

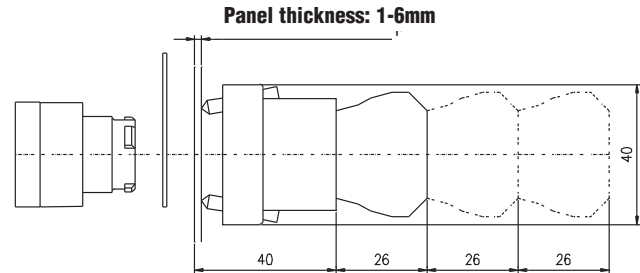
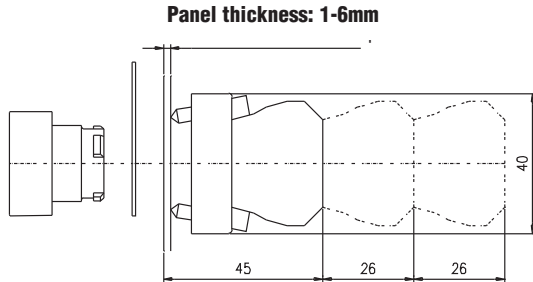
22 mm Plastic Pilot Devices Specifications

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.

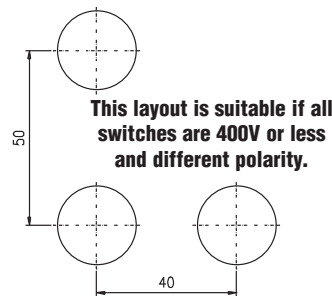
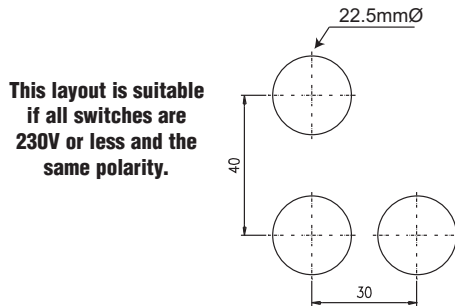
Pushbuttons and selector switches

Lighted pushbuttons and selector switches/pilot lights

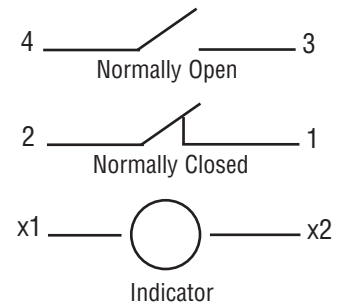


Panel holes

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



Typical Wiring



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

Specifications

These specifications apply to all the 22 mm plastic pushbuttons and switches.

Physical Specifications	
Standards Reference	CEI EN 60947-5-1, CSA C22-2 n.14
Approvals	CSA, IMQ (where specified), UL File E189258
Enclosure Material	Fiberglass reinforced thermoplastic
Contacts Material	Gold plated silver
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.)
Electric Shock Protection	IEC 536, Class II
Temperature Ratings	Storage: -40° -to 80°C (-40° to 176° F) Operating: -25° to +70°C (-13° to 158° F)
Working Positions	All working positions are allowed
Mechanical Life	Pushbuttons, selector switches, joy stick switches: 1,000,000 operations Emergency mushrooms and push-push pushbuttons: 300,000 operations
Positive Opening Operation	(according to IEC 947-5-1) All functions incorporating an NC contact are positive opening operation

Electrical Specifications	
Rated Thermal Current (contact block)	A300, Q300 (Refer to page e25-51 for further information)
Rated Insulation Voltage	Ui 660V according to CEI EN 60947-5-1, 300V according to CSA C22-2 n.14 and UL 508
Dielectric Strength	3KV (1 second)
Insulation Resistance	2MΩ min. (500VDC)
Initial Contact Resistance	≤25mΩ
Short-Circuit Protection*	Cartridge fuses gl 10 A-500V 10, 3x381/ 100 KA
Terminal Markings	According to CENELEC EN 50013
Connections	Single screw with non-loosening plate clamp, 14AWG max., Tighten to 0.8Nm 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

