

Product Focus: Control and Signaling Devices

What are Control and Signaling Devices?

Control and signaling devices (also known as pilot devices) refer to components such as pushbuttons, indicator lights, selector switches and visual and/or audible signaling devices. These are commonly used for automated processes and systems to control and monitor conditions for all types of equipment, processes and machinery.

Pilot devices also provide crucial control and indication to provide a safe work area for workers and to protect equipment. From emergency pushbuttons used to completely disable a machine, system or process in the event of an emergency, to indicators that provide local or remote indication of hazards, warnings or unsafe conditions, these devices play an important role in industrial automation.

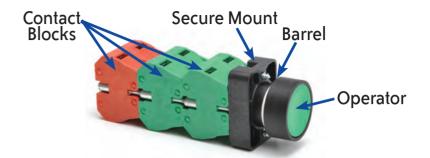


Pushbuttons

A pushbutton is a mechanical device designed to activate an electrical circuit when operated. Pushbuttons are available with various mechanical and electrical configurations.

Today's pushbuttons offer a range of sizes, configurations, and designs that are sure to fill the specific needs of your application. Specifications that might be considered when selecting a pushbutton include:

- **Barrel Size:** This is the pushbutton's barrel diameter that determines the operator size and mounting through-hole dimension. Larger diameter devices are more easily seen and operated, while smaller devices fit in tighter spaces and offer higher density.
- Action: The action is the method the pushbutton uses to activate the electrical circuit. Action type examples incude momentary, maintained, push-pull, twist to release, key operated, and combinations of these.
- Contact Type: Refers to the type of contact(s) installed in the pushbutton's assembly, which can be normally open, normally closed, or a combination of both.
- **Operator Color:** Pushbutton operators are available in many static or iluminated colors to allow color coding for different functions.
- Operator Size: Pushbutton operators are available in various sizes, including oversized operators that are more visible and provide more surface to push.
- Voltage Ratings: Pushbuttons are designed to accommodate common AC or DC voltages to suit specific needs.
- Agency Approvals: Pushbuttons are designed to withstand a range of environments, from a general-purpose device to units that offer special ratings, such as IP69K-rated pushbuttons designed to be totally sealed and withstand harsh cleaning conditions to serve food, pharmaceutical and medical industries.



Flush



Low profile (flush with mounting ring) actuator reduces risk of accidental activation.

Extended



Exposed (extended) actuator offers more accessible push action.

Two Way



Offers two color coded actuators. Each actuator clearly performs a single specific function.

Illuminated



Illuminated actuators light up when the pushbutton has been activated.

Mushroom



Oversized head allows quick and sure activation with a hard-to-miss actuator.

Capacitive



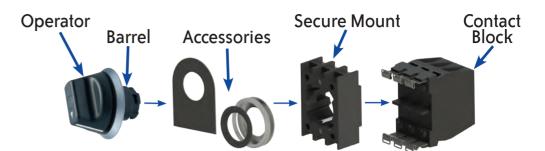
Electronic (no mechanical parts) pushbuttons that detect capacitance change for activation.

Switches

The purpose of a switch is similar to that of a pushbutton. A switch is normally a mechanical device designed to activate or deactivate an electrical circuit when operated. Most switches are designed with knobs, levers or as a joystick to perform simple multi-position actions.

Specifications that might be considered when selecting switches include:

- **Barrel Size:** This is the switch's barrel diameter that determines the operator size and mounting through-hole dimension. Larger diameter devices are more easily seen and operated, while smaller devices fit in tighter spaces and offer higher density.
- Action: The action is the method the switch uses to activate the electrical circuits. Action type examples include momentary (spring return), two (or more) position maintained, key operated, and combinations of these.
- **Contact Type:** Refers to the type of contact(s) installed in the switch assembly, which can be normally open, normally closed, or a combination of both.
- Operator Color: Switch operators may be available in illuminated colors to allow color coding for different functions.
- Operator Type: Switch operators are available in various shapes and styles to suit the application, such as knobs, levers and joysticks.
- Voltage Ratings: Switches are designed to accommodate common AC or DC voltages to suit specific needs.
- **Agency Approvals:** Switches are designed to withstand a range of environments, from a general-purpose device to units that offer special ratings, such as IP69K-rated pushbuttons designed to be totally sealed and withstand harsh cleaning conditions to serve food, pharmaceutical and medical industries.



