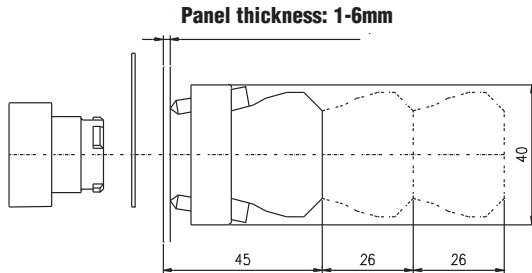


22 mm Metal Pilot Devices Specifications

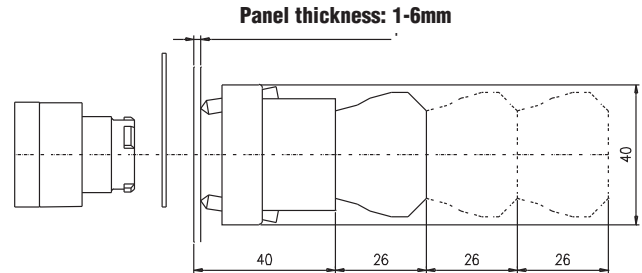
Assembly information

These pushbuttons and indicator lights are supplied with the appropriate contact blocks, unless otherwise indicated. Use these drawings as a guide to make sure there is adequate clearance behind the panel.

Pushbuttons and selector switches

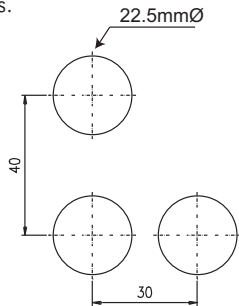


Lighted pushbuttons and selector switches/pilot lights



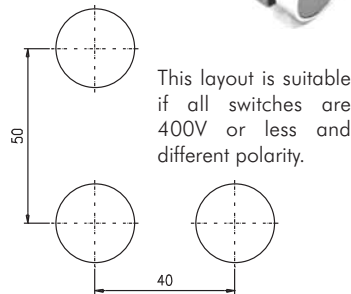
Panel holes

For safe operation, use these mounting hole drawings to ensure that there is adequate space between switches.



This layout is suitable if all switches are 230V or less and the same polarity.

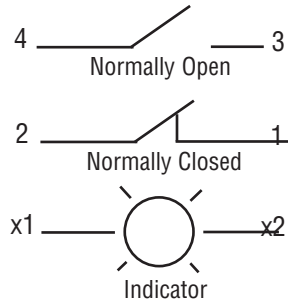
NOTE: Contact blocks can be arranged up to three deep by three wide.



This layout is suitable if all switches are 400V or less and different polarity.

All dimensions are in millimeters. 25.4mm = 1 inch. For example, 30 mm in inches = 30/25.4 = 1.181 inches.

Typical Wiring



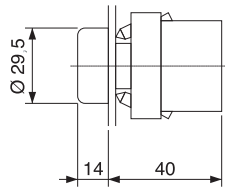
Specifications

These specifications apply to all 22 mm metal pushbuttons and switches.

Physical Specifications		Electrical Specifications	
Standards Reference	CEI EN 60947-5-1, CSA C22-2 n.14	Rated Thermal Current (contact block)	A300, Q300 (Refer to page e25-51, for more information.)
Approvals	CSA, IMQ (where specified), UL File E189258	Rated Insulation Voltage	Ui 660V according to CEI EN 60947-5-1, 300V according to CSA C22-2 n.14
Enclosure Material	Zn + Al + Mg alloy, chromium plated	Dielectric Strength	3KV (1 second)
Contacts Material	Gold plated silver	Insulation Resistance	2MΩ min. (500VDC)
Protection Degree	IP 40 for GCX3151-24, GCX3151-120, GCX3153-24 and GCX3153-120. IP 65 for all others. (See Appendix of this catalog for explanation of IP ratings according to IEC 144 CEI 70-1.)	Initial Contact Resistance	≤25mΩ
Temperature Ratings	Storage: -40° to 80°C (-40° to 176° F) Operating: -25° to +70°C (-13° to 158° F)	Short-Circuit Protection*	Cartridge fuses gl 10 A-500V 10,3x381 100 KA
Working Positions	All working positions are allowed	Terminal Markings	According to CENELEC EN 50013
Mechanical Life	Pushbuttons, selector switches: Joy stick switches: 1,000,000 operations Mushroom pushbuttons: 300,000 operations	Connections	Single screw with non-loosening plate clamp, 14AWG max.
		Contacts Operation	Self-cleaning types EN01 (N.C.) EN 10 (N.O.) slow action, positive opening
		Operation Frequency	3600 operations per hour max.
		Utilization Category	AC15 (Control of AC electromagnetic loads) 24 volts AC at 10 amps 130 volts AC at 6.5 amps DC13 (Control of DC electromagnetic loads) 24 volts DC at 1.5 amps 110 volts DC at 0.5 amps