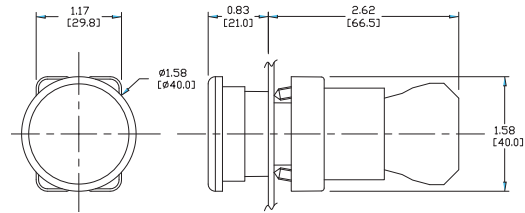
22 mm Plastic Illuminated Pushbuttons

Mushroom-style illuminated pushbuttons

All pushbuttons include operator, support base, indicating bulb (if applicable) and contact block. They are shipped unassembled. Legend plate is not included and must be ordered separately. All switches in this series use replacement contact block ECX1030 (Red, NC) or ECX1040 (Green, N.O.), sold separately in packages of two or five.



GCX3221-24



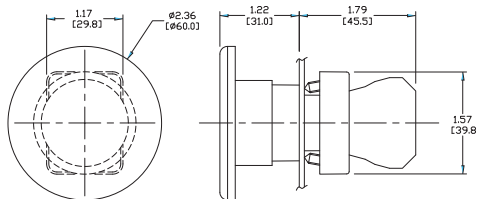
Part Number	Lamp Color	Price	Mushroom-style Illuminated Pushbuttons Description	Replacement Incandescent Bulbs	Replacement LED Bulbs
Incandescent					
GCX3221-24	Red	<--->	22 mm plastic momentary pushbutton with incandescent illuminated 40 mm mushroom actuator, 24VDC/VAC, one N.C. contact block	ECX1902-5 5/pk 80mA	ECX1911-2 2/pk 26mA
GCX3221-120	Red	<--->	22 mm plastic momentary pushbutton with incandescent illuminated 40 mm mushroom actuator, 120VDC/VAC, one N.C. contact block	ECX1904-5 5/pk 20mA	ECX1921-2 2/pk 5mA
GCX3226-24	Red	<--->	22 mm plastic pushbutton with incandescent illuminated 40 mm mushroom twist-to-release actuator, 24VDC/VAC, one N.C. contact block	ECX1902-5 5/pk 80mA	ECX1911-2 2/pk 26mA
GCX3226-120	Red	<--->	22 mm plastic pushbutton with incandescent illuminated 40 mm mushroom twist-to-release actuator, 120VDC/VAC, one N.C. contact block	ECX1904-5 5/pk 20mA	ECX1921-2 2/pk 5mA
LED					
GCX3221-24L	Red	<--->	22 mm plastic momentary pushbutton with LED illuminated 40 mm mushroom actuator, 24VDC/VAC, one N.C. contact block	ECX1902-5 5/pk 80mA	ECX1911-2 2/pk 26mA
GCX3221-120L	Red	<--->	22 mm plastic momentary pushbutton with LED illuminated 40 mm mushroom actuator, 120VDC/VAC, one N.C. contact block	ECX1904-5 5/pk 20mA	ECX1921-2 2/pk 5mA
GCX3226-24L	Red	<--->	22 mm plastic pushbutton with LED illuminated 40 mm mushroom twist-to-release actuator, 24VDC/VAC, one N.C. contact block	ECX1902-5 5/pk 80mA	ECX1911-2 2/pk 26mA
GCX3226-120L	Red	<--->	22 mm plastic pushbutton with LED illuminated 40 mm mushroom twist-to-release actuator, 120VDC/VAC, one N.C. contact block	ECX1904-5 5/pk 20mA	ECX1921-2 2/pk 5mA

Non-illuminated mushroom pushbuttons

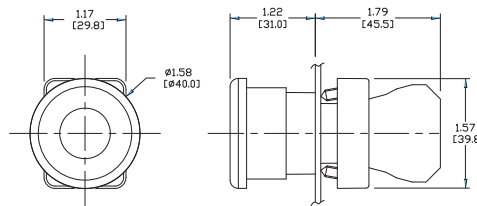
Feature large 60 mm dia. actuator and mount in standard 22 mm hole.



