■ Simple and snap on installation
■ Highly conductive contacts
■ Robust for severe ambient conditions
■ Contact operation: double breaking action, direct opening operation and self cleaning
■ Plastic and metal enclosure.

Page 7-4 to 7 and 11
7-28 to 30 and 33

BUTTON ACTUATORS Ø22mm
• Spring return flush, extended and shrouded
• Push-push flush and extended
• Mushroom-head
• Mechanical reset
• Illuminated.

Page 7-8 and 12
7-31 and 34

DOUBLE AND TRIPLE TOUCH ACTUATORS Ø22mm
• Double touch with or without indicator
• Triple touch.

Page 7-9 and 12
7-32 and 35

SELECTOR SWITCHES Ø22mm
• Short lever
• Long lever
• Key
• Knob
• Illuminated.

Page 7-13 to 15

PILOT LIGHTS Ø22mm
• Monoblock LED.

MONOBLOCK BUZZERS Ø22mm
• Continuous or pulse tone.

COMMUNICATION INTERFACES Ø22mm
• USB
• RJ45.
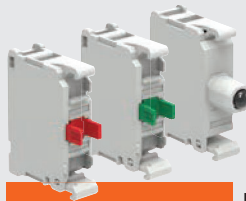
Page 7-16 to 24
7-38 to 43

ADD-ON ELEMENTS, ACCESSORIES AND SPARE PARTS FOR PUSHBUTTONS AND SELECTOR SWITCHES
• Mounting adapter
• Contact elements
• LED integrated elements
• Lamp holders
• Labelling and label holders
• Bulbs.

Page 7-25

CONTROL STATIONS
• 1 to 6 holes option without actuators
• Complete units with 1 button.

Page 7-14
7-36

POTENTIOMETERS Ø22mm
• Potentiometer included in the product with graduated scale.
• Metal potentiometer drives with:
  – graduated scale
  – variable index.

Page 7-37

METAL JOYSTICKS Ø22mm
• 2 directions
• 4 directions
• 2 directions with mechanical interlock
• 4 directions with mechanical interlock
• Complete with contact elements.

Page 7-44

METAL CONTROL STATIONS
• Without actuators (from 1 to 16 holes)
• Version without holes.

Lovato electric

QUALITY TOUCH!

10mm

● **LOW ACTUATOR PROFILE**
The external actuator bezel has a low profile and reduced front thickness.

● **CUSTOMISING CAPABILITY**
To simplify stock management, the series includes actuators without cap or lens and separate caps and lenses for quick installation or replacement on spring return and push-push types; all these are sold as accessories.

● **HIGH DEGREE OF PROTECTION IP66, IP67 and IP69K**
The actuators have been tested to guarantee a degree of protection per IEC/EN IP66, IP67, IP69K and UL Type 4X, appropriate for use even in extreme ambient conditions.

● **ELEGANT STYLE AND ERGONOMIC DESIGN**
All the series elements have an ergonomic design and, at the same time, particular care has been given to minimum detail aesthetics.

● **LONG ACTUATOR MECHANICAL LIFE**
High performance characteristics assure 5,000,000 cycle mechanical life for spring-return actuators, 1,000,000 for double and triple touch units and 300,000 for emergency-stop types.
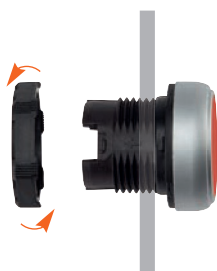
● **MATERIALS RESISTANT TO OILS, SOLVENTS AND HYDROCARBONS**

● **USAGE AT EXTREME TEMPERATURE CONDITIONS**
Operation temperature range between -25° and +70°C.

● **cULus, EAC, RINA and CCC CERTIFICATIONS.**

● **QUICK AND EASY ACTUATOR INSTALLATION**

- Actuator fixing on the mounting surface, through a Ø22mm/0.87" drilled hole, is obtained using its **threaded ring**, easily rotated by hand or by socket spanner/wrench.

- There is an **anti-rotation fastener**, duly sized to avoid actuator rotation on the mounting surface and to give an orientation reference point for users during panel installation and during contact fitting on the actuator.
- This anti-rotation fastener collapses inside the gasket to allow fitting also when drilled holes are round without reference index.
- The sealing gasket for the actuator mounting surface has a gripping action (suction effect) offering additional adhesion properties.

Click!

- The mounting adapter and the actuators each have **clearly visible reference** indications making the snap-on fitting between the two easy and intuitive.

Click!

- Electrical contact and LED elements are **snapped onto** the mounting adapter.
- **The activation of the middle contacts is standard supplied** on all non-illuminated spring return and push-push button or selector switch actuators.

