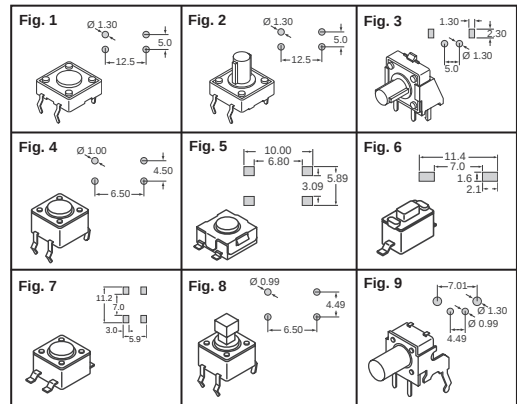
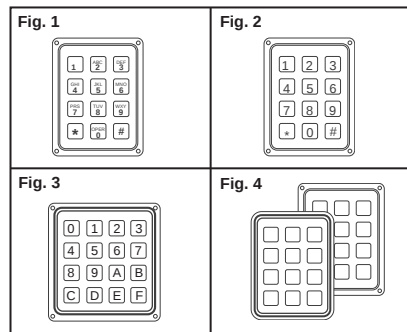
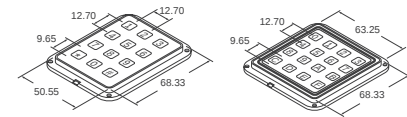


Fig.	Description	Digi-Key Part No.	1	10	25	Alcoswitch Part No.
1	Tact Switch 12MM SPST Mom 160GF	450-1131-ND	.49	.39	.32	FSM100
2	Tact Switch 12MM with Ext Actuator SPST 160GF	450-1128-ND	.51	.40	.33	FSM102
3	Tact Switch 12MM Right Angle w/ Post Actuator SPST 160GF	450-1127-ND	.52	.42	.34	FSM104
4	Tact Switch 6MM without Gnd. 160GF Black 4.3mm	450-1146-ND	.37	.30	.25	FSM2J
	Tact Switch 6MM without Gnd. 160GF Black 5.0mm	450-1143-ND	.39	.31	.26	FSM4J
	Tact Switch 6MM without Gnd. 160GF Ivory 7.3mm	450-1148-ND	.47	.37	.31	FSM10J
	Tact Switch 6MM without Gnd. 160GF White 8.0mm	450-1145-ND	.47	.37	.31	FSM12J
	Tact Switch 6MM without Gnd. 160GF Black 9.5mm	450-1144-ND	.47	.37	.31	FSM8J
	Tact Switch 6MM without Gnd. 160GF Black 13.0mm	450-1149-ND	.47	.37	.31	FSM14J
	Tact Switch 6MM without Gnd. 160GF Black 17.0mm	450-1142-ND	.49	.39	.32	FSM16J
	Tact Switch 6MM with Gnd. 160GF Black 4.3mm	450-1147-ND	.56	.45	.37	FSM1J
5	Tact Switch SPST with Gnd. 160GF Black SMT	450-1132-ND	.79	.62	.51	FSM1LP
	Tact Switch SPST with Gnd. 260GF Red SMT	450-1139-ND	.79	.62	.51	FSM1LPA
6	Tact Switch 6 x 3.5MM SPST 100GF SMT	450-1140-ND	.75	.59	.49	FSMSM
7	Tact Switch 6MM SMT 160GF Black 4.3mm	450-1130-ND	.43	.34	.28	FSM2J3MA
	Tact Switch 6MM SMT 160GF Black 5.0mm	450-1129-ND	.47	.37	.31	FSM4J3MA
	Tact Switch 6MM SMT 160GF Blue 7.0mm	450-1133-ND	.49	.39	.32	FSM6J3MA
8	Tact Switch 6MM Extended Act Black	450-1141-ND	.36	.28	.23	FSMCD
9	Tact Switch 6MM Right Angle 160GF 3.15mm	450-1135-ND	.47	.37	.31	FSMRA1J
	Tact Switch 6MM Right Angle 160GF 3.86mm	450-1136-ND	.35	.28	.23	FSMRA2J
	Tact Switch 6MM Right Angle 160GF 5.84mm	450-1137-ND	.60	.48	.39	FSMRA3J
	Tact Switch 6MM Right Angle 160GF 11.86mm	450-1134-ND	.54	.43	.35	FSMRA7J



Series 88 Sealed Keypads

Versatile keypads that work indoors or outdoors.