*Note: Recommended, not supplied

22 mm Metal Illuminated Pilot Light



LED Illuminated Pilot Light

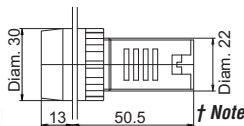
12 models available

- 24V and 120V with LED lamp in six colors
- Bulbs are included
- Replacement bulbs are available

Part Number	Lamp Color	Price	Description	Replacement Incandescent Bulb	Replacement LED Bulb
LED					
GCX1231-24L	Red	<--->	22 mm metal LED illuminated pilot light. 24VDC/VAC	ECX1902-5 5/pk, 80mA	ECX1911-2 2/pk, 26mA
GCX1231-120L	Red	<--->	22 mm metal LED illuminated pilot light. 120VDC/VAC	ECX1904-5 5/pk, 20mA	ECX1921-2 2/pk, 5mA
GCX1232-24L	Green	<--->	22 mm metal LED illuminated pilot light. 24VDC/VAC	ECX1902-5 5/pk, 80mA	ECX1912-2 2/pk, 26mA
GCX1232-120L	Green	<--->	22 mm metal LED illuminated pilot light. 120VDC/VAC	ECX1904-5 5/pk, 20mA	ECX1922-2 2/pk, 5mA
GCX1233-24L	Yellow	<--->	22 mm metal LED illuminated pilot light. 24VDC/VAC	ECX1902-5 5/pk, 80mA	ECX1913-2 2/pk, 26mA
GCX1233-120L	Yellow	<--->	22 mm metal LED illuminated pilot light. 120VDC/VAC	ECX1904-5 5/pk, 20mA	ECX1923-2 2/pk, 5mA
GCX1234-24L	Blue	<--->	22 mm metal LED illuminated pilot light. 24VDC/VAC	ECX1902-5 5/pk, 80mA	ECX1914-2 2/pk, 26mA
GCX1234-120L	Blue	<--->	22 mm metal LED illuminated pilot light. 120VDC/VAC	ECX1904-5 5/pk, 20mA	ECX1924-2 2/pk, 5mA
GCX1235-24L	Clear	<--->	22 mm metal LED illuminated pilot light. 24VDC/VAC	ECX1902-5 5/pk, 80mA	ECX1915-2 2/pk, 26mA
GCX1235-120L	Clear	<--->	22 mm metal LED illuminated pilot light. 120VDC/VAC	ECX1904-5 5/pk, 20mA	ECX1925-2 2/pk, 5mA
GCX1236-24L	White	<--->	22 mm metal LED illuminated pilot light. 24VDC/VAC	ECX1902-5 5/pk, 80mA	ECX1915-2 2/pk, 26mA
GCX1236-120L	White	<--->	22 mm metal LED illuminated pilot light. 120VDC/VAC	ECX1904-5 5/pk, 20mA	ECX1925-2 2/pk, 5mA

22mm Pilot Devices

Audible annunciator



- 80 dB @ 10 cm
- IP20 before installation
- IP64 after installation
- 25 mA @ 24V

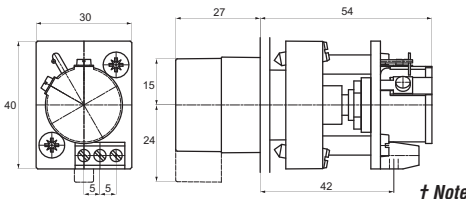
Part Number	Color	Price	Description
ECX2070-24	Black	<--->	22 mm, 25 mA audible (80dB at 10 cm) buzzer annunciator. 24VAC/DC
ECX2070-127	Black	<--->	22 mm, 25 mA audible (80dB at 10 cm) buzzer annunciator. 120VAC/DC
ECX2071-24R	Red	<--->	22 mm, 25 mA audible (80dB at 10 cm) buzzer annunciator with non-replaceable LED indicator. 24VAC/DC
ECX2071-127R	Red	<--->	22 mm, 25 mA audible (80dB at 10 cm) buzzer annunciator with non-replaceable LED indicator. 120VAC/DC

22 mm potentiometer



• IP65

Part Number	Quantity	Price	Description
ECX2300-5K	pkg. of 1	<--->	22 mm potentiometer with 5k Ω resistance, $\pm 10\%$. Nominal voltage: 250V. Rated dissipation: 2W at 25°C. Temperature range -40°C to 70°C. Black handle
ECX2300-10K	pkg. of 1	<--->	22 mm potentiometer with 10k Ω resistance, $\pm 10\%$. Nominal voltage: 250V. Rated dissipation: 2W at 25°C. Temperature range -40°C to 70°C. Black handle
ECX2640	pkg. of 1	<--->	22 mm legend plate for potentiometer with 0% to 100% marking, 50 mm square. 50 x 50 x 1 mm with 24.5mm cutout.



