0.333				10000	2000		PDB-V110-ND	42.01	34.02	29.01	27.01					
NEW! U.V. Enhanced Photovoltaic Detectors, Curve Line A NEW!																			
15	2.98	40	0.01	190	—	1100	340	450	65	PDU-V104-ND	19.99	17.99	10.00	9.50					
	17.63	230	0.05				2000	900	63	PDU-V114-ND	28.00	25.00	18.50	15.00					
Blue Enhanced Solderable Photo Cells, Curve Line B																			
12	42.4	545	75	350	940	1100	240	30	—	PDB-C609-2-ND	8.51	8.26	7.98	7.71					
12	86.4	1000	180				350	50		PDB-C613-2-ND	11.00	10.49	10.15	9.90					
13	14.5	185	35				125	25		PDB-C607-2-ND	4.41	4.19	4.08	3.96					
13	68.7	900	150				300	45		PDB-C612-2-ND	8.85	8.50	7.95	7.70					
13	232.7	2800	700				775	150		PDB-C615-2-ND	26.40	24.75	22.00	19.80					
Blue Enhanced Bi-Cells, Quadrants and Multi-Element Detector Arrays, Curve Line B																			
10	1.47*	11	15	350	950	1100	30	200	—	PDB-C232-ND	125.00	106.00	90.00	75.00					
11	2.51*	28	5.0				40	800		PDB-C216-ND	45.00	38.00	28.00	24.00					
16	3.23*	75	2.0				15	8		72	PDB-C201-ND NEW!	16.00	14.50	12.25	10.00				
17	1.61*	50	1.0				8	7		71	PDB-C203-ND	29.00	26.00	22.00	18.75				
NEW! Silicon Carbide (SiC) U.V. Photodiode, Curve Line C NEW!																			
16	0.08	0.04	1.0				200	280		400	21	5	87	PDU-S101-ND	30.02	25.02	20.02	16.01	
NEW! Visible Light Detector, Curve Line D NEW!																			
7	5.44	6.5	0.01	320	560	730	650	500	100	PDV-V417-ND	4.25	3.86	3.46	3.26					
	1.55	2.8	0.15				500	500	—	PDV-V419-ND	4.15	3.75	3.35	3.20					
NEW! Detector-Amplifier Hybrid, Curve Line B NEW!																			
17	5.07	65	5.0	350	950	1100	15	15	67	PDB-705-ND†	34.02	27.02	22.02	19.01					
							82	PDB-716-100-ND†	42.38	38.00	35.00	25.00							
NEW! GaAlAs I.R. Photodiode, Curve Line F NEW!																			
1	0.77	22	2.0	840	880	940	90	1000	30	PDI-G104-ND	6.02	5.02	4.02	3.02					
16		6.0							PDI-G103-ND	10.01	9.02	7.01	4.01						
14		22							PDI-G103L-ND	10.01	9.01	7.01	4.01						

*Per Element † 8 pin ‡ 5 pin

High Power Infrared Emitters

Fig.	Forward Voltage (V) Typ.	Forward Current (mA) Con.	Output Power (mW) Typ.	Beam Angle (2x Theta)	Peak Wavelength (nm) Typ.	Digi-Key Part No.	Price Each			
							1	25	100	250
14*	1.5	100	24	40	880	PDI-E802-ND	2.81	2.37	2.01	1.76
			24	8		PDI-E803-ND	2.81	2.37	2.01	1.76
			32	80		PDI-E804-ND	2.20	1.85	1.80	1.70
			24	5		PDI-E805-ND	2.99	2.55	2.52	2.15
15*	1.5	100	22	80	880	PDI-E801-ND	2.81	2.37	2.01	1.76

* Tab denotes cathode

NEW! Photoconductive Cells

Dim. (D)	Cell Resistance*				Peak Wavelength (nm) Typ.	Rise/Fall Time (ms) Typ.	Digi-Key Part No.	Price Each			
	10 Lux @ 2856K		Dark					1	25	100	250
	Min. (K ohm)	Max. (K ohm)	Min. (M ohm)	SEC							
Fig. 18, Curve Line G											
11.00	8	16	0.3	10	520	55/25	PDV-P5001-ND	.71	.61	.59	.56
	12	30	0.5				PDV-P5002-ND	.71	.61	.59	.56
	12	58	1				PDV-P5003-ND	.71	.61	.59	.56
5.10	3	11	0.2	10	520	50/20	PDV-P8001-ND	.57	.49	.48	.45
	8	24	0.5			50/20	PDV-P8002-ND	.57	.49	.48	.45
	16	33	0.5			55/20	PDV-P8003-ND	.57	.49	.48	.45
	20	60	0.5			55/20	PDV-P8004-ND	.57	.49	.48	.45
	40	120	1			60/25	PDV-P8005-ND	.57	.49	.48	.45
	80	240	5			60/25	PDV-P8006-ND	.57	.49	.48	.45
	4	11	0.15	10	520	55/20	PDV-P8101-ND	.57	.49	.48	.45
	9	20	0.3			60/25	PDV-P8102-ND	.57	.49	.48	.45
	16	33	0.5			60/25	PDV-P8103-ND	.57	.49	.48	.45
	27	60	2			60/25	PDV-P8104-ND	.57	.49	.48	.45
	50	94	2.5			60/25	PDV-P8105-ND	.57	.49	.48	.45
	50	140	20			60/25	PDV-P8106-ND	.57	.49	.48	.45
4.20	80	240	20	10	520	60/25	PDV-P8107-ND	.57	.49	.48	.45
	4	11	0.3			PDV-P9001-ND	.25	.24	.22	.20	
	9	20	0.5			PDV-P9002-ND	.25	.24	.22	.20	
	11	20	0.5			PDV-P9002-1-ND	.25	.24	.22	.20	
	16	33	1			PDV-P9003-ND	.25	.24	.22	.20	
	23	33	1			PDV-P9003-1-ND	.25	.24	.22	.20	
	27	60	2	10	520	60/25	PDV-P9004-ND	.25	.24	.22	.20
	50	94	2.5			PDV-P9005-ND	.25	.24	.22	.20	
	48	140	20			PDV-P9005-1-ND	.25	.24	.22	.20	
	80	200	5			PDV-P9006-ND	.25	.24	.22	.20	
	10	100	1			PDV-P9007-ND	.25	.24	.22	.20	
	10	200	20			10	520	60/25	PDV-P9008-ND	.25	.24
20	45	1	60/25	PDV-P9103-ND	.25			.24	.22	.20	
10	50	5	70/15	PDV-P9200-ND	.25			.24	.22	.20	
5	20	20	70/15	PDV-P9203-ND	.25			.24	.22	.20	

Non-Amplified Optical Sensors

Omron's optical sensors are designed to meet the needs of positioning, detection of components and objects, cam-timer switching-control and robotic control. Available in two types: nonamplified optical sensors are low cost, fast response optical sensors used mainly in design-in processes. Amplified optical sensors are ideal for plug and play applications where external light does not affect performance and wide input voltages can be applied.

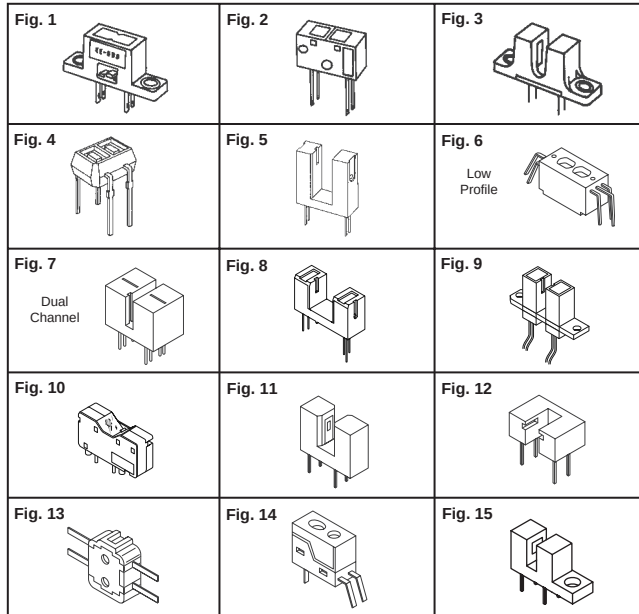
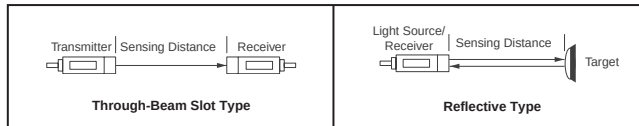


Fig.	Sensing Method	Sensing Distance	Terminal Type	Typ. $t_{on/off}$ (μsec.)	Digi-Key Part No.	Price Each	Omron Part No.
						1 25 100	
1	Reflective	5mm	Solder	30/30	OR500-ND	4.78 4.30 3.44	EE-SB5
1	Reflective	5mm	PC Board	30/30	OR501-ND	4.78 4.30 3.44	EE-SB5-B
2	Reflective	5mm	Solder	30/30	OR502-ND	4.70 4.23 3.39	EE-SF5
2	Reflective	5mm	PC Board	30/30	OR503-ND	4.70 4.23 3.39	EE-SF5-B
3	Slot	3.6mm	Solder	4/4	OR504-ND	3.58 3.22 2.58	EE-SG3
3	Slot	3.6mm	PC Board	4/4	OR505-ND	3.58 3.22 2.58	EE-SG3-B
4	Reflective	1mm	PC Board	35/25	OR520-ND	1.90 1.71 1.37	EE-SY124
4	Reflective	1mm	SMT	35/25	OR557-ND	1.90 1.71 1.37	EE-SY125
5	Slot	5mm	PC Board	4/4	OR518-ND	1.68 1.51 1.21	EE-SX1042
5	Slot	4.6mm	PC Board	500 Hz	OR556-ND	1.95 1.76 1.41	EE-SX1061
5	Slot	3mm	PC Board	70/70	OR601-ND	1.95 1.76 1.41	EE-SX298
6	Reflective	5mm	PC Board	50 Hz	OR525-ND	3.45 3.11 2.49	EE-SY310
6	Reflective	5mm	PC Board	50 Hz	OR526-ND	3.45 3.11 2.49	EE-SY410
6	Reflective	4.4mm	PC Board	3/20	OR603-ND	3.68 3.31 2.65	EE-SY313
6	Reflective	4.4mm	PC Board	3/20	OR604-ND	3.68 3.31 2.65	EE-SY413
7	Slot	3.4mm	PC Board	4/4	OR523-ND	4.08 3.67 2.94	EE-SX1031
8	Slot	8mm	PC Board	3 KHz	OR524-ND	1.93 1.74 1.39	EE-SX4070
8	Slot	8mm	PC Board	3 KHz	OR571-ND	1.68 1.51 1.21	EE-SX1070
9	Vert Slot	3.4mm	61cm Wires	4/4	OR562-ND	7.08 6.37 5.10	EE-SX1088-W1
9	Horz Slot	3.4mm	61cm Wires	4/4	OR563-ND	6.68 6.01 4.81	EE-SX1096-W1
10	Reflect/Vert	4.5mm	PC Board	30/30	OR564-ND	8.68 7.81 6.25	EE-SY190
10	Reflect/Horz	4.5mm	PC Board	30/30	OR565-ND	8.68 7.81 6.25	EE-SY191
11	Slot	3.4mm	PC Board	4/4	OR569-ND	3.18 2.86 2.29	EE-SJ3-D
11	Slot	2.8mm	PC Board	4/4	OR598-ND	2.03 1.83 1.46	EE-SX1025
11	Slot	5.2mm	PC Board	4/4	OR599-ND	2.13 1.92 1.53	EE-SX1035
12	Slot	3mm	PC Board	4/4	OR570-ND	2.90 2.61 2.09	EE-SX1046
12	Slot	2mm	PC Board	3/20	OR600-ND	2.93 2.64 2.11	EE-SX493
13	Reflective	4 mm	PC Board	180/60	OR578-ND	3.53 3.18 2.54	EE-SY201
13	Red LED Reflect	4 mm	PC Board	30/30	OR581-ND	10.53 9.48 7.58	EE-SY169
14	IR Reflective	4 mm	PC Board	30/30	OR582-ND	9.40 8.46 6.77	EE-SY169A
15	Slot	3mm	PC Board	70/70	OR602-ND	3.05 2.75 2.20	EE-SK33-W-B

Amplified Optical Sensors

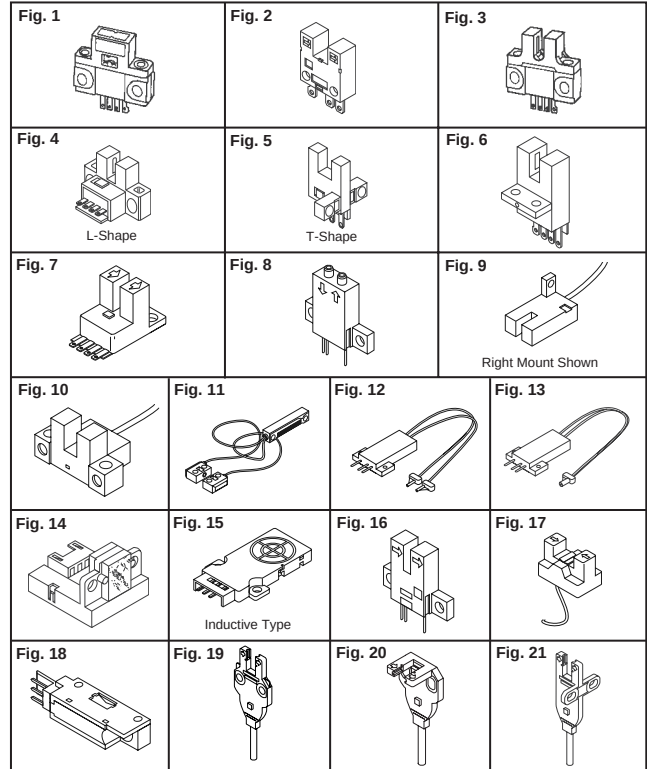


Fig.	Sensor Type/Features	Sensing Distance	Config-uration	Digi-Key Part No.	Price Each	Omron Part No.
					1 25	
1	Reflective (General Purpose)	5mm	Light-On	OR505-ND	13.45 12.11	EE-SB5V
1	Reflective (General Purpose)	5mm	Dark-On	OR507-ND	13.45 12.11	EE-SB5VC
1	Reflective (General Purpose)	19mm	Light-On	OR519-ND	18.80 16.92	EE-SB5V-E
1	Reflective (Side Detecting)	5mm	Light-On	OR535-ND*	42.89 38.60	EE-SPY311
1	Reflective (Side Detecting)	5mm	Light-On	OR536-ND*	42.89 38.60	EE-SPY411
1	Reflective (Top Detecting)	5mm	Dark-On	OR572-ND*	42.89 38.60	EE-SPY312
1	Reflective (Top Detecting)	5mm	Light-On	OR573-ND*	42.89 38.60	EE-SPY412
1	Reflective (Side Detecting)	5mm	Light/Dark-On	OR531-ND†	21.90 19.71	EE-SY671
1	Reflective (Top Detecting)	5mm	Light/Dark-On	OR532-ND†	21.90 19.71	EE-SY672
2	Wide Slot (13mm Slot)	13mm	Dark-On	OR533-ND*	45.94 41.35	EE-SPX303
2	Wide Slot (13mm Slot)	13mm	Light-On	OR534-ND*	45.94 41.35	EE-SPX403
3	Slot (Dust Proof Slit)	5mm	Light/Dark-On	OR528-ND	18.13 16.32	EE-SX670
3	Slot (Dust Proof Slit)	5mm	Light/Dark-On	OR611-ND	18.10 16.29	EE-SX670A
4	Slot (L-Shaped, Dust Proof Slit)	5mm	Light/Dark-On	OR529-ND	21.70 19.54	EE-SX671
4	Slot (L-Shaped, Dust Proof Slit)	5mm	Light/Dark-On	OR612-ND	21.70 19.54	EE-SX671A
5	Slot (T-Shaped, Dust Proof Slit)	5mm	Light/Dark-On	OR530-ND	21.96 19.77	EE-SX672
5	Slot (T-Shaped, Dust Proof Slit)	5mm	Light/Dark-On	OR613-ND	21.96 19.77	EE-SX672A
6	Slot (Close Mounting Style)	5mm	Light/Dark-On	OR549-ND	19.38 17.44	EE-SX673
6	Slot (Close Mounting Style)	5mm	Light/Dark-On	OR614-ND	19.38 17.44	EE-SX673A
7	Slot (Close Mount)	5mm	Light/Dark-On	OR597-ND	23.39 21.06	EE-SX674
8	Reflective (Long Distance)	200mm	Dark-On	OR538-ND*	57.72 51.95	EE-SPZ301A
8	Reflective (Long Distance)	200mm	Light-On	OR539-ND*	57.72 51.95	EE-SPZ401A
9	Slot (Left Mount w/1M Cable)	3.6mm	Dark-On	OR541-ND*	65.38 58.85	EE-SPX302-W2A
9	Slot (Right Mount w/1M Cable)	3.6mm	Dark-On	OR542-ND*	70.66 63.60	EE-SPX304-W2A
10	Slot (Top Mount w/1M Cable)	3.6mm	Dark-On	OR543-ND*	73.33 66.00	EE-SPX305-W2A
11	Slot (Wide Sensing Distance)	30mm	Dark-On	OR546-ND*	169.78 152.81	EE-SPW321
11	Slot (Wide Sensing Distance)	30mm	Light-On	OR547-ND*	169.78 152.81	EE-SPW421
12	Fiber (19" Optical Fiber)	30mm	Dark-On	OR552-ND*	78.91 71.02	EE-SPZ301W-01
12	Fiber (19" Optical Fiber)	30mm	Light-On	OR553-ND*	78.91 71.02	EE-SPZ401W-01
13	Reflective (11" Optical Fiber)	1-3mm	Dark-On	OR554-ND*	82.52 74.27	EE-SPZ301Y-01
13	Reflective (11" Optical Fiber)	1-3mm	Light-On	OR555-ND*	82.52 74.27	EE-SPZ401Y-01
14	Reflective (External A-D Needed)	7.5mm	10 Bit A/D	OR548-ND	54.90 49.41	Z4D-A01
15	Inductive (Detects Ferrous Metal)	5mm	N/O Output	OR560-ND	23.70 21.33	E2R-A01
16	Slot (General Purpose)	3.6mm	Dark-On	OR574-ND*	44.18 39.76	EE-SPX301
16	Slot (General Purpose)	3.6mm	Light-On	OR575-ND*	44.18 39.76	EE-SPX401
17	Slotted Liquid Level Detector	6-13mm	Dark/Light-On	OR579-ND*	126.18 113.56	EE-SPX613
18	Reflective (General Purpose)	11mm	Dark-On	OR580-ND*	11.70 10.53	EE-SPY415
19	Slot Type w/2M Cable	5mm	Dark-On	OR605-ND*	28.44 25.60	EE-SX770
19	Slot Type w/2M Cable	5mm	Light-On	OR606-ND*	28.44 25.60	EE-SX870
20	L-Shaped w/2M Cable	5mm	Dark-On	OR607-ND*	30.11 27.10	EE-SX771
20	L-Shaped w/2M Cable	5mm	Light-On	OR608-ND*	30.11 27.10	EE-SX871
21	T-Shaped w/2M Cable	5mm	Dark-On	OR609-ND*	31.37 28.24	EE-SX872
21	T-Shaped w/2M Cable	5mm	Light-On	OR610-ND*	31.37 28.24	EE-SX872
—	IR Reflector for Fig. 8 above, 60 x 40mm			OR540-ND	12.00 10.80	E39-R1
—	3 Pin Conn. w/ 1 Meter Cable for Fig. 15 above			OR561-ND	6.35 5.72	E22-01
—	Converter from NPN to PNP Output for Amp Sensors			OR550-ND	28.12 25.31	EE-2001
—	Converter from NPN to PNP Output for AMP Sensors			OR551-ND	28.12 25.31	EE-2002
—	4 Pin Connector for Fig. 1-6 above			OR527-ND	2.43 2.19	EE-1001
—	4 Pin Conn. w/ 2 Meter Cable for Fig. 1-6 above			OR559-ND	11.58 10.42	EE-1006
—	Panel Mount Holder Clip for OR559-ND			OR576-ND	3.45 3.11	EE-1006A
—	3 Pin Connector for 8, 12, 13 and 16 above			OR537-ND	2.43 2.19	EE-1002
—	3 Pin Conn. w/ 2 Meter Cable for 4, 12 and 13 above			OR558-ND	4.35 3.92	EE-1003
—	Panel Mount Holder Clip for OR558-ND			OR583-ND	1.35 1.22	EE-1003A

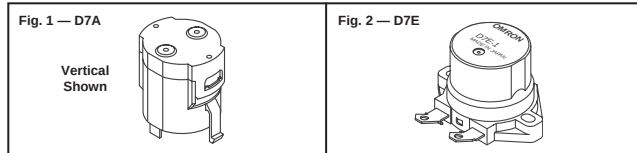
* Sensors not influenced by external light. † Built-in sensitivity adjuster.

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NEW! D7A/D7E Vibration Sensors

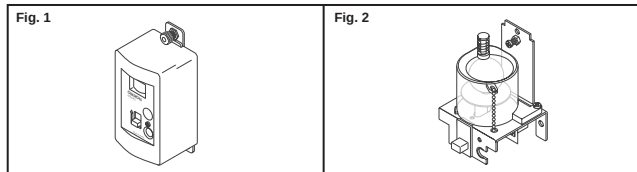


These vibration sensors are perfect for quick detection of movements that could cause damage to equipment or can be used to safely shut down critical operations. Sensors are auto-resettable and require no manual resetting. D7A is a horizontal keeping vibration sensor that is PC mounted. D7E vibration sensors are low cost sealed vibration sensors with various sensitivities. Use these sensors for industrial equipment, cranes, forklifts, industrial manufacturing and boilers. Use in natural gas meter shutoffs, vending machines, conveyor systems, earthquake sensors or any circuits that require safety shutoff during a period of vibration or tilting.

Specifications: • Acceleration Setting: 90 to 170 gal • Various sensitivities • Contact Capacity: D7A = 5uA - 1mA@3VDC, D7E = 100mA@5-30VDC • Contact Form: SPST-NO • Operating Temperature: D7A = -30° +70°C, D7E = -25° +60°C • Dielectric Strength: AC250V 50/60Hz

Fig.	Description	Digi-Key Part No.	Price Each	Omron Part No.
			1 25 50	
1	90-170gal Horizontal Switch - 1mA	Z2004-ND	34.23 30.81 27.38	D7A-1
	90-170gal Vertical Switch - 1mA	Z2005-ND	34.23 30.81 27.38	D7A-2
	90-170gal Chassis Mount Switch - 1mA	Z2006-ND	36.35 32.72 29.08	D7A-3
2	130-200gal Vibration Switch - .1A	Z2007-ND	9.98 8.98 7.98	D7E-1
	100-170gal Vibration Switch - .1A	Z2008-ND	5.60 5.04 4.48	D7E-2
	50-80° Tilt Switch - .1A	Z2009-ND	9.78 8.80 7.82	D7E-3

NEW! D7H Equipment Vibration Sensors

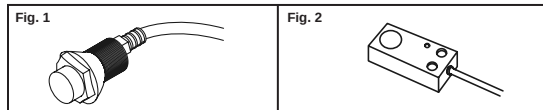


These vibration switches feature a highly durable stainless steel diaphragm that allows detection of very small movements. Used to prevent secondary damage after earthquakes and to replace mercury with a simple mechanical system. Manually resettable, vertically mounted sensor in either an enclosed case or open sensor.

Specifications: • 100-170gals, 10A 125VAC, .1A 30VDC • Operating Temp: -26 to 70°C

Fig.	Description	Digi-Key Part No.	Price Each	Omron Part No.
			1 25 50	
1	Enclosed Vibration Detection Switch - 10A	Z2010-ND	240.33 216.30 192.26	D7H-A1
2	Open Cased Vibration Detection Switch - 10A	Z2011-ND	73.73 66.36 58.98	D7H-B1
	Open Cased Vibration Detection Switch - .10A	Z2012-ND	73.73 66.36 58.98	D7H-B2

Inductive Proximity Sensors



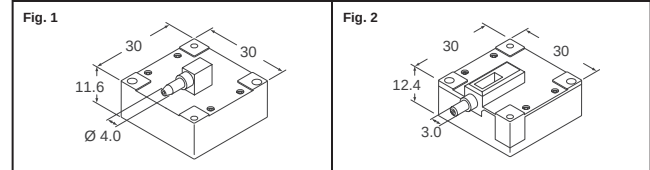
Omron's line of inductive sensors are designed for detecting the presence or absence of ferrous metal close to the sensor and provide an output when detected.

Because inductive sensors use electromagnetic fields, they excel over photo type sensors in environments containing water, oil, dust and dirt.

Shielded sensors are made with a shielding plate around the ferrite core to focus ferrous metal sensing at the sensors head. It also allows sensor to be located or mounted close to surrounding metals.

Fig.	Sensing Distance Max.	Description	Terminal Type	Output Type	Digi-Key Part No.	Price Each	Omron Part No.
						1 25 50	
1	1.5mm	M8, Short Barrel DC Proxy, Nickel Plated Brass, Shielded	3-Wire	NPN	Z1062-ND	57.15 52.92 49.40	E2E-X1R5E1-N
	1.5mm	M8, Short Barrel AC Proxy, Nickel Plated Brass, Shielded	2-Wire	NPN	Z1063-ND	68.04 63.00 58.80	E2E-X1R5Y1-N
	2mm	M8, Short Barrel DC Proxy, Nickel Plated Brass, Shielded	2-Wire	NPN	Z1064-ND	58.97 54.60 50.96	E2E-X2D1-N-N
	2mm	M12, Short Barrel DC Proxy, Nickel Plated Brass, Shielded	3-Wire	NPN	Z1065-ND	57.15 52.92 49.40	E2E-X2E1-N
	2mm	M12, Short Barrel AC Proxy, Nickel Plated Brass, Shielded	2-Wire	NPN	Z1066-ND	68.04 63.00 58.80	E2E-X2Y1-US-N
	3mm	M12, Short Barrel DC Proxy, Nickel Plated Brass, Shielded	2-Wire	NPN	Z1067-ND	59.88 55.44 51.75	E2E-X3D1-N-N
	5mm	M18, Short Barrel DC Proxy, Nickel Plated Brass, Shielded	3-Wire	NPN	Z1068-ND	58.97 54.60 50.96	E2E-X5E1-N
	5mm	M18, Short Barrel AC Proxy, Nickel Plated Brass, Shielded	2-Wire	NPN	Z1069-ND	72.58 67.20 62.72	E2E-X5Y1-US-N
	7mm	M18, Short Barrel DC Proxy, Nickel Plated Brass, Shielded	2-Wire	NPN	Z1070-ND	61.69 57.12 53.32	E2E-X7D1-N-N
	1.5mm	M8, Short Barrel DC Proxy, Plastic Body, Shielded	3-Wire	NPN	Z1075-ND	55.34 51.24 47.83	E2F-X1R5E1
	1.5mm	M8, Short Barrel AC Proxy, Plastic Body, Shielded	2-Wire	NPN	Z1076-ND	69.85 64.68 60.37	E2F-X1R5Y1
	10mm	M30, Short Barrel DC Proxy, Plastic Body, Shielded	3-Wire	NPN	Z1077-ND	59.42 55.02 51.36	E2F-X10E1
	2mm	M12, Short Barrel DC Proxy, Plastic Body, Shielded	3-Wire	NPN	Z1078-ND	53.52 49.56 46.26	E2F-X2E1
	2mm	M12, Short Barrel AC Proxy, Plastic Body, Shielded	2-Wire	NPN	Z1079-ND	69.85 64.68 60.37	E2F-X2Y1
2	5mm	M18, Short Barrel DC Proxy, Plastic Body, Shielded	3-Wire	NPN	Z1080-ND	54.43 50.40 47.04	E2F-X5E1
	5mm	M18, Short Barrel AC Proxy, Plastic Body, Shielded	2-Wire	NPN	Z1081-ND	71.67 66.36 61.94	E2F-X5Y1-US
	1.5mm	Flat Low Profile DC Proxy, Aluminum Body, Unshielded	3-Wire	PNP	Z1082-ND	45.81 42.42 39.60	TL-W1R5MB1
	1.5mm	Flat Low Profile DC Proxy, Aluminum Body, Unshielded	3-Wire	NPN	Z1083-ND	45.81 42.42 39.60	TL-W1R5MC1
	3mm	Flat Low Profile DC Proxy, Plastic Body, Unshielded	3-Wire	NPN	Z1084-ND	48.54 44.94 41.95	TL-W3MC1
	5mm	Flat Low Profile DC Proxy, Plastic Body, Unshielded	3-Wire	PNP	Z1085-ND	42.64 39.48 36.85	TL-W5MB1
	5mm	Flat Low Profile DC Proxy, Plastic Body, Unshielded	3-Wire	NPN	Z1086-ND	42.64 39.48 36.85	TL-W5MC1
	3mm	Flat Low Profile DC Proxy, Plastic Body, Unshielded	3-Wire	PNP	Z1189-ND	48.54 44.94 41.95	TL-W3MB1

NEW! D8M Pressure Sensors



D8M pressure sensors are precise detecting change of air pressure sensors with outputs of either Analog or Digital signals. Perfect for water level monitoring, liquid level monitoring and HVAC changes in the air flow.

Features: • High Noise immunity • Pressure range: D8M-D1 = 0 - 5.88kPa, D8M-A1 = 0 to 4.9Pa • Current Consumption: D8M-D1 = 150mA at output 3VDC, D8M-A1 = 2.5mA • Temperature Comp: -30° to 70°C • Protection Structure: IP 40 **Characteristics:** • Output resolution: 0.01kPa/1 pulse • Output Frequency: 150 ~ 450kHz

Fig.	Pressure Type	Range	Output	Digi-Key Part No.	Price Each	Omron Part No.
					1 25 50	
1	Gauge	2 - 4.9Pa	Analog	Z2013-ND	75.08 67.57 60.06	D8M-A1
2	Gauge	0 - 5.88kPa	Digital	Z2014-ND	112.55 101.30 90.04	D8M-D1
	Gauge	0 - 5.88kPa	Digital	Z2015-ND	78.30 70.47 62.64	D8M-D2N
	Gauge	0 - 4.9kPa	Digital	Z2016-ND	76.88 69.19 61.50	D8M-D82
—	Gauge	0 - 196.13Pa	Digital	Z2017-ND	187.55 168.80 150.04	D8M-R1

NEW! D6A Air Flow Sensor

The industry first D6A filter sensor contains a microprocessor with a complex algorithms that provides a temperature reference point to see if a filter fan is moving the right amount of air. If the sensor indicates it is not, then the user knows the filter is clogged. With its sensing capabilities, the D6A provides reliability protection, ensuring the dependability of continued operation of expensive equipment. This clogged filter sensor is excellent for servers, high end routers and network devices. Other applications include uninterruptible power supplies and cash registers, and other types of machines that use a filter fan.

Specifications: • Supply Voltage: DC12V • Current Consumption: 60mA (Max.)

Description	Digi-Key Part No.	Price Each	Omron Part No.
		1 25 50	
Air Flow Sensor - 5-1.5M/1 Sec.	Z2002-ND	78.38 70.54 62.70	D6A-N

NEW! D6B Tilt Switch

Ideal for equipment tilt detection. Will give you a separate output when tilted left or right. Perfect for signaling a screen to rotate from portrait to landscape view in keeping with product orientation. Can be used in space heaters.

Specifications: • Output Current: 1mA • Operating Temperature: -10 ~ +60°C

Characteristics: • Supply Voltage: 2.7 ~ 3.3V • Output High Voltage: V_{dd} - 0.5V • Output Low Voltage: 0.5V (Max) • Current Consumption: 20µA (Max.) • Operation Angle: 35 ~ 65°C

Description	Digi-Key Part No.	Price Each	Omron Part No.
		1 25 50	
Micro SMD Tilt Switch - Left/Right	Z2003-ND	14.25 12.83 11.40	D6B-1

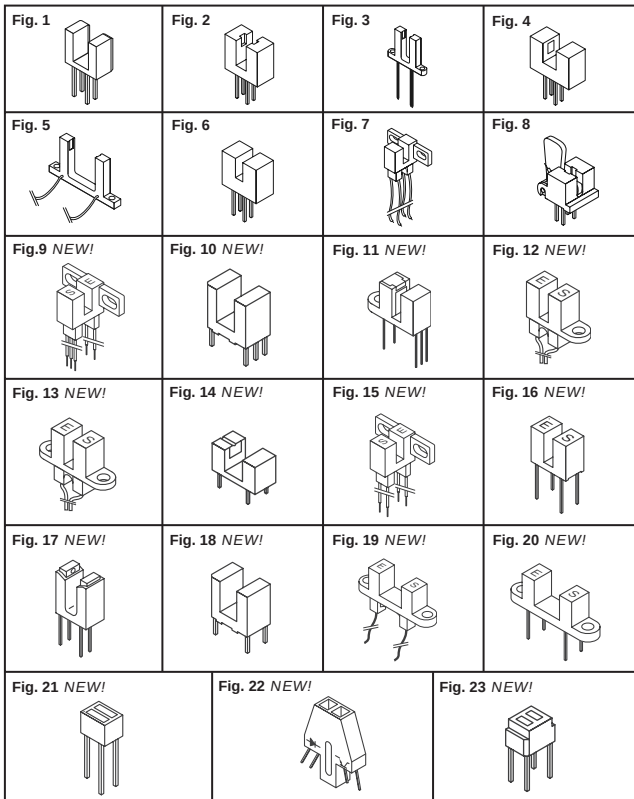
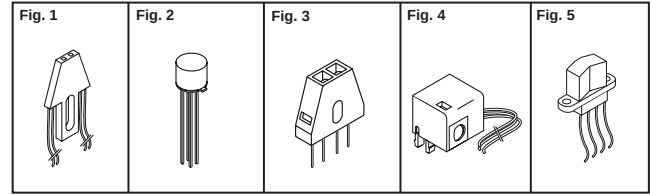


Fig.	Output Type	Slot Width Inch (mm)	Lead Spacing Inch (mm)	Digi-Key Part No.	Price Each 1 100 250	Optek Part No.
Slotted Optical						
1	Transistor	.200 (5.08)	.325 (8.26)	365-1008-ND	1.57 1.11 1.05	OPB620
2	Transistor	.160 (4.06)	.310 (7.87)	365-1017-ND	1.97 1.40 1.33	OPB804
3	Transistor	.20 (5.08)	—	365-1018-ND	5.09 3.61 3.43	OPB817
4	Photologic®	.20 (5.08)	—	365-1022-ND	5.78 4.10 3.89	OPB917B
4	Transistor	.210 (5.33)	.410 (10.41)	365-1019-ND	2.37 1.68 1.59	OPB818
5	Transistor	1.26 (32)	—	365-1020-ND	7.12 5.05 4.80	OPB819
6	Transistor	2.10 (5.33)	.310 (7.87)	365-1021-ND	2.12 1.50 1.42	OPB848
7	Photologic®	.130 (3.30)	—	365-1023-ND	6.49 4.60 4.37	OPB930W55
9	Photologic®	.125 (3.18)	.320 (8.13)	365-1109-ND NEW!	6.52 4.74 4.39	OPB941W51
10	Photologic®	.320 (8.13)	.190 (4.83)	365-1090-ND NEW!	1.90 1.38 1.28	OPB625
20	Photologic®	.125 (3.18)	.320 (8.13)	365-1110-ND NEW!	4.51 3.28 3.04	OPB960T11
20	Photologic®	.125 (3.18)	.320 (8.13)	365-1111-ND NEW!	4.40 3.20 2.96	OPB970N11
20	Photologic®	.125 (3.18)	.320 (8.13)	365-1112-ND NEW!	3.58 2.60 2.41	OPB970T55
20	Photologic®	.125 (3.18)	.320 (8.13)	365-1113-ND NEW!	3.69 2.68 2.48	OPB973N51
13	Photologic®	.125 (3.18)	—	365-1114-ND NEW!	5.69 4.14 3.83	OPB990T55
11	Photologic®	.125 (3.18)	.320 (8.13)	365-1087-ND NEW!	3.58 2.60 2.41	OPB460L11
12	Phototransistor	.125 (3.18)	—	365-1107-ND NEW!	4.90 3.56 3.30	OPB880P51
13	Phototransistor	.125 (3.18)	—	365-1108-ND NEW!	4.87 3.54 3.28	OPB891T51
14	Phototransistor	.205 (5.21)	.380 (9.65)	365-1105-ND NEW!	2.42 1.76 1.63	OPB855
15	Phototransistor	.125 (3.18)	—	365-1100-ND NEW!	5.25 3.82 3.54	OPB830W55
15	Phototransistor	.125 (3.18)	—	365-1102-ND NEW!	6.71 4.88 4.52	OPB840W11
15	Phototransistor	.125 (3.18)	—	365-1101-ND NEW!	3.69 2.68 2.48	OPB840L11
15	Phototransistor	.125 (3.18)	—	365-1103-ND NEW!	5.28 3.84 3.56	OPB841W55
16	Phototransistor	.130 (3.30)	.225 (5.72)	365-1106-ND NEW!	3.91 2.84 2.63	OPB865N11
17	Phototransistor	.160 (4.06)	.300 (7.62)	365-1099-ND NEW!	1.98 1.44 1.34	OPB825
18	Phototransistor	.160 (4.06)	.280 (7.12)	365-1089-ND NEW!	1.57 1.14 1.06	OPB610
Slotted Optical Flag						
8	Transistor	.090 (2.16)	.280 (7.11)	365-1009-ND	2.86 2.03 1.92	OPB680
Wide Gap Slotted Optical						
19	Phototransistor	.375 (9.53)	—	365-1096-ND NEW!	5.20 3.78 3.50	OPB810W51
19	Phototransistor	.375 (9.53)	—	365-1098-ND NEW!	4.95 3.60 3.33	OPB811W55
20	Phototransistor	.375 (9.53)	—	365-1094-ND NEW!	2.97 2.16 2.00	OPB800L55
20	Phototransistor	.375 (9.53)	—	365-1095-ND NEW!	3.03 2.20 2.04	OPB810L51
20	Phototransistor	.375 (9.53)	—	365-1097-ND NEW!	2.92 2.12 1.97	OPB811L55
Reflective Object Sensors						
21	Photodarlington	—	—	365-1093-ND NEW!	3.36 2.44 2.26	OPB707A
21	Photodarlington	—	—	365-1092-ND NEW!	2.61 1.90 1.76	OPB706A
22	Phototransistor	—	—	365-1091-ND NEW!	3.30 2.40 2.22	OPB704
23	Phototransistor	—	—	365-1088-ND NEW!	1.57 1.14 1.06	OPB606A

Sensors



Reflective Object Sensors

Fig.	Continuous Forward Curr. (mA)	Reverse DC Voltage	V (BR)ECO Voltage (Min.)	Min. Lead Wire Length Inch (mm)	Digi-Key Part No.	Price Each 1 100 250	Optek Part No.
1	100	2.0	5.0	4.0" (101.6)	365-1010-ND	9.89 7.01 6.65	OPB700
	100	2.0	5.0	18.0" (457.2)	365-1011-ND	13.10 9.29 8.81	OPB701AL
2	50	3.0	5.0	—	365-1012-ND	7.67 5.44 5.16	OPB710
3	40	2.0	5.0	—	365-1014-ND*	2.88 2.04 1.94	OPB742
	40	2.0	5.0	—	365-1015-ND*	3.61 2.56 2.43	OPB745

* Collector Emitter Voltage 30V - OPB742 and 15V - OPB745

Photologic® Reflective Object Sensors

Fig.	Supply Voltage	Output Voltage	Operating DC Supply Voltage	Min. Lead Wire Length Inch (mm)	Digi-Key Part No.	Price Each 1 100 250	Optek Part No.
4	10	35	4.75 - 5.25	18.0" (457.2)	365-1013-ND	8.58 6.08 5.77	OPB716
5	10	35	4.75 - 5.25	12.0" (304.8)	365-1016-ND	8.95 6.34 6.02	OPB770T

Optoisolators

OPI1264 Series: Optically coupled isolators, each consisting of an infrared emitting diode coupled to an NPN silicon phototransistor and sealed in a precast opaque housing.

OPI155 Series: Contains a high speed monolithic photo-IC comprised of a photodiode and DC amplifier driving an open collector output Schottky transistor.