● **REDUCED DIMENSIONS AND INTERAXIS**

30 (1.18")
30 (1.18")
40 (1.57")
40 (1.57")
Ø22.3 (0.88")
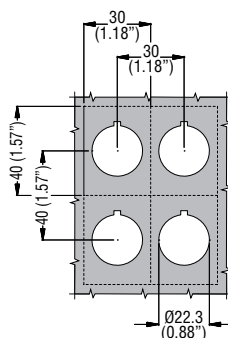
Minimum pitch:
- 30x40mm/1.18x1.57" between drillings for two actuators on a mounting surface
- 30x55mm/1.18x2.16" between drillings for two double and triple-touch actuators or when spring clamp contacts are used.
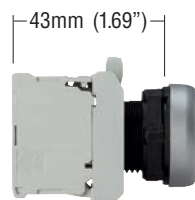
43mm (1.69")

- Total depth, from the external mounting surface to the end of the first contact element is just 43mm/1.69".

● **CONTACT ELEMENTS**

- Miniaturised size
- High electric conductivity - 5V 1mA
- Up to 9 contact elements can be installed
- Available versions: Front and base mount with screw terminals while front-mount only with faston and spring-clamp terminals
- Contact operation: double breaking action, direct (positive) action operation and wiping effect.

● **HIGH-LUMINOSITY LED ELEMENTS**

- Miniaturised size
- Long electrical life: 100,000h
- Versions for base mounting and with screw or spring-clamp terminals
- Overvoltage protection
- Withstand vibrations
- Protection against stray currents in wiring
- Flickering phenomenon reduction
- Steady and flashing light versions
- Supply voltages:
  • 12...30VAC/DC
  • 85...140VAC
  • 185...265VAC
- Test elements installed beside and connected with the relative LED element allow checking if all LED elements of the installation are working properly.

● DOUBLE AND TRIPLE TOUCH ACTUATORS

- IEC **IP66, IP67, IP69K** and **UL Type 4X** degree of protection
- Double touch button actuators, with 2 flush or 1 flush and 1 extended buttons
- Triple touch button actuators with 2 flush and middle extended butons
- Versions with or without indicator.

● MECHANICAL RESET BUTTONS

- Rod adjustment directly on acutator front (1...4mm/0.04...0.16").

- Up to 6 contact elements can be mounted

● ADAPTER FOR DIN RAIL MOUNTING

- Permits the fitting of the Platinum and 8 LM2T series buttons on DIN rail, in panels and modular boxes. Only 35mm/1.38" wide (2 modules).

● EMERGENCY STOP ACTUATORS

- Actuator structure suitable to warrant direct opening operation with mechanical latching for emergency stopping per **ISO 13850** and **IEC/EN 60947-5-5**.
- Auto-monitor contact elements are available with functions to:
  • Constantly control the correct installation (mounting adapter and NC contact with the actuator) and proper operation of the NC contact
  • Open the circuit in the case of malfunctions (e.g. the contact detaches from the mounting adapter due to strong vibrations or shock).

- There is a green line around the actuator body to spot when the emergency stop is at rest or activated.
- Use of **Ronis keys**
- Various accessories available (e.g. yellow E-stop disks, padlockable protection and rubber actuator boots).

● SHROUD

- Suitable for all Platinum and 8 LM2T mushroom-head latch buttons, guarantees protection against accidental on-board machinery contact.

● SELECTOR SWITCH ACTUATORS

- Lever design assures excellent grip

- **High visibility** on front or side and actuator inscription shows exact switch position

- Use of **Ronis keys**

- **Activation of the middle contacts is standard supplied** on 2 and 3 position selector switches.

● MONOBLOCK POTENTIOMETERS

- Potentiometer included in the product.
- Protection rating IP66, IP67 and IP69K and UL Type 4X.
- Resistance values from 1 to 500kΩ.

● METAL CONTROL STATIONS

- IP66 and IP67 protection degree.
- From 1 to 16 holes version.
- 1 hole version with actuator protection.
- Version without holes.

● PILOT LIGHTS

- Protection rating IP66, IP67, IP69K and UL Type 4X for LED monoblock pilot lights and pilot light heads.
- Long life and low consumption.

● MONOBLOCK BUZZERS

- Continuous or pulse-tone monoblock buzzers in a single product.
- IP40 version (90dB/10cm) and IP66, IP67, IP69K and UL Type 4X, version (80dB/10cm) available.

● COMMUNICATION INTERFACES

- Protection rating IP65, UL Type 4X.
- USB and RJ45 for Ethernet types with data transmission in both directions.
- USB type 3.0 (backward compatible with USB 2.0).