† Note: All dimensions are in millimeters.
25.4mm = 1 inch.
For example,
30 mm in inches = 30/25.4 = 1.181 inches.

Note: Find our extensive line of accessories on pages 25-42 to 25-44.

22 mm Pilot Device Accessories

Replacement incandescent bulbs



ECX1902-5

Part Number	Quantity	Price	Rating	Description
ECX1900-5	Pkg of 5 bulbs	<--->	6V@ 200mA , 1.2 watts	6V replacement bulb for 22 mm switches and indicators. Miniature bayonet base T31/4
ECX1902-5	Pkg of 5 bulbs	<--->	24V@ 80mA 2 watts	24V replacement bulb for 22 mm switches and indicators. Miniature bayonet base T31/4
ECX1904-5	Pkg of 5 bulbs	<--->	130V@20mA 2.6 watts	120V replacement bulb for 22 mm switches and indicators. Miniature bayonet base T31/4

Note: Bulb removal tool available. Order part number HT8LAMPTOOL.

Replacement LED bulbs



ECX1915-2

Part Number	Color	Quantity	Price	Rating	Description
ECX1911-2	Red	Pkg of 2 LED lamps	<--->	24V@26mA 0.6 watts	LED replacement lamp for miniature bayonet bases Works with 22 mm metal and non-metal switches and indicators, but illumination will not be as even when used with 22 mm indicators Note: Will not replace sealed C-H monoblock LED indicators.
ECX1912-2	Green		<--->		
ECX1913-2	Yellow		<--->		
ECX1914-2	Blue		<--->		
ECX1915-2	White		<--->		
ECX1921-2	Red		<--->	120V@5mA 0.6 watts	
ECX1922-2	Green		<--->		
ECX1923-2	Yellow		<--->		
ECX1924-2	Blue		<--->		
ECX1925-2	White		<--->		

Note: LED modules have very low current draw and should not be used with triac output devices like PLC triac output modules. It is recommended that dry contact outputs be used to switch 120 volt AC modules.

Hole plug



ECX1490

Part Number	Color	Price	Description
ECX1490	Black	<--->	Plastic hole plug for 22.5 mm openings in panels and enclosures; supplied with O-ring and mounting screw. Two plugs per package.

Pilot Light replacement lens



PL1170PR-5

Pilot Light Replacement Lens				
Part Number	Lamp Color	Price	Description	Use with
PL1170PR-5	Red	<--->	22 mm metallic series pilot light replacement lens, 5/pk	Part numbers starting with GCX123
PL1170PV-5	Green	<--->	22 mm metallic series pilot light replacement lens, 5/pk	
PL1170PG-5	Yellow	<--->	22 mm metallic series pilot light replacement lens, 5/pk	
PL1170PB-5	Blue	<--->	22 mm metallic series pilot light replacement lens, 5/pk	
PL1170PN-5	Clear	<--->	22 mm metallic series pilot light replacement lens, 5/pk	
PL1170PW-5	White	<--->	22 mm metallic series pilot light replacement lens, 5/pk	

Protective covers for pushbuttons

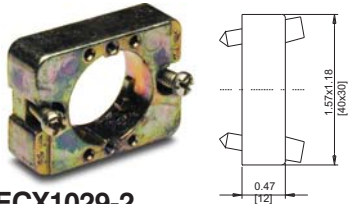


ECX1703-5

Part Number	Color	Quantity	Price	Description
ECX1700-5	Black	Pkg of 5 Protective caps	<--->	Silicone protective covers for use with 22 mm plastic standard-size flush pushbuttons. Will not work with C-H pushbuttons, 22 mm plastic illuminated or extended pushbuttons, or 22 mm plastic pushbuttons with 40 mm actuator face.
ECX1701-5	Red		<--->	
ECX1702-5	Green		<--->	
ECX1703-5	Yellow		<--->	
ECX1704-5	Blue		<--->	
ECX1705-5	Clear		<--->	
ECX1706-5	Clear		<--->	Clear silicone protective covers for use with 22 mm plastic illumi- nated and extended pushbuttons only . Will not work with C-H pushbuttons, 22 mm plastic pushbuttons with 40 mm actuator face, or 22 mm plastic lighted mushroom pushbuttons.