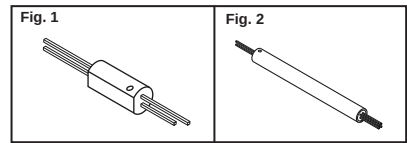
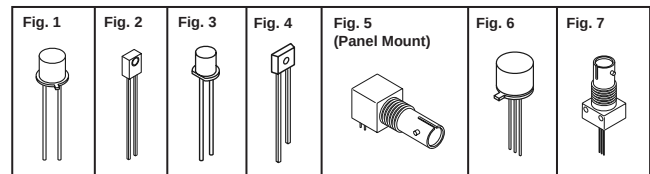


Fig.	Isolation Voltage	Forward DC Voltage (mA)	Reverse DC Voltage	DC Current Transfer Ratio (mA)	Digi-Key Part No.	Price Each 1 100 250	Optek Part No.
1	±10k	40	2.0	2.5	365-1031-ND	2.75 1.95 1.85	OPI1264A
	±10k	40	2.0	5.0	365-1032-ND	2.81 1.99 1.89	OPI1264B
	±10k	40	2.0	10.0	365-1033-ND	2.86 2.03 1.92	OPI1264C
2	±50k	50	3.0	25	365-1034-ND	67.49 47.86 45.40	OPI155

Infrared Emitters and Receivers



Infrared Light-Emitting Diodes

• Reverse Voltage: 2.0V • Rise/Fall Time: 10ns

Fig.	Style Package	Continuous Forward DC Current (mA)	Peak Emission (nm)	Apertured Irrad. Min. / Max. (mW / cm²)	Digi-Key Part No.	Price Each 1 100 250	Optek Part No.
1	TO-46	100	850	.5 / —	365-1004-ND	3.48 2.90 2.61	OP230WPS
2	Side View	50	850	.10 / .90	365-1005-ND	1.98 1.65 1.49	OP245PS
3	T-1	50	850	.055 / .55	365-1006-ND	1.68 1.40 1.26	OP265WPS
4	End-Looking	50	850	.10 / .90	365-1007-ND	1.80 1.50 1.35	OP268FPS

Fiber Optic (850nm) Light-Emitting Diodes

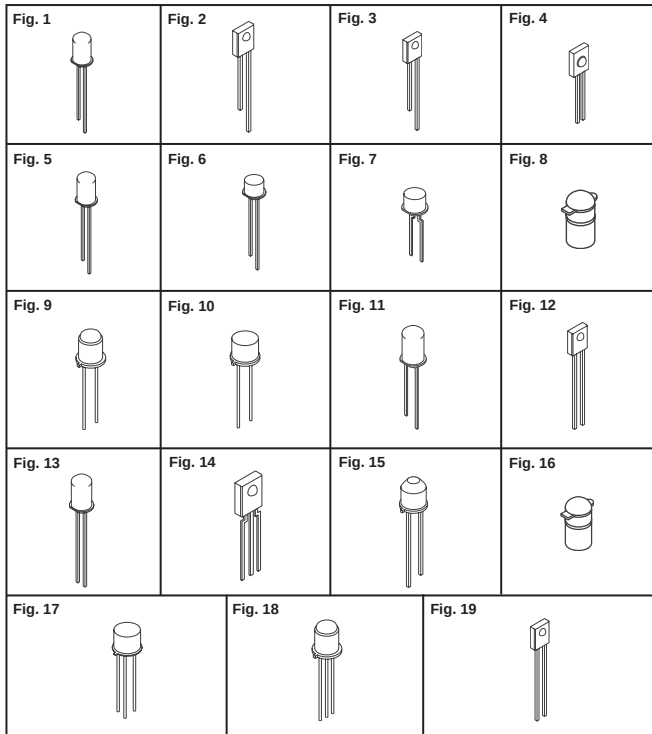
Fig.	Optical Power Output Min. / Typ.	Output Rise Time - Typ. (ns)	Continuous Forward DC Current (mA)	Digi-Key Part No.	Price Each 1 100 250	Optek Part No.
5	-17.3 µW / -13.8 µW	4.0	100	365-1024-ND	12.81 10.48 9.61	OPF1414T
6	25.0dBm / 29.0dBm	6.0	100	365-1026-ND	8.89 7.27 6.67	OPF370A
7	15.0dBm / 19dBm	6.0	100	365-1027-ND	17.42 14.26 13.07	OPF372B

Fiber Optic Pin Photodiodes and Receivers

Fig.	Output Current (mA)	Responsivity Min. / Typ.	Output Rise Time - Typ. (ns)	Digi-Key Part No.	Price Each 1 100 250	Optek Part No.
5	25	5.3mV / 7µW	3.3	365-1025-ND	13.86 11.34 10.40	OPF2416T
6	—	0.45AW / 0.55AW	6.0	365-1028-ND	7.44 6.08 5.58	OPF470
	—	0.45AW / 0.55AW	1.0	365-1029-ND	7.30 5.98 5.48	OPF480
7	—	0.45AW / 0.55AW	1.0	365-1030-ND	15.49 12.67 11.62	OPF482

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Infrared Light Emitting Diodes

Fig.	Style/ Pkg.	Pulse Forward Current	Optical Power Output	Peak Emission Wavelength	Beam Angle	Digi-Key Part No.	Price Each			Optek Part No.
							1	100	250	
Plastic										
1	T-1 3/4	750mA	0.50mW/cm ²	890nm	50°	365-1060-ND	.96	.56	.54	OP294
	T-1 3/4	5.0A	44mW/cm ²	890nm	20°	365-1061-ND	1.05	.62	.59	OP295A
	T-1 3/4	5.0A	77mW/cm ²	890nm	20°	365-1062-ND	1.05	.62	.59	OP295B
	T-1 3/4	5.0A	0.70mW/cm ²	890nm	20°	365-1063-ND	1.05	.62	.59	OP297A
	T-1 3/4	5.0A	210mW/cm ²	890nm	50°	365-1056-ND	1.05	.62	.59	OP290A
	T-1 3/4	5.0A	16mW/cm ²	890nm	50°	365-1057-ND	1.05	.62	.59	OP291A
	TO-46	2.0A	16mW/cm ²	890nm	60°	365-1058-ND	.96	.56	.54	OP293A
	TO-46	2.0A	13mW/cm ²	890nm	60°	365-1059-ND	.96	.56	.54	OP293B
	TO-46	2.0A	3.0mW/cm ²	890nm	25°	365-1064-ND	.96	.56	.54	OP298A
	TO-46	2.0A	2.4mW/cm ²	890nm	25°	365-1065-ND	.96	.56	.54	OP298B
	T-1	3.0A	2.70mW/cm ²	890nm	18°	365-1054-ND	1.26	.74	.70	OP265A

Fig.	Style/ Pkg.	Pulse Forward Current	Optical Power Output	Peak Emission Wavelength	Beam Angle	Digi-Key Part No.	1	Price Each 100	250	Optek Part No.
2	Side-View	3.0A	0.60mW/cm ²	890nm	40°	365-1052-ND	.99	.58	.55	OP240A
	Side-View	3.0A	0.60mW/cm ²	890nm	40°	365-1053-ND	1.20	.70	.67	OP245A
	Side-View	3.0A	0.40mW/cm ²	935nm	40°	365-1043-ND	.99	.58	.55	OP140A
3	Side-View	3.0A	0.30mW/cm ²	935nm	40°	365-1044-ND	.99	.58	.55	OP140B
4	Side-View	3.0A	0.40mW/cm ²	935nm	40°	365-1045-ND	1.02	.60	.57	OP145A
5	T-1	3.0A	1.95mW/cm ²	935nm	18°	365-1046-ND	1.11	.65	.62	OP165A
	T-1	3.0A	0.85mW/cm ²	935nm	18°	365-1047-ND	1.11	.65	.62	OP165C
	T-1	3.0A	1.95mW/cm ²	935nm	18°	365-1049-ND	1.26	.74	.70	OP166A
6	T-1	3.0A	0.50mW	935nm	90°	365-1048-ND	1.23	.72	.69	OP165W
7	T-1	3.0A	1.00mW	890nm	90°	365-1055-ND	1.26	.74	.70	OP266W
Hermetic										
8	PC Mount	1.0A	1.00mW/cm ²	935nm	24°	365-1040-ND	1.83	1.07	1.02	OP124
	PC Mount	1.0A	3.50mW/cm ²	890nm	24°	365-1050-ND	2.13	1.25	1.18	OP224
9	TO-46	10.0A	4.0mW	935nm	18°	365-1041-ND	2.52	1.47	1.40	OP132
	TO-46	10.0A	5.0mW	935nm	18°	365-1042-ND	2.52	1.47	1.40	OP133
10	TO-46	10.0A	5.0mW/cm ²	890nm	50°	365-1051-ND	2.88	1.68	1.60	OP233W

PIN Silicon Photodiode

Fig.	Style/ Pkg.	V _R	Peak Sensitivity Wavelength	t _{rr} /t _f	Digi-Key Part No.	Price Each			Optek Part No.
						1	100	250	
11	T-1	60V	935nm	5ns	365-1084-ND	.66	.54	.50	OP906
12	Side-View	60V	935nm	5ns	365-1085-ND	.70	.58	.53	OP950
11	T-1 3/4	60V	890nm	5ns	365-1086-ND	.81	.67	.62	OP999

Infrared NPN Phototransistors

Fig.	Style/ Pkg.	V _{CEO}	I _C	Peak Sensitivity Wavelength	Digi-Key Part No.	Price Each			Optek Part No.
						1	100	250	
Phototransistor									
13	T-1	30V	4.30mA	935nm	365-1066-ND	.59	.49	.45	OP505A
	T-1	30V	2.15mA	935nm	365-1067-ND	.59	.49	.45	OP505B
	T-1	30V	4.30mA	935nm	365-1068-ND	.75	.62	.57	OP506A
	T-1	30V	2.15mA	935nm	365-1069-ND	.75	.62	.57	OP506B
14	Side-View	30V	2.55mA	935nm	365-1070-ND	.70	.58	.53	OP550A
	Side-View	30V	1.30mA	935nm	365-1071-ND	.70	.58	.53	OP550B
	Side-View	30V	0.25mA	935nm	365-1072-ND	.70	.58	.53	OP550C
1	T-1 3/4	30V	2.35mA	890nm	365-1077-ND	.66	.54	.50	OP599A
16	PC Mount	25V	7.0mA	890nm	365-1078-ND	1.56	1.28	1.18	OP644SL
15	TO-18	30V	3.0mA	890nm	365-1074-ND	.70	.58	.53	OP593A
	TO-18	30V	7.5mA	890nm	365-1075-ND	.70	.58	.53	OP598A
	TO-18	30V	5.0mA	890nm	365-1076-ND	.70	.58	.53	OP598B
17	TO-18	30V	0.5mA	890nm	365-1079-ND	1.89	1.55	1.42	OP801WSL
	TO-18	30V	2.5mA	890nm	365-1080-ND	1.89	1.55	1.42	OP802WSL
18	TO-18	30V	7.0mA	890nm	365-1081-ND	2.16	1.77	1.62	OP804SL
	TO-18	30V	15.0mA	890nm	365-1082-ND	2.16	1.77	1.62	OP805SL
Photodarlington									
12	Side-View	15V	1.1mA	935nm	365-1073-ND	1.21	.99	.91	OP560C
17	TO-18	15V	4mA	890nm	365-1083-ND	2.31	1.89	1.74	OP830WSL

Fig.	Style/ Pkg.	Output	Sensitivity Wavelength	Digi-Key Part No.	Price Each			Optek Part No.
					1	100	250	
Photologic								
19	Side-View	TTL/LSTTL	935nm	365-1115-ND	1.93	1.40	1.30	OPL550
	Side-View	TTL/LSTTL	935nm	365-1116-ND	2.04	1.48	1.37	OPL550-OCA

Panasonic Photo Interrupter

Photo Interrupters are a transmissive photosensor in which a high efficiency GaAs infrared light emitting diode is used as the light emitting element, and a high sensitivity phototransistor is used as the light detecting element. The two elements are arranged so as to face each other, and objects passing between them are detected.

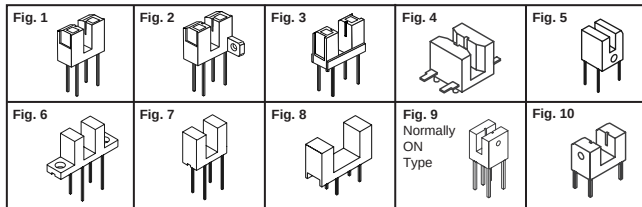


Fig.	Sensing Method	Sensing Distance	Terminal Type	Typ. $t_{on/off}$ (μ sec.)	Digi-Key Part No.	Price Each			Panasonic Part No.
						10	100	1000	
1	Slot	3mm	PC Board	5/5	CNZ1021-ND	1.39	1.16	.93	CNZ1021
2	Slot	3mm	PC Board	5/5	CNZ1023-ND	1.33	1.07	.80	CNZ1023
3	Slot	5mm	PC Board	5/5	CNA1009H-ND	1.26	1.05	.85	CNA1009H
4	Slot	1.4mm	SMD	35/35	CNA1301H-ND	.82	.69	.55	CNA1301H
5	Slot	0.9mm	PC Board	35/35	CNZ1002-ND	.87	.73	.59	CNZ1002
5	Slot	1.2mm	PC Board	35/35	CNA1303K-ND	.87	.73	.59	CNA1303K
6	Slot	2mm	PC Board	35/35	CNA1302K-ND	.87	.73	.59	CNA1302K
6	Slot	5mm	PC Board	6/6	CNZ1111-ND	2.65	2.12	1.65	CNZ1111
7	Slot	5mm	PC Board	6/6	CNZ1112-ND	2.02	1.62	1.22	CNZ1112
8	Slot	10mm	PC Board	6/6	CNZ1120-ND	1.86	1.49	1.12	CNZ1120
9	Slot	1.2mm	PC Board	3/8	CNZ1414A-ND	1.46	1.17	.88	CNZ1414A
10	Slot	1.0mm	PC Board	50/50	CNA1311KOTLC-ND	1.04	.87	.70	CNA1311KOTLC
10	Slot	2.0mm	PC Board	50/50	CNA1312KOTLC-ND	.98	.82	.66	CNA1312KOTLC

Optoisolators

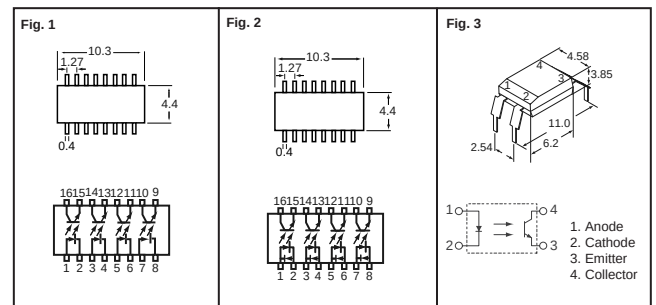


Fig.	Current Transfer Ratio				V _{CE0}	Isolation Voltage (Vrms)	Digi-Key Part No.	Cut Tape			Tape & Reel	
	Min. (%)	Max. (%)	@ IF (mA)	VCE (V)				Price Each	1	10	100	Digi-Key Part No.
DC Input Type, SMD, 16-Pin												
1	100	600	50	0.2	80	2500	CNC1H001CT-ND	1.89	1.51	1.14	CNC1H001TR-ND	966.00/M
AC Input Type, SMD, 16-Pin												
2	100	600	±50	0.2	80	2500	CNC7H001CT-ND	2.10	1.68	1.26	CNC7H001TR-ND	1074.00/M
DC Input Type, HD4-1 Package												
3	50	600	50	0.2	80	5000	CNC1S171-ND	.71	.54	.40	—	—

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NEW! Hallogic® Hall Effect Sensors

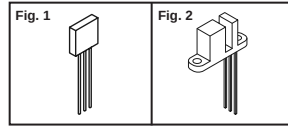


Fig.	Operate Point* Min. / Typ. / Max. (Gauss - B)	Release Point Min. / Typ. / Max. (Gauss - B)	Hysteresis Typ. / Max. (Gauss - B)	Supply Cur. Typ. / Max. (mA)	Digi-Key Part No.	Price Each 1 100 250	Optek Part No.
1	0 / 90 / 180 70 / — / 200 235/300/465 70/—/350	-100 / 65 / 100 50 / — / 180 120/235/325 50/—/330	25 - 100 20 30/65/200 20/—/—	6 / 9 3.23 2.59 2.07 6/9 4/7	365-1001-ND 365-1003-ND 365-1036-ND 365-1037-ND	2.94 2.36 1.88 3.23 2.59 2.07 1.74 1.02 .97 1.47 .86 .82	OH090U OHS3140U OH360U OHN3120U

Fig.	Output Current (mA)	Output DC Voltage	Output Rise Typ. / Max. (μs)	Output Fall Time Typ. / Max. (μs)	Supply Current Typ. / Max. (mA)	Digi-Key Part No.	Price Each 1 100 250	Optek Part No.
2	25	25	0.21 / 1.00 μs	0.25 / 1.00 μs	4 - 7	365-1002-ND	9.64 7.71 6.17	OH8900

Latching

Fig.	Operate Point* Min. / Max. (Gauss - B)	Release Point Min. / Max. (Gauss - B)	Hysteresis Min./ Max. (Gauss - B)	Supply Cur. Typ. / Max. (mA)	Digi-Key Part No.	Price Each 1 100 250	Optek Part No.
1	25/170	-170/-25	100/—	4/7	365-1039-ND	2.34 1.37 1.30	OHS3175U

* South pole facing symbolized surface.

MICRONAS Hall Effect Sensor

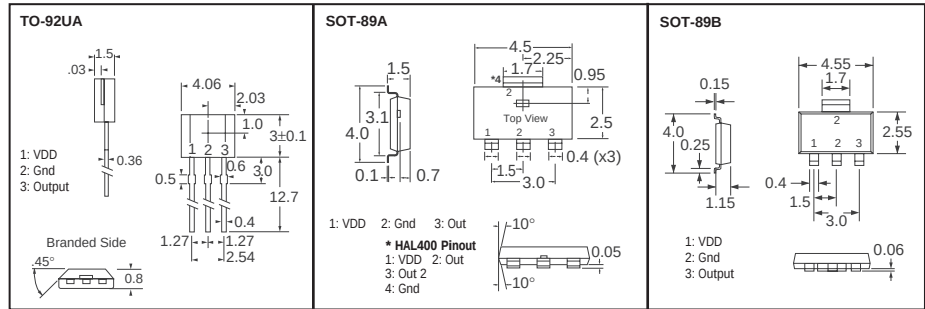
FEATURES: On-Chip temperature compensation circuitry minimizes shifts in ON and OFF points and hysteresis over temperature and supply voltage. Ideal sensors for ignition timing, anti-lock brake systems, speed measurement, angular and linear measurement/positioning. Designed for use in hostile automotive and industrial environments.

SWITCHING SPECIFICATIONS:

Bipolar: Output turns low with magnetic south to branded side of package (open drain). **Unipolar:** Output turns low with magnetic south to branded side of package, output turns high if magnetic field is removed.

Latching: Output turns low with magnetic south to branded side of package, output does not change states when magnetic field is removed.

Differential: Output determined by magnetic south pole flux density between 2 internal sensors, output low with $BS1 - BS2 > B_{ON}$, output high with $BS1 - BS2 < B_{OFF}$.



Switch Mode	Switch Frequency	Supply Voltage	Cont. Output Current	On/Off (Max./Min.) Point B mT	Digi-Key Part No.	Price Each 1 100 500	Micronas Part No.
Latching Differential	DC-10kHz	3.8-24V 4.5-24V	10 mA	18.3/18.3 3.0/3.0	HAL505UA-E-ND HAL300UA-E-ND	.78 .71 .57 1.95 1.76 1.41	HAL505UA-E HAL300UA-E

Switch Mode	Switch Frequency	Supply Voltage	Cont. Output Current	On/Off (Max./Min.) Point B mT	Digi-Key Part No.	Cut Tape Price Each 1 100	Digi-Key Part No.	Pricing 1,000	Micronas Part No.
Unipolar Latching Differential	DC-20kHz DC-10kHz DC-10kHz DC-10kHz	4.5-24V 3.8-24V 3.8-24V 4.5-24V	10 mA	36.0/4.3 10.8/-10.8 18.3/-18.3 3.0/-3.0	HAL214S-ECT-ND HAL503S-ECT-ND HAL505S-ECT-ND HAL300S-ECT-ND	2.76 2.48 1.99 3.54 3.19 2.55 3.54 3.19 2.55 4.06 3.65 2.92	HAL214S-ETR-ND HAL503S-ETR-ND HAL505S-ETR-ND HAL300S-ETR-ND	742.00 952.00 — 1092.00	HAL214S-E HAL503S-E HAL505S-E HAL300S-E
Bipolar Unipolar Differential Latching Unipolar	DC-20kHz DC-20kHz DC-10kHz DC-10kHz DC-10kHz	4.5-24V 4.5-24V 4.5-24V 3.8-24V 3.8-24V	10 mA	12.5/-12.5 36.0/3.6 3.5/-3.5 5.0/-5.0 21.9/11.4	HAL115SF-ECT-ND HAL114SF-ECT-ND HAL320SF-ECT-ND HAL502SF-ECT-ND HAL508SF-ECT-ND	1.30 1.17 .94 1.30 1.17 .94 3.85 3.47 2.77 1.67 1.50 1.20 1.67 1.50 1.20	— — HAL320SF-ETR-ND HAL508SF-ETR-ND	— — 1036.00 448.00	HAL115SF-E HAL114SF-E HAL320SF-E HAL502SF-E HAL508SF-E

HAL115DS-ND	Data Sheet for HAL115	\$2.60
HAL300DS-ND	Data Sheet for HAL300	\$2.60



Solid State Magnetic Hall Effect Sensors

Cherry magnetic sensors are used to detect changes in magnetic field polarities and the motion of ferrous metals such as gear tooth movements. Used for such applications as speed and proximity sensing, magnetic polarity detection and current flow monitoring. Solid state design for unlimited life.

Features:

HE313500: Magnetically biased bipolar digital latch. Extreme sensitivity. Internal transistor switches on when exposed to south pole and remains on until north pole magnetic field is introduced.

MP100 Series: Aluminum threaded barrel sensor for speed and position sensing. The threaded barrel allows precise positioning and adjustment.

GS100 Series: Barrel sensors intended for gear tooth speed sensing. High speed capability, ideal for sensing power gears, conveyor speed and other rotating gears. Built-in magnet supplies its own bias field. GS101202 is plastic housing with steel bushing.

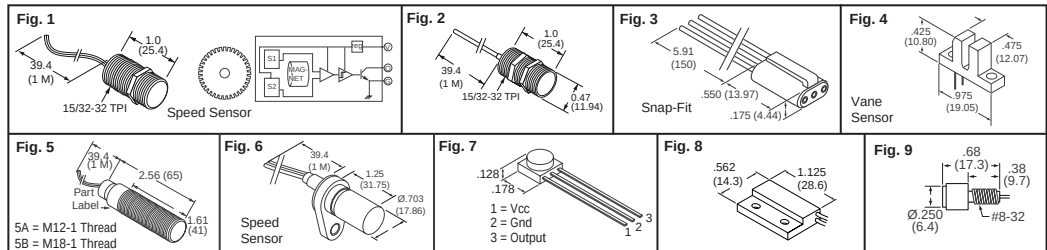


Fig.	Supply Voltage	Output Current	Terminal Type	Polarity	Digi-Key Part No.	Price Each 1 50 100	Cherry Part No.
1	4.5-24 VDC	25mA	20AWG Wires	Gear Teeth	CH398-ND†	30.24 26.88 21.06	GS100701
2	4.75-24 VDC 4.75-24 VDC 5-24 VDC	25mA	20AWG Wires 20AWG Wires 22AWG Wires	South Pole	CH396-ND† CH708-ND† CH707-ND*	24.44 21.72 17.02 24.44 21.72 18.10 36.18 32.16 26.80	MP100701 MP100502 MP100102
3	4.75-24 VDC	25mA	24AWG Wires	South Pole	CH399-ND	6.08 5.40 4.50	MP101301
4	4.5-24 VDC	25mA	PC Mount 24AWG Wires	Ferrous Vane	CH401-ND CH712-ND	5.08 4.52 3.76 7.29 6.48 5.40	VN101501 VN101503
5A	4.5-24 VDC	25mA	12mm conn. 20AWG Wires 22AWG Wires	Gear Teeth	CH704-ND* CH416-ND† CH414-ND*	55.62 49.44 41.20 30.24 26.88 22.40 54.00 48.00 40.00	GS100101 GS100502 GS100102
5B	4.5-24 VDC 4.5-24 VDC 4.75-24 VDC 5-24 VDC	25mA 25mA 25mA —	12mm conn. 22AWG Wires 12mm conn. 20AWG Wires	Gear Teeth	CH705-ND* CH415-ND* CH711-ND* CH706-ND*	58.86 52.32 43.60 57.24 50.88 42.40 77.63 69.00 57.50 52.92 47.04 39.20	GS100201 GS100202 SD100201 GS100203
6	5-24 VDC	25mA	22AWG Wires	Gear Teeth	CH417-ND	32.29 28.71 23.92	GS101202
7	4.5-24 VDC	20mA	PC Mount	South Pole	CH395-ND	4.19 3.72 2.91	GS101350
8	4.5-24 VDC	25mA	24AWG Wires	North Pole	CH400-ND	6.89 6.12 5.10	MP102103
9	12mm Cord Set - straight female Threaded Actuator, South pole magnet, Aluminum Housed	—	—	—	CH698-ND CH700-ND	29.03 25.80 21.50 5.13 4.56 3.80	AS000203 AS101001

* Industrial Grade-Stainless Steel † Commercial Grade Aluminum

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N

Hall Effect Sensor ICs — US Series

The output transistor of the UA package will be latched on in the presence of a sufficiently strong south pole magnetic field facing the marked side of the package. Similarly, the output will be latched off in the presence of a north field. The SOT-23 device is reversed from the UA package. The SOT-23 output transistor will be latched on in the presence of a sufficiently strong north pole magnetic field subjected to the marked face.

FEATURES: • Maximum Output Current: 50mA • Chopper stabilized amplifier stage • New miniature package/thin, high reliability package

Temperature Suffix: E: -40°C to 85°C (Commercial), L: -40°C to 150°C (Automotive)

US1881: A bipolar Hall Effect Sensor IC fabricated from mixed signal CMOS technology. The design, specifications and performance have been optimized for commutation applications in 5V and 12V brushless DC motors. **Feature:** • Optimized for BDC motor applications **Applications:** • Solid state switch • Brushless DC motor commutation • Speed sensing • Linear position sensing • Angular position sensing • Current sensing

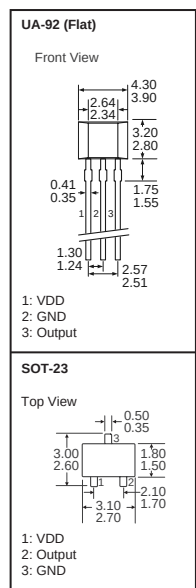
US2881 / US2882: The bipolar design, specifications and performance have been optimized for commutation applications in brushless DC motors and automotive speed sensing. **Features:** • Optimized for BDC motor applications • Ultra low current. **Applications:** • Solid state switch • Brushless DC motor commutation • Speed sensing • Linear position sensing • Angular position sensing • Current sensing

US4881: A bipolar Hall Effect Sensor IC fabricated from mixed signal CMOS technology. The design, specifications and performance have been optimized for commutation applications in brushless DC motors and automotive speed sensing. **Feature:** • Optimized for BDC motor applications. **Applications:** • Solid state switch • Brushless DC motor commutation • Speed sensing

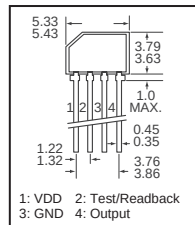
US5881: A unipolar Hall Effect Sensor IC fabricated from mixed signal CMOS technology. The design, specifications and performance have been optimized for applications of solid state switches. **Applications:** • Solid state switch • Limit switch • Current limit • Interrupter • Current sensing

Pkg.	Supply Voltage	Operating Point (mT)			Release Point (mT)			Output Type	Oper.† Type	Temperature Range	Digi-Key Part No.	Price Each					Tape & Reel * Pricing 3,000
		Min.	Typ.	Max.	Min.	Typ.	Max.					1	10	25	50	100	
SOT-23 UA-92 (flat)	3.5 to 24	1.0	5.0	9.0	-9.0	-5.0	-1.0	Open Collector	Bidirectional	-40°C to 85°C	US1881ESOC-ND*	1.60	1.24	.96	.74	.57	424.60/M
SOT-23 UA-92 (flat)											US1881EUA-ND	1.16	.90	.70	.54	.42	
SOT-23 UA-92 (flat)	3.5 to 24	0.5	2.0	4.5	-4.5	-2	-0.5	Open Collector	Bidirectional	-40°C to 85°C	US1881LSOC-ND*	1.89	1.47	1.13	.87	.67	501.80/M
SOT-23 UA-92 (flat)											US1881LUA-ND	1.52	1.19	.91	.70	.54	
SOT-23 UA-92 (flat)	3.5 to 24	0.5	2.0	4.5	-4.5	-2	-0.5	Open Collector	Bidirectional	-40°C to 85°C	US2881ESOC-ND*	2.03	1.58	1.21	.93	.72	540.40/M
SOT-23 UA-92 (flat)											US2881EUA-ND	1.67	1.30	1.00	.77	.60	
SOT-23 UA-92 (flat)	3.5 to 24	0.5	2.0	4.5	-4.5	-2	-0.5	Open Collector	Bidirectional	-40°C to 85°C	US2881LSOC-ND*	2.32	1.80	1.39	1.07	.83	617.60/M
SOT-23 UA-92 (flat)											US2881LUA-ND	2.03	1.58	1.21	.93	.72	
SOT-23 UA-92 (flat)	3.5 to 24	0.5	2.0	4.5	-4.5	-2	-0.5	Open Collector	Bidirectional	-40°C to 85°C	US2882ESOC-ND*	1.60	1.24	.96	.74	.57	424.60/M
SOT-23 UA-92 (flat)											US2882EUA-ND	1.38	1.07	.83	.64	.49	
SOT-23 UA-92 (flat)	3.5 to 24	0.5	2.0	4.5	-4.5	-2	-0.5	Open Collector	Bidirectional	-40°C to 85°C	US2882LSOC-ND*	1.81	1.41	1.08	.83	.65	482.50/M
SOT-23 UA-92 (flat)											US2882LUA-ND	1.60	1.24	.96	.74	.57	
UA-92 (flat)	2.2 to 18	0.5	2.0	4.5	-4.5	-2	-0.5	Open Collector	Bidirectional	-40°C to 85°C	US4881EUA-ND	1.67	1.30	1.00	.77	.60	—
UA-92 (flat)											US4881LUA-ND	2.03	1.58	1.21	.93	.72	
SOT-23 UA-92 (flat)	3.5 to 24	15	23	30	9.5	19	28	Open Collector	Unidirectional	-40°C to 85°C	US5881ESOC-ND*	1.96	1.52	1.17	.90	.70	521.10/M
SOT-23 UA-92 (flat)											US5881EUA-ND	1.67	1.30	1.00	.77	.60	
SOT-23 UA-92 (flat)	3.5 to 24	15	23	30	9.5	19	28	Open Collector	Unidirectional	-40°C to 85°C	US5881LSOC-ND*	2.25	1.75	1.34	1.03	.80	598.30/M
SOT-23 UA-92 (flat)											US5881LUA-ND	1.96	1.52	1.17	.90	.70	

* For Tape and Reel Part Number, change CT-ND to TR-ND † Unidirectional and is only sensitive to either north or south side of magnetic; Bidirectional is sensitive to an alternating magnetic fields of both north and south sides.



Programmable Linear Hall ICs



MLX90215: Programmable Linear Hall Effect sensor IC fabricated utilizing silicon-CMOS technology. It possesses active error correction circuitry which virtually eliminates the offset errors normally associated with analog Hall Effect devices. All magnetic response functions of the MLX90215 are fully programmable for even greater versatility. The V_{OUT} (V_{OUT}@B=0), sensitivity, direction of slope and the magnitude of sensitivity drift over temperature, are all programmable.

The ratiometric output voltage is proportional to the supply voltage. When programmed for a conventional sensitivity (with a positive gain), the voltage at the output will increase as a south magnetic field is applied to the branded face of the MLX90215. Conversely, the voltage output will decrease in the presence of a north magnetic field.

Features: • Programmable Linear Hall IC • Quad Switched / Chopper Stabilized • Ratiometric Output for A/D Interface • Adjustable Quiescent Voltage (V_Q) • Very Low Quiescent Voltage • Temperature Drift • Adjustable Sensitivity • Adjustable Temperature Compensation of Sensitivity

Temperature Suffix: E: -40°C to 85°C (Commercial), L: -40°C to 150°C (Automotive)

PTC-01: This programmer was designed for efficient and precise calibration of the Melexis family of programmable ICs. The programmer is designed to be easily adapted to a standard PC to allow calibration of programmable sensor ICs within the operating environment. The PTC-01 programmer contains its own programmable power supply and measurement circuitry. Similar to a standard EEPROM programmer, but adds special features such as 16 bit voltage and current measurement capability, and a configuration options that will accommodate users from the prototyping phase directly into production. An IBM compatible PC is required (not included) to load software to the programmer and control the functions of the programmer. DOS and Windows platforms are available, as well as source code and firmware. Communication is done through a standard RS-232 null modem cable to a COM port of the PC. The PC requires no custom configuration, allowing the programmer to be used with any PC with a COM port speed of 19.2kbs or better.

Features: • RS-232 serial interface • 16-bit voltage measurement • 12-bit voltage adjustment • Compact design • Internal or external supply voltage • 4 lead SIP (50mil) • RJ45 External Connector • High-level functions in firmware

PC Requirements: Requires a PC capable of RS-232 serial communications of 19200 baud. The minimum PC requirements include a 486 or higher processor with 8MB or RAM and 4MB of available disk space.

Note: The Melexis supplied software may have additional PC requirements.

Description	Temperature Range	Pkg.	Digi-Key Part No.	1	10	25	50
Precision Programmable Linear Hall IC	-40° to 85°C	4-SIP(VA)	MLX90215EVA-ND	7.75	5.96	4.59	3.54
Precision Programmable Linear Hall IC	-40° to 150°C	4-SIP(VA)	MLX90215LVA-ND	9.74	7.48	5.77	4.44
Precision Programmed Linear Hall IC, 10mV/MT 2.5V			MLX90215LVA-BC03-ND	12.19	9.47	7.34	5.67
Precision Programmed Linear Hall IC, 20mV/MT 2.5V			MLX90215LVA-CC03-ND	12.19	9.47	7.34	5.67
Precision Programmed Linear Hall IC, 50mV/MT 2.5V			MLX90215LVA-GC03-ND	12.19	9.47	7.34	5.67
Precision Programmed Linear Hall IC, 100mV/MT 1V			MLX90215LVA-LA03-ND	12.19	9.47	7.34	5.67
Precision Programmed Linear Hall IC, 100mV/MT 2.5V			MLX90215LVA-LC03-ND	12.19	9.47	7.34	5.67
Programmer for Melexis PTC devices. Programmable Infrared and Hall Sensors. (Includes Programmer Console, Power Supply, Serial Interface Cable, Software, Reference Magnet)	—	—	PTC-01-ND	750.00	—	—	—

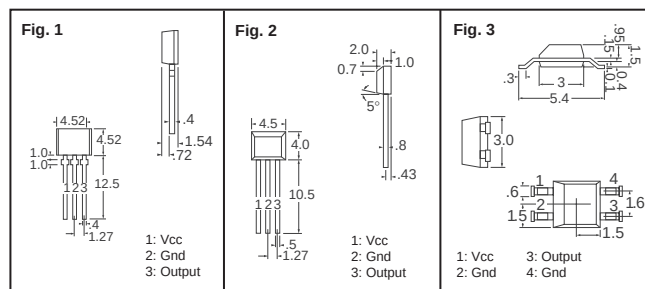
Panasonic Hall Effect Sensor ICs

Panasonic's Hall IC is a combination of a Hall element, amplifier, Schmidt circuit, and stabilized power supply/temperature compensator integrated on an identical chip by using the IC technology. It amplifies Hall element output at the amplifier, converts into a digital signal through the Schmidt circuit, and drives the TTL or MOS IC directly.

Features: • Stable temperature characteristics due to the additional temperature compensator • TTL and MOS ICs directly drivable by output • Semipermanent service life due to no contact parts • Small change of the operating flux density against mechanical stress • Provided with the output pull-up resistors (typ 27kΩ or open collector

output (see chart) • Operating Temperature: -40°C to 100°C (-40°C to 85°C for DN6851 - DN6853) • Supply Current Max: 6mA • Output Circuit Max: 20mA

Applications: • Speed Sensors • Position Sensors • Rotation Sensors • Keyboard Switches • Microswitches



* Output Type: Pull-up Resistors = 27K Internal; OC = open collector. ** To convert Gauss to millitesla, divide by 10
† Unidirectional and is only sensitive to either north or southside of magnetic; Bidirectional is sensitive to an alternating magnetic fields of both north and south sides.

Fig.	Supply Voltage Range (V)	Oper.** Flux Density (Gauss) (L-H) (H-L)	Output* Type	Oper.† Type	Pkg.	Digi-Key Part No.	1	Price Each 10	100
1	4.5 - 16	-175 175	Pullup	Bidirectional	3-Sip	DN6847SE-ND	1.68	1.35	1.01
2	4.5 - 16	5 220	OC	Unidirectional	3-Sip	DN6848-ND	1.04	.87	.70
3	4.5 - 16	5 220	OC	Unidirectional	SOH-4D	DN6848S-ND	1.04	.87	.70
2	4.5 - 16	-175 175	OC	Bidirectional	3-Sip	DN6849-ND	1.69	1.36	1.02
3	4.5 - 16	-175 175	OC	Bidirectional	SOH-4D	DN6849S-ND	1.69	1.36	1.02
1	4.5 - 16	-175 175	OC	Bidirectional	3-Sip	DN6849SE-ND	1.69	1.36	1.02
2	3.6 - 16	-200 200	Pullup	Bidirectional	3-Sip	DN6851-A-ND	.90	.76	.61
2	3.6 - 16	100 450	OC	Unidirectional	3-Sip	DN6852-A-ND	1.04	.87	.70
2	3.6 - 16	-200 200	OC	Bidirectional	3-Sip	DN6853-A-ND	1.35	1.13	.91
2	4.5 - 16	-120 120	Pullup	Bidirectional	3-Sip	DN8897-ND	1.69	1.36	1.02
2	4.5 - 16	-120 120	OC	Bidirectional	3-Sip	DN8899-ND	1.69	1.36	1.02

More Product Available Online: www.digikey.com

Toll-Free: 1-800-344-4539 • Phone: 218-681-6674 • Fax: 218-681-3380

Fig. 1	Fig. 2	Fig. 3	Fig. 4	Fig. 5	Fig. 6	Fig. 7	Fig. 8	Fig. 9	Fig. 10	Fig. 11	Fig. 12	Fig. 13
Fig. 14	Fig. 15	Fig. 16	Fig. 17	Fig. 18	Fig. 19	Fig. 20	Fig. 21	Fig. 22	Fig. 23	Fig. 24	Fig. 25	Fig. 26

*LNA2702L= Long Leads

Type/ Pkg.	Fig.	Pulse Forward Current	Optical Power Output	Peak Emission Wavelength	Beam Angle	Di-Key- Part No.	Pricing		Panasonic Part No.	
							1	100		
Side View	1	1A	4.6mW	950nm	17°	LN54PA-ND	1.00	8.37	6696	LN54
Top View	2	1.5A	7mW	950nm	45°	LN54-ND	.91	7.56	60.48	LN64
T-1 3/4	6	1.5A	3-8mW	950nm	25°	LN660000R-ND	.95	71.3	53.46	LN660000R
Side View	3	1A	12mW	900nm	115°	LN175PA-ND	1.81	14.47	108.54	LN175
T-1 3/4	6	1.5A	10mW/sr	950nm	20°	LN2A2904L-ND	.89	7.42	59.33	LN2A2904L
TO-18 Flat	9	2A	3-6mW	950nm	32°	LN51F-ND	3.63	29.02	225.70	LN51F
TO-18	10	2A	3-6mW	950nm	8°	LN51L-ND	3.63	29.02	225.70	LN51L
TO-18 Small	11	2A	3.5-5mW	950nm	100°	LN52-ND	3.05	24.38	189.59	LN52
Side View	12	1A	3-5mW	950nm	35°	LN58-ND	9.07	8.06	63.49	LN58
Axial	5	1A	3-4.5mW	950nm	18°	LN2A2W01L-ND	1.35	11.29	89.28	LN2A2W01L
Side View	13	1A	1.8-3.5mW	950nm	35°	LN58-ND	9.07	8.06	64.49	LN58
Side View x2	20	1A	1.8mW	950nm	23°	LN59-ND	1.10	9.13	73.01	LN59
Side View x2	20	1A	1.8mW	950nm	23°	LN2A2702L-ND*	1.01	8.40	67.18	LN2A2702L
Side View x2	20	1A	1.2mW/sr	940nm	23°	LN2A7011L-ND	1.32	10.96	87.70	LN2A7011L
T-1 3/4	6	1.5A	9mW/sr	950nm	25°	LN2A2903L-ND	.45	3.61	27.08	LN2A2903L
T-1	6	1A	2.5-5mW	950nm	20°	LN2A2802L-ND	.45	3.61	27.08	LN2A2802L
T-1 3/4	6	1A	10-18mW	860nm	20°	LN77L-ND	5.45	11.61	87.06	LN77L
Side View	13	1A	10-18mW	880nm	40°	LN78-ND	5.37	42.95	334.04	LN78
T-1	6	1A	6mW/sr	940nm	23°	LN2A2801L-ND	1.67	5.03	37.73	LN2A2801L
Side View	3	1.5A	2mW	940nm	80°	LN2A2603F-ND	1.27	10.12	75.90	LN2A2603F
Side View	12	1.5A	4.3-5.5mW	950nm	35°	LN65-ND	1.29	10.34	77.52	LN65
T-1 3/4	6	1.5A	13mW/sr	950nm	15°	LN66F-ND	6.10	46.02	352.54	LN66F
TO-18 Small	11	1.5A	5-10mW	950nm	90°	LN51S2-ND	2.13	17.74	141.91	LN51S2

Style/ Pkg.	Fig.	V _R	Peak Sensitivity Wavelength	t/r _{ff}	Beam Angle	Digi-Key Part No.	1	Pricing 10	Panasonic Part No.
Side View	7	30V	950nm	2ns	70°	PNZ3238-ND	1.91	7.56	PNZ3238
Top-18 Small	11	30V	950nm	2ns	70°	PNZ334-ND	1.46	12.15	PNZ334
Top-18	3	30V	850nm	2ns	70°	PNZ330CL-ND	2.99	23.90	PNZ330CL
Side View	3	30V	850nm	2ns	70°	PNZ335-ND	1.26	10.12	PNZ335
Top-18	21	50V	800nm	1ns	10°	PNZ300-ND	6.14	49.10	PNZ300
Top-18	22	50V	800nm	1ns	40°	PNZ300F-ND	6.14	49.10	PNZ300F
Top-18	23	30V	900nm	2ns	70°	PNZ331CL-ND	3.66	29.31	PNZ331CL
Top-18	24	30V	900nm	—	40°	PNZ331F-ND	7.11	56.85	PNZ331F
Side View	26	30V	900nm	50ns	65°	PNZ318B-ND	1.65	13.78	PNZ318B