GCX3137



GCX3141
(key operated)



Note: Keyed switches come with two keys. All plastic 22 mm keyed switches are keyed alike. Replacement keys are available. Order part no. ECX1067-2 (pkg. of 2).

Part Number	Color	Price	Description
GCX3131	Red	<--->	Twist-to-release actuator with one N.C. contact block, fits in 22 mm dia. hole. Has large 40 mm dia. mushroom-style actuator. Not CE EN 418 compliant when used as an emergency stop control device.
GCX3134	Black	<--->	Momentary action with one N.O. contact block, fits in 22 mm dia. hole, has large 40 mm dia. mushroom-style actuator.
GCX3135	Red	<--->	Momentary action with one N.C. contact block, fits in 22 mm dia. hole, has large 40 mm dia. mushroom-style actuator. EMERGENCY legend plate available (see Accessories).
GCX3136	Red	<--->	Twist-to-release actuator with one N.C. contact block, fits in 22 mm dia. hole. 60 mm dia. mushroom-style actuator. Not CE EN 418 compliant when used as an emergency stop control device.
GCX3137	Red	<--->	Momentary action with one N.C. contact block, fits in 22 mm dia. hole, has large 60 mm dia. mushroom-style. EMERGENCY legend plate available (see Accessories).
GCX3139	Yellow	<--->	Momentary action with one N.O. contact block, fits in 22 mm dia. hole, has large 40 mm dia. mushroom-style actuator.
GCX3141	Red	<--->	Key operated release with one N.C. contact block, fits in 22 mm dia. hole, has large 40 mm dia. mushroom-style actuator. EMERGENCY legend plate available (see Accessories). Not CE EN 418 compliant when used as an emergency stop control device.

Note: All dimensions are in inches [millimeters].

GCX Series 22 mm Plastic Pilot Devices

Features

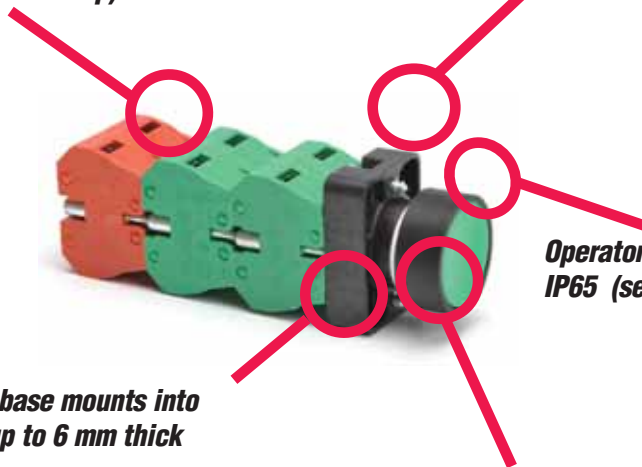
Any combination of contact blocks is allowed, up to a total of six (two blocks wide and three blocks deep)