22 mm Pilot Device Accessories

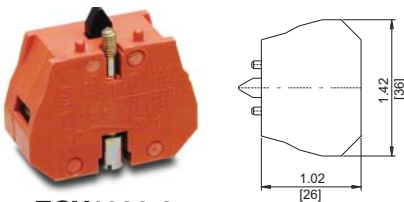
Replacement 22 mm support base



ECX1029-2

Part Number	Quantity	Price	Description
ECX3029-2	Pkg of 1	<--->	22 mm plastic support base Note: This item is supplied as a replacement part and is not required with any switch assembly. Will not work with Cutler-Hammer 22 mm switches sold by AUTOMATIONDIRECT

Replacement contact blocks



ECX1030-2

Part Number	Quantity	Price	Contacts	Description
ECX1030-2	Pkg of 2	<--->	Red, normally-closed (N.C.)	Replacement contact block for 22 mm plastic push-buttons and selector switches. Tightening Torque, terminal screw: 0.8Nm max mounting screw: 0.5Nm max
ECX1030-5	Pkg of 5	<--->		
ECX1040-2	Pkg of 2	<--->	Green, normally-open (N.O.)	Note: Will not work with Cutler-Hammer 22 mm switches sold by AUTOMATIONDIRECT
ECX1040-5	Pkg of 5	<--->		
ECX1042-2	Pkg of 2	<--->	Brown, normally-open (N.O.), push-push	Use on lighted Push-push button only

Note: See electrical specifications on page e25-26.

Replacement keys



ECX1067-2

Part Number	Quantity	Price	Description
ECX1067-2	Pkg of 2 sets (2 keys per set)	<--->	Replacement keys for all key-actuated 22 mm plastic selector switches only. Will not work with Cutler-Hammer 22 mm keyed switches sold by AutomationDirect

Note: All key-actuated 22mm metal selector switches are keyed alike.

EMERGENCY STOP legend plate



ECX1651

Part Number	Quantity	Price	Description
ECX1651	Pkg of 1	<--->	Oversize yellow circular EMERGENCY STOP legend plate for 22 mm E-stop type mushroom pushbuttons, 60 mm outside diameter.

Knockout Punches



109225

Ruko's knockout punch hole-cutting tool includes punch, die and draw bolt (without ball bearing). Use for sheet steel, stainless-steel sheets, non-ferrous and light metals, and plastics up to 0.16" (8 ga.) thick.

Replacement bolts are offered in three of the most popular sizes.

Note: Part number 109225 is recommended when punching holes for 22mm pilot devices.

Two-position short lever operator



GR1172PR-5

Note: All dimensions are in inches [millimeters].

Short Lever Replacement Operator				
Part Number	Lamp Color	Price	2-Position	Use with
GR1172PR-5	Red	<--->	22 mm 2-position selector switch illuminated short lever replacement operator, 5/pk	Part numbers starting with GCX124, GCX125 GCX324, GCX325
GR1172PV-5	Green	<--->	22 mm 2-position selector switch illuminated short lever replacement operator, 5/pk	
GR1172PG-5	Yellow	<--->	22 mm 2-position selector switch illuminated short lever replacement operator, 5/pk	
GR1172PB-5	Blue	<--->	22 mm 2-position selector switch illuminated short lever replacement operator, 5/pk	
GR1172PN-5	Clear	<--->	22 mm 2-position selector switch illuminated short lever replacement operator, 5/pk	

22 mm Pilot Device Accessories

Three-position short lever operator



GR1288PR-5

Short Lever Replacement Operator				
Part Number	Lamp Color	Price	3-Position	Use with
GR1288PR-5	Red	<--->	22 mm 3-position selector switch illuminated short lever replacement operator, 5/pknumber	Part numbers starting with GCX126, GCX128 GCX326, GCX328
GR1288PV-5	Green	<--->	22 mm 3-position selector switch illuminated short lever replacement operator, 5/pk	
GR1288PG-5	Yellow	<--->	22 mm 3-position selector switch illuminated short lever replacement operator, 5/pk	
GR1288PB-5	Blue	<--->	22 mm 3-position selector switch illuminated short lever replacement operator, 5/pk	
GR1288PN-5	Clear	<--->	22 mm 3-position selector switch illuminated short lever replacement operator, 5/pk	

Mushroom switch replacement operator



PL1298P-5

Mushroom Switch Replacement Operator				
Part Number	Lamp Color	Price	Description	Use with
PL1171PR-5	Red	<--->	22 mm, illuminated momentary Mushroom switch replacement operator, red, 5/pk	Part numbers starting with GCX1221, GCX3221 mushroom-style illuminated pushbuttons
PL1298P-5	Red	<--->	22 mm illuminated twist-to-release mushroom switch replacement operator, red, 5/pk	Part numbers starting with GCX1226, GCX3226 mushroom-style illuminated pushbuttons