Style/ Pkg.	Fig.	V _{CEO}	I _c	Peak Sensitivity Wavelength		Digi-Key Part No.	Pricing			Panasonic Part No.
				tr/ft			1	100	100	
Side View	4	20V	10mA	900nm	8μs	PNA1605F-ND	1.51	12.10	90.72	PNA1605F
Axial	5	20V	20mA	800nm	2.5/3.5μs	PNZ12700S-ND	1.20	9.99	79.92	PNZ12700S
Side View	1	20V	20mA	800nm	4μs	PNZ154-ND	1.39	11.61	92.88	PNZ154
T-1	6	30V	20mA	800nm	4μs	PNA1801L-ND	.65	4.86	36.45	PNA1801L
TO-18	10	30V	50mA	800nm	3μs	PNA1401L-ND	3.56	28.46	221.32	PNA1401L
TO-18 Flat	9	30V	50mA	800nm	3μs	PNA1401LF-ND	3.56	28.46	221.32	PNA1401LF
TO-18 Flat	14	40V†	50mA	800nm	3μs	PNZ102-ND	3.56	28.46	221.32	PNZ102
TO-18 Flat	15	30V†	50mA	800nm	3μs	PNZ102F-ND	3.56	28.46	221.32	PNZ102F
TO-18 Flat	14	30V†	30mA	900nm	5/6μs	PNZ108-ND	3.56	28.46	221.32	PNZ108
TO-18 Flat	15	30V†	30mA	900nm	8/9μs	PNZ108F-ND	3.56	28.46	221.32	PNZ108F
TO-18 Small	16	30V†	20mA	900nm	5/6μs	PN108CL-ND	2.99	23.90	185.91	PN108CL
TO-18 Flat	15	30V†	30mA	900nm	8/9μs	PNZ109F-ND	3.56	28.46	221.32	PNZ109F
TO-18 Small	16	30V†	20mA	900nm	5/6μs	PNZ109CL-ND	2.99	23.90	185.91	PNZ109CL
TO-18	14	30V†	30mA	900nm	5/6μs	PNZ109L-ND	3.56	28.46	221.32	PNZ109L
Axial	5	20V	20mA	800nm	3-10μs	PNZ147-ND	1.58	12.65	94.85	PNZ147
Side View	12	20V	20mA	800nm	4-10μs	PNZ150-ND	1.06	8.85	70.82	PNZ150
Side View	17	20V	20mA	800nm	4μs	PNA1608L-ND	1.06	8.85	70.82	PNA1608L
Side View	3	20V	10mA	800nm	4μs	PNZ155-ND	1.25	10.43	83.47	PNZ155
Side View	13	20V	20mA	800nm	4-10μs	PNZ158-ND	1.06	8.85	70.82	PNZ158
Side View	18	20V	20mA	850nm	4μs	PNZ163NC-ND	1.06	8.85	70.82	PNZ163NC
Side View	19	20V	20mA	850nm	4μs	PNA1601M-ND	1.06	8.85	70.82	PNA1601M
Side View	12	20V	30mA	800nm	100μs	PNA2602M-ND†	1.14	9.49	75.88	PNA2602M
Side View	17	20V	30mA	850nm	150μs	PNA2602M00NC-ND†	1.14	9.49	75.88	PNA2602M00M
Axial	5	20V	30mA	800nm	200μs	PNA2W01M-ND†	1.58	12.65	94.85	PNA2W01M
Side View	13	20V	30mA	800nm	100μs	PNA2603L-ND†	1.14	9.49	75.88	PNA2603L
Side View	18	20V	30mA	850nm	150μs	PNZ263L000NC-ND†	1.14	9.49	75.88	PNZ263L000M
T-1	6	20V	30mA	850nm	150μs	PNA2603M-ND†	.91	6.83	51.22	PNA2603M
T-1	25	30V	20mA	800nm	3μs	PNZ12050R-ND	1.41	11.75	93.96	PNZ12050R
T-1	25	30V	20mA	800nm	3μs	PNZ12150L-ND	1.24	10.37	82.94	PNZ12150L
T-1	25	30V	20mA	800nm	3μs	PNZ12050S-ND	1.25	10.02	75.17	PNZ12050S
T-1	25	20V	10mA	800nm	1/1.3μs	PNZ12150S-ND	1.33	11.04	88.34	PNZ12150S

‡ Darlington

Features:

- Reflow-compatible reflective photosensor
- Ultraminiature thin type: 2.7 x 3.4 mm (height: 1.5 mm)
- Visible light cutoff resin is used
- CNB10010RL, CNB10010SL, and ON2180 has Si phototransistor
- CNB20010RL has Darlington phototransistor / High current transfer ratio
- Reflective Sensing method: 1mm Sensing distance

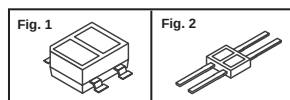
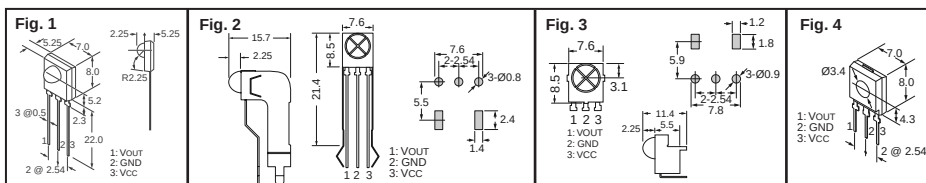


Fig.	Rank	Typ. t on / t off (μsec.)	V _R	I _F	I _C	V _{CEO}	Digi-Key Part No.	1	Cut Tape Price Each	Digi-Key Part No.	Tape & Reel Pricing 1,000		
								10	100	500			
1	R	30/40	6V	50mA	20mA	35V	CNB10010RLCT-ND	.99	.83	.67	.47	CNB10010RLTR-ND	440.00
	S	30/40	6V	50mA	20mA	35V	CNB10010SLCT-ND	.98	.83	.66	.46	CNB10010SLTR-ND	437.00
	R	120/115	6V	50mA	30mA	35V	CNB20010RLCT-ND	1.02	.85	.68	.48	CNB20010RLTR-ND	451.00
2	—	20/20	3V	50mA	20mA	30V	CNB1303-ND	1.02	.85	.68	.48	—	—

FEATURES:

- **PNA4602M/PNA4701M Series** (For infrared remote control systems.)
 - Extension distance is 8 m or more
 - External parts not required
 - Adoption of invisible light cutoff resin
- **PNA4611M Series** (For infrared remote control systems.)
 - High sensitivity (extension distance is 11 m or more)
 - External parts not required
 - Resin to cutoff visible light is used
- **PNA4603H Series** (For close control systems.)
 - Wavelength is shorter than that to human eyes
 - High sensitivity
 - External parts not required
 - Good output voltage linearity with respect to incident illuminance



Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Operating Supply Voltage	VCC	—	4.5	5.0	5.5	V
Current Consumption	ICC	VCC = 5.25V	0.5	1.0	1.5	mA
Output Voltage	VOFF	V = 0 lx, VCC = 5.0V	0.1	0.5	0.8	V
	v01	V = 10 lx, VCC = 5.0V*	2.0	2.7	3.4	V
	v02	V = 800 lx, VCC = 5.0V*	3.9	4.1	4.9	V
		V01-VOFF, VCC = 5.0V	1.65	1.9	4.9	V
Output Impedance	Z	—	10	—	—	kΩ
Peak Sensitivity Wavelength	λ ₀	—	—	540	—	nm

Fig.	Operating Supply Voltage Typ. (V)	Current Consumption Typ. (mA)	Max. Recep. Distance (m)	Carrier Frequency Typ. (kHz)	Digi-Key Part No.	Pricing 100	Panasonic Part No.
1	2.4	8	10	38.0	PNA4602M-ND	1.28 10.21	76.58
	3.0	0.8	7.0	36.7	PNA4701M-ND	1.47 11.75	88.13
	5.0	2.4	11	16	PNA4611M00YB-ND	1.43 11.46	85.98
2	2.4	11	16	38.0	PNA4612M00YB-ND	1.43 11.46	85.98
	5.0	2.4	11	16	PNA4613M00YB-ND	1.43 11.46	85.98
	5.0	2.4	11	16	PNA4614M00YB-ND	1.43 11.46	85.98
3	2.4	11	16	38.0	PNA4611M00XD-ND	1.43 11.46	85.98
	5.0	2.4	11	16	PNA4612M00XD-ND	1.43 11.46	85.98
	5.0	2.4	11	16	PNA4613M00XD-ND	1.43 11.46	85.98
4	2.4	11	16	38.0	PNA4614M00XD-ND	1.43 11.46	85.98
	5.0	2.4	11	16	PNA4611M00X0-ND	1.43 11.46	85.98
	5.0	2.4	11	16	PNA4612M00X0-ND	1.43 11.46	85.98
4	See PNA4603A Main Characteristics Chart				PNA4603H-ND	3.16 25.31	196.86
							PNA4603H

(T032) 1095

SenSym ICT Solid State Pressure Sensors

For use in medical equipment, pneumatic controls, computer peripherals and pressure instrumentation, process and flow control.

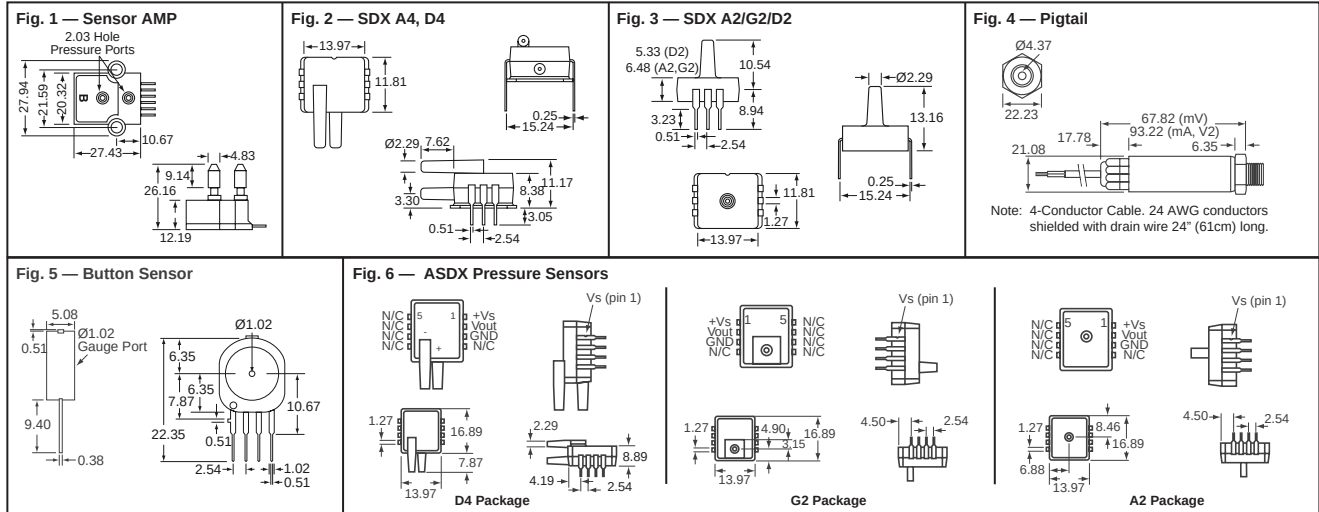


Fig.	Pressure	Pressure Type	Output	Pkg.	Supply (VDC)	Response Time*	Operating Temp.	Digi-Key Part No.	1	Price Each 25	100	SenSym ICT Part No.
Signal Conditioned Pressure Sensors												
1	0-1 PSID	Differential/Gage	0.25 to 4.5V	SIP	+4.5 to +16	100µSec	-25°C to +105°C	287-1002-ND	47.70	34.20	27.50	ASXC01DN
	0-5 PSID	Differential/Gage						287-1003-ND	47.70	34.20	27.50	ASXC05DN
	0-15 PSIA	Absolute						287-1008-ND	47.70	34.20	27.50	ASCX15AN
	0-15 PSID	Differential/Gage						287-1009-ND	47.70	34.20	27.50	ASCX15DN
	0-30 PSIA	Absolute						287-1010-ND	47.70	34.20	27.50	ASXC30AN
	0-30 PSID	Differential/Gage						287-1011-ND	47.70	34.20	27.50	ASXC30DN
	0-100 PSIA	Absolute						287-1004-ND	47.70	34.20	27.50	ASCX100AN
	0-100 PSID	Differential/Gage						287-1005-ND	47.70	34.20	27.50	ASCX100DN
	0-150 PSIA	Absolute						287-1006-ND	47.70	34.20	27.50	ASCX150AN
	0-150 PSID	Differential/Gage						287-1007-ND	47.70	34.20	27.50	ASCX150DN
Precision Compensated Pressure Sensors												
1	0-1 PSID	Differential/Gage	0-18mV	SIP	+20	100µSec	-40°C to +85°C	287-1017-ND	54.90	36.30	34.66	SCX01DN
	0-5 PSID	Differential/Gage	0-60mV		+20	100µSec	-40°C to +85°C	287-1018-ND	44.70	31.70	28.36	SCX05DN
	0-15 PSIA	Absolute	0-90mV		+20	100µSec	-40°C to +85°C	287-1023-ND	44.70	31.70	28.36	SCX15AN
	0-15 PSID	Differential/Gage	0-90mV		+20	100µSec	-40°C to +85°C	287-1024-ND	44.70	31.70	28.36	SCX15DN
	0-30 PSIA	Absolute	0-90mV		+20	100µSec	-40°C to +85°C	287-1025-ND	44.70	31.70	28.36	SCX30AN
	0-30 PSID	Differential/Gage	0-90mV		+20	100µSec	-40°C to +85°C	287-1026-ND	44.70	31.70	28.36	SCX30DN
	0-100 PSIA	Absolute	0-100mV		+20	100µSec	-40°C to +85°C	287-1019-ND	54.90	36.30	34.66	SCX100AN
	0-100 PSID	Differential/Gage	0-100mV		+20	100µSec	-40°C to +85°C	287-1020-ND	54.90	36.30	34.66	SCX100DN
	0-150 PSIA	Absolute	0-90mV		+20	100µSec	-40°C to +85°C	287-1021-ND	54.90	36.30	34.66	SCX150AN
	0-150 PSID	Differential/Gage	0-90mV		+20	100µSec	-40°C to +85°C	287-1022-ND	54.90	36.30	34.66	SCX150DN
0-4" H2O	WC	Ratio	+18	500µSec	0°C to 70°C	287-1027-ND	78.80	57.80	41.70	SCXL004DN		
2	0-1 PSID	Differential/Gage	0-18mV	DIP	+20	100µSec	-40°C to +85°C	287-1028-ND	25.00	19.43	17.02	SDX01D4
	0-5 PSID	Differential/Gage	0-60mV					287-1030-ND	25.00	19.43	17.02	SDX05D4
	0-15 PSIA	Absolute	0-90mV					287-1037-ND	25.00	19.43	17.02	SDX15A4
	0-15 PSID	Differential/Gage	0-90mV					287-1038-ND	25.00	19.43	17.02	SDX15D4
	0-30 PSIA	Absolute	0-90mV					287-1041-ND	25.00	19.43	17.02	SDX30A4
	0-30 PSID	Differential/Gage	0-90mV					287-1042-ND	25.00	19.43	17.02	SDX30D4
	0-100 PSIA	Absolute	0-100mV					287-1033-ND	25.00	19.43	17.02	SDX100A4
	0-100 PSID	Differential/Gage	0-100mV					287-1034-ND	25.00	19.43	17.02	SDX100D4
	0-5" H2O	WC	0-25mV					287-1044-ND	42.60	32.18	30.24	SDXL005D4
	0-10" H2O	WC	0-25mV					287-1045-ND	42.60	32.18	30.24	SDXL010D4
3	0-1 PSIG	Gage	0-18mV	DIP	+20	100µSec	-40°C to +85°C	287-1029-ND	25.00	19.43	17.02	SDX01G2
	0-5 PSIG	Gage	0-60mV					287-1031-ND	25.00	19.43	17.02	SDX05G2
	0-15 PSIA	Absolute	0-90mV					287-1036-ND	25.00	19.43	17.02	SDX15A2
	0-15 PSIG	Gage	0-90mV					287-1039-ND	25.00	19.42	17.02	SDX15G2
	0-30 PSIA	Absolute	0-90mV					287-1040-ND	25.00	19.43	17.02	SDX30A2
	0-30 PSIG	Gage	0-90mV					287-1043-ND	25.00	19.43	17.02	SDX30G2
	0-100 PSIA	Absolute	0-100mV					287-1032-ND	25.00	19.43	17.02	SDX100A2
	0-100 PSIG	Gage	0-100mV					287-1035-ND	25.00	19.43	17.02	SDX100G2
Pressure Sensors Calibrated and Temperature Compensated												
6	0-1 PSIG	Gage	0.5 to 4.5V	DIP	4.75 to 5.25†	8ms	-20°C to +105°C	287-1923-ND	28.00	21.00	19.30	ASDX001G24R
	0-1 PSID	Differential/Gage						287-1918-ND	28.00	21.00	19.30	ASDX001D44R
	0-5 PSIG	Gage						287-1924-ND	28.00	21.00	19.30	ASDX005G24R
	0-5 PSID	Differential/Gage						287-1919-ND	28.00	21.00	19.30	ASDX005D44R
	0-15 PSIA	Absolute						287-1915-ND	28.00	21.00	19.30	ASDX015A24R
	0-15 PSIG	Gage						287-1925-ND	28.00	21.00	19.30	ASDX015G24R
	0-15 PSID	Differential/Gage						287-1920-ND	28.00	21.00	19.30	ASDX015D44R
	0-30 PSIA	Absolute						287-1916-ND	28.00	21.00	19.30	ASDX030A24R
	0-30 PSIG	Gage						287-1926-ND	28.00	21.00	19.30	ASDX030G24R
	0-30 PSID	Differential/Gage						287-1921-ND	28.00	21.00	19.30	ASDX030D44R
4	0-100 PSIA	Absolute	Gage	Steel 1/4" (6.35mm) 18NPT (Male)	+12.5 to +30	100µSec	-40°C to +125°C	287-1917-ND	28.00	21.00	19.30	ASDX100A24R
	0-100 PSIG	Gage						287-1927-ND	28.00	21.00	19.30	ASDX100G24R
	0-100 PSID	Differential/Gage						287-1922-ND	28.00	21.00	19.30	ASDX100D44R
	0-5 PSIG	Gage						287-1090-ND	116.00	90.01	85.20	SPTA0005PG5W02
	0-15 PSIG	Gage						287-1091-ND	116.00	90.01	85.20	SPTA0015PG5W02
	0-30 PSIG	Gage						287-1092-ND	116.00	90.01	85.20	SPTA0030PG5W02
	0-100 PSIG	Gage						287-1093-ND	116.00	90.01	85.20	SPTA0100PG5W02
	0-300 PSIG	Gage						287-1094-ND	116.00	90.01	85.20	SPTA0300PG5W02
0-500 PSIG	Gage	287-1095-ND	116.00	90.01	85.20	SPTA0500PG5W02						
0-5 PSIG	Gage	4-20mA	+12.5 to +30	287-1096-ND	116.00	90.01	85.20	SPTMA0005PG5W02				
0-15 PSIG	Gage	4-20mA	+12.5 to +30	287-1097-ND	116.00	90.01	85.20	SPTMA0015PG5W02				
0-30 PSIG	Gage	4-20mA	+12.5 to +30	287-1098-ND	116.00	90.01	85.20	SPTMA0030PG5W02				
0-100 PSIG	Gage	4-20mA	+12.5 to +30	287-1099-ND	116.00	90.01	85.20	SPTMA0100PG5W02				

* Response time for a 0 psi to full scale span pressure step change, 10% to 90% rise time. † Sensor is not reverse polarity protected.

(Continued)

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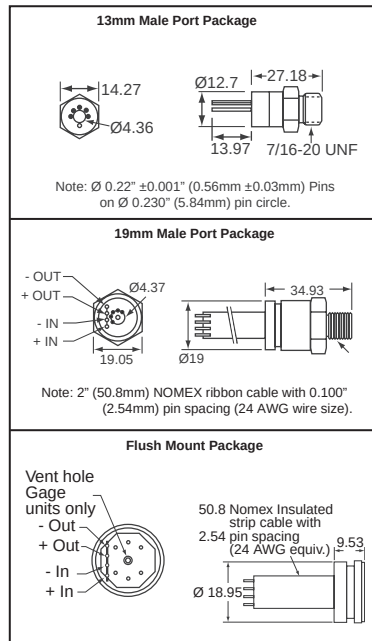
SenSym ICT Solid State Pressure Sensors (Cont.)

Fig.	Pressure	Pressure Type	Output	Pkg.	Supply (VDC)	Response Time*	Operating Temp.	Digi-Key Part No.	1	Price Each 25	100	SenSym ICT Part No.
4	0-300 PSIG	Gage	4-20mA	2" (61cm) Pigtail Electrical Connection	+12.5 to +30	100µSec	-40°C to +125°C	287-1100-ND	116.00	90.01	85.20	SPTMA0300PG5W02
	0-500 PSIG		4-20mA		+12.5 to +30			287-1101-ND	116.00	90.01	85.20	SPTMA0500PG5W02
	0-5 PSIG		0-100mV		+15			287-1102-ND	99.00	81.01	76.80	SPTMV0005PG5W02
	0-15 PSIG		0-100mV		+15			287-1103-ND	99.00	81.01	76.80	SPTMV0015PG5W02
	0-30 PSIG		0-100mV		+15			287-1104-ND	99.00	81.01	76.80	SPTMV0030PG5W02
	0-100 PSIG		0-100mV		+15			287-1105-ND	99.00	81.01	76.80	SPTMV0100PG5W02
0-300 PSIG	0-100mV	+15	287-1106-ND	99.00	81.01	76.80	SPTMV0300PG5W02					
0-500 PSIG	0-100mV	+15	287-1107-ND	99.00	81.01	76.80	SPTMV0500PG5W02					
High-Impedance Bridge Sensors												
2	0-1 PSID	Differential	0-20mV	DIP	+12	100µSec	-40°C to +85°C	287-1065-ND	23.30	16.70	14.20	SX01DD4
	0-5 PSID	Differential	0-75mV					287-1068-ND	18.90	13.20	12.30	SX05DD4
	0-15 PSIA	Absolute	0-110mV					287-1080-ND	18.90	13.20	12.30	SX15AD4
	0-15 PSID	Differential	0-110mV					287-1082-ND	18.90	13.20	12.30	SX15DD4
	0-30 PSIA	Absolute	0-110mV					287-1086-ND	18.90	13.20	12.30	SX30AD4
	0-30 PSID	Differential	0-110mV					287-1088-ND	18.90	13.20	12.30	SX30DD4
0-100 PSIA	Absolute	0-150mV	287-1072-ND	23.30	16.70	14.20	SX100AD4					
0-100 PSID	Differential	0-150mV	287-1074-ND	23.30	16.70	14.20	SX100DD4					
3	0-1 PSIG	Gage	0-20mV	DIP	+12	100µSec	-40°C to +85°C	287-1066-ND	25.50	21.00	15.20	SX01GD2
	0-5 PSIG	Gage	0-75mV					287-1069-ND	22.10	16.20	12.30	SX05GD2
	0-15 PSIA	Absolute	0-110mV					287-1079-ND	18.90	13.20	12.30	SX15AD2
	0-15 PSIG	Gage	0-110mV					287-1083-ND	18.90	13.20	12.30	SX15GD2
	0-30 PSIA	Absolute	0-110mV					287-1085-ND	18.90	13.20	12.30	SX30AD2
	0-30 PSIG	Gage	0-110mV					287-1089-ND	18.90	13.20	12.30	SX30GD2
0-100 PSIA	Absolute	0-150mV	287-1071-ND	23.30	16.70	14.20	SX100AD2					
0-100 PSIG	Gage	0-150mV	287-1075-ND	23.30	16.70	14.20	SX100GD2					
5	0-1 PSID	Differential	0-20mV	Button	+12	100µSec	-40°C to +85°C	287-1064-ND	23.30	16.70	14.20	SX01D
	0-5 PSID	Differential	0-75mV					287-1067-ND	18.90	13.20	12.30	SX05D
	0-15 PSID	Differential	0-110mV					287-1081-ND	18.90	13.20	12.30	SX15D
	0-15 PSIA	Absolute	0-110mV					287-1078-ND	18.90	13.20	12.30	SX15A
	0-30 PSID	Differential	0-110mV					287-1067-ND	18.90	13.20	12.30	SX30D
	0-30 PSIA	Absolute	0-110mV					287-1084-ND	18.90	13.20	12.30	SX30A
0-100 PSIA	Absolute	0-150mV	287-1070-ND	23.30	16.70	14.20	SX100A					
0-100 PSID	Differential	0-150mV	287-1073-ND	23.30	16.70	14.20	SX100D					
0-150 PSIA	Absolute	0-110mV	287-1076-ND	23.30	16.70	14.20	SX150A					
0-150 PSID	Differential	0-110mV	287-1077-ND	23.30	16.70	14.20	SX150D					
Handbook.....								287-1001-ND	5.00	—	—	DA-B-7/96-15K

* Response time for a 0 psi to full scale span pressure step change, 10% to 90% rise time.

Stainless Steel Isolated Pressure Sensors and Compensated Sensors

Features:
 • Response Time: 100 µSec • Operating Temperature: -40°C to +125°C

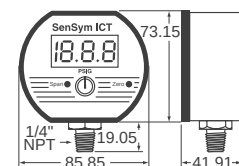


	Pressure	Pressure Type	Output mV		Package	Max. Supply	Digi-Key Part No.	1	Price Each 25	100	SenSym ICT Part No.
Sensors — 13mm Steel											
0-1000 PSIA	Absolute	0-200		Male Port Cell		+12VDC	287-1123-ND	76.00	61.00	57.60	13C1000PA4K
0-5000 PSIA							287-1124-ND	76.00	61.00	57.60	13C5000PA4K
Calibrated Compensated Sensors — 19mm Steel											
0-15 PSIA	Absolute Gage Vacuum	0-100	1/8" (3.18mm) 27 NPT			+15VDC	287-1108-ND	77.00	58.50	55.20	19C015PA4K
0-15 PSIG							287-1109-ND	77.00	58.50	55.20	19C015PG4K
0-15 PSIV							287-1938-ND	77.00	58.50	55.20	19C015PV4K
0-15 PSIV							+2.0mA	287-1939-ND	77.00	58.50	55.20
0-15 PSIV	Vacuum	0-100	1/4" (6.35mm) 18 NPT			+15VDC	287-1940-ND	77.00	58.50	55.20	19C015PV5K
0-15 PSIV							+2.0mA	287-1941-ND	77.00	58.50	55.20
0-30 PSIA	Absolute Gage Vacuum	0-100	1/8" (3.18mm) 27 NPT			+15VDC	287-1110-ND	77.00	58.50	55.20	19C030PA4K
0-30 PSIG							287-1111-ND	77.00	58.50	55.20	19C030PG4K
0-30 PSIV							287-1944-ND	77.00	58.50	55.20	19C030PV4K
0-30 PSIV							+2.0mA	287-1945-ND	77.00	58.50	55.20
0-30 PSIV	Vacuum	0-100	1/4" (6.35mm) 18 NPT			+15VDC	287-1946-ND	77.00	58.50	55.20	19C030PV5K
0-30 PSIV							+2.0mA	287-1947-ND	77.00	58.50	55.20
0-50 PSIA	Absolute Gage	0-100	1/8"(3.18mm) 27 NPT			+15VDC	287-1112-ND	77.00	58.50	55.20	19C050PA4K
0-50 PSIG							287-1113-ND	77.00	58.50	55.20	19C050PG4K
0-100 PSIA	Absolute Gage Vacuum	0-100	1/8" (3.18mm) 27NPT			+15VDC	287-1114-ND	77.00	58.50	55.20	19C100PA4K
0-100 PSIG							287-1115-ND	77.00	58.50	55.20	19C100PG4K
0-100 PSIV							287-1950-ND	77.00	58.50	55.20	19C100PV4K
0-100 PSIV							+2.0mA	287-1951-ND	77.00	58.50	55.20
0-100 PSIV	Vacuum	0-100	1/4" (6.35mm) 18 NPT			+15VDC	287-1952-ND	77.00	58.50	55.20	19C100PV5K
0-100 PSIV							+2.0mA	287-1953-ND	77.00	58.50	55.20
0-200 PSIA	Absolute Gage	0-100	1/8" (3.18mm) 27 NPT			+15VDC	287-1116-ND	77.00	58.50	55.20	19C200PA4K
0-200 PSIG							287-1117-ND	77.00	58.50	55.20	19C200PG4K
0-300 PSIA	Absolute Gage	0-100	1/8" (3.18mm) 27 NPT			+15VDC	287-1118-ND	77.00	58.50	55.20	19C300PA4K
0-300 PSIG							287-1119-ND	77.00	58.50	55.20	19C300PG4K
0-500 PSIA	Absolute Gage	0-100	1/8" (3.18mm) 27 NPT			+15VDC	287-1120-ND	77.00	58.50	55.20	19C500PA4K
0-500 PSIG							287-1121-ND	77.00	58.50	55.20	19C500PG4K
Flush Mount Sensors											
0-15 PSIV	Vacuum	0-100	N/A			+15VDC	287-1936-ND	72.00	53.50	50.40	19C015PV2K
0-15 PSIV							+2.0mA	287-1937-ND	72.00	53.50	50.40
0-30 PSIV	Vacuum	0-100	N/A			+15VDC	287-1942-ND	72.00	53.50	50.40	19C030PV2K
0-30 PSIV							+2.0mA	287-1943-ND	72.00	53.50	50.40
0-100 PSIV	Vacuum	0-100	N/A			+15VDC	287-1948-ND	72.00	53.50	50.40	19C100PV2K
0-100 PSIV							+2.0mA	287-1949-ND	72.00	53.50	50.40

* Response time for a 0 psi to full scale span pressure step change, 10% to 90% rise time.

Digital Pressure Gauges

SDPGB Series



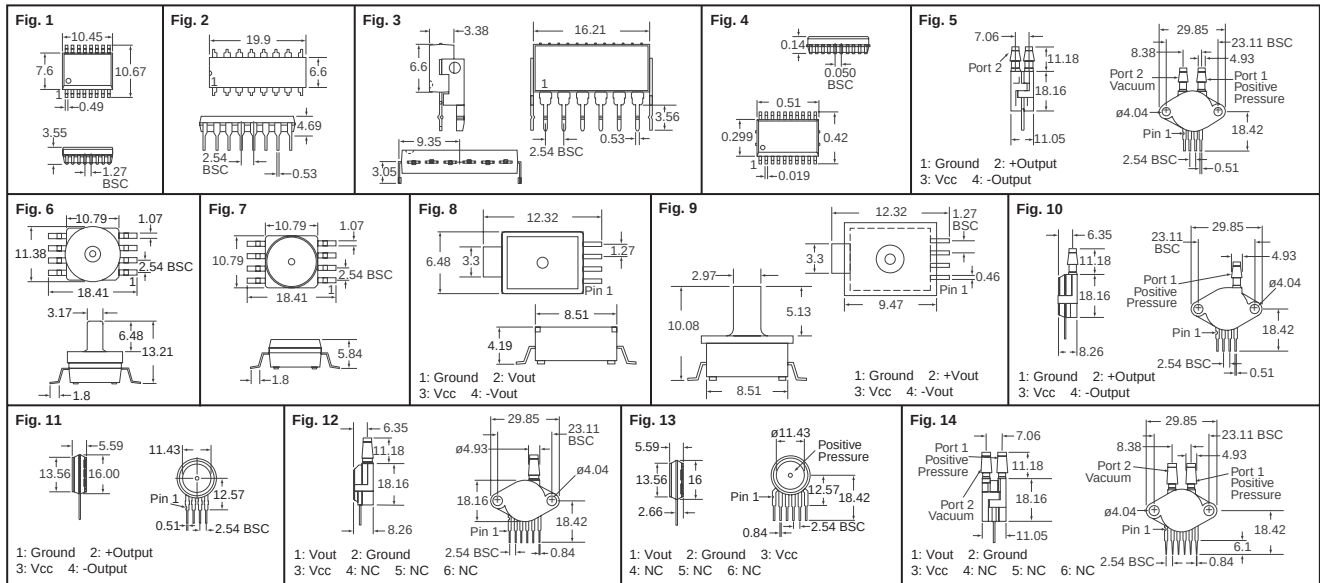
Pressure Range	Resolution PSIG	Operating Temperature	Pressure Port	Digi-Key Part No.	Price Each	SenSym ICT Part No.
-30.0 inHg/100.0 PSIG	0.1	-20 to +85°C	1/4" NPT Male, 316 Stainless Steel	287-1928-ND	249.00	SDPGB-30+100PG5
15.00 PSIG	0.01			287-1929-ND	249.00	SDPGB0015PG5
30.0 PSIG	0.1			287-1930-ND	249.00	SDPGB0030PG5
100.0 PSIG	0.1			287-1931-ND	249.00	SDPGB0100PG5
199.9 PSIG	0.1			287-1932-ND	249.00	SDPGB0200PG5
300 PSIG	1.0			287-1933-ND	249.00	SDPGB0300PG5
500 PSIG	1.0			287-1934-ND	249.00	SDPGB0500PG5
1,000 PSIG	1.0			287-1935-ND	249.00	SDPGB1000PG5

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Accelerometers

• Operating Temperature Range: -40°C to +85°C • Supply (typ.): 5.0VDC

Fig.	Supply (VDC)	Acceleration Range	Sensitivity (mV/g/V)	Zero g Output (Vdd 5V)*	Digi-Key Part No.	1	Price Each 25	100
1	4.75 to 5.25	8g	10	2.5V	MMA1220D-ND	20.66	16.40	15.47
2	4.75 to 5.25	38g	10	2.5V	MMA1201P-ND	20.66	16.40	15.47
3	4.75 to 5.25	38g	10	2.5V	MMA2200W-ND	20.66	16.40	15.47
1	4.75 to 5.25	38g	10	2.5V	MMA2201D-ND	20.66	16.40	15.47
4	4.75 to 5.25	45g	10	2.5V	MMA3201D-ND	20.66	16.40	15.47
1	4.75 to 5.25	47g	1.6	2.5V	MMA1200D-ND	20.66	16.40	15.47
1	4.75 to 5.25	47g	8	2.5V	MMA2202D-ND	20.66	16.40	15.47

* The device can measure both +/- acceleration. With no input acceleration the output is at midsupply.
For positive acceleration the output will increase above Vdd/2 and for negative acceleration the output will decrease below Vdd/2.

Precision Temperature Compensated Pressure Sensors

• Operating Temperature Range: -40°C to +125°C

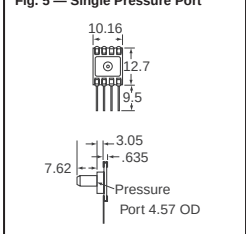
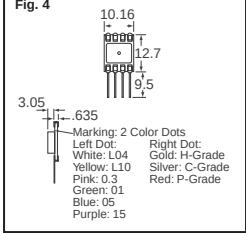
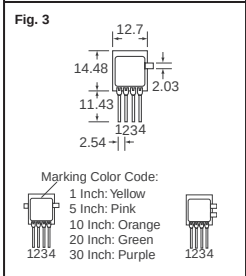
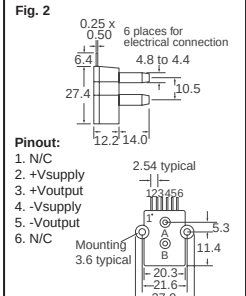
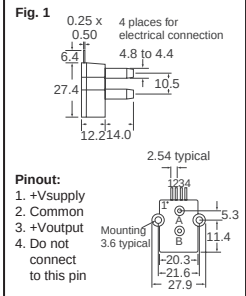
Fig.	Pressure	Pressure Type	Output	Package	Supply (VDC)	Response Time*	Compensated Temp. Range (°C)	Digi-Key Part No.	1	Price Each 25	100
Unamplified Uncompensated Pressure Sensors											
5	0 to 1.45 PSI	Differential	35mV	344C-01	3.0	1.0ms		MPX10DP-ND	12.03	9.16	8.59
Unamplified Temperature Compensated Pressure Sensors											
11	0 to 1.45 PSI	Differential	25mV	344-15	10.0	1.0ms	0 to +85	MPX2010D-ND	13.63	10.49	9.85
5	0 to 1.45 PSI	Differential	25mV	344C-01	10.0	1.0ms	0 to +85	MPX2010DP-ND	14.43	11.15	10.48
10	0 to 1.45 PSI	Gage	25mV	344B-01	10.0	1.0ms	0 to +85	MPX2010GP-ND	14.27	11.02	10.35
8	0 to 1.45 PSI	Differential	25mV	MPAK	10.0	1.0ms	0 to +85	MPX2010D-ND	7.90	5.80	5.40
9	0 to 1.45 PSI	Gage	25mV	Ported MPAK	10.0	1.0ms	0 to +85	MPX2010GS-ND	8.07	5.93	5.53
10	0 to 7.25 PSI	Gage	40mV	344B-01	10.0	1.0ms	0 to +85	MPX2050GP-ND	15.85	12.34	11.61
8	0 to 7.25 PSI	Differential	40mV	MPAK	10.0	1.0ms	0 to +85	MPX2053D-ND	7.90	5.80	5.40
9	0 to 7.25 PSI	Gage	40mV	Ported MPAK	10.0	1.0ms	0 to +85	MPX2053GS-ND	8.07	5.93	5.53
8	0 to 14.5 PSI	Absolute	40mV	MPAK	10.0	1.0ms	0 to +85	MPX2102A-ND	7.90	5.80	5.40
9	0 to 14.5 PSI	Absolute	40mV	Ported MPAK	10.0	1.0ms	0 to +85	MPX2102AS-ND	8.07	5.93	5.53
8	0 to 14.5 PSI	Differential	40mV	MPAK	10.0	1.0ms	0 to +85	MPX2102D-ND	7.90	5.80	5.40
9	0 to 14.5 PSI	Gage	40mV	Ported MPAK	10.0	1.0ms	0 to +85	MPX2102GS-ND	8.07	5.93	5.53
8	0 to 29 PSI	Absolute	40mV	MPAK	10.0	1.0ms	0 to +85	MPX2202A-ND	7.90	5.80	5.40
9	0 to 29 PSI	Absolute	40mV	Ported MPAK	10.0	1.0ms	0 to +85	MPX2202AS-ND	8.07	5.93	5.53
8	0 to 29 PSI	Differential	40mV	MPAK	10.0	1.0ms	0 to +85	MPX2202D-ND	7.90	5.80	5.40
9	0 to 29 PSI	Gage	40mV	Ported MPAK	10.0	1.0ms	0 to +85	MPX2202GS-ND	8.07	5.93	5.53
10	0 to 29 PSI	Gage	40mV	344B-01	10.0	1.0ms	0 to +85	MPX2200GP-ND	15.85	12.34	11.61
Amplified Temperature Compensated Pressure Sensors											
6	0 to 3.92kPa	Gage	4.9V	Ported 8-SOP	5.0	—	0 to +85	MPXV5004GC6U-ND	18.19	14.31	13.48
14	0 to 1.45 PSI	Differential	4.7V	867C-05	5.0	1.0ms	-40 to +125	MPX5010DP-ND	18.34	14.44	13.61
12	0 to 1.45 PSI	Gage	4.7V	867B-04	5.0	1.0ms	-40 to +125	MPX5010GP-ND	18.19	14.31	13.48
13	0 to 1.45 PSI	Differential	4.7V	867-08	5.0	1.0ms	-40 to +125	MPX5050D-ND	17.57	13.78	12.98
14	0 to 1.45 PSI	Differential	4.7V	867C-05	5.0	1.0ms	-40 to +125	MPX5050DP-ND	18.34	14.44	13.61
12	0 to 1.45 PSI	Gage	4.7V	867B-04	5.0	1.0ms	-40 to +125	MPX5050GP-ND	18.19	14.31	13.48
14	0 to 1.45 PSI	Absolute	4.7V	867B-04	5.0	1.0ms	0 to +85	MPX5100AP-ND	18.19	14.31	13.48
12	0 to 1.45 PSI	Differential	4.7V	867C-05	5.0	1.0ms	0 to +85	MPX5100DP-ND	18.34	14.44	13.61
12	0 to 1.45 PSI	Gage	4.7V	867B-04	5.0	1.0ms	0 to +85	MPX5100GP-ND	18.19	14.31	13.48
6	2.18 to 14.8 PSI	Absolute	4.95V	Ported 8-SOP	5.1	15.0ms	-40 to +125	MPXA4101AC6U-ND	18.19	14.31	13.48
7	2.9 to 15.2 PSI	Absolute	4.9V	8-SOP	5.1	1.0ms	-40 to +125	MPXA4100A6U-ND	17.80	13.98	13.17
6	2.9 to 15.2 PSI	Absolute	4.9V	Ported 8-SOP	5.1	1.0ms	-40 to +125	MPXA42100AC6U-ND	18.42	14.50	13.67
12	2.2 to 16.7 PSI	Absolute	4.8V	867B-04	5.1	1.0ms	0 to +85	MPXA4100AP-ND	18.19	14.31	13.48
13	2.2 to 16.7 PSI	Absolute	4.8V	867-08	5.1	1.0ms	-40 to +125	MPXA4115A-ND	17.57	13.78	12.98
7	2.2 to 16.7 PSI	Absolute	4.8V	867B-04	5.1	1.0ms	-40 to +125	MPXA4115AP-ND	18.19	14.31	13.48
12	2.2 to 16.7 PSI	Absolute	4.8V	8-SOP	5.1	1.0ms	-40 to +125	MPXA4100A6U-ND	17.57	13.78	12.98
6	2.2 to 16.7 PSI	Absolute	4.8V	Ported 8-SOP	5.1	1.0ms	-40 to +125	MPXA4100AC6U-ND	18.19	14.31	13.48
7	2.2 to 16.7 PSI	Absolute	4.8V	8-SOP	5.1	1.0ms	-40 to +125	MPXA4115A6U-ND	17.57	13.78	12.98
6	2.2 to 16.7 PSI	Absolute	4.8V	Ported 8-SOP	5.1	1.0ms	-40 to +125	MPXA4115AC6U-ND	18.19	14.31	13.48
7	2.2 to 16.7 PSI	Absolute	4.8V	8-SOP	5.0	1.0ms	-40 to +125	MPXA6115A6U-ND	17.57	13.78	12.98
6	2.2 to 16.7 PSI	Absolute	4.8V	Ported 8-SOP	5.1	1.0ms	-40 to +125	MPXA6115AC6U-ND	18.19	14.31	13.48
6	2.2 to 16.7 PSI	Absolute	4.8V	8-SOP	5.1	1.0ms	-40 to +125	MPXA42115A6U-ND	17.80	13.98	13.17
6	2.2 to 16.7 PSI	Absolute	4.8V	Ported 8-SOP	5.1	1.0ms	-40 to +125	MPXA42115AC6U-ND	18.42	14.50	13.67
12	2.9 to 36.3 PSI	Absolute	4.9V	867B-04	5.1	1.0ms	-40 to +125	MPXA4250AP-ND	18.19	14.31	13.48
7	2.9 to 36.3 PSI	Absolute	4.9V	8-SOP	5.1	1.0ms	-40 to +125	MPXA4250A6U-ND	17.57	13.78	12.98
6	2.9 to 36.3 PSI	Absolute	4.9V	Ported 8-SOP	5.1	1.0ms	-40 to +125	MPXA4250AC6U-ND	18.19	14.31	13.48
14	0 to 101.5 PSI	Differential	4.7V	867C-05	5.0	1.0ms	0 to +85	MPX5700DP-ND	18.34	14.44	13.61
12	0 to 101.5 PSI	Gage	4.7V	867B-04	5.0	1.0ms	0 to +85	MPX5700GP-ND	18.19	14.31	13.48
13	0 to 101.5 PSI	Differential	4.7V	867-08	5.0	1.0ms	0 to +85	MPX5990D-ND	17.57	13.78	12.98

*Response time is defined as the time for the incremental change in output to go from 10% to 90% of its final value when subjected to a specified step change in pressure.