● PLASTIC CONTROL STATIONS

- IP66, IP67, IP69K and UL Type 4X protection degrees.
- Empty pushbutton stations with 1 to 6 way option and complete control stations with various mushroom-head stop buttons
- Quick installation and wiring ease with the relative base-mount contact and LED elements, snap in place on the base
- Installation of screw and spring-clamp terminal contact and LED elements also on the internal cover surface.

7

Pushbutton actuators, spring return

LPC B10…

LPC B20…

LPC B30…

Push-push button actuators

LPC Q10…

LPC Q20…

Order code	Colour	Qty per pkg	Wt
		n°	[kg]
Flush (without mounting adapter). Spring return.			
LPC B102	Black	10	0.025
LPC B103	Green	10	0.025
LPC B104	Red	10	0.025
LPC B105	Yellow	10	0.025
LPC B106	Blue	10	0.025
LPC B108	White	10	0.025
Extended (without mounting adapter). Spring return.			
LPC B202	Black	10	0.027
LPC B203	Green	10	0.027
LPC B204	Red	10	0.027
LPC B205	Yellow	1	0.027
LPC B206	Blue	1	0.027
LPC B208	White	1	0.027
Shrouded (without mounting adapter). Spring return.			
LPC B302	Black	10	0.027
LPC B303	Green	10	0.027
LPC B304	Red	10	0.027
LPC B305	Yellow	1	0.027
LPC B306	Blue	1	0.027
LPC B308	White	1	0.027

Order code	Colour	Qty per pkg	Wt
		n°	[kg]
Flush (without mounting adapter). Push on-push off.			
LPC Q102❶	Black	10	0.025
LPC Q103❶	Green	10	0.025
LPC Q104❶	Red	10	0.025
LPC Q105❶	Yellow	1	0.025
LPC Q106❶	Blue	1	0.025
LPC Q108❶	White	1	0.025
Extended (without mounting adapter). Push on-push off.			
LPC Q202❶	Black	10	0.027
LPC Q203❶	Green	10	0.027
LPC Q204❶	Red	10	0.027
LPC Q205❶	Yellow	1	0.027
LPC Q206❶	Blue	1	0.027
LPC Q208❶	White	1	0.027

❶ **Use contact elements LPX C10A (EM) and LPXC01 (NC) only.**
Contact elements LPX C10 (NO) and LPX C01D (LB) cannot be fitted on these actuators.
For the number of contacts that can be fitted, see the indication here to the side.

Operational characteristics
– Any mounting position allowed
– Ambient conditions:
  • Operating temperature: -25...+70°C
  • Storage temperature: -40...+85°C
– Degree of protection:
  • Per IEC/EN: IP66, IP67 and IP69K
  • Per UL/CSA: Type 1, 2, 3R, 4, 4X, 12, 12K.

Materials
Polyamide.

Mechanical endurance
Operating force: <0.5kg/1.1lb (actuator).
Mechanical life:
– Spring return actuators: 5,000,000 cycles
– Push-push actuators: 500,000 cycles.

Mounting adapter
See page 7-20.
Type: LPX AU120.
Actuators are installed through a Ø22mm/Ø0.87" drilling with a threaded fixing ring (Tmax = 2.3Nm/1.69lbft) also on the cover of LPZ control stations.
The mounting adapter directly snaps onto the actuator.

Contact elements for spring-return button actuators
See page 7-20, 7-23 or 7-24.

Type	Termination

Front-mount types snap onto LPX AU120 mounting adapter (to purchase separately).
Up to 9 contacts can be fitted: 3 each on the left, middle and right, one behind the other.
They can also be fitted internally on the cover surface of LPZ control stations, up to 3 elements per actuator.

	Type	Termination
1NO	LPX C10	Screw
	LPX CF10	Faston
	LPXCS10	Spring clamp
1EM	LPX C10A	Screw
1NC	LPX C01	Screw
	LPX CF01	Faston
	LPX CS01	Spring clamp
1LB	LPX C01D	Screw

Base mount types snap into LPZ control station base.
See example on page 7-27.

Up to 3 contacts can be fitted per control station actuator.

	Type	Termination
1NO	LPX CB10	Screw
1NC	LPX CB01	Screw

Contact elements for push-push button actuators
See page 7-20.
Type: LPX C10A (1EM)
         LPX C01 (1NC)
Contacts snap onto the adapter and also internally on the cover surface of LPZ control stations.
Up to 6 contacts can be fitted: 2 each on the left, middle and right, one behind of the other; up to 3 elements per control station actuator.

All these actuators are standard supplied with action plug for middle contacts.

Certifications and compliance
Certifications obtained: UL Listed for USA and Canada, (cULus - File E93601), as Auxiliary Devices; EAC, CCC, RINA.
Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-5-1, UL508, CSA C22.2 n° 14.