Secure mounting method eliminates twisting in mounting hole

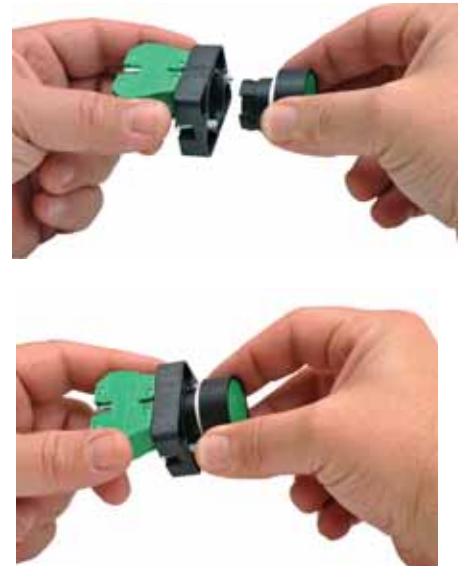
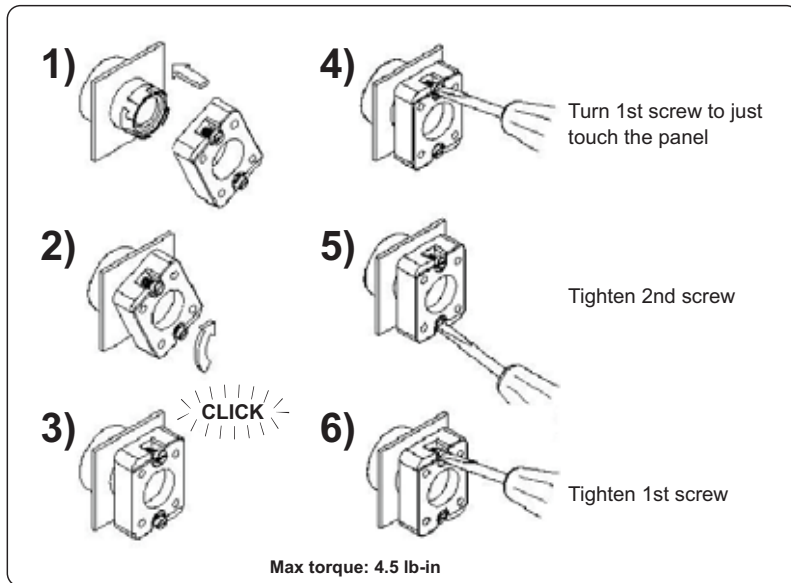
Support base mounts into panels up to 6 mm thick

Operators are protected to IP 40 or IP65 (see specifications below)

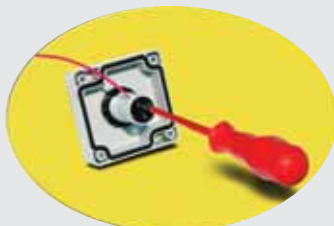
Fiberglass reinforced thermoplastic bezel



Easy installation



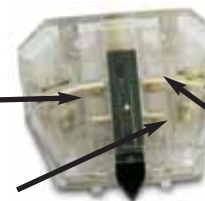
All indicators offer side wire entry with back screw terminals for easy wiring



Self-cleaning gold-plated silver contacts provide reliable, low-energy switching

Pressure plate wiring terminals for easy, secure wiring, accepting up to 14 AWG wire

Contacts rated A300
(Refer to page 51 in this chapter)



Clear contact block for illustration purposes. Clear contact blocks are not available for sale from AutomationDirect.

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
ECX1912-2	Green		<--->		
ECX1913-2	Yellow		<--->		
ECX1914-2	Blue		<--->		
ECX1915-2	White		<--->		
ECX1921-2	Red		<--->	120V@5mA 0.6 watts	Works with 22 mm metal and non-metal switches and indicators, but illumination will not be as even when used with 22 mm indicators
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 LED 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.

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 illuminated 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.	

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.

Replacement keys



ECX1067-2

Part Number	Quantity	Price	Description
ECX1067-2	Pkg of 2	<--->	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

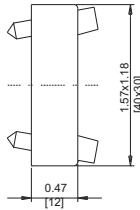
Note: All key-actuated 22mm plastic selector switches are keyed alike.

22 mm Pilot Device Accessories

Replacement 22 mm support base



ECX3029-2

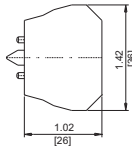


Part Number	Quantity	Price	Description
ECX3029-2	Pkg of 1	<--->	22 mm plastic support base Note: This item is supplied as a replacement part and is not required with any switch assembly. Will not work with Cutler-Hammer 22 mm switches sold by AUTOMATIONDIRECT

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.
ECX1030-5	Pkg of 5	<--->		Tightening Torque, terminal screw: 0.8Nm max mounting screw: 0.5Nm max
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 25-6.

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.

Two-position short lever operator



GR1172PR-5

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/pk	Part numbers starting with GCX126, GCX128 GCX326, GVX328
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	