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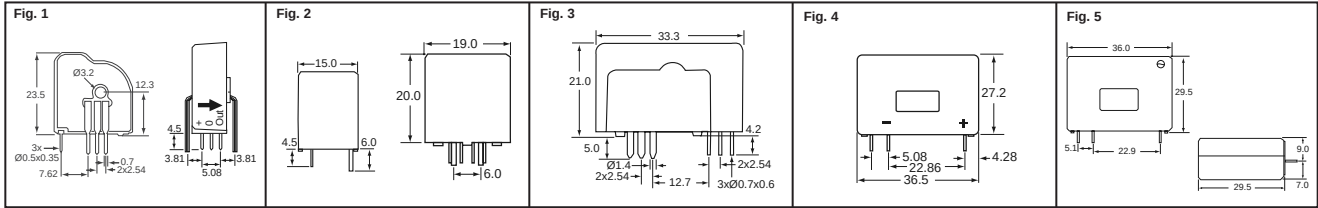


Fig.	Pressure	Pressure Type	Output	Supply (VDC)	Compensated Temperature	Operating Temperature	Digi-Key Part No.	1	Price Each	25	100	All Sensors Part No.
Amplified with Voltage Reference Low Pressure												
1	±1	mbar	4V	+5.5 to +16Vdc	5° to 50°C	-25° to 85°C	442-1000-ND	104.00	83.75	80.40	1 MBAR-D-4V-REF	
	±1	In H2O					442-1001-ND	104.00	83.75	80.40	1 INCH-D-4V-REF	
	0-1	In H2O					442-1002-ND	104.00	83.75	80.40	1 INCH-G-4V-REF	
	±5	In H2O					442-1003-ND	99.00	77.50	74.40	5 INCH-D-4V-REF	
	0-5	In H2O					442-1004-ND	99.00	77.50	74.40	5 INCH-G-4V-REF	
	±10	In H2O					442-1005-ND	99.00	77.50	74.40	10 INCH-D-4V-REF	
	0-10	In H2O					442-1006-ND	99.00	77.50	74.40	10 INCH-G-4V-REF	
	±20	In H2O					442-1007-ND	99.00	77.50	74.40	20 INCH-D-4V-REF	
	0-20	In H2O					442-1008-ND	99.00	75.00	72.00	20 INCH-G-4V-REF	
	±30	In H2O					442-1009-ND	99.00	77.50	74.40	30 INCH-D-4V-REF	
0-30	In H2O	442-1010-ND	99.00	75.00	72.00	30 INCH-G-4V-REF						
Amplified Low Pressure												
1	±1	mbar	4V	+3 to +6Vdc	5° to 50°C	-25° to 85°C	442-1011-ND	89.00	73.75	70.80	1 MBAR-D-4V	
	±1	In H2O					442-1012-ND	89.00	73.75	70.80	1 INCH-D-4V	
	0-1	In H2O					442-1013-ND	89.00	73.75	70.80	1 INCH-G-4V	
	±5	In H2O					442-1014-ND	84.00	67.50	64.80	5 INCH-D-4V	
	0-5	In H2O					442-1015-ND	84.00	67.50	64.80	5 INCH-G-4V	
	±10	In H2O					442-1016-ND	84.00	67.50	64.80	10 INCH-D-4V	
	0-10	In H2O					442-1017-ND	84.00	67.50	64.80	10 INCH-G-4V	
	±20	In H2O					442-1018-ND	84.00	67.50	64.80	20 INCH-D-4V	
	0-20	In H2O					442-1019-ND	84.00	67.50	64.80	20 INCH-G-4V	
	±30	In H2O					442-1020-ND	84.00	67.50	64.80	30 INCH-D-4V	
0-30	In H2O	442-1021-ND	84.00	67.50	64.80	30 INCH-G-4V						
Amplified Middle Pressure												
1	±0.3	PSIG	4V	+3 to +7Vdc	5° to 50°C	-25° to 85°C	442-1022-ND	79.00	61.25	58.80	0.3 PSI-D-4V	
	0-0.3	PSIG					442-1023-ND	79.00	61.25	58.80	0.3 PSI-G-4V	
	±1	PSIG					442-1024-ND	79.00	61.25	58.80	1 PSI-D-4V	
	0-1	PSIG					442-1025-ND	79.00	61.25	58.80	1 PSI-G-4V	
	0-15	PSIA					442-1026-ND	74.00	55.00	52.80	15 PSI-A-4V	
	0-15	PSIG					442-1027-ND	74.00	55.00	52.80	15 PSI-G-4V	
Millivolt Output C-Grade Pressure												
2	0-4	In H2O	40mV	16Vdc	0° to 70°C	-25° to 85°C	442-1028-ND	42.00	33.75	32.40	4 INCH-D-CGRADE-MV	
	0-0.3	PSIG	20mV				442-1029-ND	42.00	33.75	32.40	0.3 PSI-D-CGRADE-MV	
	0-1	PSIG	18mV				442-1030-ND	37.00	30.00	28.80	1 PSI-D-CGRADE-MV	
	0-15	PSIA	60mV				442-1031-ND	37.00	30.00	28.80	15 PSI-A-CGRADE-MV	
Millivolt Output H-Grade Pressure												
2	0-0.3	PSIG	20mV	16Vdc	0° to 70°C	-25° to 85°C	442-1032-ND	44.00	36.25	34.80	0.3 PSI-D-HGRADE-MV	
	0-1	PSIG	18mV				442-1033-ND	44.00	36.25	34.80	1 PSI-D-HGRADE-MV	
	0-5	PSIG	60mV				442-1034-ND	39.00	32.50	31.20	5 PSI-D-HGRADE-MV	
	0-15	PSIG	90mV				442-1035-ND	39.00	32.50	31.20	15 PSI-D-HGRADE-MV	
	0-15	PSIA	60mV				442-1036-ND	39.00	32.50	31.20	15 PSI-A-HGRADE-MV	
	0-15	PSIG	60mV				442-1037-ND	39.00	32.50	31.20	15 PSI-G-HGRADE-MV	
Millivolt Output Low Pressure												
2	0-1	In H2O	10mV	16Vdc	0° to 50 (70)°C	-25° to 85°C	442-1037-ND	65.00	47.50	45.60	1 INCH-D-MV	
	0-5	In H2O	20mV				442-1038-ND	62.00	45.00	43.20	5 INCH-D-MV	
	0-10	In H2O	20mV				442-1039-ND	62.00	45.00	43.20	10 INCH-D-MV	
	0-20	In H2O	20mV				442-1040-ND	62.00	45.00	43.20	20 INCH-D-MV	
	0-30	In H2O	20mV				442-1041-ND	62.00	45.00	43.20	30 INCH-D-MV	
	0-30	In H2O	20mV				442-1042-ND	62.00	45.00	43.20	30 INCH-G-MV	
Millivolt Output Prime Grade Pressure												
2	0-0.3	PSIG	20mV	16Vdc	0° to 70°C	-25° to 85°C	442-1042-ND	59.00	48.75	46.80	0.3 PSI-D-PRIME-MV	
	0-1	PSIG	18mV				442-1043-ND	59.00	48.75	46.80	1 PSI-D-PRIME-MV	
	0-15	PSIA	60mV				442-1044-ND	54.00	43.75	42.00	15 PSI-A-PRIME-MV	
Miniature Basic Offset Compensated Pressure												
3	0-1	In H2O	4.0 to 10.0mV	6Vdc	0° to 70°C	-25° to 85°C	442-1045-ND	45.00	37.50	36.00	1 INCH-G-BASIC	
	0-5	In H2O	15 to 30mV				442-1048-ND	39.00	27.50	26.40	5 INCH-G-BASIC	
	0-10	In H2O	15 to 45mV				442-1051-ND	39.00	27.50	26.40	10 INCH-G-BASIC	
	0-20	In H2O	15 to 45mV				442-1054-ND	39.00	27.50	26.40	20 INCH-G-BASIC	
	0-30	In H2O	15 to 45mV				442-1057-ND	39.00	27.50	26.40	30 INCH-G-BASIC	
	0-30	In H2O	15 to 45mV				442-1058-ND	40.00	28.75	27.60	30 INCH-D1-BASIC	
	0-1	In H2O	4.0 to 10.0mV	6Vdc	0° to 70°C	-25° to 85°C	442-1046-ND	46.00	38.75	37.20	1 INCH-D1-BASIC	
	0-5	In H2O	15 to 30mV				442-1049-ND	40.00	28.75	27.60	5 INCH-D1-BASIC	
	0-10	In H2O	15 to 45mV				442-1052-ND	40.00	28.75	27.60	10 INCH-D1-BASIC	
	0-20	In H2O	15 to 45mV				442-1055-ND	40.00	28.75	27.60	20 INCH-D1-BASIC	
	0-30	In H2O	15 to 45mV				442-1058-ND	40.00	28.75	27.60	30 INCH-D1-BASIC	
	0-1	In H2O	4.0 to 10.0mV				442-1047-ND	47.00	40.00	38.40	1 INCH-D2-BASIC	
0-5	In H2O	15 to 30mV	442-1050-ND				41.00	30.00	28.80	5 INCH-D2-BASIC		
0-10	In H2O	15 to 45mV	442-1053-ND	41.00	30.00	28.80	10 INCH-D2-BASIC					
0-20	In H2O	15 to 45mV	442-1056-ND	41.00	30.00	28.80	20 INCH-D2-BASIC					
0-30	In H2O	15 to 45mV	442-1059-ND	41.00	30.00	28.80	30 INCH-D2-BASIC					
Miniature Low Pressure												
3	0-5	In H2O	19 to 21mV	16Vdc	0° to 50 (70)°C	-25° to 85°C	442-1077-ND	54.00	49.38	47.40	5 INCH-G-MV-MINI	
	0-10	In H2O	19 to 21mV				442-1080-ND	54.00	49.38	47.40	10 INCH-G-MV-MINI	
	0-20	In H2O	19 to 21mV				442-1083-ND	54.00	49.38	47.40	20 INCH-G-MV-MINI	
	0-30	In H2O	19 to 21mV				442-1086-ND	54.00	49.38	47.40	30 INCH-G-MV-MINI	
	0-5	In H2O	19 to 21mV				442-1078-ND	55.00	50.63	48.60	5 INCH-D1-MV-MINI	
	0-10	In H2O	19 to 21mV				442-1081-ND	55.00	50.63	48.60	10 INCH-D1-MV-MINI	
	0-20	In H2O	19 to 21mV	442-1084-ND	55.00	50.63	48.60	20 INCH-D1-MV-MINI				
	0-30	In H2O	19 to 21mV	442-1087-ND	55.00	50.63	48.60	30 INCH-D1-MV-MINI				
	0-5	In H2O	19 to 21mV	442-1079-ND	55.00	50.63	48.60	5 INCH-D2-MV-MINI				
	0-10	In H2O	19 to 21mV	442-1082-ND	55.00	50.63	48.60	10 INCH-D2-MV-MINI				
	0-20	In H2O	19 to 21mV	442-1085-ND	55.00	50.63	48.60	20 INCH-D2-MV-MINI				
	0-30	In H2O	19 to 21mV	442-1088-ND	55.00	50.63	48.60	30 INCH-D2-MV-MINI				
Miniature H-Grade Pressure												
4	0-4	In H2O	24 to 26mV	16Vdc	0° to (50) 70°C	-25° to 85°C	442-1060-ND	44.00	36.25	34.80	4 INCH-G-HGRADE-MINI	
	0-0.3	PSIG	19 to 21mV				442-1063-ND	44.00	36.25	34.80	0.3 PSI-G-HGRADE-MINI	
	0-10	In H2O	19 to 21mV				442-1066-ND	44.00	36.25	34.80	10 INCH-G-HGRADE-MINI	
	0-1	PSIG	17.82 to 18.18mV				442-1069-ND	44.00	36.25	34.80	1 PSI-G-HGRADE-MINI	
	0-5	PSIG	59.4 to 60.6mV				442-1072-ND	39.00	32.50	31.20	5 PSI-G-HGRADE-MINI	
	0-15	PSIA	89.1 to 90.9mV				442-1075-ND	39.00	32.50	31.20	15 PSI-A-HGRADE-MINI	
5	0-4	In H2O	24 to 26mV	16Vdc	0° to (50) 70°C	-25° to 85°C	442-1061-ND	44.00	36.25	34.80	4 INCH-GF-HGRADE-MINI	
	0-0.3	PSIG	19 to 21mV				442-1064-ND	44.00	36.25	34.80	0.3 PSI-GF-HGRADE-MINI	
	0-10	In H2O	19 to 21mV				442-1067-ND	44.00	36.25	34.80	10 INCH-GF-HGRADE-MINI	
	0-1	PSIG	17.82 to 18.18mV				442-1070-ND	44.00	36.25	34.80	1 PSI-GF-HGRADE-MINI	
	0-5	PSIG	59.4 to 60.6mV				442-1073-ND	39.00	32.50	31.20	5 PSI-GF-HGRADE-MINI	
	0-15	PSIA	89.1 to 90.9mV				442-1076-ND	39.00	32.50	31.20	15 PSI-AF-HGRADE-MINI	
6	0-4	In H2O	24 to 26mV	16Vdc	0° to (50) 70°C	-25° to 85°C	442-1062-ND	46.00	37.50	36.00	4 INCH-D-HGRADE-MINI	
	0-0.3	PSIG	19 to 21mV				442-1065-ND	46.00	37.50	36.00	0.3 PSI-D-HGRADE-MINI	
	0-10	In H2O	19 to 21mV				442-1068-ND	46.00	37.50	36.00	10 INCH-D-HGRADE-MINI	
	0-1	PSIG	17.82 to 18.18mV				442-1071-ND	46.00	37.50	36.00	1 PSI-D-HGRADE-MINI	
	0-5	PSIG	59.4 to 60.6mV				442-1074-ND	41.00	33.75	32.40	5 PSI-D-HGRADE-MINI	
	0-15	PSIA	89.1 to 90.9mV				442-1077-ND	39.00	32.50	31.20	15 PSI-AF-HGRADE-MINI	





Closed Loop Current Transducers



LTS 6-NP, LTS 15-NP and LTS 25-NP:

Closed loop (compensated) multi-range current transducer using the Hall effect, unipolar voltage supply, compact design for PCB mounting, insulated plastic case recognized according to UL 94-VO, incorporated measuring resistance, and extended measuring range.

LA 03-PB, LA 05-PB, LA 10-PB, and LA 20-PB:

Closed loop (compensation) current transducer using the Hall effect, voltage output, and printed circuit board mounting.

LAH 25-NP, LAH 50-P, LAH 100-P,

LA 55-P, and LA 100-P:

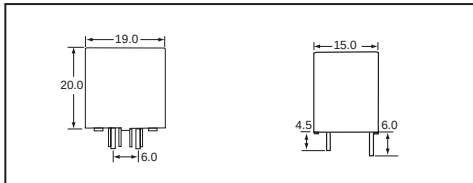
Closed loop (compensated) multi-range current transducer using the Hall effect, printed circuit board mounting, insulated plastic case recognized according to UL 94-VO.

LA 150-P:

Closed loop (compensated) current transducer using the Hall effect, and printed circuit board mounting.

Fig.	Supply Voltage	Primary Nominal r.m.s. Current	Sec. Nom. r.m.s. Current/ Output Voltage	Frequency Range (kHz)	Digi-Key Part No.	Price Each	LEM USA Inc. Part No.
1	5V	6A	2.5±V	200	398-1000-ND	19.20	LTS 6-NP
	5V	15A	2.5±V	200	398-1001-ND	19.20	LTS 15-NP
	5V	25A	2.5±V	200	398-1002-ND	19.20	LTS 25-NP
2	±15V	3A	±4V	150	398-1003-ND	38.00	LA 03-PB
	±15V	5A	±4V	150	398-1004-ND	38.00	LA 05-PB
	±15V	10A	±4V	150	398-1005-ND	38.00	LA 10-PB
	±15V	20A	±4V	150	398-1006-ND	38.00	LA 20-PB
3	±12 to 15V	25A	25mA	200	398-1007-ND	26.80	LAH 25-NP
	±12 to 15V	50A	25mA	200	398-1008-ND	28.80	LAH 50-P
	±12 to 15V	100A	50mA	200	398-1009-ND	31.40	LAH 100-P
4	±12 to 15V	50A	50mA	200	398-1010-ND	24.60	LA 55-P
	±12 to 15V	100A	50mA	200	398-1011-ND	30.80	LA 100-P
5	±15V	150A	75mA	150	398-1012-ND	38.40	LA 150-P

Open Loop Current Transducers

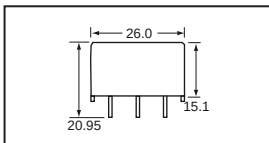


HAW 03-P, HAW 05-P, HAW 07-P, HAW 10-P, HAW 15-P, and HAW 20-P:

Hall effect measuring principle, galvanic isolation between primary and secondary circuit, isolation voltage 2000 V, low power consumption, and extended measuring range (2.5 x IPN).

Supply Voltage	Primary Nominal r.m.s. Current	Sec. Nom. r.m.s. Current/ Output Voltage	Overall Accuracy	Digi-Key Part No.	Price Each	LEM USA Inc. Part No.
±15V	3A	±4V	<±1% of IPN	398-1013-ND	22.20	HAW 03-P
±15V	5A	±4V	<±1% of IPN	398-1014-ND	22.20	HAW 05-P
±15V	7.5A	±4V	<±1% of IPN	398-1015-ND	22.20	HAW 07-P
±15V	10A	±4V	<±1% of IPN	398-1016-ND	22.20	HAW 10-P
±15V	15A	±4V	<±1% of IPN	398-1017-ND	22.20	HAW 15-P
±15V	20A	±4V	<±1% of IPN	398-1018-ND	22.20	HAW 20-P

Closed Loop Voltage Transducers



LV 25-P and LV 20-P:

Closed loop (compensated) voltage transducer using the Hall effect, and insulated plastic case recognized according to UL 94-VO.

Supply Voltage	Primary Nominal r.m.s. Current	Sec. Nom. r.m.s. Current/ Output Voltage	Overall Accuracy	Digi-Key Part No.	Price Each	LEM USA Inc. Part No.
±12 to 15V	10mA	25mA	±0.9%	398-1019-ND	60.00	LV 25-P
±12 to 15V	10mA	25mA	±1.1%	398-1020-ND	34.80	LV 20-P



UltraStable™ Stainless Steel Pressure Sensors Ribbon Cable with Connector

Features:

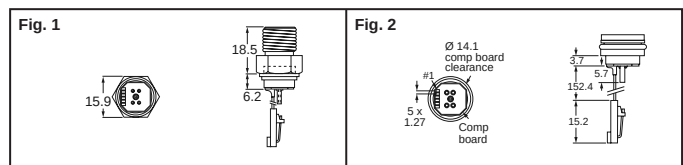
• Gage Pressure type • -20°C to +85°C Compensated temp. range • ±1.0% Interchangeable Span (provided by gain set resistor) • High performance • Small profile • Solid State reliability • Low power • ±0.1% Pressure non-linearity • Specifications: • Output: 0-100mV • Supply Current: 1.5mA typ. (guarantees output/input ratio-metricity) • Operating Temperature: -40°C to +125°C

Model 85 - 316L:

This micro-machined piezoresistive silicon pressure sensor is designed for applications where compatibility with corrosive media must be maintained. The sensor chip is mounted on a TO style header, which is resistance welded to a 316 stainless steel package, sealing a small volume of silicone oil between the diaphragm and the sensor chip. The ISO pressure housing utilizes the oil column to couple the piezoresistive sensor to the isolation diaphragm. A thick film ceramic compensation board with laser trimmed resistors, and an additional gain set resistor to normalize pressure sensitivity are an integral part of the sensor package.

Model 86 - 316L:

This is a small profile, media compatible, piezoresistive silicon pressure sensor packaged in a 316L stainless steel housing and is designed for O-ring mounting. The sensing package utilizes silicone oil to transfer pressure from the 316L stainless steel diaphragm to the sensing element. It is designed for high performance, low pressure applications. A ceramic substrate is attached to the package that contains laser-trimmed resistors for temperature compensation and offset correction. An additional laser-trimmed resistor is included which can be used to adjust an interchangeability to within ±1%.



		Output Load Res.	Digi-Key Part No.	Price Each		MSI Part No.	
Fig.	Pressure		1	10	100		
Model 85 — 1/4 - 18 NPT							
1	0-15 PSIG	5mW Min.	MSP6853-ND	126.00	96.00	70.01	85-015G-4C
	0-30 PSIG		MSP6854-ND	126.00	96.00	70.01	85-030G-4C
	0-50 PSIG		MSP6855-ND	126.00	96.00	70.01	85-050G-4C
	0-100 PSIG		MSP6856-ND	126.00	96.00	70.01	85-100G-4C
	0-300 PSIG		MSP6857-ND	126.00	96.00	70.01	85-300G-4C
	0-500 PSIG		MSP6858-ND	126.00	96.00	70.01	85-500G-4C
Model 86 — O-Ring Flush Mount							
2	0-15 PSIG	1mW Min.	MSP6859-ND	105.00	74.00	54.01	86-005G-C
	0-15 PSIG		MSP6860-ND	105.00	74.00	54.01	86-015G-C
	0-30 PSIG		MSP6861-ND	105.00	74.00	54.01	86-030G-C
	0-50 PSIG		MSP6862-ND	105.00	74.00	54.01	86-050G-C
	0-100 PSIG		MSP6863-ND	105.00	74.00	54.01	86-100G-C
	0-300 PSIG		MSP6864-ND	105.00	74.00	54.01	86-300G-C
	0-500 PSIG		MSP6865-ND	105.00	74.00	54.01	86-500G-C

More Product Available Online: www.digikey.com

1100 (T032)

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These pressure sensors are intended for cost sensitive applications where excellent performance and long-term stability are required. Integral temperature compensation is provided using laser-trimmed resistors. An additional laser-trimmed resistor is included to normalize pressure sensitivity variations by programming the gain of an external differential amplifier. This provides sensitivity interchangeability of $\pm 1\%$.

Features: • $\pm 0.1\%$ Non-linearity • $\pm 1.0\%$ Interchangeable Span (provided by gain set resistor) • Solid State Reliability • Low Power

Specifications: • **Output:** 0-100mV typ. (full scale) • **Supply Current:** 1.5mA typ. • **Response Time:** 0.5ms typ. (For a zero-to-full scale pressure step change) • **Operating Temp.:** -40°C to +125°C

Model 1210/1220 – Low Pressure • 0-50°C Temp. Compensation • 1.0% Temp. Performance

Model 1230/1240 – UltraStable™ • -20°C to +85°C Temp. Compensation • $\pm 0.5\%$ Temp. Performance

Model 1210/1220 – Medium Pressure • 0-50°C Temp. Compensation • 0.5-1% Temp. Performance

Models 13, 23, 33, 43 – Medium Pressure • 0-50°C Temp. Compensation • $\pm 0.5\%$ Temp. Performance

Models 17, 27, 37 – UltraStable™ • -20°C to +85°C Temp. Compensation Range • $\pm 0.5\%$ Temp. Performance

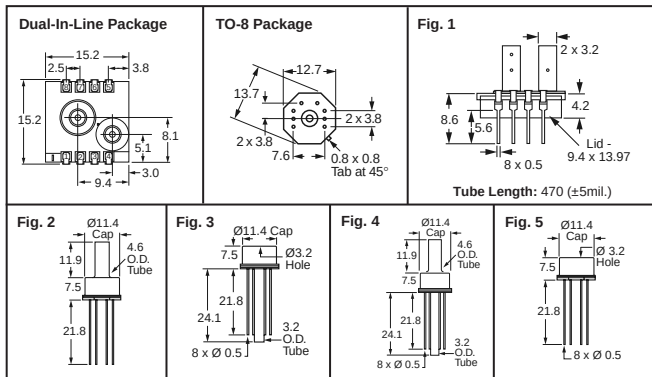
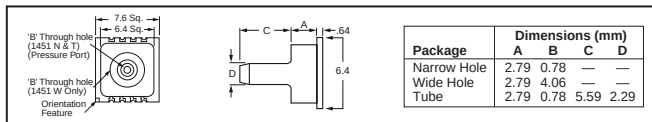


Fig.	Pressure	Pressure Type	Package	Digi-Key Part No.	Price Each 10	100	MSI Part No.	
Model 1210 / 1220 - Low and Medium Pressure								
1	0-2 PSID	Differential	8-Pin Dip	MSP6814-ND	39.00	28.00	1210A-002D-3L	
	0-5 PSID	Differential	8-Pin Dip	MSP6816-ND	39.00	28.00	1220A-005D-3L	
Model 1230 / 1240 - Ultrastable™								
1	0-15 PSID	Differential	8-Pin Dip	MSP6819-ND	33.00	28.00	18.00	1240-015D-3L
	0-30 PSID	Differential	8-Pin Dip	MSP6822-ND	33.00	28.00	18.00	1230-030D-3L
	0-100 PSID	Differential	8-Pin Dip	MSP6828-ND	33.00	28.00	18.00	1230-100D-3L
	0-100 PSID	Differential	8-Pin Dip	MSP6829-ND	33.00	28.00	18.00	1240-100D-3L
Model 13 - Low and Medium Pressure								
2	0-1 PSIG	Gage	TO-8	MSP6830-ND	72.00	53.00	38.00	13A-001G
	0-5 PSIG	Gage	TO-8	MSP6833-ND	72.00	53.00	38.00	13A-005G
Model 17 - Ultrastable™								
2	0-15 PSIG	Gage	TO-8	MSP6834-ND	60.00	53.00	38.00	17-015G
	0-30 PSIG	Gage	TO-8	MSP6835-ND	60.00	53.00	38.00	17-030G
	0-50 PSIG	Gage	TO-8	MSP6836-ND	60.00	53.00	38.00	17-050G
	0-100 PSIG	Gage	TO-8	MSP6837-ND	60.00	53.00	38.00	17-100G
Model 23 - Low and Medium Pressure								
3	0-1 PSIG	Gage	TO-8	MSP6831-ND	90.00	61.00	50.00	23A-001G
	0-5 PSIG	Gage	TO-8	MSP6838-ND	90.00	61.00	50.00	23A-005G
Model 27 - Ultrastable™								
3	0-15 PSIG	Gage	TO-8	MSP6839-ND	69.00	61.00	50.00	27-015G
	0-30 PSIG	Gage	TO-8	MSP6840-ND	69.00	61.00	50.00	27-030G
	0-50 PSIG	Gage	TO-8	MSP6841-ND	69.00	61.00	50.00	27-050G
	0-100 PSIG	Gage	TO-8	MSP6842-ND	69.00	61.00	50.00	27-100G
Model 33 - Low and Medium Pressure								
4	0-1 PSID	Differential	TO-8	MSP6832-ND	90.00	61.00	50.00	33A-001D
	0-5 PSID	Differential	TO-8	MSP6843-ND	90.00	61.00	50.00	33A-005D
Model 37 - Ultrastable™								
4	0-15 PSID	Differential	TO-8	MSP6844-ND	69.00	61.00	50.00	37-015D
	0-30 PSID	Differential	TO-8	MSP6845-ND	69.00	61.00	50.00	37-030D
	0-50 PSID	Differential	TO-8	MSP6846-ND	69.00	61.00	50.00	37-050D
	0-100 PSID	Differential	TO-8	MSP6847-ND	69.00	61.00	50.00	37-100D
Model 43 - Low and Medium Pressure								
5	0-15 PSIA	Absolute	TO-8	MSP6848-ND	60.00	53.00	38.00	43-015A
	0-30 PSIA	Absolute	TO-8	MSP6849-ND	60.00	53.00	38.00	43-030A
	0-50 PSIA	Absolute	TO-8	MSP6850-ND	60.00	53.00	38.00	43-050A
	0-100 PSIA	Absolute	TO-8	MSP6851-ND	60.00	53.00	38.00	43-100A

PC Board Mountable Pressure Sensors

Model 1451 This pressure sensor is intended for high volume applications where small size, light weight, low cost, and compatibility with automated assembly equipment are required. **Features:** • Surface Mount Package • $\pm 0.25\%$ Pressure Non-linearity • 3 Pressure Port Options • Solid State Reliability • Low Power **Specifications:** • **Output:** 0-60mV • **Supply Voltage:** 3VDC • **Response Time:** 1.0mSec typ. • **Operating Temperature:** -40°C to +125°C



Pressure	Pressure Type	Package	Digi-Key Part No.	Price Each			MSI Part No.
				1	10	100	
0-5 PSIG	Gage	Tube	MSP6800-ND	20.00	19.00	11.00	1451-005G-T
0-5 PSIA	Absolute	Wide	MSP6801-ND	20.00	19.00	11.00	1451-005A-W
0-15 PSIA	Absolute	Narrow	MSP6802-ND	20.00	19.00	11.00	1451-015A-N
0-15 PSIG	Gage	Tube	MSP6803-ND	20.00	19.00	11.00	1451-015G-T
0-15 PSIA	Absolute	Wide	MSP6804-ND	20.00	19.00	11.00	1451-015A-W
0-30 PSIA	Absolute	Narrow	MSP6805-ND	20.00	19.00	11.00	1451-030A-N
0-30 PSIG	Gage	Tube	MSP6806-ND	20.00	19.00	11.00	1451-030G-T
0-30 PSIA	Absolute	Wide	MSP6807-ND	20.00	19.00	11.00	1451-030A-W
0-50 PSIA	Absolute	Narrow	MSP6808-ND	20.00	19.00	11.00	1451-050A-N
0-50 PSIG	Gage	Tube	MSP6809-ND	20.00	19.00	11.00	1451-050G-T
0-50 PSIA	Absolute	Wide	MSP6810-ND	20.00	19.00	11.00	1451-050A-W
0-100 PSIA	Absolute	Narrow	MSP6811-ND	20.00	19.00	11.00	1451-100A-N
0-100 PSIG	Gage	Tube	MSP6812-ND	20.00	19.00	11.00	1451-100G-T
0-100 PSIA	Absolute	Wide	MSP6813-ND	20.00	19.00	11.00	1451-100A-W

Accelerometers – PC Board Mountable

Description:

These piezoresistive silicon accelerometers consist of a micro machined silicon mass suspended by multiple beams from a silicon frame. Piezo-resistors located in the beams change their resistance as the motion of the suspended mass changes the strain in the beams. Silicon caps on the top and bottom of the devices are added to provide over-range stops. This design provides for a very low profile, high shock resistance, durability and built-in damping over a wide usable bandwidth.

Features:

Features:

- $\pm 0.5\%$ Non-linearity, (typ.), $\pm 2\%$ max. (Best fit straight line; for full scale range of 10g or less)
- DC Response
- Built-in damping
- Built-in overrange stops
- Low power

Model 3031 - Surface Mount A piezoresistive silicon accelerometer intended for high volume applications where small size, light weight, and low cost are required. **Specifications:** • $\pm 1.0\%$ Temp. Performance (with comp resistors, typical) • Supply: 5.0 VDC (typ.) • Operating Temp.: -40°C to +125°C

Model 3022 - Adhesive Mount A piezoresistive silicon accelerometer packaged on a ceramic substrate with an epoxy sealed ceramic cover and is designed for adhesive mounting. **Specifications:** • $\pm 1.0\%$ Temp. Performance (with comp resistors, typical) • Supply (typ.): 5.0 VDC • Operating Temp.: -40°C to $+125^{\circ}\text{C}$

Model 3052 - Adhesive Mount A piezoresistive silicon accelerometer with integral temp. compensation packaged on a ceramic substrate with

Specifications: • $\pm 1.0\%$ Temp. Performance (typ.) • Supply (typ.): 5.0 VDC • Operating Temp.: -40°C to $+125^{\circ}\text{C}$

Model 3140 - Bolt Mount A high performance accelerometer intended for instrumentation applications provides a fully signal conditioned output with performance similar to traditional instrumentation accelerometers but at a much lower cost. The accelerometer consists of a silicon micro machined accelerometer with signal conditioning electronics in a lightweight Valox™ housing that can be easily attached to a mounting surface. The sensing element is a micro machined silicon mass suspended by multiple beams from a silicon frame. **Specifications:** • $\pm 2.0\%$ Temp. Performance • Supply (typ.) 12 VDC • 5mA • Operating Temp.: -20°C to +85°C

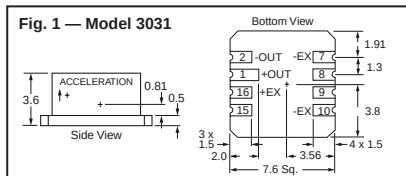


Fig. 1 — Model 3031

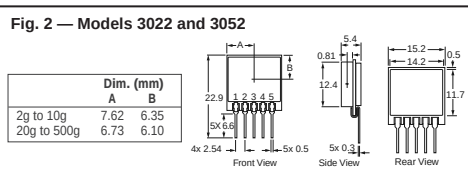


Fig. 2 — Models 3022 and 3052

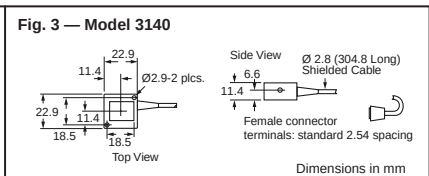


Fig. 3 — Model 3140

Fig.	Acceleration Range	Sensitivity (Min./Max.)	Acceleration Output Max.	Digi-Key Part No.	1	Price Each 10	100	MSI Part No.
1	±0-50 G	0.6/1.5 mV/g	±25.0mV	MSP6869-ND	77.00	74.00	42.00	3031-050
2	±2 G	8.0/20.0 mV/g	±25.0mV	MSP6871-ND	150.00	108.00	80.00	3022-002-P
	±5 G	6.0/15.0 mV/g	±25.0mV	MSP6872-ND	150.00	108.00	80.00	3022-005-P
	±10 G	3.0/6.0 mV/g	±25.0mV	MSP6873-ND	150.00	108.00	80.00	3022-010-P
	±50 G	0.6/1.5 mV/g	±25.0mV	MSP6875-ND	123.00	95.00	65.01	3022-050-P
	±100 G	0.3/0.6 mV/g	±25.0mV	MSP6876-ND	123.00	95.00	65.01	3022-100-P
2	±2 G	6.0/9.0 mV/g*	±2mV	MSP6877-ND	195.00	136.00	102.00	3052-002-P
	±5 G	2.4/3.6 mV/g*	±2mV	MSP6878-ND	195.00	136.00	102.00	3052-005-P
	±10 G	1.2/1.8 mV/g*	±2mV	MSP6879-ND	195.00	136.00	102.00	3052-010-P
	±50 G	0.24/0.36 mV/g*	±2mV	MSP6881-ND	144.00	124.00	90.00	3052-050-P
	±100 G	0.12/0.18 mV/g*	±2mV	MSP6882-ND	144.00	124.00	90.00	3052-100-P
3	±2 G	1 V/g	2.54V	MSP6883-ND	495.00	345.00	280.01	3140-002
	±5 G	400mV/g	2.54V	MSP6884-ND	495.00	345.00	280.01	3140-005
	±10 G	200mV/g	2.54V	MSP6885-ND	495.00	345.00	280.01	3140-010
	±50 G	40mV/g	2.54V	MSP6887-ND	495.00	345.00	280.01	3140-050
	±100 G	20mV/g	2.54V	MSP6888-ND	495.00	345.00	280.01	3140-100

* Positive voltage change for positive acceleration; negative voltage change for negative acceleration.

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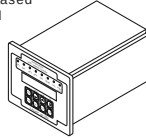


Sensors MP1000 Readout/Controller

The Schaevitz microprocessor-based LVDT indicator and set-point controller is designed for industrial and process control applications utilizing any LVDT/RVDT based measurement device. A 16-bit analog to digital converter provides high speed performance and resolution. An RS-232 output will communicate data to any standard PLC or computer serial port. 1/4 DIN case.

Application: RS-232 data collection for SPC

Features: • Simultaneous dual channel display • Opto-isolated set-point outputs • Digitally scaled analog output • Digitally controlled analog zero suppression • CE approval pending (mid 1998) • Programmable digital filtering

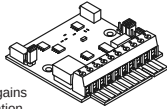


Description	Operating Temp.	Power Requirements	Digi-Key Part No.	Price Each			Schaevitz MSI Part No.
				1	5	10	
Single Channel LVDT	0° to 55°C	100 - 250 VAC, 50-60Hz	356-1000-ND	899.00	845.00	802.00	02291328-000

DC Powered Voltage Module

The LVM-110 Module is a DC-powered LVDT signal conditioner board consisting of a carrier oscillator, AC amplifier, demodulator, filter, and DC amplifier.

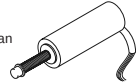
Features: • DC powered • Zero and span controls • Six jumper selectable gains • Plug-in, card edge, or stand-off installation • 2.5 kHz, 5 kHz or 10 kHz excitation



Description	Operating Range	Power Range	Digi-Key Part No.	Price Each			Schaevitz MSI Part No.
				1	5	10	
LVDT Signal Conditioner Board	3.5 ± 10% Vrms	2.5kHz, 5kHz, 10kHz	356-1001-ND	177.00	165.00	155.00	04171776-000

PCA-116 Series Economy Gage Heads

PCA-116 gage heads incorporate a standardized LVDT with repeatability better than 0.0001" (0.0025 mm) and linearity within 0.5% of full range output. The probe shaft is externally sprung and is carried on low friction nylon sleeve bearings.



PCA-116 Series Model No.	Linear Range Inches (mm)	Digi-Key Part No.	Price Each			Schaevitz MSI Part No.
			1	5	10	
PCA-116-100	±0.10 (2.54)	356-1002-ND	105.00	95.00	88.80	02350531-000
PCA-116-200	±0.20 (5.08)	356-1003-ND	124.00	111.00	104.40	02350532-000
PCA-116-300	±0.30 (7.62)	356-1004-ND	146.00	131.00	122.40	02350533-000

GCD-SE Series Gage Heads - Precision Spring-Loaded

Features:

• CE compliance • Heavy-duty, all welded construction • Unipolar ranges: 0.1" to 2.0" • 8.5 to 28 VDC operation • Low power consumption • May be battery operated • 0 to 5 and 1 to 6 VDC outputs • New heavy duty front end • Hermetically sealed design

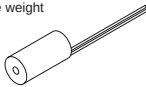


GCD-SE Series Model No.	Linear Range Inches (mm)	Digi-Key Part No.	Price Each			Schaevitz MSI Part No.
			1	5	10	
GCD-SE-100	0.10 (2.54)	356-1005-ND	480.00	429.01	403.20	02351006-000
GCD-SE-250	0.25 (6.35)	356-1006-ND	544.00	486.00	457.20	02351007-000
GCD-SE-500	0.50 (12.7)	356-1007-ND	617.00	552.00	518.40	02351008-000
GCD-SE-1000	1.0 (25.4)	356-1008-ND	704.00	630.00	591.60	02351009-000
GCD-SE-2000	2.0 (50.8)	356-1009-ND	800.00	716.00	672.00	02351010-000

LVDT MHR Series

The MHR series of miniature LVDT's is ideal for applications where excessive core weight could influence the motion of sensitive mechanisms.

Features: • For applications where installation space or weight is limited • Lightweight core • Calibration certificate supplied with all models • Compatible with all Schaevitz™ signal conditioners • High temperature (220°C) and high pressure (vented case) available - consult factory

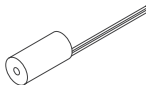


MHR Series Model No.	Nominal Linear Range Inches (mm)	Digi-Key Part No.	Price Each			Schaevitz MSI Part No.
			1	5	10	
025 MHR	±0.025 (±0.64)	356-1010-ND	106.00	96.00	89.00	02560407-000
050 MHR	±0.50 (±1.27)	356-1011-ND	115.00	104.00	97.20	02560408-000
100 MHR	±0.100 (±2.54)	356-1012-ND	135.00	122.00	114.00	02560409-000
250 MHR	±0.250 (±6.35)	356-1013-ND	174.00	157.00	146.40	02560410-000
500 MHR	±0.500 (±12.70)	356-1014-ND	231.00	208.00	194.40	02560411-000
1000 MHR	±1.000 (±25.40)	356-1015-ND	272.00	245.00	228.00	02560412-000

E Series LVDT

The low cost AC operated E series is particularly suitable for moderate operating temperatures. Its rugged construction will resist the shocks and vibrations encountered in most industrial applications.

Features: • Customary LVDT performance at minimal cost • Magnetically shielded case • Compatible with all Schaevitz™ signal conditioners

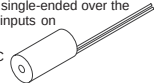


E Series Model No.	Nominal Linear Range Inches (mm)	Digi-Key Part No.	Price Each			Schaevitz MSI Part No.
			1	5	10	
E100	±0.100 (±2.54)	356-1016-ND	42.00	38.00	35.00	02560541-000
E200	±0.200 (±5.08)	356-1017-ND	50.00	46.00	42.00	02560542-000
E300	±0.300 (±7.62)	356-1018-ND	67.00	62.00	57.00	02560543-000
E500	±0.500 (±12.70)	356-1019-ND	105.00	97.00	88.80	02560544-000
E1000	±1.00 (±25.4)	356-1020-ND	147.00	135.00	124.00	02560545-000
E2000	±2.00 (±50.8)	356-1021-ND	207.00	190.00	174.00	02560546-000

DC-SE Series LVDT

The new Schaevitz™ General Purpose DC operated DC-SE series has been designed to meet today's requirements for operation from a single-ended power supply. The output is also single-ended over the full range displacement of the LVDT making the unit compatible with unipolar inputs on the analog-to-digital converters and programmable logic controllers.