Knob



Knob actuators provide easy grip to turn the knob as needed to make selections

Long Lever



Similar to knob actuator but has a longer arm that makes it easier to operate.

Keyed



Similar to knob actuator but requires a key to unlock the switch and allow actuation

Foot



Designed to house a pedal actuator that operates the circuit when the pedal is stepped on.

Joystick



Joystick actuator is ideal when the control action may be more easily understood by physical position of the joystick.

IP69K



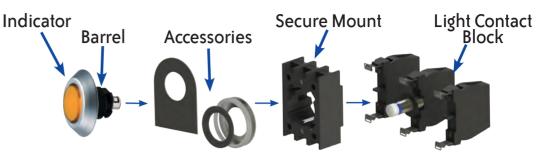
Switches designed for food processing, medical, pharmaceutical, and harsh conditions.

Indicator Lights

Indicator lights are illuminated devices available in a variety of colors that are used in industrial, warehouse and many other applications to indicate system status or alarm conditions.

Specifications that might be considered when selecting indicators include:

- **Barrel Size:** This is the indicator's barrel diameter that determines the operator size and mounting through-hole dimension. Larger diameter devices are more easily seen, while smaller devices fit in tighter spaces and offer higher density.
- Indicator Technology: Indicators are available with incandescent or LED lamps. Incandescent is the traditional bulb with filament used for indication. LED lamps may be preferred because they provide brighter illumination, lower heat, lower consumption and longer life. However, LED lamps cost more than incandescent bulbs.
- Lens Style and Color: Indicators are available in many colors, allowing different conditions to be identified by the color. Indicator lens styles include dome shape, flat, smooth transparent lens, or frosted diffuser lens that provides even lighting.
- Voltage Ratings: Indicator lights are designed to accommodate common AC or DC voltages to suit specific needs.
- Agency Approvals: Indicator lights are designed to withstand a range of environments, from a general-purpose device to units that offer special ratings, such as IP69K-rated pushbuttons designed to be totally sealed and withstand harsh cleaning conditions to serve food, pharmaceutical and medical industries.



Incandescent



Incandescent bulbs are the traditional filament bulbs used for indicators.

LED



LED lamps provide brighter illumination, low heat during operation, lower power consumption, and have longer life. However, they do cost more than incandescent bulbs.

Push to Test



Available for incandescent bulbs or LED lamps, this style allows users to push the lens to force light activation to confirm/test proper light operation.

IP69K



Typically use LED lamps and are specifically designed for applications requiring sanitary conditions such as food processing, pharmaceutical, and medical applications.



Visual Signaling Beacons

Visual signaling beacons provide illuminated status indication for machines, systems and processes. Modern designs and the latest LED technology provide exceptionally clear and bright signalling.

Specifications that might be considered when selecting a visual signaling device include:

- **Diameter:** The diameter of the beacon typically refers to the diameter size of the body, which is also the diameter of the lens. Body diameter is a matter of preference and visibility needs. For some models, the diameter of the mount is specified for the through-hole size required.
- Indicator Technology: The most common light technologies used for beacons include the traditional incandescent or halogen filament bulbs.
 Other options include LED or xenon lamps, which provide brighter illumination with lower power consumption and longer life.
- Lens Color: Beacon lenses are available in many colors, allowing different conditions to be identified by the color.
- **Light Function:** Beacon lights are available with a range of light functions that provide additional condition indication. For example, a permanent lit red beacon can indicate a condition that needs attention. However, a blinking red beacon can indicate a serious condition requiring immediate action. Functions available include permanent, blinking, flashing, and rotating modes.
- Body Material: Most beacons are constructed of materials such as ABS, polyamide and aluminum. The main consideration for body material depends on the environmental conditions where the beacon will be used.
- Voltage Ratings: Beacons are designed to accommodate common AC or DC voltages to suit specific needs.







Base Mount



Can be mounted on any surface and secured with screws from below.

Pole Mount



Can be mounted directly on a pole of the same size as the base.

Bracket Mount



Can be mounted on the side of machines, walls, enclosures, and practically anywhere needed.

Panel Mount



Can be mounted directly on a panel or enclosure. The mounting opening must be the correct diameter of the beacon mount to ensure proper mounting and maintain seal integrity.

