

C-2000™ Push Buttons

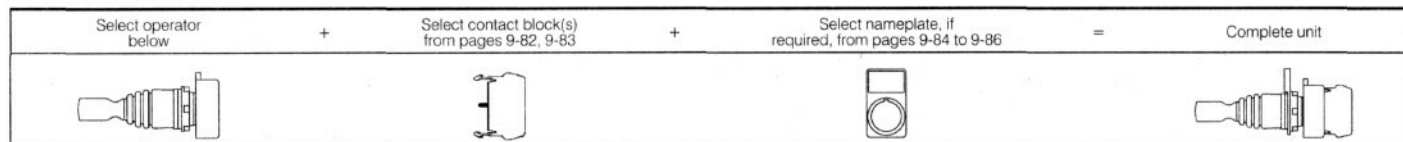
600 Volts Max. AC/300 Volts Max. DC
10 Amps. Continuous AC/2.5 Amps. Continuous DC



Special Operators

Joysticks, Toggle Switches, Wobble Sticks, Potentiometer Operators, Reset Push Buttons & Buzzers

Selection Process



Operators

Joysticks

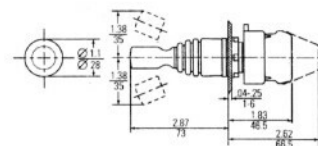
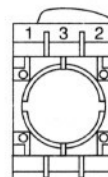
Style	Positions	Mechanical Interlock	Maintained All Positions	Momentary All Positions	Up Momentary — Down Maintained	Up Maintained — Down Momentary	List Price, GO-10GC
Polished Chrome	3	No	P9CMN2F	P9CMN2T	P9CMN2A	P9CMN2B	\$ 85.00
	3	Yes	P9CMB2F	P9CMB2T	P9CMB2A	P9CMB2B	85.00
	5	No	P9CMN4F	P9CMN4T	—	—	115.00
	5	Yes	P9CMB4F	P9CMB4T	—	—	115.00
Satin Chrome	3	No	P9MMN2F	P9MMN2T	P9MMN2A	P9MMN2B	85.00
	3	Yes	P9MMB2F	P9MMB2T	P9MMB2A	P9MMB2B	85.00
	5	No	P9MMN4F	P9MMN4T	—	—	115.00
	5	Yes	P9MMB4F	P9MMB4T	—	—	115.00
Round Engineered Plastic	3	No	P9XMN2F	P9XMN2T	P9XMN2A	P9XMN2B	85.00
	3	Yes	P9XMB2F	P9XMB2T	P9XMB2A	P9XMB2B	85.00
	5	No	P9XMN4F	P9XMN4T	—	—	115.00
	5	Yes	P9XMB4F	P9XMB4T	—	—	115.00

Cams

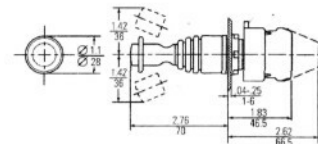
Note selection and position of contact block(s) for cam.

3-Position Joystick

Position	Position			Screw Terminal Contact Block Catalog No. and Mounting Position	
	Up	Center	Down	Position 1	Position 2
U	X	0	0	P9B11VN	—
C	0	0	X		
D	0	0	X	—	P9B11VN
	X	0	0		



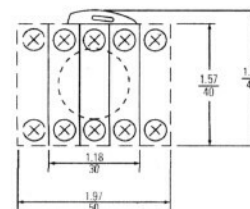
Round Joystick



Round Joystick With Interlock

5-Position Joystick

Position	Position					Screw Terminal Contact Block Catalog No. and Mounting Position	
	Up	Right	Center	Down	Left	Position 1	Position 2
U	0	X	0	0	0	P9B11VN	—
R	0	0	0	0	X		
C	0	0	0	X	0	—	P9B11VN
D	X	0	0	0	0		



Typical Back Side View

Dimensions shown in Inches
Millimeters



Section 9

The GE push button offering includes a complete line of control units and stations in both full size push buttons (30 mm) and in miniature size devices (22 mm) which are designed to be used in numerous types of industrial applications.

The CR104P full-size, heavy-duty oiltight and watertight line is complete with a variety of accessories and enclosures.

Light Tower Status Indicating Lights provide information at a glance in industrial or commercial environments where you need to transmit and receive information across a distance. Modularity and versatility make them valuable in a broad range of applications.