Flush pushbutton replacement operator



GR1168PR-5

Flush Pushbutton Replacement Operator				
Part Number	Lamp Color	Price	Description	Use with
GR1168PR-5	Red	<--->	22 mm illuminated flush pushbutton replacement operator, 5/pk	Part numbers starting with GCX119, GCX120 GCX319, GCX320
GR1168PV-5	Green	<--->	22 mm illuminated flush pushbutton replacement operator, 5/pk	
GR1168PG-5	Yellow	<--->	22 mm illuminated flush pushbutton replacement operator, 5/pk	
GR1168PB-5	Blue	<--->	22 mm illuminated flush pushbutton replacement operator, 5/pk	
GR1168PN-5	Clear	<--->	22 mm illuminated flush pushbutton replacement operator, 5/pk	
GR1168PW-5	White	<--->	22 mm illuminated flush pushbutton replacement operator, 5/pk	

Extended pushbutton replacement operator



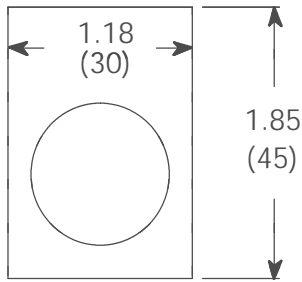
PL1308PR-5

Extended Pushbutton Replacement Operator				
Part Number	Lamp Color	Price	Description	Use with
PL1308PR-5	Red	<--->	22 mm illuminated extended pushbutton, replacement operator, 5/pk	Part numbers starting with GCX121, GCX321
PL1308PV-5	Green	<--->	22 mm illuminated extended pushbutton, replacement operator, 5/pk	
PL1308PG-5	Yellow	<--->	22 mm illuminated extended pushbutton, replacement operator, 5/pk	
PL1308PB-5	Blue	<--->	22 mm illuminated extended pushbutton, replacement operator, 5/pk	
PL1308PN-5	Clear	<--->	22 mm illuminated extended pushbutton, replacement operator, 5/pk	
PL1308PW-5	White	<--->	22 mm illuminated extended pushbutton, replacement operator, 5/pk	

E22 Legend Plates

Legend plates

Aluminum legend plates feature a plastisol backing to help prevent rotation of the operator.



Approximate dimensions in inches (mm).

E22VA8



Accessories			
Color	Part Number	Legend	Price
Black	E22NS11	"CLOSE"	<--->
Black	E22NS12	"DOWN"	<--->
Red	E22NS13	"EMERG. STOP"	<--->
Black	E22NS15	"FORWARD"	<--->
Black	E22NS19	"JOG"	<--->
Black	E22NS25	"ON"	<--->
Black	E22NS26	"OPEN"	<--->
Black	E22NS30	"REVERSE"	<--->
Black	E22NS31	"RUN"	<--->
Black	E22NS33	"START"	<--->
Red	E22NS34	"STOP"	<--->
Black	E22NS35	"UP"	<--->
Black	E22NS36	Blank plate	<--->
Red	E22NS37	Blank plate	<--->
Black	E22NS38	"FOR-REV"	<--->
Black	E22NS39	"HAND-AUTO"	<--->
Black	E22NS41	"JOG-RUN"	<--->
Black	E22NS42	"OFF-ON"	<--->
Black	E22NS43	"OPEN-CLOSE"	<--->
Black	E22NS48	"UP-DOWN"	<--->
Black	E22NS50	"FOR-OFF-REV"	<--->
Black	E22NS51	"HAND-OFF-AUTO"	<--->
Black	E22NS80	"POWER ON"	<--->
Black	E22NS81	"MOTOR RUN"	<--->
Black	E22NS82	"MOTOR STOP"	<--->
Black	E22NL36	Jumbo alum. blank plate (1.57 in wide x 1.85 in tall)	<--->
Red	E22NL37	Jumbo alum. blank plate (1.57 in wide x 1.85 in tall)	<--->
Red /black	E22NSP77	Plastic blank plate; red on one side, black on other side; either side can have letters engraved down into white plastic	<--->
Yellow	E22VA8	"EMERGENCY STOP" oversize yellow legend plate, 2.76" (70mm), printed	<--->

NOTE: Legend plates also work with the 22 mm metal switches. The removal of the locator tab on the legend plate is required for use with the 22 mm metal switches. This is easily accomplished with a round file or small grinder.