Stacklights

Stacklights (aka signal towers) offer modular stackable components that provide illuminated and audible status indication for machines, systems and processes that can be seen and heard from a distance.

Specifications that might be considered when selecting a stacklight include:

- **Diameter:** Stacklights are available in a wide range of diameters, referring to the size of all the components, including base and light modules. Diameter preference usually depends on the desired visibility distance of the stacklight and its location.
- Indicator Technology: Stacklights are offered with a variety of light type choices, including traditional incandescent filament bulbs, or LED or xenon lamps, which provide brighter illumination with lower power consumption and longer life.
- **Lens Colors:** Stacklight elements are available in many colors, allowing the user to create their preferred stack arrangement; preassembled units offer typical industrial arrangements.
- **Light Function:** Stacklights are available with a range of light functions that provide additional condition indication. Examples of these functions include permanent, blinking, or flashing modes.
- **Tiers:** Pre-assembled stacklights are available in various tier levels of lights and colors; modular stacklights allow you to build a stacklight with your preferred tier levels.
- Body Material: Most stacklights are constructed of materials such as ABS, AES, polycarbonate and aluminum. The main consideration for body material depends on environmental conditions where the stacklight is located.
- **Voltage Ratings:** Stacklights are designed to accommodate common AC or DC voltages to suit specific needs.









Pre-assembled



Pre-configured light arrays for typical industrial indication applications in various tier levels, diameter sizes, and light color combinations.

Manual



Includes a control module where operator can turn elements ON or OFF as needed.

Signal Column



Fixed multi-element light array in silver or transparent bodies with selectable blinking or permanent lights, and various alarm options.

Modular



Individual components in various diameter sizes, color and light function combinations can be chosen to best serve your needs.

IP69K



Designed for applications such as food processing, medical, pharmaceutical, and harsh conditions.

Signal/Horn



Large dimensions provides clear and easy-to-see visual indication and includes audible signaling.



Audible Signal Devices

Audible signal devices provide notification for machines, systems and/or process alarms and are useful where visual indications are insufficient or impractical.

Specifications that might be considered when selecting an audible signaling device include:

- Decibel Levels: Audible signaling devices are available in various decibel levels. Common decibel levels range between 80db to 108db; selection typically depends on current sound levels where the device will be installed. A noisy environment will require a higher decibel level.
- Mount Types: Various mounting types are available, including panel, bracket and surface mounting.
- Tone Types: Audible signaling devices are available with different tone types to best serve the application. The most common tone types include continuous, Intermittent, multi-tonal, pulse, or a combination of these.



Hazardous Control Stations

Hazardous location control stations are designed to contain and extinguish explosions, and prevent the igniting of external hazardous atmospheres by the enclosed arcing device. In sealed or unsealed enclosures, they offer a variety of pushbutton, pilot light and switch configurations.

Specifications that might be considered when selecting a hazardous control station include:

- **Configuration:** Typical configurations include single pilot light, single pushbutton, single selector switch, two pilot lights, two pushbuttons, or a combination of these.
- Action: The action is the method the pushbutton or switch uses to activate the electrical circuit. Action type examples incude momentary, push-pull, twist to release, key operated, and combinations of these.
- Legend Plate: The legend plate provides quick reference about the purpose of the control station. Various pre-engraved legend plates are available with text such as; 1 - OFF - 2, AUTO - HAND, AUTO - OFF - HAND, CLOSE, DOWN, EMERGENCY STOP, RESET, and many more.
- **Color:** Pushbuttons, selector switches and indicators are available in many colors to allow color coding for different functions.









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Programmable Controllers

- ProductivityOpen Arduino-compatible industrial controller
- Productivity1000® micro-modular PLCs
- Productivity2000® micro-modular PLCs
- Productivity3000® modular PLCs
- Do-more® BRX®, H2 and T1H series PLCs
- CLICK® micro brick PLCs
- Numerous I/O expansion modules available including discrete, analog, temperature and high-speed (depending on model)
- DirectLOGIC® components still available for maintaining legacy systems.

