

CPS Series

Cable Pull Safety Switch



FEATURES

- Direct opening action \rightarrow of NC (normally closed) contacts
- 2CPS: 2NO/2NC, 1NO/3NC or 4NC contact configurations
1CPS: 1NO/1NC, 2NO/2NC, 1NO/3NC or 4NC contact configurations
- Typical cable span of 76 m (250 ft) in an environment with a temperature change of $\pm 17^\circ\text{C}$ ($\pm 30^\circ\text{F}$). Longer spans are possible depending upon temperature change and installation (ref. note on page 6 for more details or Application note - Effect of Temperature on Cable Pull Switch Operation)
- Choice of three actuator configurations (2CPS)
- Removable contact block version available (2CPS)
- Large wiring cavity with straight-through wiring
- 24 Vdc or 120 Vac bright, multicluster LED status indicator light available on 2CPS. Single high intensity LED on 1CPS
- Gold-plated contacts are standard on 2CPS, available on 1CPS
- Die-cast zinc housing
- Optional hardware packs available

TYPICAL APPLICATIONS

- Long conveyor systems found in warehouses and distribution centers
- Conveyor systems having a high amount of vibration
- Conveyor systems that experience wide temperature swings
- Long conveyor systems where easy through wiring, or highly visible trip status is required
- Hose down conditions
- Packaging equipment
- Assembly lines



BG
(Applied for)



CPS Series Cable Pull Safety Switches provide a readily accessible emergency stop signal. This is a cost-effective means compared to using multiple emergency stop push-buttons. (Cable Pull Safety Switches are not, however, to be used as a means of personnel safeguarding. They may be used to prevent further injury or damage to equipment when used for emergency stop signaling.)

The CPS Series Cable Pull Safety switch is designed to provide emergency stop protection for exposed conveyor and assembly lines. The internal mechanism latches on both slackened cable (push) and pulled cable. This capability also enhances productivity by eliminating nuisance stops due to variations in temperature, stretch of cable over time, and other application variables.

The 1CPS is intended for use in applications where the cable span is 76 m (250 ft) or shorter. It is an economical solution for shorter runs or zone protection typical to automated systems. The 2CPS series is intended for use in very long cable runs of 152 m (500 ft) or shorter, such as long conveyor lines found in warehouses.

A line in the midpoint of the cable tension window indicates proper cable tension, providing easy set-up. The direct opening switch contacts are held closed when the actuating cable is under proper tension and the reset knob is set to RUN. When the actuating cable is pulled, slackened or broken, a cam positively opens the NC (Normally Closed) switch contacts. The snap action, trip operation causes the switch contacts to change state and mechanically latch almost simultaneously when the cable is pulled, slackened or broken. The NC switch contacts remain open until the CPS is reset by properly tensioning the cable and manually rotating the reset knob.

When the direct opening switch contacts open, the auxiliary contacts also actuate (open contacts close and closed contacts open). The auxiliary contacts are electrically isolated from the direct opening switch contacts. These NO (Normally Open) contacts may be used for monitoring or signaling.

The CPS complies with: Low Voltage Directive 73/23/EEC, as amended by directive 93/68/EEC; Machinery Directive 98/37/EEC only as the directives relate to the components being used in a safety function; IEC/EN 60947-1; IEC/EN 60947-5-1; IEC/EN 60947-5-5.

▲ WARNING

MISUSE OF DOCUMENTATION

- The information presented in this product sheet (or catalogue) is for reference only. DO NOT USE this document as system installation information.
- Complete installation, operation and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

1CPS

Cable Pull Safety Switch

Technical Data

Mechanical life 1 000 000 operations

Degree of protection IP 67
NEMA 1, 4, 12, 13

Temperature range *Operating:*
-25 °C to +80 °C /
-13 °F to +176 °F
without condensation

Approvals IEC/EN 60947-1
IEC/EN 60947-5-1
IEC/EN 60947-5-5
AC15 A300
DC13 Q300
UL & CSA
BG Applied for