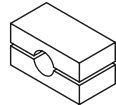
Features: • CE certified • Operates from single-ended, unregulated 8.5 - 28 VDC supply • 0 - 5 VDC or 1 - 6 VDC output voltage, depending on customer hook up • Low power consumption • 200 Hz frequency response • 1 meter shielded cable



DC-SE Series Model No.	Nominal Linear Range Inches (mm)	Digi-Key Part No.	Price Each			Schaevitz MSI Part No.
			1	5	10	
250DC-SE	0.250 (6.35)	356-1022-ND	300.00	267.00	252.00	02560991-000
500DC-SE	0.500 (12.7)	356-1023-ND	348.00	313.00	292.80	02560992-000
1000DC-SE	1.000 (25.4)	356-1024-ND	402.00	362.01	337.20	02560993-000
2000DC-SE	2.000 (50.8)	356-1025-ND	449.00	403.00	376.80	02560994-000
4000DC-SE	4.00 (101.6)	356-1026-ND	512.00	461.00	429.60	02560995-000

Accessories Mounting Blocks

Model No.	Digi-Key Part No.	Price Each			Schaevitz MSI Part No.
		1	5	10	
MB-OD-0.375	356-1027-ND	24.00	22.00	20.40	04560954-000
MB-OD-0.750	356-1028-ND	24.00	22.00	20.40	04560950-000



Core Extension Rods

Description	Digi-Key Part No.	Price Each			Schaevitz MSI Part No.
		1	5	10	
1-72unf X 6" Non-Magnetic Stainless Steel	356-1029-ND	12.00	10.00		05282945-006
4-40oz X 6" Non-Magnetic Stainless Steel	356-1030-ND	12.00	10.00		05282946-006
4-40oz X 12" Non-Magnetic Stainless Steel	356-1031-ND	24.00	20.00		05282946-012

AccuStar® Electronic Clinometers

The AccuStar® Electronic Clinometer is an extremely accurate angle measurement device. This compact and rugged sensor is ideal where space is critical and environmental conditions are serious design concerns.

Features: • CE certified • Just 2" in diameter • Rugged plastic housing • Extremely accurate • Weighs only 2 oz.

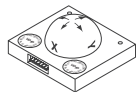


Description	Linear Range	Operating Temp. Range	Digi-Key Part No.	Price Each			Schaevitz MSI Part No.
				1	10	25	
Single Axis Ratiometric Vertical Flange	±45°	-30° to 65°C	356-1032-ND	139.00	128.00	117.01	02110002-000
Single Axis Ratiometric Horizontal Flange	±45°	-30° to 65°C	356-1033-ND	139.00	128.00	117.01	02110102-000

AccuStar® II Clinometers

AccuStar® II combines the function of two clinometers in one package. The unique dome shaped design features a capacitance based sensor which produces output signals directly proportional to the relative tilt in two axis.

Features: • Two clinometers in one package • Adaptable design DC powered • Ratiometric and PW digital output in one model • Trimmable DC output

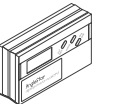


Description	Linear Range	Operating Temp. Range	Digi-Key Part No.	Price Each			Schaevitz MSI Part No.
				1	10	25	
Dual Axis Clinometer	±20°	-20° to 75°C	356-1034-ND	100.00	95.00	90.00	02119011-000

AngleStar® Digital Protractor

The AngleStar® Digital Protractor Model DP-45 provides instant digital display of level, angle and tilt.

Features: • Reads in degrees • Alternate reference (floating zero) • Display hold • High impact plastic carrying case



Description	Linear Range	Operating Temp. Range	Digi-Key Part No.	Price Each			Schaevitz MSI Part No.
				1	5	20	
Digital Protractor Model DP-45	±45°	0° to 65°C	356-1035-ND	309.00	291.00	263.00	02475-01

Ares Series Pressure Transducers

The Ares Series is a small, low cost pressure transducer, which is able to measure pressures as low as 0 to 5, 0 to 10, 0 to 15 inches of water, and 0 to 1 psig. The ranges combined with the small physical size make the device ideally suited for applications such as HVAC, medical equipment and flow monitoring. The ASIC is a mixed signal CMOS sensor interface that uses differential switched capacitor architecture, and was specifically designed to compensate for the errors associated with piezoresistive silicon sensors.

Features: • Very low pressure ranges • Small size • PCB mountable • Solder reflow capability • Barbed pressure ports

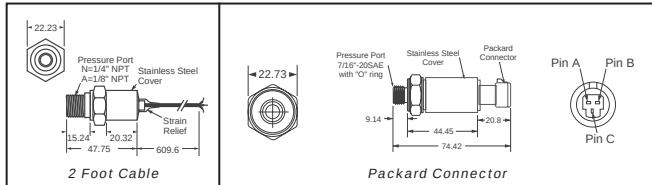


Description	Standard Pressure Range	Accuracy % FSO	Digi-Key Part No.	Price Each			Schaevitz MSI Part No.
				1	10	25	
PCB Mount 0.5-4.5V	5" H ₂ O	0.25	356-1036-ND	40.00	32.25	27.30	GA100-005WD
PCB Mount 0.5-4.5V	10" H ₂ O	0.50	356-1037-ND	40.00	32.25	27.30	GA100-010WD
PCB Mount 0.5-4.5V	15" H ₂ O	0.50	356-1038-ND	40.00	32.25	27.30	GA100-015WD
PCB Mount 0.5-4.5V	1 PSI	0.75	356-1039-ND	40.00	32.25	27.30	GA100-001PD
PCB Mount 0.250-4.5V	5" H ₂ O	0.25	356-1040-ND	40.00	32.25	27.30	GA200-005WD
PCB Mount 0.250-4.5V	10" H ₂ O	0.50	356-1041-ND	40.00	32.25	27.30	GA200-010WD
PCB Mount 0.250-4.5V	15" H ₂ O	0.50	356-1042-ND	40.00	32.25	27.30	GA200-015WD
PCB Mount 0.250-4.5V	1 PSI	0.75	356-1043-ND	40.00	32.25	27.30	GA200-001PD

Rugged Stainless Steel Pressure Transducers Featuring Microfused Technology

The MSP pressure transducer is designed for high-volume, low-cost commercial, industrial and off road applications which require accurate measurement of gases or liquids. Operating ranges up to 10,000 psi are available with your choice of output signal in volts, millivolts, or milliamperes. The MSP uses a micro machined silicon strain gauge inorganically bonded to a machined stainless steel diaphragm; no welds, no O-rings, no silicone oil. All wetted surfaces are stainless steel and all signal conditioning electronics are housed in a stainless steel cover which provides protection from hostile environments. The housing is sealed and requires no maintenance. Each transducer is thoroughly tested and calibrated before shipment.

Applications: Pumps and Compressors • Hydraulic / Pneumatic Systems • Energy and Water Management • Pressure Instrumentation • Process Control, Off Road Refrigeration, HVAC.



	MSP-300	MSP-310	MSP-320	MSP-400	MSP-600
Pressure Range (PSIG)	0-100 to 10,000	0-100 to 10,000	0-25 to 75	0-100 to 10,000	0-25 to 10,000
Temperature Output	None	10mV/K	None	None	None
Accuracy (combined linearity, hysteresis & repeatability)	±1% of FS	±1% of FS	±1% of FS	±0.5% of FS	±0.25% BSL
Pressure Overload	2X	2X	2X	2X	2X
Burst Pressure	5x or 20,000 PSI whichever is less	5x or 20,000 PSI whichever is less	10x or 500 PSI whichever is less	5x or 20,000 PSI whichever is less	5x or 20,000 PSI whichever is less
Outputs VDC or mA	0-100mV, 1-5V 4-20mA	0-100mV —	1-5V 4-20mA	0.5-4.5V, 1-5V, 4-20mA	0.5-4.5V 1-5V, 4-20mA
Zero Offset (millivolt output) (amplified output)	±3% of FS ±2% of FS	±3% of FS —	— ±2% of FS	— ±2% of FS	— —
Span Tolerance	±2% of FS	±2% of FS	±2% of FS	±2% of FS	—
Long-Term Stability, Typical (1 year)	±.25%	±.25%	±.5%	±.25%	±0.25%
Operating Temperature (°F) (°C)	(-4 to 185) (-20 to 85)	(-4 to 185) (-20 to 85)	(-4 to 185) (-20 to 85)	(-40 to 185) (-40 to 125)	(-40 to 257) (-40 to 125)
Compensated Range (°F) (°C)	30 to 130 0 to 55	30 to 130 0 to 55	30 to 130 0 to 55	30 to 158 0 to 70	(-4 to 185) (-20 to 85)
Thermo Zero Shift	<±2% of FS	<±2% of FS	<±2% of FS	<±1.5% of FS	—
Thermo Span Shift	<±2% of FS	<±2% of FS	<±2% of FS	<±1.5% of FS	—
Total Error Band	N/A	N/A	N/A	N/A	1.5% of FS
EMI/RFI Protection, CE Mark	No	No	No	Yes	Yes
UL Listed	Yes	No	Yes	Yes	Yes

MSP Series	Op. Pressure Range PSIG	Supply	Digi-Key Part No.	Price Each 1 10	MSI Part No.			
0-100mV Output — 4 Wire Unamplified 1/4" NPT, 2 ft. Cable								
300	100	5 VDC	MSP3101P1-ND	70.00	2000130			
	250		MSP3251P1-ND	70.00	2000199			
	500		MSP3501P1-ND	70.00	2000255			
	1000		MSP3102P1-ND	70.00	2000045			
	2500		MSP3252P1-ND	70.00	2000222			
	5000		MSP3502P1-ND	70.00	2000096			
10000						MSP3103P1-ND	70.00	2000157
0.5-4.5 V Output — Ratiometric output voltage to input voltage 3 Wire supply current 10mA max. 1/4" NPT, 2 ft. Cable								
300	100	5 VDC	MSP3101P2-ND	90.00	2000131			
	250		MSP3251P2-ND	90.00	2000202			
	500		MSP3501P2-ND	90.00	2000260			
	1000		MSP3102P2-ND	90.00	2000046			
	2500		MSP3252P2-ND	90.00	2000223			
	5000		MSP3502P2-ND	90.00	2000099			
10000						MSP3103P2-ND	90.00	2000158
1-5 V Output — Fixed - 3 Wire supply current 10mA max. 1/4" NPT, 2 ft. Cable								
300	100	10-32 VDC	MSP3101P3-ND	95.00	2000133			
	250		MSP3251P3-ND	95.00	2000204			
	500		MSP3501P3-ND	95.00	2000262			
	1000		MSP3102P3-ND	95.00	2000048			
	2500		MSP3252P3-ND	95.00	2000226			
	5000		MSP3502P3-ND	95.00	2000100			
10000						MSP3103P3-ND	95.00	2000159
1-5V Output 1/8" NPT, 2 ft. Cable								
300	100	10-32 VDC	MSP3101P4A1-ND	95.00	2000132			
	250		MSP3251P4A1-ND	95.00	2000203			
	500		MSP3501P4A1-ND	95.00	2000261			
	1000		MSP3102P4A1-ND	95.00	2000047			
4-20mA Output — 2 Wire regulated supply 1/4" NPT, 2 ft. Cable								
300	100	10-32 VDC	MSP3101P4-ND	100.00	2000137			
	250		MSP3251P4-ND	100.00	2000207			
	500		MSP3501P4-ND	100.00	2000264			
	1000		MSP3102P4-ND	100.00	2000050			
	2500		MSP3252P4-ND	100.00	2000227			
	5000		MSP3502P4-ND	100.00	2000101			
10000						MSP3103P4-ND	100.00	2000160

MSP Series	Op. Pressure Range PSIG	Supply	Digi-Key Part No.	Price Each 1	Price Each 10	MSI Part No.
4-20mA Output 1/8" NPT, 2 ft. Cable						
300	100	10-32 VDC	MSP3101P5A1-ND	100.00	80.00	2000136
	250		MSP3251P5A1-ND	100.00	80.00	2000206
	500		MSP3501P5A1-ND	100.00	80.00	2000263
	1000		MSP3102P5A1-ND	100.00	80.00	2000049
0-100mV with Temperature Output — 5 Wire 1/4" NPT, 2 ft. Cable						
310	100	5 VDC	MSP1101P1-ND	100.00	81.50	2000290
	250		MSP1251P1-ND	100.00	81.50	2000295
	500		MSP1501P1-ND	100.00	81.50	2000299
	1000		MSP1102P1-ND	100.00	81.50	2000286
	2500		MSP1252P1-ND	100.00	81.50	2000296
	5000		MSP1502P1-ND	100.00	81.50	2000658
10000	MSP1103P1-ND	100.00	81.50	2000291		
1-5 V Output — Fixed — 3 Wire supply current 10mA max. 1/4" NPT, 2 ft. Cable						
320	25	10-30 VDC	MSP2025P3-ND	110.00	88.00	2000314
	50		MSP2050P3-ND	110.00	88.00	2000329
	75		MSP2075P3-ND	110.00	88.00	2000335
4-20mA Output — 2 Wire regulated supply 1/4" NPT, 2 ft. Cable						
320	25	10-30 VDC	MSP2025P4-ND	115.00	98.00	2000316
	50		MSP2050P4-ND	115.00	98.00	2000330
	75		MSP2075P4-ND	115.00	98.00	2000336
0.5-4.5 V Output — Ratiometric output voltage to input voltage 3 Wire supply current 10mA max. 1/4" NPT, 2 ft. Cable						
400	100	5 VDC	MSP4101P2-ND	100.50	86.00	2000473
	250		MSP4251P2-ND	100.50	86.00	2000519
	500		MSP4501P2-ND	100.50	86.00	2000550
	1000		MSP4102P2-ND	100.50	86.00	2000415
	2500		MSP4252P2-ND	100.50	86.00	2000527
	5000		MSP4502P2-ND	100.50	86.00	2000454
10000	MSP4103P2-ND	100.50	86.00	2000497		
1-5 V Output — Fixed — 3 Wire supply current 10mA max. 1/4" NPT, 2 ft. Cable						
400	100	10-32 VDC	MSP4101P3-ND	106.00	99.50	2000484
	250		MSP4251P3-ND	106.00	99.50	2000521
	500		MSP4501P3-ND	106.00	99.50	2000553
	1000		MSP4102P3-ND	106.00	99.50	2000416
	2500		MSP4252P3-ND	106.00	99.50	2000528
	5000		MSP4502P3-ND	106.00	99.50	2000455
10000	MSP4103P3-ND	106.00	99.50	2000498		
4-20mA Output — 2 Wire regulated supply 1/4" NPT, 2 ft. Cable						
400	100	10-32 VDC	MSP4101P4-ND	152.00	121.25	2000486
	250		MSP4251P4-ND	152.00	121.25	2000522
	500		MSP4501P4-ND	152.00	121.25	2000554
	1000		MSP4102P4-ND	152.00	121.25	2000417
	2500		MSP4252P4-ND	152.00	121.25	2000531
	5000		MSP4502P4-ND	152.00	121.25	2000457
10000	MSP4103P4-ND	152.00	121.25	2000499		
0.5-4.5VDC Output — 1/4" NPT, 2 ft. Cable						
600	25	5 VDC	MSP6025P3-1-ND	110.50	96.00	2000871
	50		MSP6050P3-1-ND	110.50	96.00	2000877
	75		MSP6075P3-1-ND	110.50	96.00	2000883
	100		MSP6101P3-1-ND	110.50	96.00	2000889
	250		MSP6251P3-1-ND	110.50	96.00	2000895
	500		MSP6501P3-1-ND	110.50	96.00	2000901
	1000		MSP6102P3-1-ND	110.50	96.00	2000907
	2500		MSP6252P3-1-ND	110.50	96.00	2000913
	5000		MSP6502P3-1-ND	110.50	96.00	2000919
	7500		MSP6752P3-1-ND	110.50	96.00	2000925
10000	MSP6103P3-1-ND	110.50	96.00	2000931		
0.5-4.5VDC Output — 7/16" SAE, Packard Connector						
600	25	5 VDC	MSP6025P3-4-ND	110.50	96.00	2000964
	50		MSP6050P3-4-ND	110.50	96.00	2000965
	75		MSP6075P3-4-ND	110.50	96.00	2000966
	100		MSP6101P3-4-ND	110.50	96.00	2000967
	250		MSP6251P3-4-ND	110.50	96.00	2000968
	500		MSP6501P3-4-ND	110.50	96.00	2000969
	1000		MSP6102P3-4-ND	110.50	96.00	2000970
	2500		MSP6252P3-4-ND	110.50	96.00	2000971
	5000		MSP6502P3-4-ND	110.50	96.00	2000972
	7500		MSP6752P3-4-ND	110.50	96.00	2001116
10000	MSP6103P3-4-ND	110.50	96.00	2000973		
1-5VDC Output — 1/4" NPT, 2 ft. Cable						
600	25	10-30 VDC	MSP6025P4-1-ND	116.00	109.50	2000872
	50		MSP6050P4-1-ND	116.00	109.50	2000878
	75		MSP6075P4-1-ND	116.00	109.50	2000884
	100		MSP6101P4-1-ND	116.00	109.50	2000890
	250		MSP6251P4-1-ND	116.00	109.50	2000896
	500		MSP6501P4-1-ND	116.00	109.50	2000902
	1000		MSP6102P4-1-ND	116.00	109.50	2000908
	2500		MSP6252P4-1-ND	116.00	109.50	2000914
	5000		MSP6502P4-1-ND	116.00	109.50	2000920
	7500		MSP6752P4-1-ND	116.00	109.50	2000926
10000	MSP6103P4-1-ND	116.00	109.50	2000932		
4-20mA Output— 1/4" NPT, 2 ft. Cable						
600	25	10-30 VDC	MSP6025P5-1-ND	162.00	131.25	2000873
	50		MSP6050P5-1-ND	162.00	131.25	2000879
	75		MSP6075P5-1-ND	162.00	131.25	2000885
	100		MSP6101P5-1-ND	162.00	131.25	2000891
	250		MSP6251P5-1-ND	162.00	131.25	2000897
	500		MSP6501P5-1-ND	162.00	131.25	2000903
	1000		MSP6102P5-1-ND	162.00	131.25	2000909
	2500		MSP6252P5-1-ND	162.00	131.25	2000915
	5000		MSP6502P5-1-ND	162.00	131.25	2000921
	7500		MSP6752P5-1-ND	162.00	131.25	2000927
10000	MSP6103P5-1-ND	162.00	131.25	2000933		

HOBO® H8 Family

Single and multi-channel loggers for recording temperature in indoor and outdoor environments.

Features: • User-selectable sampling intervals: 0.5 seconds to 9 hours, recording times up to 1 year • Programmable start time/date • Memory modes stop when full, wrap-around when full • Nonvolatile EEPROM memory retains data even if battery fails • Blinking LED light confirms operation • User-replaceable battery lasts 1 year • Battery level indication at launch

Specifications: • **Relative Humidity:** 25% to 95% (±5%) • **External Input:** Accepts sensors and input cables for temperature, AC current, 4-20mA and 0-2.5V DC • **Light Intensity:** 2 to 600 lumens/ft² (±2) • **Temperature Range:** -4°F to +158°F (-20°C to +70°C, ±0.7°C); accuracy at 70°F: ±1.27°F (±0.7°C) • **Resolution:** 0.7°F (0.4°C) at +70°F • **Time Accuracy:** ±1 minute per week at +68°F (+20°C)

Fig.	No. of Channels	Environment	Measurement Capacity	Digi-Key Part No.	Price Each	Onset Part No.
1	1	Indoor	7,943	341-1006-ND	59.00	H08-001-02
1	2	Indoor	7,943	341-1007-ND	65.00	H08-002-02
1	2	Indoor	7,943	341-1008-ND	85.00	H08-003-02
1	4	Indoor	32,520	341-1010-ND	95.00	H08-006-04
1	4	Indoor	7,943	341-1009-ND	95.00	H08-004-02
1	4	Indoor	7,943	341-1011-ND	95.00	H08-007-02
2	4	Indoor/Outdoor	32,520	341-1012-ND	179.00	H08-008-04

Note: A BoxCar® Pro or BoxCar 3.6+ starter kit is required to operate the H8 Family loggers.

HOBO® H8 Pro Series

Features: • Indoor/Outdoor Environment • User-selectable sampling intervals: 0.5 seconds to 9 hours, recording times up to 3 years • Programmable start time/date • Memory mode: stop when full • Non-volatile EEPROM memory retains data even if battery fails • Blinking LED light confirms operation (visible through communication jack) • User-replaceable battery lasts 3 years; battery life is substantially less if the HOBO Pro is constantly used below 0°F (-18°C) • Battery check at launch

Specifications: • **Relative Humidity:** 0% to 100% condensing • **Temperature Range:** -22°F to +122°F (-30°C to +50°C) • **Temperature Accuracy (at 70°F):** ±0.33°F (±0.2°C) in high resolution mode; ±0.7°F (±0.38°C) in standard resolution mode • **Resolution (at 70°F):** 0.4°F (0.02°C) in high resolution mode; ±0.68°F (0.38°C) in standard resolution mode • **Time Accuracy:** ±1 minute per week at +68°F (+20°C)

Description	No. of Channels	Measurement Capacity	Digi-Key Part No.	Price Each	Onset Part No.
HOBO Pro Temp	1	65,291	341-1013-ND	129.00	H08-030-08
HOBO Pro RH/Temp	2	65,291	341-1015-ND	159.00	H08-032-08
HOBO Pro Temp/External Temp	2	65,291	341-1014-ND	169.00	H08-031-08

Note: A BoxCar® Pro or BoxCar 3.6+ starter kit is required to operate the HOBO Pro Series loggers.

HOBO® H6 Family

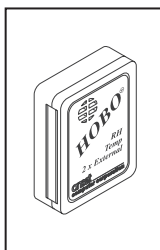
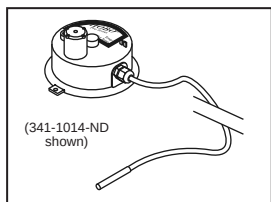
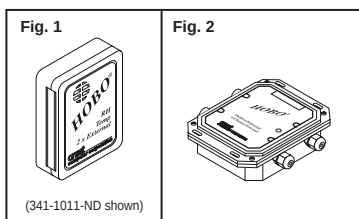
The HOBO H6 Family of loggers record when devices change between on and off or open and closed, storing the time, date, and state for each change.

Features: • Motor on/off • Light on/off • State open/closed • External contact closure • Programmable start time/date • Memory modes: stop when full, wrap-around when full • Nonvolatile EEPROM memory retains data even if battery fails • Blinking LED light shows current state • User-replaceable battery lasts 1 year • Battery check at launch

Specifications: • **Time Resolution:** 0.5 seconds • **Measurement Capacity:** 2,000 state changes • **Operating Temperature Range:** -4°F to +158°F (-20°C to +70°C) • **Relative Humidity:** 0 to 95%, non-condensing, non-fogging • **Time Accuracy:** ±1 minute per week at +68°F (+20°C)

Description	Measurement Range	Digi-Key Part No.	Price Each	Onset Part No.
HOBO State (includes cable & magnet)	—	341-1001-ND	69.00	H06-001-02
HOBO Light On/Off Logger	10 to 300 lumens/ft ²	341-1002-ND	69.00	H06-002-02
HOBO Motor On/Off Logger (AC field sensor)	~2 Gauss at 60 Hz	341-1004-ND	69.00	H06-004-02
HOBO Motor On/Off Logger (vibration sensor)	adjustable -0.05 G to 0.5 G at 60 Hz	341-1003-ND	69.00	H06-003-02

Note: A BoxCar® Pro or BoxCar 3.6+ starter kit is required to operate the H6 Family loggers.



HOBO® Event

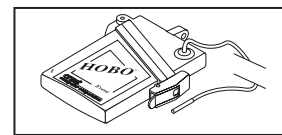
The reusable HOBO Event records when momentary contact-closure events happen, storing the time and date of each event. Only one time per event is stored to minimize memory usage for applications where the event duration is not needed.

Features: • 1-Channel • Indoor/Outdoor environment • Programmable start time/date • Memory modes: stop when full or wrap-around when full • Non-volatile EEPROM memory retains data even if battery fails • Blinking LED light inside case confirms operation • User-replaceable battery lasts 1 year • Battery check at launch

Specifications: • **Event Resolution:** 0.5 seconds • **Capacity:** 8,000 events • **Time Accuracy:** ±1 minute per week at +68°F (+20°C) • **Operating Temp. (logger):** -4°F to +158°F (-20°C to +70°C)

Note: A BoxCar® Pro or BoxCar 3.6+ starter kit is required to operate the HOBO Event logger.

341-1005-ND	HOBO Event Logger (H07-002-04)	\$85.00
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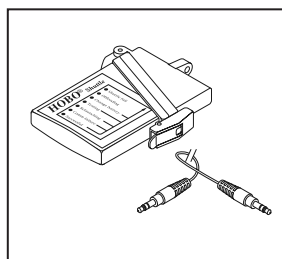
HOBO® Shuttle Data Transporter

The pocket-sized HOBO Shuttle provides a convenient way to readout and relaunch HOBO data loggers and bring the data back to your host PC.

Features: • Verifies operation of HOBO H6 Family and HOBO Event data loggers • One-foot connector cable fits inside case • Data offload time from logger: 90 sec. typical from 8K logger, about 5 min. from 32K logger and about 1 min. from 64K HOBO Pro Logger • Data readout time to PC: 2 minutes typical for full shuttle • Operating humidity range when case is open: 0 to 95% relative humidity, non-condensing • Clear styrene case (weatherproof when closed) • Size: 3.5" x 4.3" x 0.8" (108mm x 89mm x 19 mm); with attached adjustable cord

Specifications: • **Time Accuracy:** ±1 minute per week at +68°F (+20°C). The shuttle's clock is synchronized to the computer clock when the Shuttle is read out or launched • **Operating Temp. Range:** -4°F to +158°F (-20°C to +70°C)

341-1016-ND	HOBO Shuttle (H09-002-08)	\$159.00
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External Sensors/Input Cables

Wide Range Temperature Sensors:

• **Temperature Range:** -40°F to +212°F (-40°C to +100°C), in air • **Accuracy:** ±0.9°F at +70°F (±0.5°C at +20°C) • **Resolution:** 0.7°F at +70°F (0.41°C at +20°C) • **Dimensions:** 0.2" (5.08mm) diameter sensor (fits in 1/4" holes)

High Accuracy Temperature Sensors:

• **Temperature Range:** -32°F to +110°F (-0°C to +44°C), in air • **Accuracy:** ±0.7°F at +70°F (±0.4°C at +20°C) • **Resolution:** 0.3°F at +70°F (0.2°C at +20°C) • **Dimensions:** 0.3" (7.62mm) diameter sensor (fits in 3/8" holes)

Stainless Steel Temperature Sensors:

• **Temperature Range:** -40°F to +212°F (-40°C to +100°C), in air or water • **Accuracy:** ±0.9°F at +70°F (±0.5°C at +20°C) • **Resolution:** 0.7°F at +70°F (0.41°C at +20°C) • **Dimensions:** 4" food-grade stainless-steel probe with pointed tip; 0.12" (3.05) diameter

4-20mA Cable:

• 18" cable with 3.5" tinned braided wire leads • **Loop Current Range:** 0 to 20.1mA • **Accuracy:** ±0.1mA ±1% of reading • **Resolution:** 0.4% of full scale

Voltage Input Cable:

• 6' cable with 0.5" tinned braided wire leads • For voltage input specifications, refer to the HOBO H8 specifications for the model you will be using.

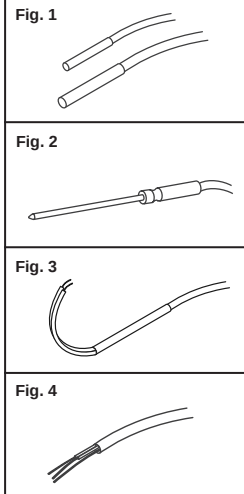


Fig.	Product	Digi-Key Part No.	Price Each	Onset Part No.
1	1' (30 M) Wide Range Temperature Sensors *	341-1019-ND	25.00	TMC1-HA
	6' (1.83 M) Wide Range Temperature Sensors *	341-1020-ND	27.00	TMC6-HA
	20' (6.1 M) Wide Range Temperature Sensors *	341-1021-ND	32.00	TMC20-HA
	50' (15.24 M) Wide Range Temperature Sensors *	341-1022-ND	37.00	TMC50-HA
1	6' (1.83 M) High Accuracy Temperature Sensor *	341-1023-ND	40.00	TMC6-HB
2	6' (1.83 M) Stainless Steel Temperature Probe	341-1024-ND	75.00	TMC6-HC
3	4-20mA Cable	341-1031-ND	15.00	CABLE-4-20mA
4	Voltage Input Cable	341-1030-ND	8.00	CABLE-2.5-STEREO

* Not recommended for prolonged use in water. Do not use for more than 3 months total in water less than +90°F (+30°C), or more than 1 month total in water over +90°F (+30°C).

(Continued)

More Product Available Online: www.digikey.com

Toll-Free: 1-800-344-4539 • Phone: 218-681-6674 • Fax: 218-681-3380

Windows Software Starter Kits

BoxCar 3.6 provides basic launch, data readout, plotting and data export capabilities. BoxCar Pro 4.0 is a powerful enhanced version of BoxCar 3.6 that adds new features for graphing, data analysis, data export and management of multiple loggers. BoxCar Pro 4.0 and BoxCar 3.6 support all currently available HOBO and StowAway loggers. Each starter kit includes software, computer interface cable and software manual.

BoxCar® 3.6 for Windows

Export Data Files to Spreadsheets: • Microsoft Excel, Lotus 1-2-3 or any ASCII-compatible program

System Requirements for BoxCar 3.6: 386 or better processor with at least 4M of RAM running Windows 3.1x or Windows 95/98/NT, with at least one available serial port.

BoxCar® Pro 4.0 for Windows

Export Data to other Programs: • Control bar tool for Microsoft Excel export (.TXT format) • Lotus 1-2-3 and custom export • International data format options • Batch export utility

System Requirements for BoxCar Pro 4.0: Minimum system requirement is 486/66Mhz with at least 16M of RAM running Windows 95/98/NT4 or later with 16-bit color. A Pentium 90 or higher with 24M of RAM is recommended. The system must have at least one available serial COM port and a CD-ROM drive.

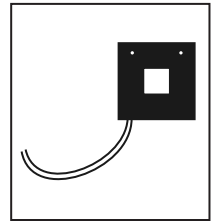
Description	Digi-Key Part No.	Price Each	Onset Part No.
BoxCar 3.6 Starter Kit	341-1018-ND	14.00	BC3.7-DL
BoxCar Pro 4.0 Starter Kit	341-1017-ND	95.00	BCP4.0-ON

Split-core AC Current Sensors

The CTV's are UL listed but not CE approved. They have a pivoting leg for easier installations, and the A, B, and C units have spacer flaps that center the wire being monitored. The CTV's do not require any adapter to work with all HOBO H8 external channel models. Simply plug them in and choose the appropriate model (the Software will not show the "V" but the letters of the models correspond).

Specifications:

• **Length:** 6" (1.83 M) Cable • **Input Current:** AC current, sine wave, single phase 50Hz or 60Hz, load power factor 0.5 to 1.0 lead or lag
 • **Voltage Rating:** 600 Vac tested with full wave 10 KV impulse for 60 seconds • **Ratio and Linear Accuracy:** ±3.0 % of full scale (includes logger accuracy) • **Response Time:** Approximately 250 milliseconds from 10% to 90% of amplitude



Range (AC Amps)	Window Inch (mm)	Outer Length Inch (mm)	Outer Width Inch (mm)	Digi-Key Part No.	Price Each	Onset Part No.
0-20 A ac	0.5 (12.70)	2.8 (71.12)	2.8 (71.12)	341-1049-ND	84.00	CTV-A
0-50 A ac	0.75 (19.05)	2.8 (71.12)	2.8 (71.12)	341-1050-ND	84.00	CTV-B
0-100 A ac	1.0 (25.40)	2.8 (71.12)	3.3 (83.82)	341-1051-ND	84.00	CTV-C
0-200 A ac	1.5 (38.10)	4.0 (101.60)	3.8 (96.52)	341-1053-ND	100.00	CTV-D
0-600 A ac	2.0 (50.80)	4.5 (114.30)	4.5 (114.30)	341-1052-ND	100.00	CTV-E

Thermocouple Sensors

HOBO Wide-range Temperature (Thermocouples)

Each logger includes cold-junction compensation, and two software-selectable measurement ranges for optimal resolution and accuracy. The loggers also have an internal temperature sensor which can be used to record ambient temperatures. Thermocouples are popular for their wide temperature range and specialized probes.

Thermocouples: Features and Specifications: • Capacity: 32,520 measurements total • Mounting kit included (hook/loop, Magnet and tape) • Programmable start time/date • Memory modes: stop when full, wrap-around when full • Nonvolatile EEPROM memory retains data even if battery fails • User-replaceable battery lasts 1 year • User-selectable sampling intervals: 0.5 seconds to 9 hours, recording times up to 1 year • Operating range: 0°C to +50°C (+32°F to +122°F), 0 to 95% relative humidity, non-condensing, non-fogging • Time accuracy: ±1 minute per week at +20°C (+68°F)

Subminiature Connectors: Features and Specifications: • Accept stranded or solid wire up to 20 AWG • Internal silicone grommet for strain relief

Fig.	Description	Digi-Key Part No.	Price Each	Onset Part No.
		1	10	100
Thermocouple Logger				
1	HOBO, Type J	341-1032-ND	95.00	82.01
	HOBO, Type K	341-1033-ND	95.00	82.01
	HOBO, Type T	341-1034-ND	95.00	82.01
Subminiature Connector				
2	Type J, Black	341-1035-ND	4.00	3.94
	Type K, Yellow	341-1036-ND	4.00	3.94
	Type T, Blue	341-1037-ND	4.00	3.94

Fig.	Description	Digi-Key Part No.	Price Each	Onset Part No.
		1	10	100
Thermocouple Logger				
1	HOBO, Type J	341-1032-ND	95.00	82.01
	HOBO, Type K	341-1033-ND	95.00	82.01
	HOBO, Type T	341-1034-ND	95.00	82.01
Subminiature Connector				
2	Type J, Black	341-1035-ND	4.00	3.94
	Type K, Yellow	341-1036-ND	4.00	3.94
	Type T, Blue	341-1037-ND	4.00	3.94

Note: A BoxCar® Pro 4.0 starter kit is required to operate the HOBO Pro Series loggers.

Thermocouple Wire

Specifications: 100' (30.48 meters) coils of insulated 24-AWG thermocouple wire

Type J: Wire: • Range: +32°F to +482°F (0°C to +250°C) • Initial Accuracy: ±4°F (±2.2°C)

Teflon Insulation: Rated up to +400°F (+200°C) continuous, and +482°F (+250°C) for 24 hours.

Type K: Wire: • Range: +32°F to +545°F (0°C to +250°C). Initial Accuracy: ±4°F (±2.2°C)

• Range: +545°F to +900°F (+285°C to +482°C). Initial Accuracy: ±0.75%*

Glass Braid Insulation: Rated up to +900°F (+482°C) continuous, and +1000°F (+537°C) for single exposure.

Type T: Wire: • Range: -330°F to -85°F (-200°C to -65°C). Initial Accuracy: ±1.5%*

• Range: -85°F to +270°F (-65°C to +130°C). Initial Accuracy: ±1.8°F* (±1°C)

• Range: +270°F to +356°F (+130°C to +180°C). Initial Accuracy: ±0.75%*

Teflon Insulation: Rated up to +400°F (+200°C) continuous, and +482°F (+250°C) for 24 hours.

* Percentage is of degrees above or below ice point (+32°F or 0°C)

Description	Digi-Key Part No.	Price Each	Onset Part No.
		1	10
Type J, Teflon Insulation, 100'	341-1038-ND	55.00	TCW100-J
Type K, Glass Braid Insulation, 100'	341-1039-ND	55.00	TCW100-K
Type T, Teflon Insulation, 100'	341-1040-ND	55.00	TCW100-T

Water Temperature

Optic StowAway:

Features and Specifications: • Waterproof to 100 feet • 10-year factory-replaceable battery • Capacity: 7,943 or 32,520 measurements • Two measurement ranges†: +24°F to +99°F (-4°C to +37°C), -32°F to +167°F (-35°C to +75°C) • User-selectable sampling interval: 0.5 seconds to 9 hours, recording times up to several years • Uses optic communications through Optic Base Station for launch and readout • Programmable start time/date • Time accuracy: ±1 minute per week at +68°F (+20°C)

StowAway Tidbit:

Features and Specifications: • Waterproof to 1000 feet • 5-year, non-replaceable battery • Capacity: 32,520 measurements • Completely sealed in epoxy; very durable • Small size: 1.2" wide x 1.6" tall x 0.65" thick (30 x 41 x 17mm) and 0.8 oz. • Two measurement ranges†: +24°F to 99°F (-4°C to +37°C) and -4°F to +122°F (-20°C to +50°C) • User-selectable sampling interval: 0.5 seconds to 9 hours, recording times up to several years • Uses optic communications through Optic Base Station for launch and readout • Time accuracy: ±1 minute per week at +68°F (+20°C)

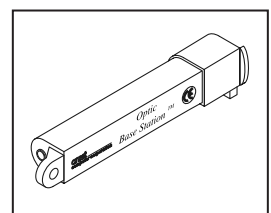
† Specified range is narrower than nominal range due to precision calibration process.

Fig.	Description	Digi-Key Part No.	Price Each	Onset Part No.
		1	10	100
Optic StowAway				
1	8K Capacity, Temp. (-4°C to +37°C)	341-1041-ND	129.00	110.01
	8K Capacity, Temp. (-39°C to +75°C)	341-1042-ND	129.00	110.01
	32K Capacity, Temp. (-5°C to +37°C)	341-1043-ND	189.00	161.00
	32K Capacity, Temp. (-39°C to +75°C)	341-1044-ND	189.00	161.00
StowAway Tidbit				
2	32K, (-5°C to +37°C)	341-1045-ND	119.00	100.97
	32K, (-20°C to +50°C)	341-1046-ND	119.00	100.97

Optic Shuttle Data Transporter

The Optic Base Station is used to communicate between the host computer and Optic data logger, Optic Shuttle, Optic StowAway or StowAway Tidbit. The Optic Base Station connects to the computer interface cable included with the windows software starter kits (sold separately).

Features and Specifications: • Used for readout of the Optic StowAway and the StowAway Tidbit loggers • Includes Optic Coupler and Tidbit Coupler for connecting the base station loggers • 128K capacity enough for 16 full 8K loggers or 4 full 32K loggers • Waterproof to 30 ft (15 psi) • 10-year, factory-replaceable battery • Optic Coupler and Tidbit Coupler included



Description	Digi-Key Part No.	Price Each	Onset Part No.
		1	10
Optic Base Station	341-1047-ND	80.00	73.15
Optic Shuttle	341-1048-ND	199.00	183.01

More Product Available Online: www.digikey.com

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The relative humidity sensors by Humirel are based on capacitive cell technology using a patented solid polymer structure. They are fully interchangeable with no calibration required in standard conditions. Suitable for linear voltage or frequency output circuitry. An NTC thermistor is used for temperature measurement. The RH modules are based on the HS1101 capacitive humidity sensor and are voltage output devices. The RH/Temperature modules include an NTC thermistor for temperature measurement and are voltage or frequency output.

Features:

- High reliability and long term stability
- Instantaneous desaturation after long periods in saturation conditions
- Fast response times
- Patented solid polymer structure

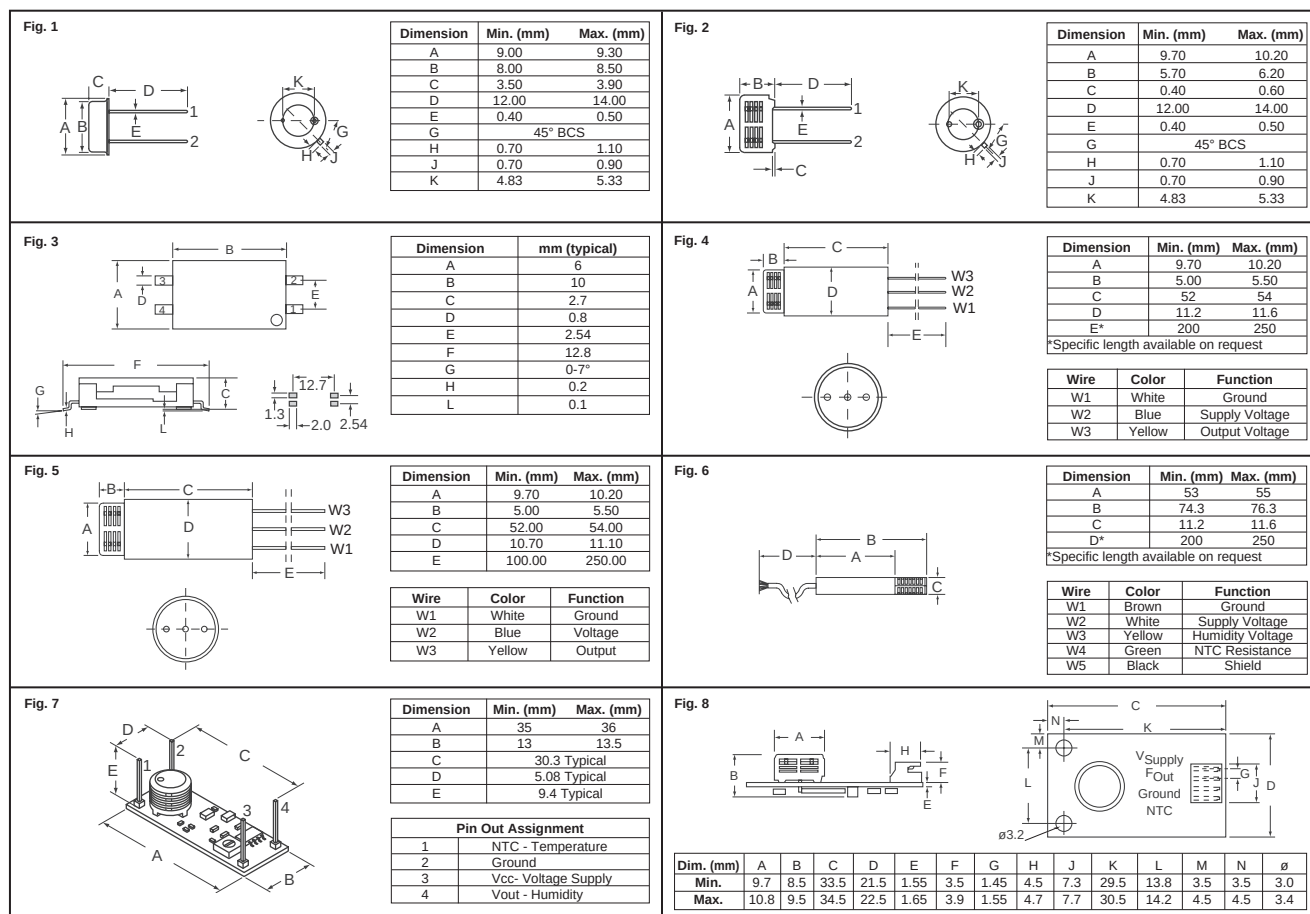


Fig.	Description	Supply Voltage (typ.)	Nom. Cap. @ 55% RH	Response Time	Nominal Out	RH Measuring Range	Operating Temperature	Digi-Key Part No.	Price Each			
110												
Sensors												
1	RH Sensor Top Opening	—	180pF	5 Sec.	—	1 to 99% RH	-40° to 100°C	HS1100-ND	14.00	11.00	9.50	
2	RH Sensor Side Opening			5 Sec.		1 to 99% RH	-40° to 100°C	HS1101-ND	12.50	10.00	9.00	
3	Temp./RH Sensor SMD			10 Sec.		1 to 99% RH	-40° to 100°C	HTS2010SMD-ND	16.80	13.20	11.40	
Modules												
4	RH Module V Out	5V	—	—	2.48V @ 55% RH	1 to 99% RH	-30° to 60°C	HM1500-ND	30.50	23.24	21.00	
5	RH Module V Out				1.24V @ 10% RH	1 to 99% RH	-30° to 60°C	HM1520-ND	49.00	46.00	43.50	
6	Temp./RH Module V Out				2.48V @ 55% RH	1 to 99% RH	-30° to 70°C	HTM2500-ND	49.00	46.00	43.50	
7	Temp./RH Module V Out				2.48V @ 55% RH	1 to 99% RH	-30° to 85°C	HTM1505-ND	20.00	18.00	16.00	
8	Temp./RH Module Freq. Out				8750 Hz @ 55% RH	10 to 95% RH	-30° to 80°C	HTF3223-ND	18.00	16.00	14.00	
—	Demo Kit includes: 1 x HM1500, 1 x HM1510*, and 5 x HS1101								HDEMOKIT-ND	125.00	—	—

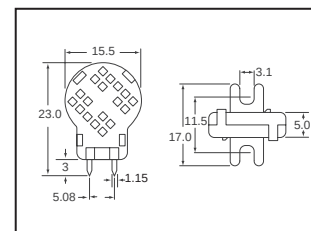
* HM1510 - HM1500 with socket at tip to accept HS1101 to test interchangeability

BC Components Capacitive Humidity Sensor

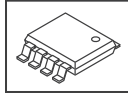
The capacitive atmospheric humidity sensor consists of a non-conductive foil, which is covered on both sides with a layer of gold. The dielectric constant of the foil changes as a function of the relative humidity of the ambient atmosphere and, accordingly, the capacitance value of the sensor is a measure for relative humidity.