GE's C-2000™ 22mm Global Push Buttons are designed to be applied in just about any application worldwide. C-2000 push buttons conform to all major world standards and are UL listed and CSA Certified. All devices except the double push button are rated for NEMA 1, 3, 3R, 3S, 4, 4X, 12, 13, and IP66 when mounted in a suitable enclosure. C-2000 push buttons are manufactured in an ISO 9000 facility, assuring you that these products comply with quality standards that are recognized worldwide. Pre-engraved nameplates are available in French, Spanish, Italian, German, and English. The C-2000 push button line is globally available under the same catalog numbers, packaging, and markings anywhere in the world.

An entire listing of CR2943 and CR2941 standard-duty push button control stations is available, suitable for NEMA Type 1, 4, 4X, and 7 and 9 applications.



Heavy-Duty 30mm Push Buttons, Selector Switches, Indicating Lights, Accessories (CR104P Series)	9-2 to 9-36
Light Tower Status Indicating Lights (SL Series)	9-37 to 9-47
C-2000™ 22mm Global Push Buttons (P9 Series)	9-48 to 9-100
Standard-Duty Push Button Control Stations (CR2943 and CR2941 Series)	9-101 to 9-103
Palm Switches	9-104

References:
See Publication Index, Section 18.

PUSH BUTTONS

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GE Push Buttons

C-2000™ Push Buttons

600 Volts Max. AC/300 Volts Max. DC
10 Amps. Continuous AC/2.5 Amps. Continuous DC

Technical Data

General Specifications																																																																					
Conformity to standards	UL508 (USA) NEMA ICS-2 (USA) VDE 0660 (Germany) BSI (Great Britain) CEI EN60947.5.1 (Italy) CENELEC EN 5000 7 (Europe) CSA C22.2 No. 14-M91 (Canada) IEC 947.5.1 (International) UTE (France) NFC 63140 (France) JIS (Japan)																																																																				
Approvals	UL listed —File Number E66677 CSA Certified —File Number 16661-63 Manufacturing facility is registered to ISO 9000																																																																				
Finger protection at terminals	IP2X according to IEC 529 Terminal identification per CENELEC EN 50013																																																																				
Enclosure ratings	Suitable for use in NEMA Types 1, 3, 3R, 3S, 4, 4X, 12, and 13 enclosures. (Multi-function push buttons are suitable for NEMA Type 1 enclosures only unless used with protective rubber cap accessory.) IP66 per IEC 529, when mounted in enclosures with equal or superior seal.																																																																				
Ambient temperature	<table border="0"> <tr> <td>Operating</td> <td>Storage</td> </tr> <tr> <td>-13° to +158°F</td> <td>-40° to 158°F</td> </tr> <tr> <td>-25° to +70°C</td> <td>-40° to +70°C</td> </tr> </table>	Operating	Storage	-13° to +158°F	-40° to 158°F	-25° to +70°C	-40° to +70°C																																																														
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Climate suitability/humidity	<table border="0"> <tr> <td>Climate Type</td> <td>Temperature</td> <td>Relative Humidity</td> </tr> <tr> <td>Temperature</td> <td>74°F (23°C)</td> <td>50%</td> </tr> <tr> <td>Wet</td> <td>74°F (23°C)</td> <td>83%</td> </tr> <tr> <td>Hot Wet</td> <td>104°F (40°C)</td> <td>92%</td> </tr> <tr> <td>Variable Wet</td> <td>74° to 104°F (23° to 40°C)</td> <td>83% to 92%</td> </tr> </table>	Climate Type	Temperature	Relative Humidity	Temperature	74°F (23°C)	50%	Wet	74°F (23°C)	83%	Hot Wet	104°F (40°C)	92%	Variable Wet	74° to 104°F (23° to 40°C)	83% to 92%																																																					
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Resistance to vibration	Per IEC 68-2-6 . 16g with a frequency from 40-500 Hz and maximum peak-to-peak amplitude of 0.75mm.																																																																				
Resistance to shock	According to MIL 202B, method 202A . Test was performed for 1/2 sinusoid for 11ms, 38g max for all operators with transformers and 100g for all other operators.																																																																				
Operating force	Standard push button operator: 2.5 lbs. (11N) Each contact block: 1.3 lbs. (6 N) Selector switch operator: 2.4 in./lb. (0.27 N-m)																																																																				
Wire Terminals																																																																					