Grayhill Series 88 keypads are fully sealed keypads for use indoors or outdoors that offer a fully sealed snap-dome contact with an operational life of 3 million operations per key. Various colored graphic overlays are available or you can create your own keypad by using 3 items: (1) a blank keypad; (2) the clear window overlay; (3) a sheet of legend transfers. Optional panel seal gasket provides a dust and water weather seal between your keypad and your equipment panel.

SPECIFICATIONS: Rating Criteria: • Rating at 24 Vdc: 10 milliamps, resistive • Contact Resistance: Compatible with MOS, TTL and DTL (10 ohms max.) • Voltage Breakdown: 250 Vac between mutually insulated parts • Life Expectancy: 3,000,000 operations per button • Contact Bounce: Less than 4 milliseconds at make, 10 milliseconds at break • Operating Temperature: -40°C to +80°C

Operating Features: • Button Travel: 0.015" (.381mm) nominal total travel • Typical Operating Force: 350 grams.

Materials and Finishes: • Housing: ABS polycarbonate, black • Operating Temperature: Polyester • Contact Dome: Stainless steel, selectively gold plated • Terminals: Copper alloy, CDA No. 725, Tin-lead plated.

Fig.	Description	Digi-Key Part No.	1	10	100	Grayhill Part No.
Series 88 Keypads						
1	12-Key Keypad with Black housing; White keys and Black lettering.....	GH5012-ND	23.60	20.71	17.70	88AB2-143
2	12-Key Keypad with Black housing; White keys and Blue lettering.....	GH5013-ND	23.60	20.71	17.70	88AB2-152
2	12-Key Keypad with Black housing; Blue keys and White lettering.....	GH5014-ND	23.60	20.71	17.70	88AB2-172
3	16-Key Keypad with Black housing, Blue/White keys and Black/Blue lettering.....	GH5015-ND	27.26	23.93	20.45	88BB2-052
	16-Key Keypad with Black housing, Blue keys and White lettering.....	GH5016-ND	27.26	23.93	20.45	88BB2-072
3	16-Key Keypad with Black housing, Red keys and White lettering.....	GH5017-ND	27.26	23.93	20.45	88BB2-082
Series 88 Clear Key Keypads — Customize Your Own Keypad Layout						
4	12-Key Keypad with Blank keys for use with Legend sheets below	GH5018-ND	18.73	16.44	14.05	88AB2
	16-Key Keypad with Blank keys for use with Legend sheets below	GH5019-ND	20.82	18.27	15.62	88BB2
	20-Key Keypad with Blank keys for use with Legend sheets below	GH5020-ND	27.74	24.35	20.81	88JB2
—	Legend Sheet, Small Print lettering for Blank Keys, dry transfer type	GH5021-ND	3.78	3.57	2.84	87-DT-2096-088
—	Legend Sheet, Medium Print lettering for Blank Keys, dry transfer type.....	GH5022-ND	3.78	3.57	2.84	87-DT-2096-125
—	Legend Sheet, Large Print lettering for Blank Keys, dry transfer type	GH5023-ND	3.78	3.57	2.84	87-DT-2096-187
—	Legend Sheet, Medium Print lettering for Blank Keys, self-adhesive type.....	GH5024-ND	5.23	4.94	3.93	87AC2046
4	Clear Protective Overlay for 12-Key Keypad (protects your customized lettering)	GH5025-ND	17.04	16.10	12.79	88-101
	Clear Protective Overlay for 16-Key Keypad (protects your customized lettering)	GH5026-ND	14.94	14.11	11.21	88-101
	Clear Protective Overlay for 20-Key Keypad (protects your customized lettering)	GH5027-ND	15.48	14.63	11.62	88-201
Panel Seal Gaskets for Series 88 Keypads						
—	Optional Panel Gasket Seal for all 12-Key Series 88 Keypads - Subpanel Mount	GH5028-ND	1.29	1.22	.97	88M2001-2
—	Optional Panel Gasket Seal for all 16-Key Series 88 Keypads - Subpanel Mount	GH5029-ND	1.32	1.25	.99	88M2009-2
—	Optional Panel Gasket Seal for all 20-Key Series 88 Keypads - Subpanel Mount	GH5030-ND	1.37	1.30	1.03	88M2019-1
—	Optional Panel Gasket Seal for all 12-Key Series 88 Keypads - Top Panel Mount	GH5031-ND	1.62	1.53	1.22	88M2012-1
—	Optional Panel Gasket Seal for all 16-Key Series 88 Keypads - Top Panel Mount	GH5032-ND	1.69	1.60	1.27	88M2015-1
—	Optional Panel Gasket Seal for all 20-Key Series 88 Keypads - Top Panel Mount	GH5033-ND	1.73	1.64	1.31	88M2018-1