Humidity Range (RH)	Cap.* (pF)	Sensitivity Between 12-75% RH (pF/%RH)	Frequency (kHz)	Max. AC/DC Voltage (V)	Storage Humidity Range (RH)	Ambient Temp. Range (°C)	Digi-Key Part No.	Price Each			BC Components Part No.
10-90%	122 ±15%	0.4 ±0.05	1-1000	15	0-100%	0 to +85° -25° to +85°	BC1333-ND	11.94	10.23	8.53	2322 691 90001

* Capacitance at +25 °C; 43% RH; 100 kHz



Honeywell Sensors



1- and 2-Axis Magnetoresistive Microcircuits – HMC1001/1002, HMC1021/1022, HMC1051, HMC1052

Configured as a 4-element wheatstone bridge, these highly sensitive sensors convert magnetic fields to a differential output voltage, capable of sensing magnetic fields as low as 30 μ Gauss.

Features: • Field range up to ± 6 Gauss, (earth's field = 0.5 Gauss) • Small package designed for 1- and 2-axis to work together to provide 3-axis (x, y, z) sensing • Solid state devices reduce board assembly costs, improve reliability and ruggedness compared to mechanical fluxgates • Patented on-chip set/reset straps to reduce effects of temperature drift, non-linearity errors and loss of signal output due to the presence of high magnetic fields • Patented on-chip offset straps for elimination of the effects of hard iron distortion.

Applications: • Compassing • Navigation Systems • Attitude Reference • Traffic Detection • Medical Devices • Non-Contact Switch

SPECIFICATIONS: (See notes below)	Digi-Key Part No.			Conditions
	342-1001-5-ND 342-1002-5-ND	342-1004-5-ND 342-1005-5-ND	342-1034-5-ND 342-1029-5-ND	
Operating Temp.	-40°C to +85°C (*)	-40°C to +85°C	-40°C to +125°C	Ambient
Field Range	± 2 Gauss (± 1 A*)	± 6 Gauss	-6 to $+6$ Gauss	Full scale (FS) - total applied field
Linearity Error Typ	1% FS (± 1 A*)	1.6% FS	0.4%FS	Best fit straight line (at 25°C) ± 2 Gauss (± 6 Gauss for 342-1003/1004/1005-5-ND) Best fit straight line ± 3 Gauss for 342-1029-5-ND
Hysteresis Error Typ	0.05% FS (± 1 A*)	0.08% FS	0.10%	3 sweeps across ± 2 Gauss @ 25°C (± 3 Gauss for 342-1003/1004/1005-5-ND) 3 sweeps across ± 6 Gauss at -40°C to +125°C for 342-1029-5-ND
Sensitivity Typ	3.2 mV/V/Gauss (± 1 A)	1.0mV/V/Gauss	1.0mV/V/Gauss	At IOFFSET = ± 50 mA, Vbridge=8V (Vbridge=5V for 342-1003/1004/1005-5-ND) Set/Reset Current=0.5A for 342-1029-5-ND
Resolution Typ	27 μ Gauss	85 μ Gauss	85 μ Gauss	Bandwidth = 10Hz, Vbridge=5V
Bandwidth	5MHz	5MHz	5MHz	Magnetic signal (lower limit=DC)

Notes:

† Vbridge = 4.3V, IS/R = 3.2A, T = 25°C, VOUT = VSET - VRESET

Δ Vbridge = 8.0V, IS/R = 2.0A, T = 25°C, lower S/R current leads to greater output variation.

* Not tested, guaranteed by characterization.

Description	Digi-Key Part No.	1	Price Each	25	Honeywell Part No.
8-Pin SIP, Single Axis	342-1001-5-ND	33.00	24.75	22.00	HMC1001
20-Pin SOIC, Double Axis	342-1002-5-ND	45.00	33.75	30.00	HMC1002
8-Pin SOIC, Single Axis	342-1003-5-ND	24.00	18.00	16.00	HMC1021S
8-Pin SIP, Single Axis	342-1004-5-ND	24.00	18.00	16.00	HMC1021Z
16-Pin SOIC, Double Axis	342-1005-5-ND	27.00	20.25	18.00	HMC1052
10-Pin MSOP, Double Axis	342-1029-5-ND	18.00	—	—	HMC1052
8-Pin SIP, Single Axis	342-1034-5-ND	18.00	—	—	HMC1051Z

3-Axis Magnetoresistive Sensor – HMC1023

Configured as three magnetoresistive sensors in x, y, and z orientation, these highly sensitive sensors convert all three magnetic field axes to a differential output voltage.

Features: • Field range of ± 6 Gauss, (earth's field = 0.5 Gauss) while maintaining high sensitivity with a minimal detectable field down to 85 μ Gauss • Small package designed to work as a single stand-alone three-axis (x, y, z) magnetoresistive sensing system • Custom Ball Grid Array (BGA), 1mm pitch, 16-pin miniature package provides a small footprint and accurate sensor placement for orthogonal three-axis sensing applications • Solid state device reduces board assembly costs, improves reliability and ruggedness compared to mechanical fluxgates • Patented on-chip set/reset and offset straps have been improved and now require 50% less power to drive the set-reset and offset functions • Operates with a 3V to 25V power supply, lowering power consumption and reducing support circuitry.

Applications: • Compassing • Navigation Systems • Attitude Reference • Virtual Reality • Traffic Detection • Proximity Detection • Medical Devices

Specifications: • Operating Temp.: -40°C to +125°C, Ambient • Field Range: ± 6 Gauss; Full scale (FS) - total applied field • Typ. Linearity Error: 1.6% FS; Best fit straight line (at 25°C) ± 6 Gauss • Typ. Hysteresis Error: 0.08% FS; 3 sweeps across ± 3 Gauss @ 25°C • Typ. Sensitivity: 1.0mV/V/Gauss; At Vbridge +5V • Typ. Resolution: 85 μ Gauss; Bandwidth=10Hz, Vbridge=5V • Bandwidth: 5MHz; Magnetic signal (lower limit=DC); (Units: 1 Gauss (G) = 1 Oersted (in air), 1G=79.58A/m, 1G=10E-4 Tesla, 1G=10E5 gamma.)

Description	Digi-Key Part No.	Price Each	Honeywell Part No.
3-Axis Magnetoresistive Sensor	342-1006-ND	75.00	HMC1023
HMC Mounted on 16-Pin DIP Socket Demo Kit	342-1007-ND	100.00	HMC1023-PCB

3-Axis Magnetic Sensor Hybrid – HMC2003

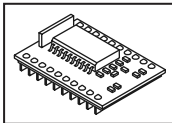
A complete 3-axis magnetometer with analog output in a 20-Pin hybrid DIP package.

Features: • DIP-20 footprint (1" x .75") allows easy insertion into system-level boards, reducing development costs • Solid state components improve reliability and ruggedness compared to mechanical fluxgates • Accurately measures fields from 40 micro-Gauss to ± 2 Gauss at 1V/Gauss • Low noise instrumentation amplifiers with 1kHz low pass filters, reject unwanted noise • No flux concentrators used in this design that can lead to hysteresis and non-repeatability • An externally accessible +2.5V reference improves measurement accuracy and stability • On-board excitation current source reduces temperatures errors and regulates the power supply input • Magnetic field offsets or closed loop circuits can be applied using the built-in straps • Output signal accuracy may be enhanced by using the integral set/reset straps • All components selected and packaged in nonmagnetic material to reduce magnetic distortion and offsets.

Applications: • Compassing • Navigation Systems • Attitude Reference • Traffic Detection • Proximity Detection • Medical Devices

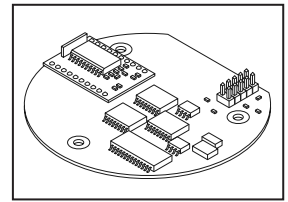
Specifications (Power Supply: +15VDC; Set/Reset switching is active): • Operating Temp.: -40°C to +85°C, Ambient @ 25°C • Supply Voltage: 6 to 15 VDC; Transient protection circuitry should be added across V+ and Gnd if an unregulated power supply is used • Supply Current: 20mA • Output Voltage: 0.5V to 4.5V • Field Range: ± 2 Gauss • Typ. Linearity Error: 1%FS; ± 2 Gauss Applied Field Sweep • Typ. Hysteresis Error: 0.05% FS; 3 sweeps across ± 2 Gauss • Sensitivity Typ.: 1.0mV/V/Gauss; At Vbridge +5V • Typ. Resolution: 40 μ Gauss • Bandwidth: 1kHz (Units: 1 Gauss (G) = 1 Oersted (in air), 1G=79.58A/m, 1G=10E-4 Tesla, 1G=10E5 gamma.)

Description	Digi-Key Part No.	Price Each	Honeywell Part No.
3-Axis Magnet Sensor Hybrid	342-1011-ND	199.00	HMC2003



3-Axis Strapdown Magnetometer – HMR2300r

The three-axis strapdown magnetometer detects the strength and direction of the earth's magnetic field and communicates the x, y, and z component directly via serial bus. It provides an excellent replacement for conventional fluxvalve sensors commonly used in aviation systems. It offers higher reliability since it has no moving parts to damage or wear out during severe flight conditions. Low cost, high sensitivity, fast response, small size, and reliability are advantages over mechanical or other magnetometer alternatives.



Features:

• Strapdown magnetometer replaces bulky fluxvalves • Microprocessor-based Smart Sensor • Range of ± 2 Gauss: <70 μ Gauss Resolution • Readings can achieve heading resolution of 0.02° • Rate Selectable: 10 to 154 samples/sec. • Small Size: 2.83", fits in ML-1 Style enclosure • Repeatable and Reliable: MTBF >50,000 hours.

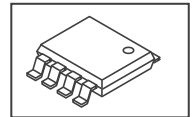
Applications: • Navigation Systems (Avionics and Marine) • Fluxvalve Replacement • Can be slaved to AHSR System • GPS Backup Systems • Remote Vehicle Monitoring • Unpiloted Air Vehicles (UAVs) • Navigation/Attitude for Satellites.

Specifications: • Supply Voltage: 6.5 to 15V; Pin 9 referenced to Pin 5 • Typ. Supply Current: 45mA; Vsupply=15V, (with 120W termination) • Operating Temp: -40°C to +85°C; Ambient • Field Range: ± 2 Gauss; Full scale (FS) - total applied field • Typ. Linearity Error: 0.1 / 1%FS; Best fit straight line ± 1 Gauss • Typ. Hysteresis Error: 0.01%FS; 3 sweeps across ± 2 Gauss @ 25°C • Min. Resolution: 67 μ Gauss; Applied field to change output. (Units: 1 Gauss (G) = 1 Oersted (in air), 1G=79.58A/m, 1G=10E-4 Tesla, 1G=10E5 gamma)

Serial Output	Description	Digi-Key Part No.	Price Each	Honeywell Part No.
RS-422	Round	342-1021-ND	850.00	HMR2300r-422
RS-485	Round	342-1020-ND	850.00	HMR2300r-485

Linear / Angular / Rotary Displacement Sensors – HMC1501 / HMC1512

High resolution, low power MR sensor capable of measuring the angle direction of a magnetic field from a magnet with <0.07° resolution. Output is typical Wheatstone Bridge



Features:

• No "rare earth" magnets; functions with Alnico or ceramic type magnets • Linear range of 8mm with two sensors mounted on two ends, range may be increased through multiple sensor arrays operating together • Absolute sensing ability to know exact position and require no indexing for proper positional output • No moving parts to wear out • 8-pin SMT package • Case dimensions (exclusive of pins) of 5mm x 4mm x 1.2mm total mounting envelope, with pins of less than 6mm square • Full scale output range of 120mV with 5V of power supply.

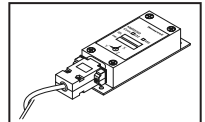
Applications: • Linear Displacement • Angular Displacement • Motor Control • Valve Position • Proximity Detection • Current Spike Detection.

Specifications (at 25°C except stated otherwise): • Typ. Bridge Supply: 5V, Vbridge referenced to GND • Sensitivity Vbridge =5V, field 80 Oe: 2.1mV/° @ zero crossing; 1.8mV/° @ zero crossing, averaged in the range of 45° • Typ. Peak-to-Peak Voltage: 120mV, Vbridge=5V, field=80 Oe • Bandwidth: 0 to 5MHz, Magnetic signal • Typ. Hysteresis Error: 30 μ V, 1.7x10⁻⁷ mV, Magnetic field $\geq$ saturation field, Vbridge = 5V

Typ. Bridge Resistance @ 1mA	Angle Range $\geq$ Saturation Field	Typ. Resolution 10Hz Bandwidth Vbridge=5V <0.07°	Digi-Key Part No.	Price Each	Honeywell Part No.
5K Ω	$\pm 45^\circ$	<0.07°	342-1008-5-ND	27.00	HMC1501
2.1K Ω	$\pm 90^\circ$	<0.05°	342-1010-5-ND	27.00	HMC1512

Smart Digital Magnetometer – HMR2300

Microcontroller-Based Smart Sensor with range of ± 2 Gauss; <70 μ Gauss Resolution. Has high accuracy over ± 1 Gauss; <0.5%FS; and Output Rate Selectable of 10 to 154 Samples/Sec. This sensor has a three-axis digital output, BCD ASCII or Binary, RS-232 Serial Output (9600 or 19200), and a 9-pin D-Sub connector.



Applications: • Compassing • Avionics and Marine • Remote Vehicle Monitoring (Roll/Pitch/Yaw) • Process Control • Laboratory Instrumentation • Anomaly Detection • Traffic and Vehicle Detection • Security Systems.

Specifications: • Supply Voltage: 6.5 to 15V; Pin 9 referenced to Pin 5 • Typ. Supply Current: 27mA; Vsupply=15V, with S/R=ON • Operating Temp: -40°C to 85°C; Ambient • Field Range: ± 2 Gauss; Full scale (FS) - total applied field • Typ. Linearity Error: 1%FS; Best fit straight line at 25°C ± 2 Gauss • Typ. Hysteresis Error: 0.01%FS; 3 sweeps across ± 2 Gauss @ 25°C • Min. Resolution: 67 μ Gauss; Applied field to change output. (Units: 1 Gauss (G) = 1 Oersted (in air), 1G=79.58A/m, 1G=10E-4 Tesla, 1G=10E5 gamma)

Serial Output	Description	Digi-Key Part No.	Price Each	Honeywell Part No.
RS-232	Without Enclosure	342-1014-ND	675.00	HMR2300-D00-232
RS-232	Flush Mount Enclosure, Aluminum, 3.25" x 1.50" x 1.13" (82.55 x 38.1 x 28.70mm)	342-1015-ND	699.00	HMR2300-D20-232
RS-232	Extended Enclosure, Aluminum, 4.00" x 1.50" x 1.13" (101.60 x 38.1 x 28.70mm)	342-1016-ND	699.00	HMR2300-D21-232
RS-485	Without Enclosure	342-1017-ND	675.00	HMR2300-D00-485
RS-485	Flush Mount Enclosure, Aluminum, 3.25" x 1.50" x 1.13" (82.55 x 38.1 x 28.70mm)	342-1018-ND	699.00	HMR2300-D20-485
RS-485	Extended Enclosure, Aluminum, 4.00" x 1.50" x 1.13" (101.60 x 38.1 x 28.70mm)	342-1019-ND	699.00	HMR2300-D21-485
RS-232	HMR2300 Development Kit with RS-232 Output, Cables, Manual	342-1012-ND	750.00	HMR2300-Demo-232

More Product Available Online: www.digikey.com

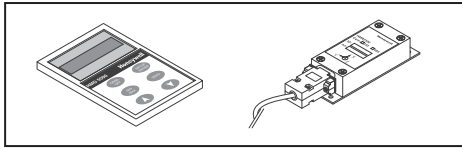
Toll-Free: 1-800-344-4539 • Phone: 218-681-6674 • Fax: 218-681-3380

(T032) 1107

N

Honeywell Sensors

Hand Held Display Module – HMD5000



This Hand Held Display Module for digital magnetic sensor products displays heading, pitch, and roll information when connected to the HMR3000 Digital Compass Module. If used with the HMR2300 Smart Digital Magnetometer, magnetic field readings in the X, Y and Z directions, as well as the magnitude of all three axes combined are shown. This small hand held unit has actual case dimensions of 3.60" x 5.70" x 2.09" and weighs 0.54 pounds. The interface cable is 3 feet long and has a female 9-pin "D" connector. The accuracy and resolution of the HMD5000 is dependent on the instrument with which it is used (the HMR3000 or the HMR2300). **Features:** • Portable, runs on batteries, easy to use in field applications. **Input Power Requirements:** • **Supply Voltage:** 6-15 Vdc Unregulated • **Power:** 72mA @ 9 Vdc (300mA at Power Up). **Applications:** • Compassing • Navigation Systems • Attitude Reference • Magnetic Anomaly Detection • Proximity Detection • Laboratory Instrumentation • Traffic and Vehicle Detection

Description	Digi-Key Part No.	Price Each	Honeywell Part No.
HMD5000 Hand Held Display Module	342-1028-ND	569.00	HMD5000

Digital Compass Module – HMR3000

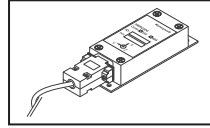
Electronic compass module that provides heading, pitch and roll output for navigation and guidance systems. This solid state magnetoresistive sensors make this strapdown compass both rugged and reliable. This compass provides fast response time up to 20Hz and high heading accuracy of 0.5° with 0.1° resolution.

Features: • Built with solid state magnetic sensors and no moving parts improves response time, allowing faster updates compared to gimbaled fluxgates • Available as a circuit board 1.2" x 2.95", weighing less than one ounce, or in an aluminum enclosure • Operates with less than 35mA, allowing for long operation with a battery • Accuracy better than 0.5° with 0.1° resolution for critical positioning applications • Tilt range of ±40° for both the roll and pitch allows operation for most applications • Calibration routines to compensate for distortion due to nearby ferrous objects and stray fields, such as vehicles • User settings of baud rate, update rate, output format, units, filter settings, deviation angles, alarms, and warnings are stored internally in non-volatile memory.

Specifications:

• **Typical Supply Voltage:** 5.0Vdc regulated, 6-15Vdc unregulated • **Typ. Power:** 35mA @ 6Vdc Normal Operation, 13mA STOP Mode, 2.0mA SLEEP Mode • **Serial:** RS-232 / RS-485 (Half Duplex) • **Baud Rate:** 1200 to 38400 bps • **Standard:** NMEA 0183 • **Update Modes:** Continuous: 1/min to 20Hz per sentence; Strobed: selectable averaging • **Operating Temperature:** Meets or exceeds -20°C to 70°C • **Storage Temp.:** Meets or exceeds -35°C to +100°C • **Shock:** Meets or exceeds 30" drop (MIL-STD-810E:TM 516.4) • **Vibration:** Meets or exceeds 20-2000Hz Random 2 hrs/axis (MIL-STD-810E:TM 514.4).

Applications: • Oceanographic (Marine compassing; Positioning of buoys, underwater structures) • Drilling (down hole and directional) • Attitude Reference • Heading (Navigation of unmanned vehicles; Avionic compassing) • Integration with GPS (Dead Reckoning) • Satellite Antenna Positioning • Laser Range Finders (surveying applications)



Digital Compass Module – HMR3200/3300

Electronic compassing solutions that provide heading information for use in navigation and guidance systems. Magnetoresistive sensors are utilized to provide the reliability and accuracy of these small, solid state compass designs. These compass solutions are easily integrated into systems using a UART interface in ASCII format.

Features:

Accuracy: 1° heading accuracy, 0.1° resolution and 0.5 degrees repeatability.

Tilt Range: The HMR3300 may be operated up to a ±60° tilt range for both pitch and roll. Accuracy and performance are enhanced over a wider range of operating conditions and applications with this feature. The HMR3200 is not tilt compensated. Performance is optimized in horizontal or vertical orientations.

Low Power: Typical operating current is 18 mA for the HMR3200.

Response Time: The HMR3200 has 15Hz response time for faster updates compared to gimbaled, mechanical fluxgate compasses.

Specifications:

• **Magnetic Field:** Range: ±2 gauss typical, Resolution: 0.1 mGauss
• **Electrical:** Input Voltage: Unregulated: 6 to 15 VDC, Regulated: 5.0 Vdc
• **Interface:** UART - User selectable baud rate 2400 to 19200 baud
• **Physical:** Dimensions - Conditions: Circuit board, 1.0" x 1.45" x 0.4" (25.4 x 36.8 x 1.1 mm)

Header Pin Assignment	
Pin No.	Pin Name
1	SCK
2	RX/SDI
3	TX/SDO
4	CS
5	CAL
6	5V
7	GND
8	+V

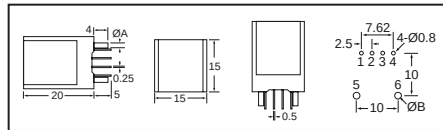
Serial Output	Description	Digi-Key Part No.	Price Each	Honeywell Part No.
UART	Digital Compass Module 2-axis	342-1030-ND	335.00	HMR3200
UART	Digital Compass Module 3-axis	342-1032-ND	450.00	HMR3300
HMR 3200 Development Kit, with RS232 Output, Cables, Manual		342-1031-ND	399.00	HMR3200-Demo-232
HMR 3300 Development Kit, with RS232 Output, Cables, Manual		342-1033-ND	499.00	HMR3300-Demo-232



CUI INC Current Sensors

The SCD series current sensors are PC board mounted, Hall effect, open-loop devices which output a voltage equivalent to the magnitude of current sensed. Two basic sensing types are offered. Both are capable of measuring AC currents:

- XXN for detecting DC current and AC currents where ± input currents are represented as a + voltage only.
- XXR for detecting DC current and AC currents. ± input currents are represented as ± voltage.

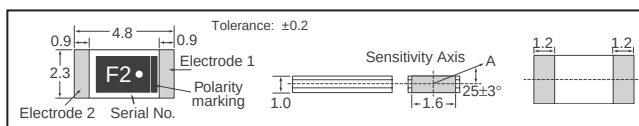


Pin Assignment	
Pin No.	Pin Name
1	+5V
2	NC
3	Output
4	0V
5	Input (+)
6	Input (-)

Mounting Hole Dimensions		
Part No.	øA	øB
SCD03	0.7	1.2
SCD05	1.0	1.5
SCD10	1.2	1.7
SCD15	1.5	2.0
SCD20	1.8	2.3

Rated Current	Output Voltage	Supply Voltage	Input Current Polarity	Response	Operating Temperature	Digi-Key Part No.	Price Each			CUI Part No.
							1	10	25	
+3A	2.3V	5V	+DC only	7µs typ.	-10° to +75°C	102-1050-ND	24.90	18.68	16.60	SCD03PUN
+5A	2.3V	5V	+DC only	7µs typ.	-10° to +75°C	102-1051-ND	24.90	18.68	16.60	SCD05PUN
+10A	2.3V	5V	+DC only	7µs typ.	-10° to +75°C	102-1052-ND	24.90	18.68	16.60	SCD10PUN
+15A	2.3V	5V	+DC only	7µs typ.	-10° to +75°C	102-1053-ND	24.90	18.68	16.60	SCD15PUN
+20A	2.3V	5V	+DC only	7µs typ.	-10° to +75°C	102-1054-ND	24.90	18.68	16.60	SCD20PUN
±3A	2.3V	5V	Bipolar	7µs typ.	-10° to +75°C	102-1055-ND	24.90	18.68	16.60	SCD03PUR
±5A	2.3V	5V	Bipolar	7µs typ.	-10° to +75°C	102-1056-ND	24.90	18.68	16.60	SCD05PUR
±10A	2.3V	5V	Bipolar	7µs typ.	-10° to +75°C	102-1057-ND	24.90	18.68	16.60	SCD10PUR
±15A	2.3V	5V	Bipolar	7µs typ.	-10° to +75°C	102-1058-ND	24.90	18.68	16.60	SCD15PUR
±20A	2.3V	5V	Bipolar	7µs typ.	-10° to +75°C	102-1059-ND	24.90	18.68	16.60	SCD20PUR
+3A	5V	12V	+DC only	3µs typ.	-10° to +75°C	102-1060-ND	24.90	18.68	16.60	SCD03PSN
+5A	5V	12V	+DC only	3µs typ.	-10° to +75°C	102-1061-ND	24.90	18.68	16.60	SCD05PSN
+10A	5V	12V	+DC only	3µs typ.	-10° to +75°C	102-1062-ND	24.90	18.68	16.60	SCD10PSN
+15A	5V	12V	+DC only	3µs typ.	-10° to +75°C	102-1063-ND	24.90	18.68	16.60	SCD15PSN
+20A	5V	12V	+DC only	3µs typ.	-10° to +75°C	102-1064-ND	24.90	18.68	16.60	SCD20PSN
±3A	5V	12V	Bipolar	3µs typ.	-10° to +75°C	102-1065-ND	24.90	18.68	16.60	SCD03PSR
±5A	5V	12V	Bipolar	3µs typ.	-10° to +75°C	102-1066-ND	24.90	18.68	16.60	SCD05PSR
±10A	5V	12V	Bipolar	3µs typ.	-10° to +75°C	102-1067-ND	24.90	18.68	16.60	SCD10PSR
±15A	5V	12V	Bipolar	3µs typ.	-10° to +75°C	102-1068-ND	24.90	18.68	16.60	SCD15PSR
±20A	5V	12V	Bipolar	3µs typ.	-10° to +75°C	102-1069-ND	24.90	18.68	16.60	SCD20PSR

N Panasonic Piezoelectric Sensor for Mechanical Shock



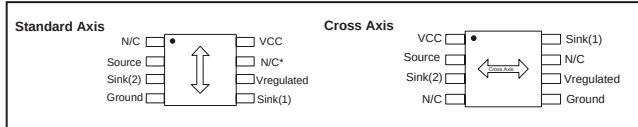
Usage: • Detect external shock applied to HDD • Prevents tracking error due to vibration of audio equipment
Features: • Small size and light weight • Wide range frequency response 80 ~ 10,000Hz (Rin=10MΩ)
• Voltage sensitivity 0.1mV/(m/s²) typ • Incident angle 0, 25, 45°

Description	Digi-Key Part No.	Cut Tape Price Each			Digi-Key Part No.	Tape & Reel Pricing 2,000	Panasonic Part No.
Shock Sensor	P11437CT-ND	1.71	1.29	.99	P11437TR-ND	799.40/M	EFJ-G25EF01

More Product Available Online: www.digikey.com

1108 (T032)

Toll-Free: 1-800-344-4539 • Phone: 218-681-6674 • Fax: 218-681-3380



The GMR Switch will accurately and reliably sense magnetic fields, with less error than any other magnetic sensor on the market today.

In addition, there is minimal shift in the magnetic field operate point of the GMR Switch over both voltage and temperature extremes. This gives the manufacturer the ability to make a high precision, high tolerance magnetic sensing assembly.

Features:

Absolute Maximum Ratings:

- Parameters:
- Supply Voltage: 33V
 - Reverse Battery Voltage: -33V
 - Continuous Output Current: 24 mA
 - Operating Temperature Range: -40°C to +125°C
 - Magnetic Field: Unlimited Oersteds

Electrical Specifications:

Parameter:

- Supply Voltage: 4.5-30V
- Supply Current, Single Output GMR Switch: 2.5-4.5mA
- Current Sinking Output: 0-20mA
- Current Sourcing Output: 0-20mA
- Output Leakage Current: 10mA
- Sinking Output Saturation Voltage: 0.4V
- Sourcing Output Saturation Voltage: -2.5V
- Regulated Output Voltage: 3.5-6.0V

Sensitivity	Direction of Sensitivity	Output Type	Package	Digi-Key Part No.	1	Price Each	25	100	NVE Part No.
20 Gauss	Standard	Sink	8-TSSOP	391-1005-ND	4.35	3.27	2.90	1.89	AD004-00
40 Gauss	Standard	Sink	8-TSSOP	391-1006-ND	4.35	3.27	2.90	1.89	AD005-00
80 Gauss	Standard	Sink	8-TSSOP	391-1007-ND	4.35	3.27	2.90	1.89	AD006-00
28 Gauss	Standard	Sink	8-TSSOP	391-1008-ND	4.35	3.27	2.90	1.89	AD020-00
20 Gauss	Cross Axis	Sink	8-TSSOP	391-1009-ND	4.35	3.27	2.90	1.89	AD021-00
40 Gauss	Cross Axis	Sink	8-TSSOP	391-1010-ND	4.35	3.27	2.90	1.89	AD022-00
80 Gauss	Cross Axis	Sink	8-TSSOP	391-1011-ND	4.35	3.27	2.90	1.89	AD023-00
28 Gauss	Cross Axis	Sink	8-TSSOP	391-1012-ND	4.35	3.27	2.90	1.89	AD024-00
20 Gauss	Cross Axis	Source & Sink	8-TSSOP	391-1013-ND	4.77	3.58	3.18	2.07	AD221-00
28 Gauss	Cross Axis	2 Sink	8-TSSOP	391-1014-ND	4.77	3.58	3.18	2.07	AD324-00
20 Gauss	Cross Axis	Source & Sink + Ext. V. Reg.	8-TSSOP	391-1015-ND	5.13	3.85	3.42	2.23	AD621-00
28 Gauss	Cross Axis	2 Sink + Ext. V. Reg.	8-TSSOP	391-1016-ND	5.13	3.85	3.42	2.23	AD724-00
10 Gauss	Cross Axis	Sink	8-TSSOP	391-1018-ND	2.67	2.01	1.78	1.16	ADH025-00

GMR Current Sensor Evaluation Assembly

The NVE GMR Current Sensor Evaluation Assembly (PN AG003-01) was created to facilitate laboratory experimentation and development using GMR current sensors.

The kit consists of (4) four NVE current sensors (PN AC004-01) assembled to a printed circuit board (PN AG002-01). The PCB has (4) four trace geometries to simulate various PCB current ranges.

Description	Digi-Key Part No.	Price Each	NVE Part No.
Current Sensor Evaluation Assembly	391-1004-ND	43.00	AG003-01

GMR Analog Magnetic Field Sensors

NVE's Giant Magnetoresistive Field Sensors offer unique and unparallel magnetic sensing capabilities.

The high sensitivity and ability to sense static magnetic fields provides superior performance which set them apart from other sensors on the market today.

NVE's sensors provide high sensitivity, temperature stability, low power consumption, and small size.

Features:

- Input Voltage Range: Max: ±25V
- Operating Frequency: Minimum: DC, Maximum: ±25MHz
- Temperature Range: Minimum: -50°C, Maximum: 125°C
- Maximum Output: Nominal: 45mV/V
- Magnetic Characteristics: (5k ±20% bridge)

Pkg.	Saturation Field (Oe)	Specified Linear Range Oe		Sensitivity (mV/V/Oe)		Digi-Key Part No.	Price Each				NVE Part No.
		Min.	Max.	Min.	Max.		1	10	25	100	
8-SOIC	15	0	10.5	3	4.2	391-1000-ND	14.58	10.94	9.72	6.32	AA002-02
8-SOIC	50	0	35	0.9	1.3	391-1001-ND	8.10	6.08	5.40	3.51	AA004-02
8-SOIC	100	0	70	0.45	0.65	391-1002-ND	8.10	6.08	5.40	3.51	AA005-02

GMR Evaluation Kit

The NVE GMR Engineering Evaluation Kit (PN AG001-01) was created as an aid to the technical user of GMR sensors to facilitate laboratory experimentation and development.

The kit consists of an assortment of NVE sensors, printed circuit boards and permanent magnets sufficient to demonstrate sensor functionality in the laboratory.

Description	Digi-Key Part No.	Price Each	NVE Part No.
Engineering Evaluation Kit	391-1003-ND	60.00	AG001-01

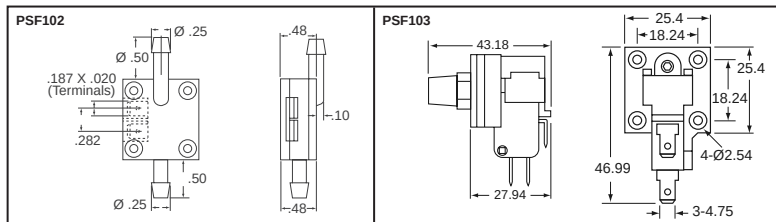
WORLD MAGNETICS

Ultra Sensitive Pressure Switches

PSF102 Series: Field adjustable pressure set point from 0.004 to 3.606 PSI. Switch type SPST normally open. Electrical connections are terminals 0.187" x 0.020" tab-type recessed for use with quick disconnects (ref. AMP# 2-520182-2 or equivalent).

PSF103 Series: Field adjustable pressure set point from 0.1 to 60 PSI. Switch type SPDT normally open or normally closed. Electrical connections are terminals 0.187" x 0.020" tab-type for use with quick disconnects (ref. AMP# 2-520182-2 or equivalent).

Current rating: 40mA @ 30V AC/DC. Current rating: 25A 125/250 VAC. Applications: Hysteresis (deadband) for compressor or refill motor control.



In. H ₂ O	mbar	PSI	Proof Pressure	Operating Current/ Voltage	Digi-Key Part No.	1	Price Each	10	100	World Magnetics Part No.
PSF102 Series										
0.1-0.5	0.25-1.25	.004-.018	2 PSI	40mA 30V AC/DC	384-1015-ND	13.79	13.10	9.79	7651-710	
0.5-2	1.25-4.98	.018-.072	4 PSI	40mA 30V AC/DC	384-1016-ND	13.79	13.10	9.79	7651-711	
2-15	4.98-37.37	.072-.541	8 PSI	40mA 30V AC/DC	384-1017-ND	13.79	13.10	9.79	7651-712	
15-100	37.37-249.10	.541-3.606	15 PSI	40mA 30V AC/DC	384-1018-ND	13.79	13.10	9.79	7651-713	
PSF103 Series										
2-10	5-25	0.1-0.4	30 PSI	3A 125/250VAC	384-1010-ND	13.19	12.60	9.19	9011-902	
10-28	25-69	0.4-1.0	30 PSI	10A 125/250VAC	384-1011-ND	13.19	12.60	9.19	9011-903	
28-111	69-276	1.0-4.0	30 PSI	15A 125/250VAC	384-1012-ND	13.19	12.60	9.19	9011-904	
111-416	276-1034	4.0-15.0	100 PSI	15A 125/250VAC	384-1013-ND	13.19	12.60	9.19	9061-905	
416-1664	1034-4137	15.0-60.0	100 PSI	15A 125/250VAC	384-1014-ND	13.19	12.60	9.19	9061-906	

Ultra Sensitive Pressure Switches

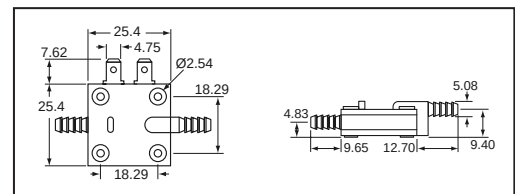
PSFA100A Series

Pressure switches utilize a patented double diaphragm/contact configuration to protect against false actuation due to shock and vibration. Switch type is SPST normally open, double-make/double break.

Current Rating is 40mA resistive for life in excess of 20 Million cycles.

Operating Voltage AC/DC: 30V or less with resistive load; 120 VAC neon lamp load.

Electrical connections are terminals at .187" x .020" tab-type for use with quick disconnects (ref. AMP 2-520182-2 or equivalent).



PSI	Digi-Key Part No.	1	Price Each	10	100	World Magnetics Part No.
.018	384-1000-ND	18.56	17.63	13.18		PSF100A-0.5
.054	384-1001-ND	18.56	17.63	13.18		PSF100A-1.5
.108	384-1002-ND	18.56	17.63	13.18		PSF100A-3.0
.217	384-1003-ND	17.37	16.50	12.33		PSF100A-6.0
.361	384-1004-ND	17.37	16.50	12.33		PSF100A-10.0
.541	384-1005-ND	17.37	16.50	12.33		PSF100A-15.0
1.804	384-1006-ND	17.37	16.50	12.33		PSF100A-50.0

Ultra Sensitive Vacuum Switches

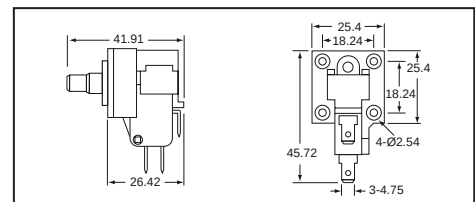
PSF109 Series

Vacuum switch with Hysteresis (deadband) for motor control. Field adjustable vacuum set point, from 3" H₂O to 12 PSI.

Switch type is SPDT normally open, normally closed.

Electrical connections are terminals at .187" x .020" tab-type for use with AMP 2-520182-2 or equivalent.

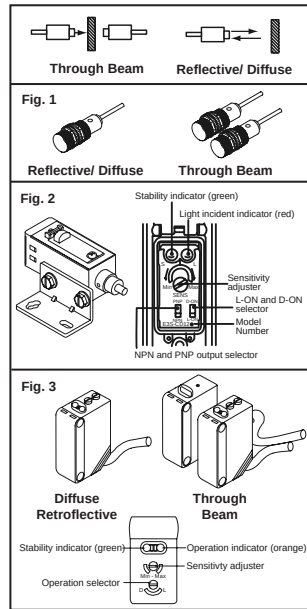
Contact Rating	PSI	Digi-Key Part No.	1	Price Each	10	100	World Magnetics Part No.
3A, 125/250 VAC	0.1-0.3	384-1007-ND	16.24	15.43	11.53		PSF109S-3-8
10A, 125/250 VAC	0.3-2.9	384-1008-ND	16.24	15.43	11.53		PSF109S-9-80
15A, 125/250 VAC	2.9-11.9	384-1009-ND	16.24	15.43	11.53		PSF109S-81-330



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OMRON® Photoelectric Sensors



Photoelectric sensors consist of a light source and detector for object detection.

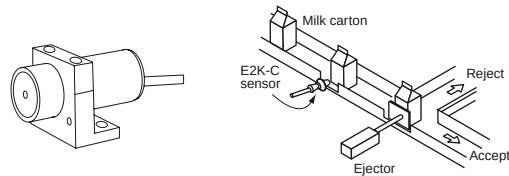
Through-beam sensors use a separate transmitter and receiver, which an object must pass between to block the light.

Retroreflective sensors are a combined transmitter/receiver in one body and is reflected. A reflector typically is used to return the beam from the x-mitter back to the receiver. Once an object is moved between the reflector and emitter/detector, the receiver output turns on.

Diffuse reflective is a combined transmitter/receiver in one body. Objects are detected by moving an object closer to the sensor directly from the front, rather than from the side. Once an object has come within the sensing distance, the amount of reflected light is sufficient to trigger the receiver output.