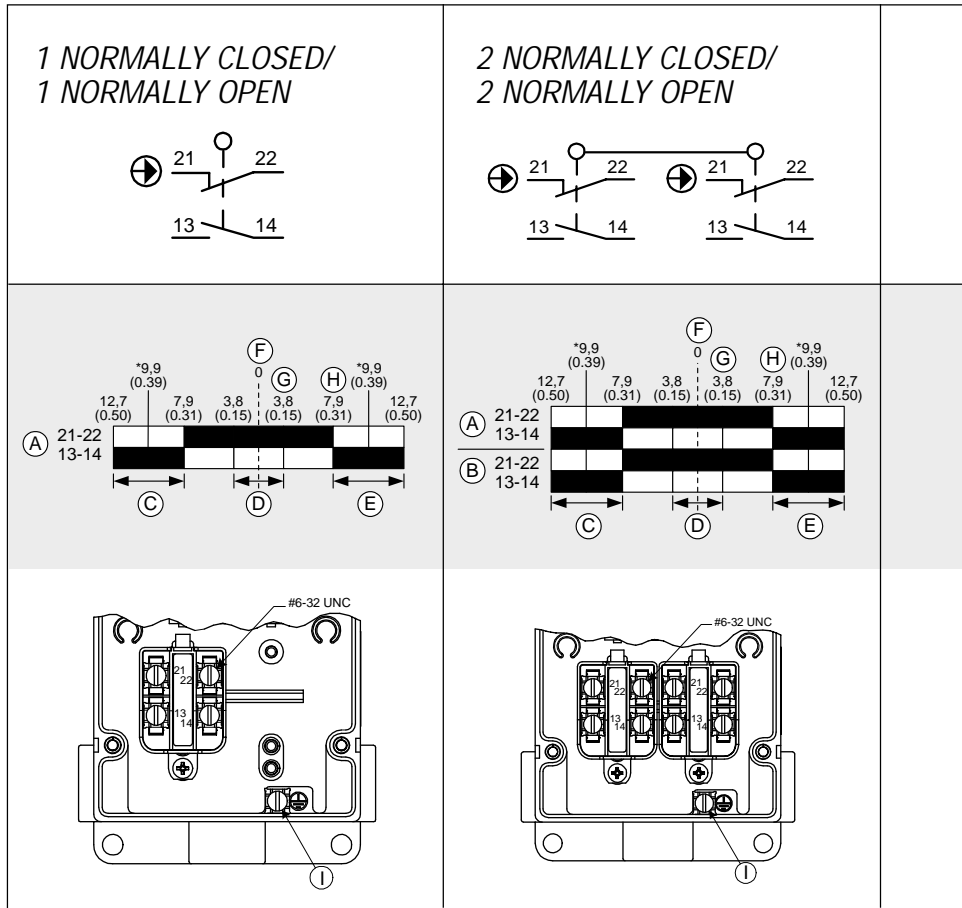
Vibration 10 Hz - 500 Hz, 5 g

Shock 15 g

Contact material Silver standard
Gold plated optional

Included accessories None

CPS



- A Left switch
- B Right switch
- C Slackened cable
- D Proper cable tension
- E Pulled cable
- F Cable tension = 111 N (25 lb)
- G Cable tension = 133 N (30 lb)
- H Cable tension = 178 N (40 lb)
- I Ground screw
- Contact closed
- Contact open

Conduit Thread

A = 1/2" NPT

C = 20 mm

Ordering:

1CPS

X

Example: 1CPSA1A

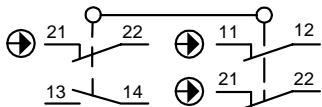
▲ Gold-plated contacts

1
5▲

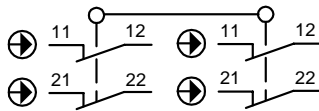
2
6▲

X

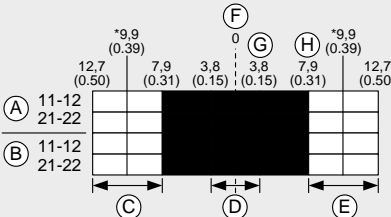
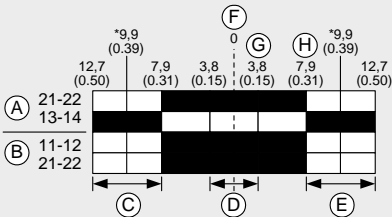
3 NORMALLY CLOSED/
1 NORMALLY OPEN



4 NORMALLY CLOSED

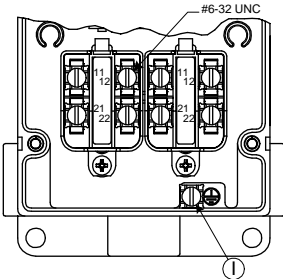
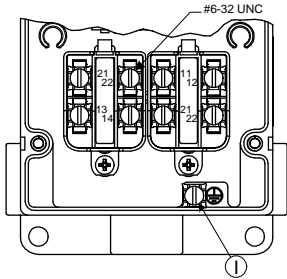