CPU and I/O Comparison	AutomationDirect	AutomationDirect Do-more! (BRX)	AutomationDirect Productivity2000	VS. Allen-Bradley CompactLogix
Base (if required)	N/A	N/A	\$81.00	N/A
	NA	N/A	P2-048	N/A
Power Supply	\$41.50	N/A	\$79.00	\$531.00
	co-drac	N/A	P2-01AC	1769-PA4
СРИ	\$145.00	\$489.00	\$273.00	\$9,140.00
	CO-10ARE-D (Ethernet built in)	BX-DM1E-96ER3 (Ethernet built in)	P2-550 (Ethernet built in)	1768-L45 (Serial port only)
16 AC Inputs	\$42.00	\$60.00	\$113.00	\$325.00
	C0-08NA (8-point AC Input)*	BX-16NA	P2-16NA	1769-IA16
16 24VDC Inputs	\$47.00	\$0.00	\$74.00	\$283.00
	CO-16ND3	Included with CPU	P2-16NE3	1769-1016
8 Relay Outputs	\$42.50	\$0.00	\$54.00	\$327.00
	CO-08TR	Included with CPU	P2-08TRS	1769-0W8I
8 Analog Input	\$95.00 x 2	\$188.00	\$222.00	\$913.00
Channels (mA)		BX-08AD-1	P2-08AD-1	1769-IF8
Total System Price	\$447.00	\$590.00	\$896.00	\$11,519.00













Field I/O

Distributed I/O with Modbus® TCP, EtherNet/ IP, Modbus RTU, and DeviceNET support



HMI/Operator Interface

- C-more® operator interface HMI touch panels in various sizes up to 15 inches with wide screen options available
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- DURAPULSE® variable frequency AC drives up to 300hp
- WEG CFW100 and CFW300 AC drives up to 5hp
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- · Cost-effective GS2 series VFDs up to 10hp
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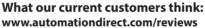
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- · Free motion control software (download)
- · Free C-more and C-more Micro HMI programming software (download)
- Free AC drive configuration and programming (built-in PLC) software (download)



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- · Timer relays, counters and tachometers

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- Magnetic coded safety switches
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- Trapped key interlocks
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Michael in TAMPA, FL wrote:

"I have been purchasing electronic parts for over 10 years and the products and service I have received from Automation Direct have never disappointed me. I will continue to purchase from here, keep up the good work! I wish other vendors I have were as good as you."

Mike in EDMONTON, AB wrote:

"I'm an OEM and just started using the products. So far so good. Delivery was quick to Canada as well."

Dennis in BERLIN, CT wrote:

"Great company. Second to none. Excellent prices. When I first started to use AD prox switches I was warned that anything that low a price won't last. That was 20 years ago. Since then two failures out 120 switches. This is a machine that runs 50 hours a week. I recommend their products to anybody. Pneumatic fittings are a bargain as well."



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*SureServo Pro software is FREE when downloaded and is also available for \$9.00 on a CD

Complete 1-axis 100W System

\$978.50

\$2,682.17

All prices are U.S. list prices, Automation Direct prices as of 4/17/2020.

The Allen-Bradley 100W system consists of part numbers shown in table above with prices from www.wernerelectric.com. www.todaycomponents.com 4/17/2020.

Joseph in FAIRLAND, IN wrote:

"Great web site. Everything is easy to find. I like the fact that you place PDF and information next to the product I am researching. This is very helpful in understanding all the details necessary to determine if the item I am looking at will work in my project. Large selection of Automation devices, quality products at affordable prices. I am a maintenance technician and purchase items for my home test bench to work out problems at home, as well as buying product for work projects."





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- Liquid level sensors
- Flow sensors
- Ultrasonic sensors
- Fork sensors





Pushbuttons, **Switches and Lights**

- KILLARK® hazardous location control stations
- IDEM emergency stops
- Fuii®, Schmersal and Eaton metal/ plastic 22 and 30mm pilot devices
- IP69K-rated selector switches, pilot devices and pushbuttons from Schmersal
- Hazardous Location Control Stations
- Capacitive Pushbutton Switches
- · WERMA audible devices and visual signals
- WERMA and Patlite stacklights
- IP69K-rated Patlite stacklights
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Pneumatics



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Price/Part Number

\$222.00 N1C242408I P

\$290.00

\$396.00

\$780.00

\$377.00

SSN4202006

N412362408C

\$1,966.00

Hubbell/Wiegmann VS.

 Socomec Manual Transfer Switches

Hoffman

Price/Part Number

\$2,934.66

\$1,563.50

\$367.22

\$500.20

\$646.60

\$634.40

C-SD36248

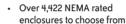
A-24N24BI P



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