Fig.	Description	Sensing Distance	Type	Digi-Key Part No.	1	25	50	Omron Part No.
1	M18, Diffused Photoelectric Sensor, 10-30VDC Nickel Plated Brass	3.94" (10cm)	NPN	Z1087-ND	58.51	54.18	50.57	E3F2-DS10C4-N
	M18, Diffused Photoelectric Sensor, 24-240VAC, Plastic Housing	3.94" (10cm)	NPN	Z1088-ND	68.04	63.00	58.80	E3F2-DS10Z1-N
	M18, Retroreflective Photoelectric Sensor, 10-30VDC, Plastic Housing	6.56' (2m)	NPN	Z1089-ND	60.33	55.86	52.14	E3F2-R2C4
	M18, Retroreflective Photoelectric Sensor, 10-30VDC, Plastic Housing	6.56' (2m)	Light - On	Z1090-ND	69.85	64.68	60.37	E3F2-R2Z1
	M18, Through Beam Photoelectric Sensor, 10-30VDC, Plastic Housing	9.84' (3m)	Light - On	Z1091-ND	101.61	94.08	87.81	E3F2-3Z1
	M18, Through Beam Photoelectric Sensor, 10-30VDC, Plastic Housing	22.97' (7m)	NPN	Z1092-ND	77.57	71.82	67.04	E3F2-7C4
	M18, Through Beam Photoelectric Sensor, 10-30VDC, Nickel Plated Brass	22.97' (7m)	NPN	Z1093-ND	89.36	82.74	77.23	E3F2-7C4-C
	M18, Diffused Photoelectric Sensor, 10-30VDC, Nickel Plated Brass	3.94" (10cm)	PNP	Z1094-ND	69.85	64.68	60.37	E3F2-DS10C4-C
	M18, Retroreflective Photoelectric Sensor, 10-30VDC, Nickel Plated Brass	6.56' (2m)	Light - On	Z1095-ND	74.84	69.30	64.68	E3F2-R2RC4-C
2	Diffused Photoelectric Sensor, 10-30VDC, Metal Body Horiz.	27.6" (70cm)	NPN/PNP	Z1096-ND	141.52	131.04	122.31	E3S-CD11
	Diffused Photoelectric Sensor, 10-30VDC, Metal Body Horiz.	6.56' (2m)	NPN/PNP	Z1097-ND	151.50	140.28	130.93	E3S-CD12
	Diffused Photoelectric Sensor, 10-30VDC, Metal Body Vertical	27.6" (70cm)	NPN/PNP	Z1098-ND	141.52	131.04	122.31	E3S-CD61
	Diffused Photoelectric Sensor, 10-30VDC, Metal Body Vertical	6.56' (2m)	NPN/PNP	Z1099-ND	151.50	140.28	130.93	E3S-CD62
	Retroreflective Photoelectric Sensor, 10-30VDC, Metal Body, Horiz.	9.84' (3m)	NPN/PNP	Z1100-ND	141.52	131.04	122.31	E3S-CR11
	Retroreflective Photoelectric Sensor, 10-30VDC, Metal Body, Vertical	9.84' (3m)	NPN/PNP	Z1101-ND	141.52	131.04	122.31	E3S-CR61
	Through Beam Photoelectric Sensor, 10-30VDC, Metal Body, Horiz.	98.43' (30m)	NPN/PNP	Z1102-ND	171.46	158.76	148.18	E3S-CT11
	Through Beam Photoelectric Sensor, 10-30VDC, Metal Body, Vertical	98.43' (30m)	NPN/PNP	Z1103-ND	171.46	158.76	148.18	E3S-CT61
3	Compact Long Distance, Photoelectric Sensor, IR Through Beam	49.21' (15m)	NPN	Z1106-ND	92.53	85.68	79.97	E3Z-T61
	Compact Long Distance, Photoelectric Sensor, IR Retroreflective	13.12' (4m)	NPN	Z1107-ND	73.94	68.46	63.90	E3Z-R61
	Compact Long Distance, Photoelectric Sensor, IR Diffused	3.94" (100mm)	NPN	Z1108-ND	64.86	60.06	56.06	E3Z-D61
	Compact Long Distance, Photoelectric Sensor, IR Diffused	3.28' (1m)	NPN	Z1109-ND	69.40	64.26	59.98	E3Z-D62

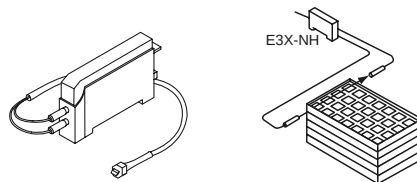
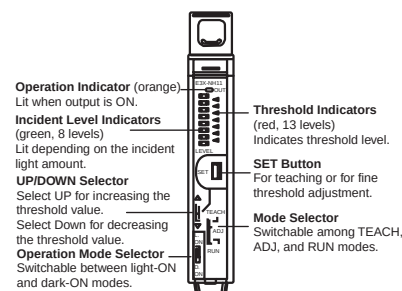
Capacitive Proximity Sensors



Capacitive sensors operate similar to inductive sensors except that a plate is used instead of a coil in the sensors head. This plate develops a capacitive field between the sensor and ground. When an object comes within sensing distance of the sensor, the capacitive field changes which gets detected by the sensor and turns on the output. Perfect for detecting both metallic and non-metallic objects such as glass, wood, water, oils and plastics. Also works well for detecting liquids and solids in containers.

Sensing Distance	Description	Output Type	Digi-Key Part No.	Price Each	Omron Part No.
3-25mm	Amplified Sensor, Adjustable, NO, 10-40VDC	NPN	Z1071-ND	110.68	E2K-C25ME1
3-25mm	Amplified Sensor, Adjustable, NC, 10-40VDC	NPN	Z1072-ND	110.68	E2K-C25ME2
3-25mm	Amplified Sensor, Adjustable, NC, 90-250VAC	SCR	Z1073-ND	110.68	E2K-C25MY1
3-25mm	Amplified Sensor, Adjustable, NC, 90-250VAC	SCR	Z1074-ND	110.68	E2K-C25MY2

Optical Fiber Optic Amplifiers



Omron's E3X-NH series of High performance Fiber Optic Amplifiers contain true 16 Bit processor which allows a very fine tuning sensitivity feature. Three separate teach modes for hassle free setup for different applications. Ideal for detecting very small objects or fine wires.

The E3X series feature high performance, fast switching response times. Set-mode blinking output aids in alignment. Sensing distances vary with the type of fiber used.

Description	Output Type	Features	Digi-Key Part No.	1	25	50	Omron Part No.
High Precision General Purpose Fiber Optic Amplifier, 12-24VDC	NPN	None	Z1110-ND	155.13	143.64	134.07	E3X-NH11
High Precision General Purpose Fiber Optic Amplifier, 12-24VDC	PNP	None	Z1111-ND	155.13	143.64	134.07	E3X-NH41
High Precision GP Fiber Optic Amplifier w/timer 12-24VDC	NPN	W/Delay Off	Z1112-ND	155.13	143.64	134.07	E3X-NH21
High Precision GP Fiber Optic Amplifier w/timer 12-24VDC	PNP	W/Delay Off	Z1113-ND	155.13	143.64	134.07	E3X-NH51
High Performance GP Fiber Optic Amplifier 10-30VDC	NPN	None	Z1114-ND	104.33	96.60	90.16	E3X-A11
High Performance GP Fiber Optic Amplifier 10-30VDC	PNP	None	Z1115-ND	116.12	107.52	100.36	E3X-A41
High Performance GP Fiber Optic Amplifier w/timer 10-30VDC	NPN	W/Delay Off	Z1116-ND	104.33	96.60	90.16	E3X-A21
High Performance GP Fiber Optic Amplifier w/timer 10-30VDC	PNP	W/Delay Off	Z1117-ND	116.12	107.52	100.36	E3X-A51

Fiber Cables for E3X Amplifiers

Premade fiber optic cables that enable very confined mounting spaces and very fast target detection.

Use **Through-beam** for long distance detection where your transmit and receive cable are separated.

Use **Concentric Beam** to detect depth or very targets where eliminating background objects is required. Periscope sensing heads (Side Beam) save space in right angle detecting. Most fiber cables offer IP67 protection and temperature ratings of -40°C to +70°C.

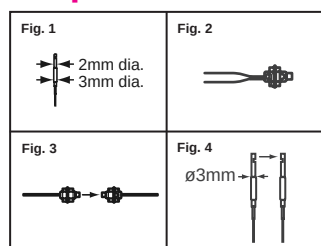
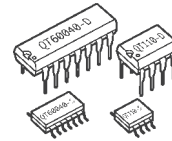


Fig.	Description	Distance Max.	Terminal Type	Digi-Key Part No.	1	25	50	Omron Part No.
1	Diffuse Side Beam Fiber Optic Cable, 2mm dia.	.6" (1.5cm)	2m Cable	Z1118-ND	92.53	85.68	79.97	E3Z-D24
	Diffuse Top Beam Fiber Optic Cable, Concentric Beam, 2mm dia.	.79" (2cm)	2m Cable	Z1119-ND	63.50	58.80	54.88	E3Z-D32
2	Diffuse Top Beam Fiber Optic Cable, Low Cost, M6 THD	.79" (2cm)	2m Cable	Z1120-ND	44.00	40.74	38.03	E3Z-DC200
	Diffuse Top Beam Fiber Optic Cable, Mini, M3 THD	.71" (1.8cm)	2m Cable	Z1121-ND	53.52	49.56	46.26	E3Z-DC200E
	Diffuse Top Beam Fiber Optic Cable, Concentric Beam, M6 THD	3" (7.5cm)	2m Cable	Z1122-ND	48.54	44.94	41.95	E3Z-CC200
	Cable Fiber Optic, Top Beam, High Temp, M6 THD	1.8" (4.5cm)	2m Cable	Z1187-ND	194.14	179.76	167.78	E3Z-D61
3	Diffuse Top Beam Fiber Optic Cable, Through Beam, M3 THD	4.72" (12cm)	2m Cable	Z1123-ND	44.00	40.74	38.03	E3Z-TC200A
	Through Beam Fiber Optic Cable, High Temp, M4 THD	5.9" (15cm)	2m Cable	Z1125-ND	224.08	207.48	193.65	E3Z-T61
	Cable Fiber Optic, Through Beam, Low Cost, M4 THD	7.88" (20cm)	2m Cable	Z1188-ND	44.00	40.74	38.03	E3Z-TC200
4	Through Beam Fiber Optic Cable, Side Beam, 3mm dia.	4.72" (12cm)	2m Cable	Z1124-ND	73.31	67.88	63.35	E3Z-T14L

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QProx™ / QTouch™ Charge-Transfer ("QT") General Description:

These are self-contained digital capacitance ICs capable of detecting proximity, touch, and fluid level. With appropriate electrodes they can sense through sealed surfaces made of glass, plastic, stone, ceramic, and wood, up to thicknesses of several inches. This capability coupled with an ability to continuously calibrate leads to new product concepts. They are designed specifically for control panels in home appliances, PC peripherals, machinery, security systems, lighting controls, or anywhere a mechanical switch or button may be found. Versions also available for fluid sensing.

Features: • Projects a 'touch button' through sealed panels • Use with simple foil or PCB electrodes • 100% Autocal for life - no adjustments required • Only one external part, an inexpensive capacitor • Less expensive than many mechanical switches.

QT110:

QTouch sensor IC having 10s and 60s recalibration timeouts, 3 gain settings, normal, pulse, or toggle mode outputs, a Heartbeat™ health indication, and a piezo driver for audible feedback of touch. 20µA typical current. Evaluation board: E110.

QT111:

A QT110 variant having recalibration times of 5 minutes and infinity. Evaluation board: E111.

QT112:

A QT110 variant having a faster response time of 49ms worst case, 25ms typical. No piezo drive. Evaluation board: E112.

QT113:

A highly popular QT110 variant having extremely high variable sensitivity and faster response time. No piezo drive. Evaluation board: E113.

QT114:

This QuickLevel™ IC is designed to detect fluid level. It can even sense fluid level from the exterior of a vessel. Has a 'slosh filter' for moving fluids. Evaluation board: E114.

QT115:

A highly popular QT110 variant with variable sensitivity and daisy-chain capability, allowing multiple electrodes to be used next to each other to create multi-key touch panels. No piezo drive. Evaluation board: E115.

QT118H:

This QT110 variant has the basic features of the QT110 but also has the gain capabilities of the popular QT113, at only 20µA of current drain. Active-high output, with piezo drive. Evaluation board: E118H or E110 + QT118H-D chip.

NEW! QT140 / QT150 / QT160:

These new QTouch™ devices let you sense 4, 5, or 6 touch keys respectively in one low cost device, making the cost per key very low. These devices feature patent-pending AKS technology to allow proper operation with dense key spacing. Evaluation board: E160.

NEW! QT300:

A 2nd generation continuous sensing QProx™ chip that lets you acquire raw signals into your microcontroller, via one of two serial interface types. You can then process these signals to sense fluid level, distance gauging, or material properties. Evaluation board: E3A.

QT310:

A 2nd-generation QProx chip with user-definable setups loadable from a PC via the QTM300CA adapter. Does everything the QT113, QT114, and QT115 can do plus many further advanced features like learn-by-example calibration, variable threshold and hysteresis, fully configurable

outputs, and user-defined recalibration timeouts and response time. Especially useful for difficult fluid point-level sensing and prox applications. Evaluation board: E3B.

QT320:

A 2-channel, 2nd-generation QTouch chip with user-definable setups loadable from a PC via the QTM300CA adapter. Does everything the QT113 can do but in two independent channels plus further advanced features like variable threshold and hysteresis, fully configurable outputs, and user-defined recalibration timeouts and response times. Evaluation board: E3B

QT60040 4-Key QMatrix™ IC:

A 14-pin, 4-key matrix IC requiring only 1 inexpensive capacitor. Has 4 logic outputs. Works through almost any dielectric, like glass, plastic, stone, ceramic, and wood up to 6mm thick. Evaluation board: E604. See Digi-Key website for higher key-count QMatrix™ devices (16, 32, 48, 64 keys), and the E653 and E6325 evaluation board series below.

NEW! QT60161 16-Key QMatrix™ IC:

The QT60161 can scan matrix touch keys over LCD panels or other displays when used with clear ITO electrodes arranged in a matrix. It does not require 'chip on glass' or other exotic fabrication techniques, thus allowing the OEM to source the matrix from multiple vendors. Materials such as common PCB materials or flex circuits can be used.

Description	Supply Voltage		Supply Current µA Type	Operating Temperature	Package	Digi-Key Part No.	Price Each			Quantum Part No.
	Min.	Max.					1	50	100	
QT110 QProx™ 8-Pin IC	2.45	5.25	20	0°C to +70°C	8-Dip	427-1000-ND	1.97	1.77	1.60	QT110-D
QT110 QProx™ 8-Pin IC				-40°C to +85°C	8-SOIC	427-1002-ND	1.97	1.77	1.60	QT110-IS
QT111 QProx™ 8-Pin IC	2.45	5.25	60	0°C to +70°C	8-Dip	427-1003-ND	1.97	1.77	1.60	QT111-D
QT111 QProx™ 8-Pin IC				0°C to +70°C	8-SOIC	427-1004-ND	1.60	1.44	1.25	QT111-S
QT111 QProx™ 8-Pin IC				-40°C to +85°C	8-SOIC	427-1005-ND	1.97	1.77	1.60	QT111-IS
QT112 QProx™ 8-Pin IC	2.45	5.25	60	0°C to +70°C	8-Dip	427-1006-ND	1.97	1.77	1.60	QT112-D
QT112 QProx™ 8-Pin IC				0°C to +70°C	8-SOIC	427-1007-ND	1.60	1.44	1.25	QT112-S
QT112 QProx™ 8-Pin IC				-40°C to +85°C	8-SOIC	427-1008-ND	1.97	1.77	1.60	QT112-IS
QT113 QProx™ 8-Pin IC	2.45	5.25	700	0°C to +70°C	8-Dip	427-1009-ND	1.97	1.77	1.60	QT113-D
QT113 QProx™ 8-Pin IC				0°C to +70°C	8-SOIC	427-1010-ND	1.60	1.44	1.25	QT113-S
QT113 QProx™ 8-Pin IC				-40°C to +85°C	8-SOIC	427-1011-ND	1.97	1.77	1.60	QT113-IS
QT113H QProx™ 8-Pin IC				0°C to +70°C	8-Dip	427-1012-ND	1.97	1.77	1.60	QT113H-D
QT113H QProx™ 8-Pin IC				0°C to +70°C	8-SOIC	427-1013-ND	1.60	1.44	1.25	QT113H-S
QT113H QProx™ 8-Pin IC				-40°C to +85°C	8-SOIC	427-1014-ND	1.97	1.77	1.60	QT113H-IS
QT114 QLevel™ 8-Pin IC	2.50	5.25	20	0°C to +70°C	8-Dip	427-1015-ND	2.53	2.28	1.97	QT114-D
QT114 QLevel™ 8-Pin IC				0°C to +70°C	8-SOIC	427-1016-ND	1.60	1.44	1.25	QT114-S
QT114 QLevel™ 8-Pin IC				-40°C to +85°C	8-SOIC	427-1017-ND	3.29	2.97	2.56	QT114-IS
QT115 QProx™ 8-Pin IC	2.45	5.25	700	0°C to +70°C	8-Dip	427-1018-ND	1.97	1.77	1.60	QT115-D
QT115 QProx™ 8-Pin IC				0°C to +70°C	8-SOIC	427-1019-ND	1.60	1.44	1.25	QT115-S
QT115 QProx™ 8-Pin IC				-40°C to +85°C	8-SOIC	427-1020-ND	1.97	1.77	1.60	QT115-IS
QT118H QProx™ 8-Pin IC	2.45	5.25	20	0°C to +70°C	8-Dip	427-1021-ND	1.97	1.77	1.60	QT118H-D
QT118H QProx™ 8-Pin IC				-40°C to +85°C	8-SOIC	427-1022-ND	1.97	1.77	1.60	QT118H-IS
QT140 QProx™ 4-Key Sensor IC	3.0	5.5	2.5-8.0	0°C to +70°C	28-Dip	427-1059-ND NEW!	2.89	2.60	2.34	QT140-D
QT140 QProx™ 4-Key Sensor IC				-40°C to +105°C	28-SSOP	427-1060-ND NEW!	2.89	2.60	2.34	QT140-AS
QT150 QProx™ 5-Key Sensor IC	3.0	5.5	2.5-8.0	0°C to +70°C	28-Dip	427-1061-ND NEW!	3.27	2.94	2.65	QT150-D
QT150 QProx™ 5-Key Sensor IC				-40°C to +105°C	28-SSOP	427-1062-ND NEW!	3.27	2.94	2.65	QT150-AS
QT160 QProx™ 6-Key Sensor IC	3.0	5.5	2.5-8.0	0°C to +70°C	28-Dip	427-1063-ND NEW!	3.85	3.47	3.12	QT160-D
QT160 QProx™ 6-Key Sensor IC				-40°C to +105°C	28-SSOP	427-1064-ND NEW!	3.85	3.47	3.12	QT160-AS
QT300 QProx™ Sensor IC	1.80	5.0	1500	0°C to +70°	8-Dip	427-1057-ND NEW!	3.84	3.46	3.11	QT300-D
QT300 QProx™ Sensor IC				0°C to +70°	8-SOIC	427-1058-ND NEW!	3.84	3.46	3.11	QT300-IS
QT310 QProx™ 8-Pin IC	1.80	5.25	60-300	0°C to +70°	8-Dip	427-1026-ND	1.87	1.68	1.52	QT310-D
QT310 QProx™ 8-Pin IC				0°C to +70°	8-SOIC	427-1027-ND	1.50	1.35	1.22	QT310-S
QT310 QProx™ 8-Pin IC				-40°C to +85°C	8-SOIC	427-1028-ND	1.87	1.68	1.52	QT310-IS
QT320 2-Key QProx™ 8-Pin IC	1.80	5.25	60-300	0°C to +70°	8-Dip	427-1029-ND	2.43	2.19	1.98	QT320-D
QT320 2-Key QProx™ 8-Pin IC				0°C to +70°	8-SOIC	427-1030-ND	1.94	1.76	1.59	QT320-S
QT320 2-Key QProx™ 8-Pin IC				-40°C to +85°C	8-SOIC	427-1031-ND	2.43	2.19	1.98	QT320-IS
QT60040 4-Key QMatrix™ IC	2.75	5.25	650	0°C to +70°	14-Dip	427-1032-ND	2.89	2.60	2.34	QT60040-D
QT60040 4-Key QMatrix™ IC				0°C to +70°	14-SOIC	427-1033-ND	2.31	2.08	1.88	QT60040-S
QT60040 4-Key QMatrix™ IC				-40°C to +85°C	14-SOIC	427-1034-ND	2.89	2.60	2.34	QT60040-IS
QT60161 16-Key QMatrix™ IC	4.75	5.25	25mA max.	-40°C to +105°C	44-TQFP	427-1070-ND NEW!	7.22	6.50	5.85	QT60161-AS

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Note: All evaluation boards and modules are fully assembled and include all necessary chips, cables, and documentation. All evaluation boards run on batteries, included as noted.

QTM1001AHS Sensor Module:

An advanced ready-to-use sensing module designed for applications such as fluid level and prox sensing in industrial equipment. This "smart sensor" module employs the superior QT method, and incorporates a unique "cloning" feature that permits user-defined setups to be loaded in from an E2SR board (QTM1001CA also required). Has both analog and switched outputs. QTM1001AHS also has a Heartbeat™ output signal for critical applications.

QTM1001CA Cloning Adapter:

An interface adapter which allows the module to have its option setups programmed from either an E2SR or E97S board. This device has ATE-style spring "pogo pins" which mate to the QTM1001AS for rapid, effortless configuration.

QTM300CA Cloning Adapter:

Designed to load setups to the QT310 and QT320 sensor ICs from a PC to modify operating modes and parameters in these chips. The supplied cable allows it to plug directly into an E3B evaluation board. It also works in a stand-alone mode without a PC, and can also clone in-circuit. 8 – 15VDC.

QTM2000 Sensor Module:

A ready-to-use 24-pin DIP module employing the feature-rich QT9701B2 IC and related circuitry. Uses an E297S board to load in setups from a PC. The QTM2000 is a complete industrial-grade solution that can be embedded onto a PCB. Includes analog and switched outputs, and SPI and UART serial ports for digital signal data. 5VDC.

E297S Programmer Board:

This board is used to program the QTM2000's behavior from a PC using included QTMWinView software. The E297S also operates the QTM2000 as a fully functional sensor for testing purposes. The board has a ZIF socket for insertion of the QTM2000. 8 – 15VDC.

E2SR R&D Sensor:

Designed specifically for development and experimentation, it incorporates a large variety of user-definable modes and processing options. The unit also acts as a programming device for QTM1001CA modules when used with a QTM1001CA cloning adapter. Uses QTMWinView PC software, included. 8 – 15VDC.

E97S Evaluation Board:

Designed for rapid evaluation and prototyping of the QT9701B2 IC in capacitance detection systems; includes all circuitry required for a fully functioning sensor system. Has analog and switched outputs, and SPI and RS232 interfaces for digital signal data; QTMWinView PC software included. 8 – 15VDC.

E604 Evaluation Board:

Designed for rapid evaluation of the QT60040 4-key QMatrix™ IC. Includes 4 piano-style keys with corresponding LEDs to show touch. Battery included.

E616 16-Key Evaluation Board:

Designed for development of QT60161 based 16-key 'glass touch' scanned matrix circuits. Includes everything required to make a fully functioning through-panel matrix control, including an actual 4x4 matrix and plastic panel. Has an RS232 interface for connection to a PC for operation setup and signal viewing; uses QmBtN PC software, included. 8 – 15VDC.

E653 32-Key Evaluation Board:

Designed for development of QT60320-based 32-key 'glass touch' scanned matrix circuits. Includes everything required to make a fully functioning through-panel matrix control including an actual 4x8 flex matrix and plastic panel. Has an RS232 interface for connection to a PC for operation setup and signal viewing; uses QmBtN PC software, included. For actual QT60320 chips please visit the Digi-Key website. 8 – 15VDC.

E6325 / E6485 / QMatrix™ Evaluation Boards:

Designed for development of QT60325 / QT60485 / QT60645 based 32, 48, and 64-key 'glass touch' scanned matrix circuits. Includes

everything required to make a fully functioning through-panel matrix control including an actual flex matrix and plastic panel. These chips use SPI interfaces but a converter chip on the evaluation board converts this to RS232; RS232 allows connection to a PC for operation setup and signal viewing. Uses QmBtN PC software, included. 8 – 15VDC. For actual chips please visit the Digi-Key website.

NEW! E11X Evaluation Board:

This evaluation board kit lets you try out the QT110, QT111, QT112, QT113, and QT118H device, all of which are included. No longer do you have to buy a board for each of these parts to test them out; one kit does it all!

E114 Evaluation Board:

The E114 demonstrates Quantum's QT114 fluid level sensor IC. The IC requires only a single external capacitor (plus the probe of course) to operate. The E114 includes the probe and indicator LEDs. Batteries included.

NEW! E3A Evaluation Board:

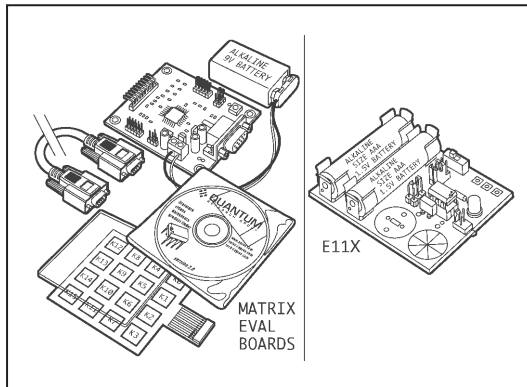
This evaluation board is for the QT300 and upcoming QT301 QProx™ continuous sensing chips. E3A has an LCD bar graph to show signal strength. A connection via the QTM300CA board will give you a live signal connection to a PC for instant display of signal levels, using QT3View software included with the QTM300CA.

E3B Evaluation/Development Board:

For evaluation and development with Quantum's QT310 and QT320 ICs. Either can be inserted into the 8-pin DIP socket (one of each included). Both parts can be cloned with user-defined setup information from a QTM300CA board using a PC via QT3View software. Batteries and software included.

NEW! E160 Evaluation Board:

This new evaluation board demonstrates the awesome capabilities of the QT160 device (and by extension, the QT140 and QT150 which are very similar). This UFO-like board has six backlit sense areas to make a dramatic demonstration, including the AKS feature.



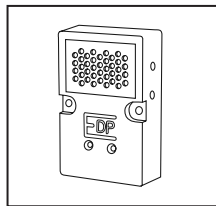
Description	Digi-Key Part No.	Price Each	Quantum Part No.
QTM1001AHS Sealed Module, Cloneable, with Heartbeat™	427-1036-ND	235.00	QTM1001AHS
QTM1001CA Cloning Adapter for QTM1001 Modules	427-1037-ND	49.00	QTM1001CA
QTM300CA Cloning Adapter for QT300, QT310, and QT320 ICs, with Software	427-1038-ND	49.00	QTM300CA
QTM2000 High-Performance QProx 24-pin DIP Module	427-1039-ND	89.00	QTM2000
E297S Programmer for QTM2000 Modules, with Software	427-1040-ND	125.00	E297S
E2SR QProx Development Board, with Software	427-1041-ND	295.00	E2SR
E97S Evaluation Board, with Software	427-1042-ND	215.00	E97S
E604 Evaluation Board for QT60040 4-Key QMatrix IC	427-1043-ND	30.00	E604
E616 Evaluation Board for QT60161 16-Key QMatrix IC, with Software	427-1044-ND	180.00	E616
E653 Evaluation Board for QT60320 32-Key QMatrix IC, with Software	427-1045-ND	185.00	E653
E6325 Evaluation Board for QT60325 32-Key QMatrix IC, with Software	427-1046-ND	185.00	E6325
E6485 Evaluation Board for QT60485 48-Key QMatrix IC, with Software	427-1047-ND	190.00	E6485
E6645 Evaluation Board for QT60645 64-Key QMatrix IC, with Software	427-1048-ND	195.00	E6645
E11X Demo Board for QT110, QT111, QT112, and QT113 QTouch ICs	427-1067-ND NEW!	19.95	E11X
E114 Evaluation Board for QT114 QLevel™ IC	427-1053-ND	20.00	E114
E3A Evaluation Board for QT300	427-1069-ND NEW!	89.00	E3A
E3B Evaluation Board for QT310 and QT320 QProx™ ICs	427-1056-ND	20.00	E3B
E160 6-Key Evaluation Board	427-1068-ND NEW!	75.00	E160

SonaSwitch® Ultrasonic, Intelligent Proximity Sensors

Series 1650A and 1650S

Outputs:

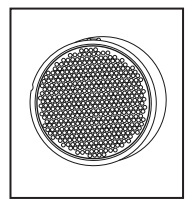
- **Model 1650A:** One 0-5 VDC or 0-10 VDC 8-bit analog output with fully independent zero and span adjustments over entire operating range.
- **Model 1650S:** Two adjustable Form C relay outputs (NO/NC).
- **Environment:** Indoor or protected outdoor environments; Highly insensitive to temperature, humidity and pressure changes; Withstands high audio and EMI/RFI levels; Must be protected from excessive moisture in outdoor applications.
- **Size:** 5.72cm W x 8.89cm H x 2.29cm D (2.25" W x 3.50" H x 0.90" D).
- **Mounting:** Two No. 10 (5/32") machine screws mounted flat on 1.85" centers; Supplied with a 6' cable.
- **Applications:** Vehicle Detection, Anti-Collision Sensor, Automatic Door Opening, Absence/Presence Sorting, Loading Dock Proximity Sensor, People Detection, Distance Measurement, Level Detection and Measurement, and Loop Control.



Series Mini-A and Mini-S

Outputs:

- **Model Mini-A:** One 0-5 VDC or 0-10 VDC 10-bit analog output with fully independent zero and span adjustments over entire operating range.
- **Model Mini-S:** Two adjustable NPN open collector outputs; transistors are continuously energized during detection period.
- **Output Response Time:**
 - **Model Mini-S:** Three consecutive target hits before turn on; three consecutive misses before turn off.
 - **Model Mini-A:** 0-5 VDC or 0-10VDC analog output is filtered to the approximate formula: $V_{out} = 0.9 (V_{new\ value}) + 0.1 (V_{past\ avg.\ value})$.
- **Operating Temperature:** Operating -40 to 85° C (-40 to 185° F).
- **Size:** 1.700" overall diameter; 0.950" depth; 1.525" transducer face diameter.
- **Mounting:** Mount in 1.575" diameter hole; use RTV silicone or edge clips to secure in place.
- **Applications:** Vehicle Detection, Anti-Collision Sensor, Automatic Door Opening, Absence/Presence Sorting, Loading Dock Proximity Sensor, People Detection, Distance Measurement, Level Detection and Measurement, and Loop Control.

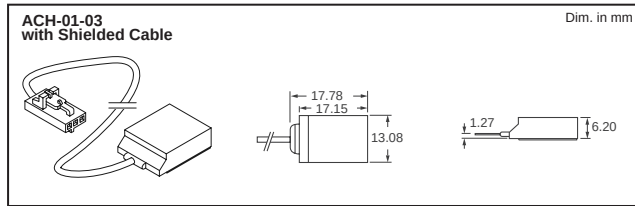


Range	Beam Angle	Power Requirements	Output Type	Digi-Key Part No.	1	10	25	50	EDP Part No.
6" to 10' Adjustable, ±0.1% Accuracy	15 Degree Nominal	12-30 VDC or 12-24 VAC; 0.15 Amps Maximum Current; 0.08 Amps Average Current.	0-5 or 0-10 VDC 8-bit Analog	387-1002-ND	233.95	226.93	222.25	210.56	1650A
6" to 10' Adjustable, ±0.1% Accuracy	15 Degree Nominal	12-30 VDC or 12-24 VAC; 0.15 Amps Maximum Current; 0.08 Amps Average Current.	2 Form C Relays NO/NC	387-1003-ND	217.22	210.70	206.35	195.90	1650S
6" to 10' Adjustable, ±0.1% Accuracy	15 Degree Nominal	8-16 VDC: 30 ma Maximum Current	0-5 or 0-10 VDC 10-bit Analog	387-1000-ND	69.00	66.93	65.55	62.10	MINI-A
6" to 10' Adjustable, ±0.1% Accuracy	15 Degree Nominal	8-16 VDC: 30 ma Maximum Current	2 NPN Open Collector Outputs	387-1001-ND	65.00	63.05	61.75	58.50	MINI-S

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Accelerometer

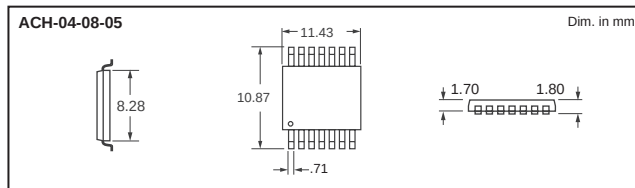


The ACH-01 Accelerometer is a robust, general purpose, linear single axis accelerometer featuring buffered electronic output.

Specifications: • Sensitivity: 10mV/g • Lower Frequency Limit (-3dB): 2Hz • Upper Frequency Limit (+3dB): 20kHz • Dynamic Range: $\pm 150g$ • Linearity: 0.1% • Resonant Frequency: 35kHz • Operating Temperature: -40°C to +85°C • Max. Shock Level: 1000g

Description	Digi-Key Part No.	Price Each	MSI Part No.
ACH-01-03 Sensor Accelerometer with 40" Single Coax Cable and Female Connector	MSP1001-ND	1 10 100	1-1001220-0
ACH-01-04 Sensor Accelerometer with Wires	MSP1002-ND	1 10 100	1-1001497-0

3-Axis Accelerometer/Shock Sensor

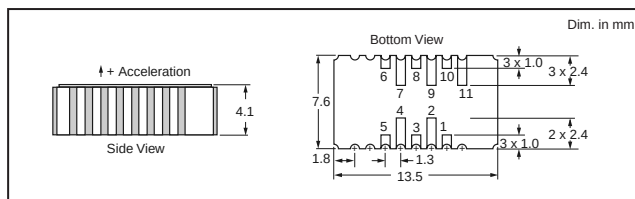


The ACH-04-08-05 accelerometer/shock sensor contains three piezoelectric sensing elements oriented to measure acceleration in three orthogonal, linear axes. "Internal JFET's provide for a low impedance, buffered output with a wide variety of possible application specific signal conditioning circuitry. It can be used in a wide range of applications including motion measurement and control systems, speaker feedback systems, vibration switches, shipment monitor and material handling systems, security systems, computer input/output devices and data loggers."

Specifications: • Sensitivity: 1.8mV/g Typ. • Frequency Limit ($\pm 3dB$): .35Hz to 5kHz • Dynamic Range: $\pm 250g$ • Linearity: 0.1% • Resonant Frequency: 9.2kHz • Operating Temperature: -40°C to +85°C • Max. Shock Level: 1000g

Description	Digi-Key Part No.	Price Each	MSI Part No.
ACH-04-08-05 — Surface Mount 3-Axis Sensor Accelerometer	MSP1004-ND	1 10 100	0-1003800-5
ACH-04-08-05 PCB — Surface Mount 3-Axis Sensor Accelerometer with PCB	MSP1005-ND	1 10 100	0-1005685-1

2-Chip Accelerometer



The Model 3255 is a two-chip accelerometer designed for low cost surface mount applications. The package can be mounted in one of two orientations, allowing the measurement axis to be either parallel or perpendicular to the mounting surface without the use of costly brackets. It consists of a micro machined silicon mass suspended by multiple beams from a silicon frame. Piezoresistors located in the beams change their resistance as the motion of the suspended mass changes the strain in the beams. Silicon caps on the top and bottom of the device are added to provide over-range stops. This design provides for a very low profile, high shock resistance, durability and built-in damping over a wide usable bandwidth. Each sensor is individually serialized.

Features: • Surface Mount Package • $\pm 0.5\%$ Non-linearity Typ. • Self Test Function • DC Response • Built-in Damping • Built-in Overrange Stops

Acceleration Range	Sensitivity Typ.†	Digi-Key Part No.	Price Each	MSI Part No.
$\pm 50G$	40.0 mV/g	MSP6890-ND	1 10 100	3255-050
$\pm 100G$	20.0 mV/g	MSP6891-ND	1 10 100	3255-100

† The output voltage increases from the Zero Acceleration Output for positive acceleration and decreases for negative acceleration. Best Fit Straight Line.

Amplifier Box

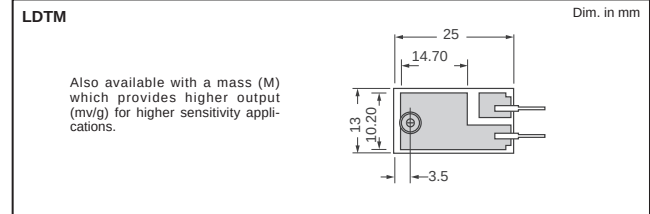
For use with ACH-01-03 and ACH-01-04

Characteristics:

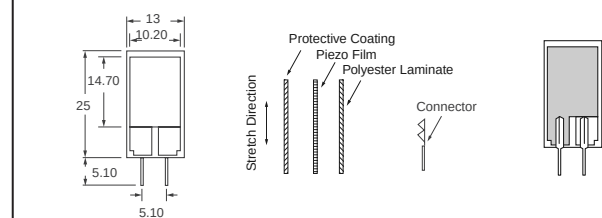
• Gain: 10X • Power Supply: 9V Battery • Supply Current: 4.0mA • Input Interface: FET for ACH-01 • Output Impedance: 100 Ω • Output Connector: BNC

Description	Digi-Key Part No.	Price Each	MSI Part No.
IB-ACH-01 — Amplifier Box	MSP1003-ND	1 10 100	0-1003058-0

LDT Vibration Sensor



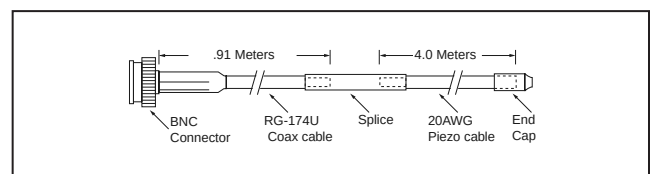
LDT0-028K High Sensitivity



Typically, a 0.005" (125 μ m) polyester layer is laminated to a 28 μ m piezo film element. When used in a "bending" mode, laminated film elements develop much higher voltage output when flexed than non-laminated elements. The piezo film is off the neutral axis in the laminate, and is strained more when flexed.

Description	Cap (nF)	Digi-Key Part No.	Price Each	MSI Part No.
LDT0-028K, with Solder Tabs	.500	MSP1006-ND	1 10 100	1002794-0
LDTM-028K, with Mass and Solder Tabs	.420	MSP1007-ND	1 10 100	0-1005447-1

Piezo Polymer Coax Cable Assembly



4 meters of piezo cable plus splice and BNC connector.

Description	Digi-Key Part No.	Price Each	MSI Part No.
Piezo Polymer Coaxial Cable Assembly	MSP1009-ND	1 10 100	0-1005707-1

Basic Design Kit

This kit demonstrates the use of MSI piezo film sensors as microphones, speakers, switches and acoustic pickups. All components and film samples in the kit can be used for experimentation.

Kit includes seven sensor elements, one piezo cable, one PCB for ACH-04-08, application/instruction specs, and technical manual.

Description	Digi-Key Part No.	Price Each	MSI Part No.
Basic Design Kit	MSP1010-ND	1 10 100	0-1004308-0

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(T032) 1113



Sensors – Float Type Level Switches

LS-3 Series: • Small size engineered plastics • High reliability • Compact Size • Ideal for shallow tanks or restricted spaces. **Part No. 376-1010-ND (46999):** For external mounting on tanks too small to accommodate internally mounted switches. **Part No. 376-1011-ND (76707):** For detecting levels as low as 5/8" tank bottom. Use in water, gasoline, some oils and chemicals

LS-7 Series: • Small size engineered plastics • Compact side mounts • Ideal for high volume use in small tanks and vessels • Engineered plastics construction offers broad compatibility in water, oils and chemicals

LS-1700, LS-1750, LS-1755 Series: • Small size alloys • Rugged durability with broad heat and pressure capabilities, are hallmarks of these compact switches • Ideal for shallow tanks or restricted spaces

LS-77700 Series: • Bent stem switches • Provide greatest buoyancy of any side mount version • These units perform in liquids with specific gravities as low as .45; switches protrude into tank less than 3 inches

LS-1800, LS-1900 Series: • Large size alloys • A step above our plastic units for pressure capabilities • Excellent stability for general use in oils and water

LS-74780, LS-1900TFE Series: • Large size engineered plastics • For aggressive or ultra-pure liquids • The LS-74780 series is particularly well suited for rough service. Ideal for use in chemical and plating applications • The LS-1900TFE series resists build-up of foreign material or sticky media. Float travel remains uninhibited in viscous or corrosive liquids

LS-1950, LS-1950 Series: • Large size alloys • All stainless steel switches deliver highest pressure/temp. performance • Materials of construction comply with FDA food contact regulations • The LS-1950 series is ultra-light. For use in liquids with specific gravities as low as 0.40 to 0.70. Excellent in a wide range of chemical applications • The LS-1950 Series is exceptionally accurate and rugged for higher temperatures and in pressurized or corrosive liquids. For oils, water and chemicals.

LS-800-5 Series: • Large size alloys • Bottle type level switches are ideal for large or small tanks or where access to the inside is impractical or impossible • These units mount completely outside of the tank, at the level actuation point

LS-2050, LS-52100 Series: • Large size alloys • These side mounting units solve the problem of point level sensing in tanks with inaccessible tops or bottoms, or at intermediate locations in larger tanks • Operation is positive and dependable • The float pivots with changing liquid level, displacing a shuttle with magnetically actuates a hermetically sealed switch within the unit • Installation is through the tank side at the detection point

TH-800, LS-270 Series: • Specialty Switches • Ideal for use in oils and water • The TH-800 series temperature/level switch in a single unit. Intermediate in size; single-setting temperature sensor is in bottom of stem • The LS-270 series bracket mounting slosh shield. Small, lightweight, and extremely stable in nonstatic, highly contaminated liquids. Slosh Shielding minimizes effects of turbulence and helps prevent interference by foreign material.