Series 96 Keypads

Grayhill's Series 96 are their most economical 3x4 and 4x4 keypad family. They have such features as conductive rubber contacts with an operational life of 3 million operations and a good tactile feel for positive feedback to the operator. GH5001 thru GH5004 have black legends with white keys and a black ABS housing. GH5008 thru GH5011 have white legends with black keys and a black ABS housing.

SPECIFICATIONS: Rating Criteria: • Rating at 12Vdc: 5 mA for .5 seconds • Contact Bounce: <12 milliseconds • Contact Resistance: <100Ω (@ stated operating force) • Operation Life: 3,000,000 min. cycles per key • Operating Force: 175 ±40 grams • Operating Temperature: -30°C to +80°C **Material and Finishes:** • Terminal Pin: Phosphor Bronze, solder plated • PC Board: FR-4 glass cloth epoxy • Keypad: Silicone rubber • Housing: ABS, cyclac "KJW" • Housing Color: Black • Output: Matrix (Rear SIL Header)

12 Key mating connector use Digi-Key part numbers: A3016-ND (connector, 1 piece) / A3007-ND (contacts, 1 package)

16 Key mating connector use Digi-Key part numbers: A3017-ND (connector, 1 piece) / A3007-ND (contacts, 1 package)

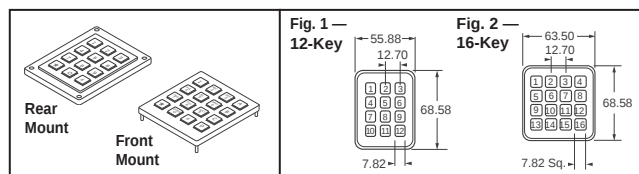


Fig.	Description	Digi-Key Part No.	1	10	100	Grayhill Part No.
1	12 Key Keypad, Front Mount, White Keys	GH5001-ND	11.56	10.15	8.67	96AB2-102-F
1	12 Key Keypad, Rear Mount, White Keys	GH5002-ND	11.56	10.15	8.67	96AB2-102-R
2	16 Key Keypad, Front Mount, White Keys	GH5003-ND	12.87	11.30	9.66	96BB2-006-F
2	16 Key Keypad, Rear Mount, White Keys	GH5004-ND	12.87	11.30	9.66	96BB2-006-R
1	12 Key Keypad, Front Mount, Black Keys	GH5008-ND	11.56	10.15	8.67	96AB2-152-F
1	12 Key Keypad, Rear Mount, Black Keys	GH5009-ND	11.56	10.15	8.67	96AB2-152-R
2	16 Key Keypad, Front Mount, Black Keys	GH5010-ND	12.87	11.30	9.66	96BB2-056-F
2	16 Key Keypad, Rear Mount, Black Keys	GH5011-ND	12.87	11.30	9.66	96BB2-056-R

Cannon

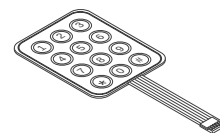


Sealed Membrane Keypads with Removable Legends

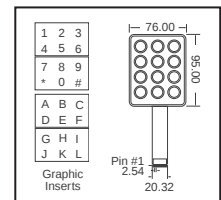
12-Key with 2 legend sets - A-L / 1-9 * / #

FEATURES: • Adhesive backed for easy mounting • Tactile feedback on all keys • Attached 1" female connector • Legends easily swapped • Allows for custom legends • Rim embossed keys for finger placement • Splash proof, sealed switches • Low profile height (.059 inches)

SPECIFICATIONS: • Contact Rating: 0.5 VA, 100 mA, 30 VDC max. • Actuation Force: 300 grams • Contact Bounce: Below 10 msec. typ. • Travel: 0.63 - 0.76mm typ. • Operating Temperature: -30°C to +60°C **MATERIALS:** • Overlay: Polyester/polycarbonate blend with uniform low gloss fine texture • Connector: Single row female connector, tin lead plating



Digi-Key Part No.	1	10	100	ITT Ind. Part No.
CKN6010-ND	25.37	21.91	18.45	4234A1



More Product Available Online: www.digikey.com

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