Wire capacity and terminal torque requirements (for all power supplies and contact blocks)	Suitable for #22-#12 AWG stranded or solid copper wires, single or parallel conductors of same size. Terminal torque: 7-12 in./lb. Parallel conductor size combinations (stranded or solid wire): <table border="0" style="margin-left: 40px;"> <tr> <td>Parallel Conductor Size Combinations (Stranded or Solid Wire)</td> <td>Terminal Torque</td> </tr> <tr> <td>#12 with #14</td> <td>12 in./lb.</td> </tr> <tr> <td>#14 with #16</td> <td>12 in./lb.</td> </tr> <tr> <td>#16 with #18</td> <td>12 in./lb.</td> </tr> <tr> <td>#16 with #20</td> <td>12 in./lb.</td> </tr> <tr> <td>#16 with #22</td> <td>12 in./lb.</td> </tr> <tr> <td>#18 with #22</td> <td>10-12 in./lb.</td> </tr> <tr> <td>#18 with #20</td> <td>10-12 in./lb.</td> </tr> <tr> <td>#20 with #22</td> <td>7-12 in./lb.</td> </tr> </table>	Parallel Conductor Size Combinations (Stranded or Solid Wire)	Terminal Torque	#12 with #14	12 in./lb.	#14 with #16	12 in./lb.	#16 with #18	12 in./lb.	#16 with #20	12 in./lb.	#16 with #22	12 in./lb.	#18 with #22	10-12 in./lb.	#18 with #20	10-12 in./lb.	#20 with #22	7-12 in./lb.																																																		
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#20 with #22	7-12 in./lb.																																																																				
Quick connect terminals	Suitable for one female tab connector measuring 0.25 x 0.03 inches (6.35 x 0.8 mm) or two female tab connectors measuring 0.11 x 0.03 inches (2.8 x 0.8 mm).																																																																				
Contact Data																																																																					
Electrical reliability data	Electrical life and reliability in low level current: 80 million operations at 12V, 5mA, resistive load. (32 contacts tested successfully for 2.5 million operations.)																																																																				
Dust resistance	In extremely dusty environments, electrical life at low level current is 250,000 operations at 12 V, 5mA, resistive load. In a clean environment, electrical life at low level current is 10 million operations at 12 V, 5mA, resistive load.																																																																				
Thermal current	I _{th} = 10A per IEC 947-5-1																																																																				
Insulation voltage	U _i = 660 Volts ac/dc (opposite polarity) except 2NO and 2NC blocks 300 Vac/dc																																																																				
Protection from electrical shock	Class I per IEC 536 for metal operators Class II (double insulation) per IEC 536 for plastic operators																																																																				
Insulation category	Group "C" per VDE 0110																																																																				
Dielectric strength	2500 Volts																																																																				
Short circuit protection	10A type gG fuse, per IEC 269.1 & 269.3																																																																				
Pilot duty ratings	A600 (maximum make volt-amperes = 7200; maximum break volt-amperes = 720; PF = .25) <table border="0" style="margin-left: 20px;"> <tr> <td>Volts (V)</td> <td>12</td> <td>24</td> <td>48</td> <td>60</td> <td>120</td> <td>240</td> <td>480</td> <td>600</td> </tr> <tr> <td>Continuous (A)</td> <td>10</td> <td>10</td> <td>10</td> <td>10</td> <td>10</td> <td>10</td> <td>10</td> <td>10</td> </tr> <tr> <td>Making (A)</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> <td>60</td> <td>30</td> <td>15</td> <td>12</td> </tr> <tr> <td>Breaking (A)</td> <td>10</td> <td>10</td> <td>10</td> <td>10</td> <td>6</td> <td>3</td> <td>1.5</td> <td>1.2</td> </tr> </table> Q300 (maximum make or break volt-amperes = 69) <table border="0" style="margin-left: 20px;"> <tr> <td>Volts (V)</td> <td>12</td> <td>24</td> <td>48</td> <td>60</td> <td>125</td> <td>250</td> <td>300</td> </tr> <tr> <td>Continuous (A)</td> <td>2.5</td> <td>2.5</td> <td>2.5</td> <td>2.5</td> <td>2.5</td> <td>2.5</td> <td>2.5</td> </tr> <tr> <td>Making (A)</td> <td>2.5</td> <td>2.5</td> <td>1.4</td> <td>1.1</td> <td>0.55</td> <td>0.27</td> <td>0.23</td> </tr> <tr> <td>Breaking (A)</td> <td>2.5</td> <td>2.5</td> <td>1.4</td> <td>1.1</td> <td>0.55</td> <td>0.27</td> <td>0.23</td> </tr> </table>	Volts (V)	12	24	48	60	120	240	480	600	Continuous (A)	10	10	10	10	10	10	10	10	Making (A)	100	100	100	100	60	30	15	12	Breaking (A)	10	10	10	10	6	3	1.5	1.2	Volts (V)	12	24	48	60	125	250	300	Continuous (A)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	Making (A)	2.5	2.5	1.4	1.1	0.55	0.27	0.23	Breaking (A)	2.5	2.5	1.4	1.1	0.55	0.27	0.23
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