LS-10 Series: • Slim profile for interstitial liquid sensing • Accurately detects the presence of liquid in fiberglass double-wall tanks, containment sumps and double-wall pipes • Dry contact switching ensure dependability throughout its long service life • Reusable sensor easily fits small, interstitial spaces and senses liquid hydrocarbons or water • Unaffected by hydrocarbon vapor, thereby reducing the risk of false alarms • Round design makes it easy to remove, clean and reinstall after an alarm condition is triggered, or for maintenance

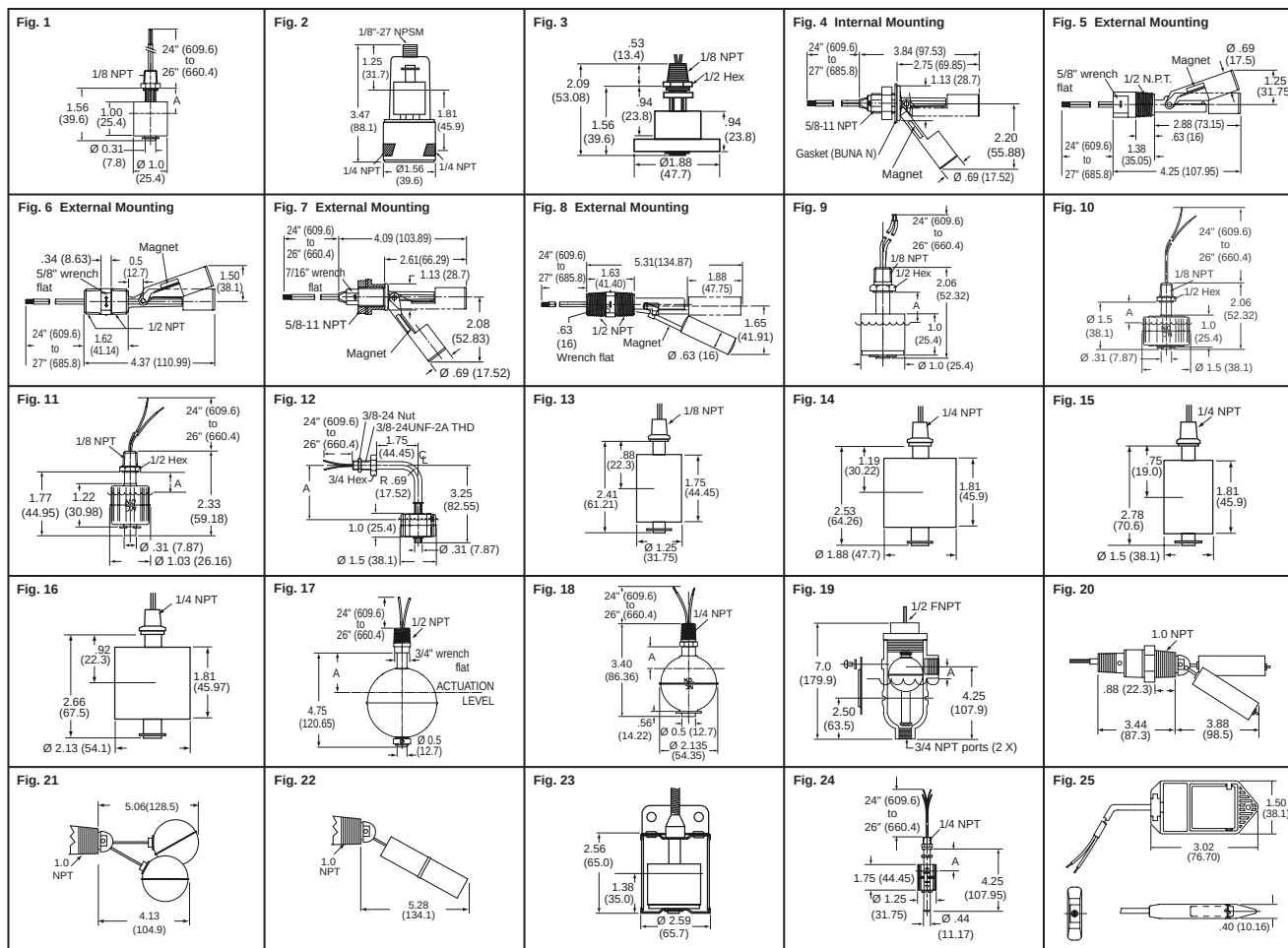
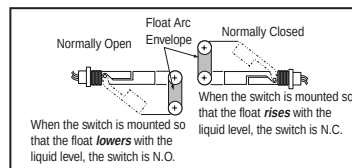


Fig.	Series	Switch Rating	Switch Type	Material Stem & Mounting/Float	Min. Liquid Sp. Gr.	Dim. A - Switch Act. N.O./N.C. - Inch (mm)	Operating Temperature	Digi-Key Part No.	1	100	Gems Part No.
1	LS-3	20VA, 120-240VAC	SPST	Polysulfone	.75	.750 (19.05) / —	-40°F to +225°F (-40°C to +107°C)	376-1007-ND	23.95	19.14	42295
2				Polypropylene/ Polypropylene (Hollow)	.60	.813 (20.65) / —	-40°F to +225°F (-40°C to +107°C)	376-1008-ND	23.95	19.14	142505
3				Polypropylene/ Polypropylene (Solid)	.90	.563 (14.30) / —	-40°F to +150°F (-40°C to +66°C)	376-1009-ND	23.95	19.14	16826
4				Polysulfone	.75	—	-40°F to +120°F (-40°C to +48.9°C)	376-1010-ND	97.95	71.69	46999
5	LS-7	130VAC 20VA	SPST	Polysulfone/Buna N	—	—	-40°F to +180°F (-40°C to +82.2°C)	376-1011-ND	35.95	28.71	76707
6				Polypropylene (20% Glass)	.55	—	-40°F to +225°F (-40°C to +107.2°C)	376-1012-ND	25.95	20.74	164520
7				Polypropylene (20% Glass)	.55	—	-40°F to +225°F (-40°C to +107.2°C)	376-1013-ND	23.95	19.14	131100
8				Nylon (13% Glass)	.65	—	-40°F to +250°F (-40°C to +121.1°C)	376-1014-ND	23.95	19.14	140620
9	LS-1700	20VA, 120-240VAC	SPST	Versaplast®	.80	—	-40°F to +300°F (-40°C to +149°C)	376-1015-ND	26.95	21.54	1894
10				Polypropylene	.55	—	-40°F to +225°F (-40°C to +107.2°C)	376-1016-ND	23.95	19.14	160450
11				Nylon	.65	—	-40°F to +250°F (-40°C to +121.1°C)	376-1017-ND	23.95	19.14	160460
12				Polypropylene (20% Glass)	.55	—	-40°F to +225°F (-40°C to +107.2°C)	376-1018-ND	25.95	20.74	165800
13	LS-1750	20VA, 120-240VAC	SPST	316 Stainless Steel	.80	—	-40°F to +300°F (-40°C to +149°C)	376-1019-ND	153.95	112.66	10334
14				Brass/Buna N	.45	.563 / .813 (14.30) / (20.65)	Water: to 180°F (82.2°C) Oil: -40°F to +230°F (-40°C to +110°C)	376-1020-ND	29.95	23.93	01701
15				316 Stainless Steel/Buna N	.45	—	—	376-1021-ND	50.95	40.68	3577
16				316 Stainless Steel	.70	.625 / .750 (15.88) / (19.05)	-40°F to +300°F (-40°C to +148.9°C)	376-1022-ND	57.95	46.26	01750
17	LS-1950	20VA, 120-240VAC	SPST	316 Stainless Steel	.70	—	-40°F to +480°F (-40°C to +248.9°C)	376-1023-ND	77.95	62.21	54.70
18				316 Stainless Steel	.70	—	—	376-1023-ND	77.95	62.21	79990

(Continued)

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Sensors – Float Type Level Switches (Cont.)

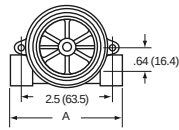
Fig.	Series	Switch Rating	Switch Type	Material Stem & Mounting/Float	Min. Liquid Sp. Gr.	Dim. A - Switch Act. N.O./N.C.- Inch (mm)	Operating Temperature	Digi-Key Part No.	Price Each 10 100	Gems Part No.
11	LS-1755	20VA, 120-240VAC	SPST	316 Stainless Steel	.90	.578 (14.68) / .828 (21.03)	-40°F to +300°F (-40°C to +148.9°C)	376-1024-ND	58.95 47.06 41.38	01755
12	LS-77700	20VA, 120-240VAC	SPST	316 Stainless Steel	.70	2.00 (50.80) ± .188 (4.78)	-40°F to +300°F (-40°C to +148.9°C)	376-1025-ND	83.95 66.99 58.91	117716
13	LS-1800	20VA, 120-240VAC 100VA, 120-240VAC 20VA, 120-240VAC	SPST	Brass/Buna N 316 Stainless Steel/Buna N	.75	—	Water: to 180°F (82.2°C) Oil: -40°F to +230°F (-40°C to +110°C)	376-1026-ND 376-1027-ND 376-1028-ND	34.95 27.92 24.55 42.95 34.30 30.16 55.95 44.66 39.27	01801 35651 01807
14	LS-1900	20VA, 120-240VAC 100VA, 120-240VAC 20VA, 120-240VAC	SPST	Brass/Buna N 316 Stainless Steel/Buna N	.55	—	Water: to 180°F (82.2°C) Oil: -40°F to +230°F (-40°C to +110°C)	376-1029-ND 376-1030-ND 376-1031-ND	41.95 33.50 29.46 49.95 39.88 35.07 60.95 48.65 42.78	01901 35676 01907
15	LS-74780	20VA, 120-240VAC	SPST	CPVC	.85	—	-40°F to +180°F (-40°C to +82.2°C)	376-1033-ND	53.95 43.07 37.87	74780
16	LS-1900TFF	20VA, 120-240VAC	SPDT	Teflon®	.80	—	-40°F to +300°F (-40°C to +148.9°C)	376-1032-ND	321.95 225.81 212.52	133299
17	LS-1850	20VA, 120-240VAC	SPST	316 Stainless Steel	.40	2.500 (63.50) / —	-40°F to +300°F (-40°C to +148.9°C)	376-1034-ND	259.95 182.33 171.60	113820
18	LS-1950	20VA, 120-240VAC 100VA, 120-240VAC 20VA, 120-240VAC	SPST	316 Stainless Steel	.80	1.094 (27.79) / —	-40°F to +300°F (-40°C to +148.9°C) -40°F to +300°F (-40°C to +148.9°C) -40°F to +480°F (-40°C to +248.9°C)	376-1035-ND 376-1036-ND 376-1037-ND	60.95 48.65 42.78 68.95 55.03 48.39 98.95 72.42 66.43	01950 26717 79999
19	LS-800-5	20VA, 120-240VAC	SPST	Brass/316 Stainless Steel	.75	.750 (19.05) / — 438 (11.13) / —	-40°F to +300°F (-40°C to +148.9°C)	376-1169-ND 376-1170-ND	168.95 123.63 113.40 558.95 392.00 368.94	172625 172635
20	LS-2050	20VA, 120-240VAC	SPDT	Brass/Buna N	.8	—	Water: to 180°F (82.2°C) Oil: -40°F to +250°F (-40°C to +121°C)	376-1038-ND	149.95 109.73 100.65	30288
21	LS-2050	20VA, 120-240VAC	SPDT	316 Stainless Steel	.8	—	-40°F to +300°F (-40°C to +148.9°C)	376-1039-ND	229.95 161.29 151.80	30290
22	LS-52100	20VA, 120-240VAC 20VA, 120-240VAC 100VA, 120-240VAC	SPDT SPDT SPST	316 Stainless Steel/304 Stainless Steel	.85	—	-40°F to +300°F (-40°C to +148.9°C)	376-1040-ND 376-1041-ND* 376-1042-ND	222.95 156.38 147.18 325.95 228.61 215.16 244.95 171.81 161.70	52100 121753 116971
23	LS-270	20VA, 120-240VAC 20VA, 120-240VAC 50VA, 120-240VAC 50VA, 120-240VAC	SPST	304 Stainless Steel/Buna N	.55	—	-40°F to +140°F (-40°C to +60°C)	376-1046-ND† 376-1047-ND‡ 376-1048-ND§ 376-1049-ND§	90.95 66.57 61.07 90.95 66.57 61.07 98.95 72.42 66.43 98.95 72.42 66.43	43765 43760 43980 43982
24	TH-800	20VA, 120-240VAC	SPST	Brass/Buna N	.75	1.500 (38.10) / —	Water: to 180°F (82.2°C) Oil: -40°F to +230°F (-40°C to +110°C)	376-1050-ND 376-1051-ND	65.95 52.64 46.29 65.95 52.64 46.29	57143 57144
25	LS-10	10W, 50-120VDC	SPST	Valox® Housing/Polyethylene	—	—	-40°F to +176°F (-40°C to +80°C)	376-1052-ND	68.95 55.03 48.39	156000

* Explosion-Proof † N.C., open on +150°F ±10°F (83.3°C ±5.6°C) incr. ‡ N.C., open on +150°F ±10°F (83.3°C ±5.6°C) incr. § N.O. § N.C.



Flow Sensors

Features: Operating Temperature: Brass: -20°F to 212°F (-29°C to 100°C), Polypropylene Body: -20°F to 180°F (-29°C to 82°C)



RFS Series - Flow Set Point Switching: Combines visual confirmation of flow with dynamic, electronic switch operation. Easy, adjustable switch point calibration: a local LED signals when set point is reached.

RFO Type - Flow Rate Monitoring: Output signal for RFO Types is an on/off pulse of the DC voltage supplied to the unit, it is compatible with all digital logic families. Frequency of the output pulse is proportional to the flow rate and ranges from approximately 25Hz at low flow to 225Hz at high flow.

RFI Type - Visual Indicators: A bright orange rotor turning with fluid flow. Simple, direct and reliable. Flow rate is estimated, or simply confirmed, by viewing the speed of the turning rotor. Either port may be used for incoming flow, and bayonet mounting lens is easily removed for quick clean out.

Series	Input Voltage	Flow Range GPM	Body Material	Port NPT	Dimension A Inch (mm)	Digi-Key Part No.	Price Each 10 100	Gems Part No.
RFS Type SPDT	24VDC	0.5 to 5.0	Polypropylene	1/4"	3.06 (77.7)	376-1079-ND	144.95 106.07 97.30	155425
	110VAC	0.5 to 5.0	Polypropylene	1/4"	3.06 (77.7)	376-1080-ND	164.95 120.70 110.72	155876
	24VDC	4.0 to 20.0	Polypropylene	1/2"	3.06 (77.7)	376-1081-ND	144.95 106.07 97.30	155485
	110VAC	4.0 to 20.0	Polypropylene	1/2"	3.06 (77.7)	376-1082-ND	164.95 120.70 110.72	155886
	24VDC	0.5 to 5.0	Brass	1/4"	3.01 (76.4)	376-1083-ND	133.24 125.40 156265	
	110VAC	0.5 to 5.0	Brass	1/4"	3.01 (76.4)	376-1084-ND	209.95 147.27 138.60	156266
	24VDC	4.0 to 20.0	Brass	1/2"	3.01 (76.4)	376-1085-ND	189.95 133.24 125.40	156268
	110VAC	4.0 to 20.0	Brass	1/2"	3.01 (76.4)	376-1086-ND	209.95 147.27 138.60	156269
	24VDC	5.0 to 30.0	Brass	3/4"	3.94 (100)	376-1087-ND	194.95 136.75 128.70	180395
	110VAC	5.0 to 30.0	Brass	3/4"	3.94 (100)	376-1088-ND	214.95 150.77 141.90	180396
RFO Type	24VDC	8.0 to 60.0	Brass	1"	3.94 (100)	376-1089-ND	199.95 140.25 132.00	181688
	115VAC	8.0 to 60.0	Brass	1"	3.94 (100)	376-1090-ND	219.95 154.28 145.20	181689
	4.5-24VDC	0.5 to 5.0	Polypropylene	1/4"	3.06 (77.7)	376-1091-ND	79.95 63.80 56.10	155421
	4.5-24VDC	4.0 to 20.0	Polypropylene	1/2"	3.06 (77.7)	376-1092-ND	79.95 63.80 56.10	155481
	4.5-24VDC	0.5 to 5.0	Brass	1/4"	3.01 (76.4)	376-1093-ND	129.95 95.10 87.23	156261
	4.5-24VDC	4.0 to 20.0	Brass	1/2"	3.01 (76.4)	376-1094-ND	129.95 95.10 87.23	156262
RFI Type	Visual Indicator	0.5 to 5.0	Polypropylene	1/4"	3.06 (77.7)	376-1097-ND	37.95 30.31 26.65	155420
	Visual Indicator	4.0 to 20.0	Polypropylene	1/2"	3.01 (76.4)	376-1098-ND	37.95 30.31 26.65	155480
	Visual Indicator	0.5 to 5.0	Brass	1/4"	3.01 (76.4)	376-1099-ND	79.95 63.80 56.10	142541
	Visual Indicator	4.0 to 20.0	Brass	1/2"	3.01 (76.4)	376-1100-ND	79.95 63.80 56.10	142542
	Visual Indicator	5.0 to 30.0	Brass	3/4"	3.94 (100)	376-1101-ND	89.95 71.78 63.12	180392
	Visual Indicator	8.0 to 60.0	Brass	1"	3.94 (100)	376-1102-ND	89.95 71.78 63.12	181681



Electromechanical Controls

Series 1 - Electromechanical Controls: Series 1 electromechanical controls offer 2 or 3 pole output contacts with 16 amp rating. Versatile controls can be configured for single level service, differential control, low water cutoff (with manual reset or lock out capability) control and many other functions. **Specifications:** • Contact Rating (110VAC) - 16A Resistive 1 hp • Temperature: -30°F to 130°F.

Series 3E - Conductive Switches: Attachment to vessels is accomplished with external pipe threading. Fittings require the use of 3R rigid wire suspended electrodes. **Specifications:** • Pressure/Temp.: 125 psig @ 353°F (cast iron); 250 psig @ 406°F (brass)

Series 3B - Two Piece Threaded Coupling: These fittings incorporate a 1/4-20 female thread that must be combined with a Series 3R rigid electrode wire suspended electrode to make a complete assembly. **Specifications:** • Two-Piece Threaded Coupling • Teflon® Insulation Sleeve • Pressure/Temperature: 400 psig @ 406°F • Body Material - 316 Stainless Steel

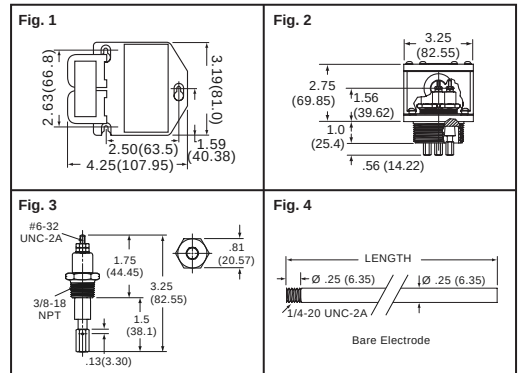
Series 3R - General Purpose 1/4" (.64cm) Threaded Rod: Metallic rods with threaded ends that screw into a fitting that extends vertically down into the liquid

Series 1 - Electromechanical Controls

Fig.	Primary Voltage	Secondary Voltage /Sensitivity	Contact Configuration	Digi-Key Part No.	Price Each 10 100	Gems Part No.
1	115VAC	300VAC / 7K Ohm	2 (N.O.), 0 (N.C.)	376-1060-ND	111.95 81.93 75.16	1C1DO
	115VAC	300VAC / 7K Ohm	1 (N.O.), 1 (N.C.)	376-1061-ND	111.95 81.93 75.16	1D1DO
	115VAC	500VAC / 20K Ohm	1 (N.O.), 1 (N.C.)	376-1062-ND	111.95 81.93 75.16	1D1EO
	230VAC	300VAC / 7K Ohm	1 (N.O.), 1 (N.C.)	376-1063-ND	111.95 81.93 75.16	1D2DO
	115VAC	300VAC / 7K Ohm	2 (N.O.), 1 (N.C.)	376-1064-ND	121.95 89.25 81.87	1G1DO
	115VAC	500VAC / 20K Ohm	2 (N.O.), 1 (N.C.)	376-1065-ND	121.95 89.25 81.87	1G1EO
	230VAC	300VAC / 7K Ohm	2 (N.O.), 1 (N.C.)	376-1066-ND	121.95 89.25 81.87	1G2DO
	115VAC	300VAC / 7K Ohm	2 (N.O.), 1 (N.C.)	376-1067-ND	121.95 89.25 81.87	1G2EO
	115VAC	300VAC / 7K Ohm	2 (N.O.), 1 (N.C.)	376-1068-ND	121.95 89.25 81.87	1G2EO
	115VAC	300VAC / 7K Ohm	2 (N.O.), 1 (N.C.)	376-1069-ND	121.95 89.25 81.87	1G2EO

Series 3E - Conductive Switches

Fig.	Vessel/Boss Thread	Terminal Housing Size WxDxH - Inches (mm)	No. of Probes	Body Material	Digi-Key Part No.	Price Each 10 100	Gems Part No.
2	1" NPT/ 1/2" NPT	2-1/4 x 2-1/4 x 2-1/4	1	Red Brass	376-1069-ND	71.95 57.42 50.49	3E1B
	1" NPT/ 1/2" NPT	(57.15 x 57.15 x 57.15)	1	Cast Iron	376-1073-ND	58.95 47.06 41.38	3E1A
	2" NPT/ 1/2" NPT		2	Red Brass	376-1070-ND	109.95 80.47 73.81	3E2B
	2" NPT/ 1/2" NPT		3	Red Brass	376-1071-ND	132.95 97.29 89.25	3E3B
	2-1/2" NPT/ 1/2" NPT	3-1/4 x 3-1/4 x 2-3/8" (82.55 x 82.55 x 60.33)	4	Red Brass	376-1072-ND	155.95 114.12 104.68	3E4B
	2" NPT/ 1/2" NPT		2	Cast Iron	376-1074-ND	89.95 71.78 63.12	3E2A
	2" NPT/ 1/2" NPT		3	Cast Iron	376-1075-ND	112.95 82.66 75.83	3E3A
	2-1/2" NPT/ 1/2" NPT		4	Cast Iron	376-1076-ND	135.95 99.49 91.26	3E4A
	2" NPT/ 1/2" NPT		2	Cast Iron	376-1077-ND	89.95 71.78 63.12	3E2A
	2" NPT/ 1/2" NPT		3	Cast Iron	376-1078-ND	112.95 82.66 75.83	3E3A



Series 3B - Two Piece Threaded Coupling

Fig.	Thread / Probes Required	Digi-Key Part No.	Price Each 10 100	Gems Part No.
3	3/8"-18NPT / 3R Series	376-1067-ND	25.95 20.74 18.24	3B1B
	5/8"-24NEF / 3R Series	376-1068-ND	22.95 18.35 16.13	3B3B

Series 3R - General Purpose Threaded Rod

Fig.	Length (Feet)	Probe Material	Digi-Key Part No.	Price Each 10 100	Gems Part No.
4	1	316 Stainless Steel	376-1077-ND	7.95 7.31 5.61	3R1CO
	3	316 Stainless Steel	376-1078-ND	23.95 19.14 16.83	3R3CO

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Sensors – Flow Switches

Specifications: SPST; N.O. 20VA 120-240 VAC or VDC
SPDT; N.O./N.C. 20VA 120-240 VAC or VDC

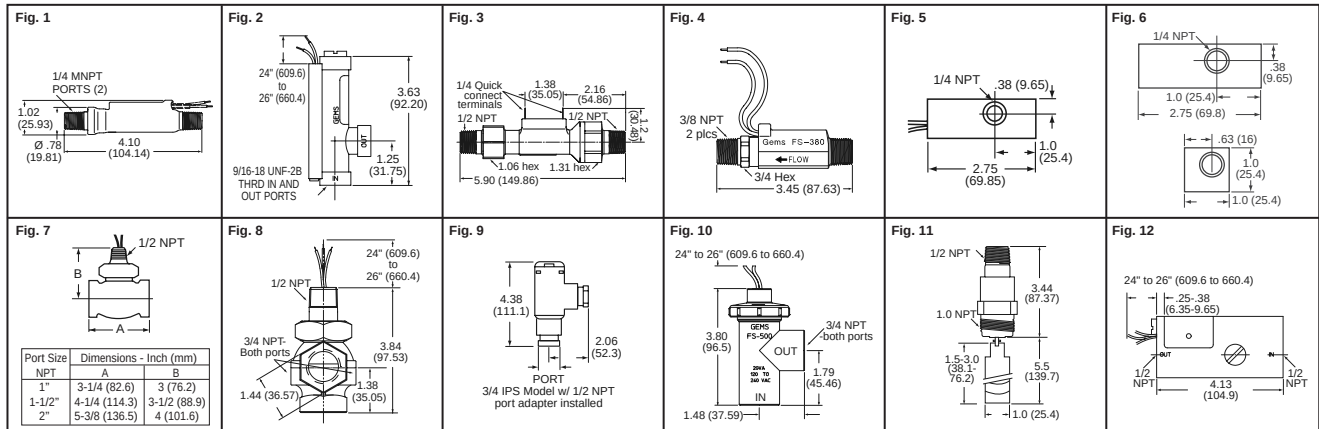


Fig.	Series	Housing	Piston	Spring	Switch Set Point - GPM	Switch	Operating Temperature	Port	Digi-Key Part No.	1	Price Each 10	100	Gems Part No.
1	FS-3 Piston Type Compact, Low Flow Units	Noryl®	Noryl® & Epoxy	316 Stainless Steel	0.05 0.25 0.50 1.00	SPST	0°F to 212° F (100°C), Max	1/4" MNPT	376-1103-ND 376-1104-ND 376-1105-ND 376-1106-ND	29.95 29.95 29.95 29.95	23.93 23.93 23.93 23.93	21.04 21.04 21.04 21.04	165840 165841 165842 165843
2	FS-4 Piston Type Molded Plastic Construction	Ryton® R4	316 Stainless Steel	316 Stainless Steel	0.1 0.25 0.5 1.00	SPST	0°F to 225° F (17°C to +107°C)	9/16"-18 UNF	376-1107-ND 376-1108-ND 376-1109-ND 376-1110-ND	59.95 59.95 59.95 59.95	47.85 47.85 47.85 47.85	42.08 42.08 42.08 42.08	122340 122341 122342 122344
3	FS-150 Piston Type Straight-through Flow Path with Low Pressure Drop	Polypropylene	Ryton® R4 316 SS	316 Stainless Steel	0.50 2.00	SPST	0°F to 212° F (-17.8°C to +100°C)	1/2" NPT	376-1111-ND 376-1112-ND 376-1113-ND	64.95 64.95 64.95	51.84 51.84 51.84	45.59 45.59 45.59	129660 129661 129662
4	FS-380 Piston Type Compact Flow Switch for High Inline Pressures	Brass Brass Brass 316 SS	PPS Composite	316 Stainless Steel	0.25 0.50 1.00 0.25	SPST	-20°F to +275° F (-28.8°C to +135°C)	3/8" NPT	376-1114-ND 376-1115-ND 376-1116-ND 376-1117-ND	79.95 79.95 79.95 164.95	63.80 63.80 63.80 120.70	56.10 56.10 56.10 110.72	168432 168433 168434 179992
5	FS-925 Piston Type General Purpose	Brass 316 SS	Poysulfone for Water Brass for Oil or Air 316 Stainless Steel	316 Stainless Steel	0.10 ±10% 0.25 ±10% 0.50 ±10% 1.00 ±10% 2.00 ±10% 0.25 ±10%	SPDT	-20°F to +300° F (-29°C to +148.9°C)	1/4" NPT	376-1118-ND 376-1119-ND 376-1120-ND 376-1121-ND 376-1122-ND 376-1123-ND	139.95 139.95 139.95 139.95 289.95 289.95	102.41 102.41 102.41 102.41 203.37 203.37	93.94 93.94 93.94 93.94 191.40 191.40	26914 26915 26916 26918 26926 26927
6	FS-927 Piston Type Compact Brass Switches	Brass	Brass	316 Stainless Steel	0.10 0.25 0.50 1.00	SPST	-20°F to +200° F (-29°C to +93.3°C)	1/4" NPT	376-1124-ND 376-1125-ND 376-1126-ND 376-1127-ND	74.95 74.95 74.95 74.95	59.82 59.82 59.82 59.82	52.60 52.60 52.60 52.60	70820 70821 70822 70824
7	FS-200 Shuttle Type General Purpose, Straight-Through Flow Path	Bronze Bronze Bronze Bronze Bronze Bronze 316 SS Bronze Bronze	Ceramic	316 Stainless Steel	0.5 1 2 3 4 5 1.5 2.0 1.0 to 6.0 Adj. 5.0 to 15.0 Adj. 2.0 to 8.0 Adj.	SPDT	-20°F to +200° F (-29°C to +93.3°C)	1" NPT 1" NPT 1" NPT 1" NPT 1" NPT 1" NPT 1-1/2" NPT 2" NPT 1" NPT 1" NPT 1" NPT	376-1134-ND 376-1135-ND 376-1136-ND 376-1137-ND 376-1138-ND 376-1139-ND 376-1140-ND 376-1141-ND 376-1142-ND 376-1143-ND 376-1144-ND	139.95 139.95 139.95 139.95 144.95 139.95 299.95 674.95 154.95 154.95 154.95	102.41 102.41 102.41 102.41 106.07 102.41 210.38 473.35 113.39 113.39 113.39	93.94 93.94 93.94 93.94 97.30 93.94 198.00 445.50 104.01 104.01 104.01	27051 27052 27053 27054 27055 27056 27085 27109 26615 26616 26838
8	FS-400 Shuttle Type General Purpose, 90° Flow Path	Bronze	Ceramic	316 Stainless Steel	0.75 to 4.0 Adj. 2.0 to 8.0 Adj. 0.75	SPDT	-20°F to +180° F (-29°C to +82.2°C)	3/4" NPT	376-1145-ND 376-1146-ND 376-1147-ND	149.95 149.95 119.95	109.73 109.73 87.78	100.65 100.65 80.52	26600 26601 26440
9	FS-400P Shuttle Type for Plastic Piping	PVC	Epoxy	—	0.5 ±20% 0.5 ±20% 2.0 ±20%	SPST	+120°F Max. (+48.9°C)	1/2" NPT 3/4" IPS 1" IPS	376-1148-ND† 376-1149-ND 376-1150-ND	59.95 49.95 49.95	47.85 39.88 39.88	42.08 35.07 35.07	135805 135810 135815
10	FS-500 Paddle Type for Threaded Plastic Piping	Polypropylene	Polypropylene (Bonnet - not a spring)	316 SS	1.00	SPST	0°F to 212°F Max. (100°C)	—	376-1151-ND	49.95	39.88	35.07	170233
11	FS-550 Paddle Type High Pressure Metal Paddle Switch	Brass 316 SS Brass 316 SS	Ceramic & Teflon®	316 Stainless Steel	Long Long Short Short	SPDT	-30°F to +300° F (-34.4°C to +148.9°C)	1/2" NPT/1" NPT	376-1152-ND 376-1153-ND 376-1154-ND 376-1155-ND	149.95 234.95 149.95 234.95	109.73 164.80 109.73 164.80	100.65 155.10 100.65 155.10	29609 29608 30641 30640

† 3/4" IPS model with 1/2" NPT port adapter installed.

Fig.	Series	Housing	Piston	Spring	Switch Set Point GPM	Switch	Port	Interface	Operating Temperature	Digi-Key Part No.	1	Price Each 10	100	Gems Part No.
12	FS-10798 Piston Type Externally Adjustable for Water, Oils and Gases	Brass 316SS Brass Brass Brass	Poysulfone (water) 316 Stainless Steel Poysulfone (water) Brass Brass for Oils Brass	316 Stainless Steel	0.5 to 20.0 Adj.	SPDT	1/2" NPT	1/2" Conduit Connector 1/2" Conduit Connector Wire Leads 1/2" Conduit Connector 1/2" Conduit Connector Wire Leads	-20°F to +225°F (-29°C to +107.2°C) -20°F to +300°F (-29°C to +148.9°C) -20°F to +225°F (-29°C to +107.2°C) -20°F to +300°F (-29°C to +148.9°C) -20°F to +300°F (-29°C to +148.9°C) -20°F to +300°F (-29°C to +148.9°C)	376-1128-ND 376-1129-ND 376-1130-ND 376-1131-ND 376-1132-ND 376-1133-ND	309.95 479.95 284.95 309.95 309.95 284.95	217.39 336.60 199.86 217.39 217.39 199.86	204.60 316.80 188.10 204.60 204.60 188.10	25363 25364 25357 25365 48073 25359

FABRI-LEVEL™ Kits

FABRI-LEVEL Switch Kits contain all components for complete assembly of a 1- or 2-station level switch unit for pipe-plug mounting in your tank. N.O. or N.C. operation of the SPST switch is selectable by inverting the float(s) on the unit stem.

Each Kit Contains:
1 Tube Connector
1 Mounting Plug
2 Extension Tubes
1 Tube End Fitting
3 Tube Unions
2 Level Stations (Switch, Tube, Float)

Fittings	Floats	Mounting Port	Digi-Key Part No.	1	Price Each 10	100	Gems Part No.
Brass	Buna N	1-1/4"	376-1043-ND	271.95	190.74	179.52	26128
Brass	Buna N	2"	376-1044-ND	285.95	200.56	188.76	24576
316 Stainless Steel	316 Stainless Steel	2"	376-1045-ND	596.95	418.65	394.02	24577

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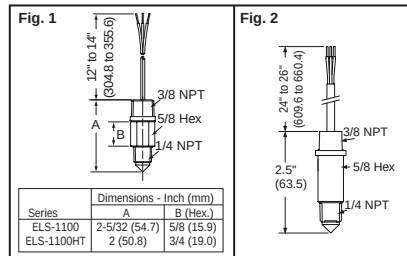
Electro-Optic Sensors

Compact, Electro-Optic Liquid Level Switches and Controllers **Features:** • Small size • Built-in, solid-state electronics • No moving parts • Simple, one-unit installation **Specifications:**

Max. Operating Pressure: 0 to 150 PSI (**Not recommended for use in any liquid that crystallizes or leaves a solid residue.**) **ELS-1100:** Output: TTL/CMOS compatible,

Open collector **ELS-1100HT:** Output: TTL/CMOS compatible, Transistor output w/10K pull-up resistor **ELS-1100TFE:** Output: TTL/CMOS compatible, Open collector

Fig.	Series	Input Volt. (VDC)	Probe Cond. @ Cur. Sink	Material Housing/Prism	Operating Temperature	Digi-Key Part No.	1	Price Each 10	100	Gems Part No.
1	ELS-1100	10-28	Dry	Polysulfone	0°F to +176°F 17.8°C to +80°C	376-1000-ND	73.95	59.02	51.90	143570
		5	Wet			376-1001-ND	64.95	51.84	45.59	138167
		10-28	Wet			376-1002-ND	73.95	59.02	51.90	142700
		10-28	Wet			376-1003-ND	81.95	65.40	57.51	143585
	ELS-1100HT	12	Dry	Isoplast®	-40°F to +212°F 40°C to +100°C	376-1004-ND	69.95	55.83	49.09	153063
2	ELS-1100TFE	10-28	Dry	Teflon®	0°F to 176°F (-17.8°C to +80°C)	376-1005-ND	72.95	58.22	51.20	153064
						376-1006-ND	198.95	139.55	131.34	173700



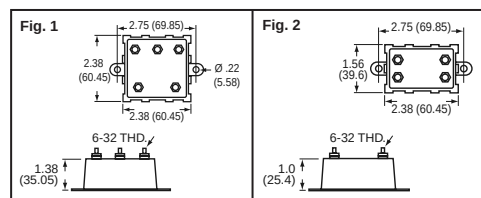
Non-Intrinsically Safe Relays

Boosts Your Sensor's Load Handling Ability

Features: • Operating Temperature: -0°F to +120°F (-17.8°C to 48.9°C) • SPST, N.O. Operation • Amplify current handling capability of sensors for controlling high power loads • Compact polysulfone bodies are totally encapsulated • Impervious to shock or vibration • Solid State Reliability • Max Current 5A AC

FLIP-PAKS: Provide low current, "Start-stop" or "on-off" switching for industrial motor, liquid level and other control systems. Units hold operational state up to 1/2 second during momentary power loss to cut nuisance shutdowns; low voltage protection is inherent. **LOAD-PAKS:** Integrated, solid-state switches that amplify current handling capabilities of sensors for controlling high power loads.

Fig.	Relay Style	Operating Voltage	Operating Temperature	Digi-Key Part No.	1	Price Each 10	100	Gems Part No.
1	FLIP-PAK	100 to 130VAC	-0°F to +120°F (-17.8°C to 48.9°C)	376-1167-ND	93.95	68.77	63.08	28196
2	LOAD-PAK	24 to 260VAC		376-1168-ND	56.95	45.46	39.98	20173



Intrinsically Safe Control Relays

Series 27: • Cannot ignite flammable materials • Solid state reliability • Internal surge suppression • Can be used for single level or differential service

Series 67: • Inverse or direct acting, field selectable • Solid state reliability • Compact size • Four independent channels - 2 single, 2 differential • Field adjustable • LED channel indicators • Built-in silence/acknowledge circuit • U.L. "intrinsically safe"

Series 16VM: • Compact Size • Modular plug-in design • LED monitoring • Surge protection • Various time delays • Low voltage sensor • Solid state reliability • Up to 1 million ohms/cm sensitivity • 11-pin octal or DIN style plug • CSA approved • U.L. "motor control"

Series 16M: • Compact Size • Modular plug-in design • LED monitoring • Surge protection • Various time delays • Low voltage sensor • Solid state reliability • Up to 5.5 million ohms/cm sensitivity • 8-pin plugs • CSA approved • U.L. "motor control"

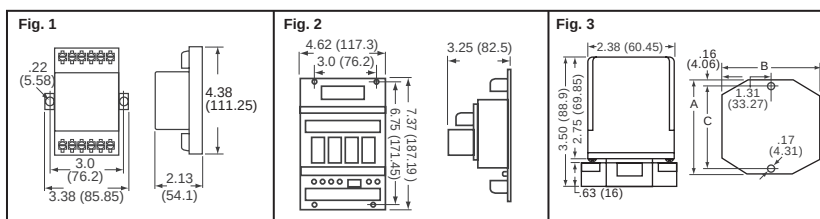


Fig.	Series (SPDT)	Primary Voltage	Secondary Voltage	Sensitivity	Mode of Operation	Contact Rating	Dimensions - Inches (cm)			Digi-Key Part No.	1	Price Each 10	100	Gems Part No.
1	27	120VAC 60Hz	11VAC 2.3mA	3K Ohm 10K Ohm	Direct Direct	8 Amp Resistive	A	B	C	376-1053-ND	200.95	140.96	132.66	27A1D0
							—	—	—	376-1054-ND	200.95	140.96	132.66	27A1E0
							—	—	—	376-1055-ND	489.95	343.62	323.40	67C1COA
2	67	120VAC 60Hz	12VAC 6mA RMS	26K Ohm 10K Ohm	—	10 Amp DC, 5 Amp AC	—	—	—	376-1056-ND	489.95	343.62	323.40	67B1COA
							—	—	—	376-1059-ND	146.95	107.54	98.64	16VMB1A0
							—	—	—	376-1057-ND	111.95	81.93	75.16	16MM1B0
3	16M	120VAC 60Hz	12VAC 1.5mA	26K Ohm 26K Ohm	Inverse Direct	10 Amp Resistive	2.50 (63.50)	2.625 (66.68)	2.50 (63.50)	376-1058-ND	111.95	81.93	75.16	16MC1B0
							2.00 (50.80)	2.312 (58.72)	1.687 (42.85)					

SAFE-PAK® Relays

Amplify Sensor Load-Handling Capabilities

Costly explosion-proof enclosure with their mounting requirements are unnecessary. No purging is required.

SAFE-PAK: Less than 100mA at 9 VDC actuates the unit to control loads to 5A at 120 VAC, Resistive (up to 100,000W) or short-circuiting sensors operate the unit.

Low Sensitivity SAFE-PAK: Sensor closures up to 1000W resistance control resistive loads to 5A at 120VAC.

Latching SAFE-PAK: Momentary actuation, "start-stop" or

differential control switching for resistive loads to .3A. Used on any differential control switch for level, flow, pressure or temperature.

Programmable SAFE-PAK: Provide N.O., N.C. or latching output with variable time delays. Designed for use with switches or sensors monitoring flow, pressure, level, etc. Render non-voltage-producing sensors intrinsically safe for operation in potentially hazardous areas. Streamlined housing suited for group-mounting on a common earth-grounded plate for multiple installation.

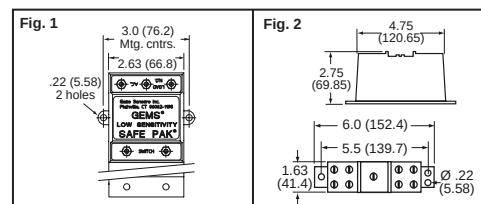
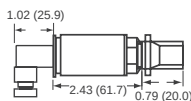


Fig.	Relay Style	Load Voltage	Load Current	Operating Voltage	Switch	Operating Temperature	Digi-Key Part No.	1	Price Each 10	100	GEMS Part No.
1	SAFE-PAK	100 to 135VAC 200 to 250VAC	5A	100 to 135VAC 200 to 250VAC	SPST	0°F to +120°F (-17.8°C to +48.9°C)	376-1158-ND	169.95	124.36	114.07	25872
							376-1159-ND	169.95	124.36	114.07	25873
	Low Sensitivity SAFE-PAK	100 to 135VAC 110 to 130VAC	.5@20/.05@200VAC	100 to 135VAC 110 to 130VAC	SPST	0°F to +120°F (-17.8°C to +48.9°C) -10°F to +140°F (-23.3°C to +60°C)	376-1160-ND	169.95	124.36	114.07	44075
							376-1161-ND	169.95	124.36	114.07	64101
	LATCHING SAFE-PAK	105 to 125VAC	0.3A	105 to 125VAC	SPST	+32°F to +120°F (0°C to +48.9°C)	376-1162-ND	132.95	97.29	89.25	144600
2	Programmable SAFE-PAK	25 to 250VAC 0 to 250VAC	2A .5@20/.05@200VAC	95 to 125VAC	Latching	+32°F to +140°F (0°C to +60°C)	376-1163-ND	217.95	152.88	143.88	41705
							376-1164-ND	209.95	147.27	138.60	54820
							376-1165-ND	209.95	147.27	138.60	54825

General Purpose Industrial Pressure Transducers - 2200 Series

Features: • Submersible, general purpose and wash down enclosures • High stability achieved by CVD sensing element **Specifications:** • 4-20mA Output • 1/4" NPT Pressure Port • Operating Temperature: -22°F to 260°F (-40°C to 125°C)

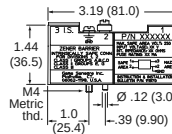


Pressure	Digi-Key Part No.	1	Price Each 10	100	Gems Part No.
0-100PSIG	376-1156-ND	244.95	171.81	161.70	2200BGG1002A3UA
0-200PSIG	376-1157-ND	244.95	171.81	161.70	2200BGG2002A3UA

Single Channel Zener Barrier Switch - Series 65800

Render Switches or Signal Conditioners Intrinsically Safe

Features: • Intrinsic safety with solid-state reliability • Compact size streamlines installation • Space-saving in multiples • Encapsulated construction is impervious to dust and moisture **Specs:** • Max. Voltage 30VDC • Max. Current 250mA • Resistance 303 Ohms • Channels - 1



Operating Temperature	Digi-Key Part No.	1	Price Each 10	100	Gems Part No.
-40°F to +140°F (-40°C to +60°C)	376-1166-ND	96.95	70.96	65.09	113000

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Electronic Reproduction of
Digi-Key® Catalog #T032
May - August 2003

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