Indicator-Pilot Light Code



A : 24 V LED

A



B : 120 V LED

B

CPS

3
7[▲]

4
8[▲]

X

2CPS

Cable Pull Safety Switch

Technical Data

Mechanical life 1 000 000 operations

Degree of protection IP 67
NEMA 1, 4, 12, 13

Temperature range *Operating:*
-40 °C to +80 °C /
-40 °F to +176 °F
without condensation

Approvals IEC/EN 60947-1
IEC/EN 60947-5-1
IEC/EN 60947-5-5
AC15 A300
DC13 Q300
UL & CSA
BG

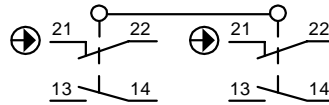
Vibration 10 Hz - 500 Hz, 5 g

Shock 15 g

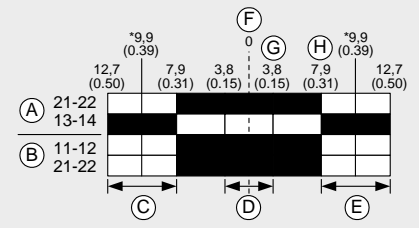
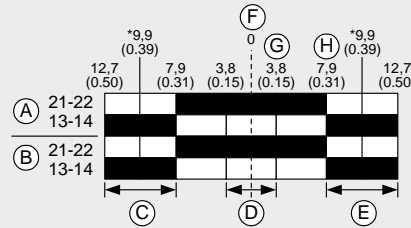
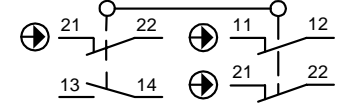
Contact material Gold plate
over silver

Included accessories Turnbuckle(s)

2 NORMALLY CLOSED/
2 NORMALLY OPEN



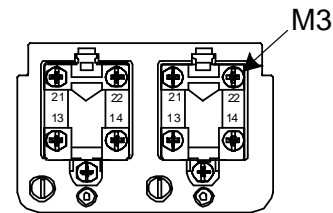
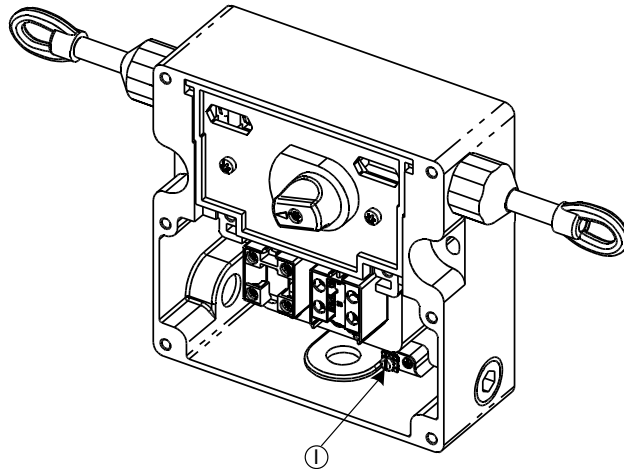
3 NORMALLY CLOSED/
1 NORMALLY OPEN



- A Left switch
 - B Right switch
 - C Slackened cable
 - D Proper cable tension
 - E Pulled cable
 - F Cable tension = 111 N (25 lb)
 - G Cable tension = 133 N (30 lb)
 - H Cable tension = 178 N (40 lb)
 - I Ground screw
- Contact closed
 Contact open

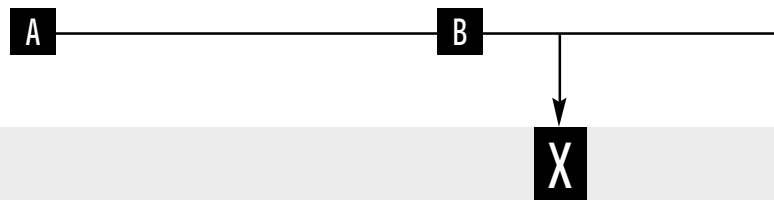
CPS

Contact blocks mounted to housing



Conduit Thread
 1/2" NPT = **A**
 20 mm = **C**

Contact block mounting
1 = to housing
2 = removable with heavy duty terminals



Ordering:

2CPS

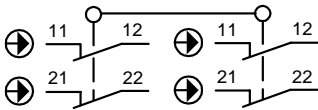
X

X

X

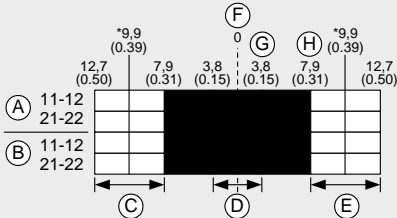
Example: 2CPSA1A2B

4 *NORMALLY CLOSED*



Actuation Code

Indicator Light Code



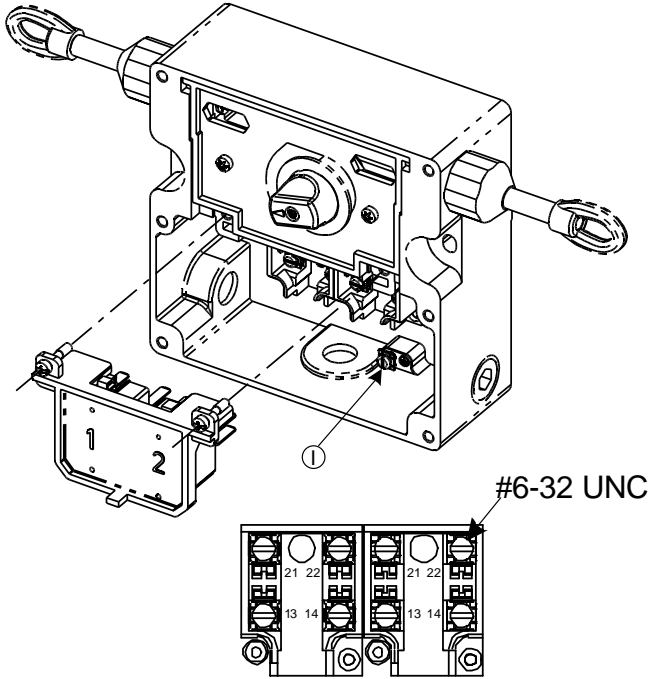
- 1: Maintained both sides
- 2: Maintained left side, no actuation right side
- 3: Maintained right side, no actuation left side

1
2
3

- No letter: no indicator provided
- A: 24 Vdc red multi-cluster LED
- B: 120 Vac red multi-cluster LED

A
B

Removable contact blocks with heavy duty wiring receptacles



D

X

X

CPS

Temperature-Span Distance Application Information

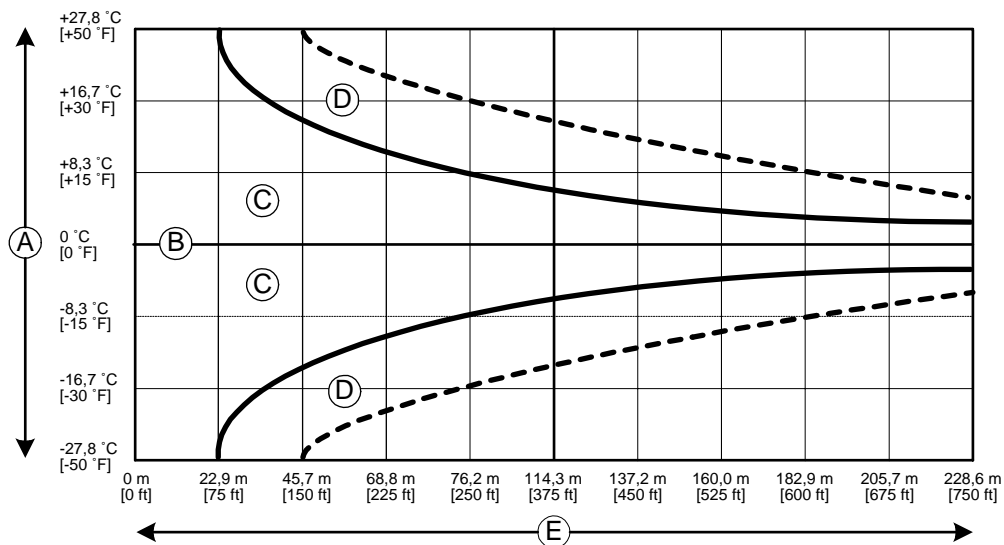
Cable Pull Switches featuring broken cable detection require pre-tensioning in order to enable the RUN condition.

The relative expansion or contraction of the steel actuating cable when the ambient temperature increases or decreases must be taken into account when pre-tensioning a cable pull switch.

The change in cable length with change in temperature can cause significant nuisance shut downs on longer runs.

Install the system when the temperature is at the mid point of the extremes. If a warehouse has a low temperature of 15,6 °C (60 °F) and a high of 32,2 °C (90 °F), set up the system at the midpoint 23,9 °C (75 °F).

Use an endspring or another CPS at the opposite end of the cable span to double the temperature tolerance and to meet the requirements of EN 418.

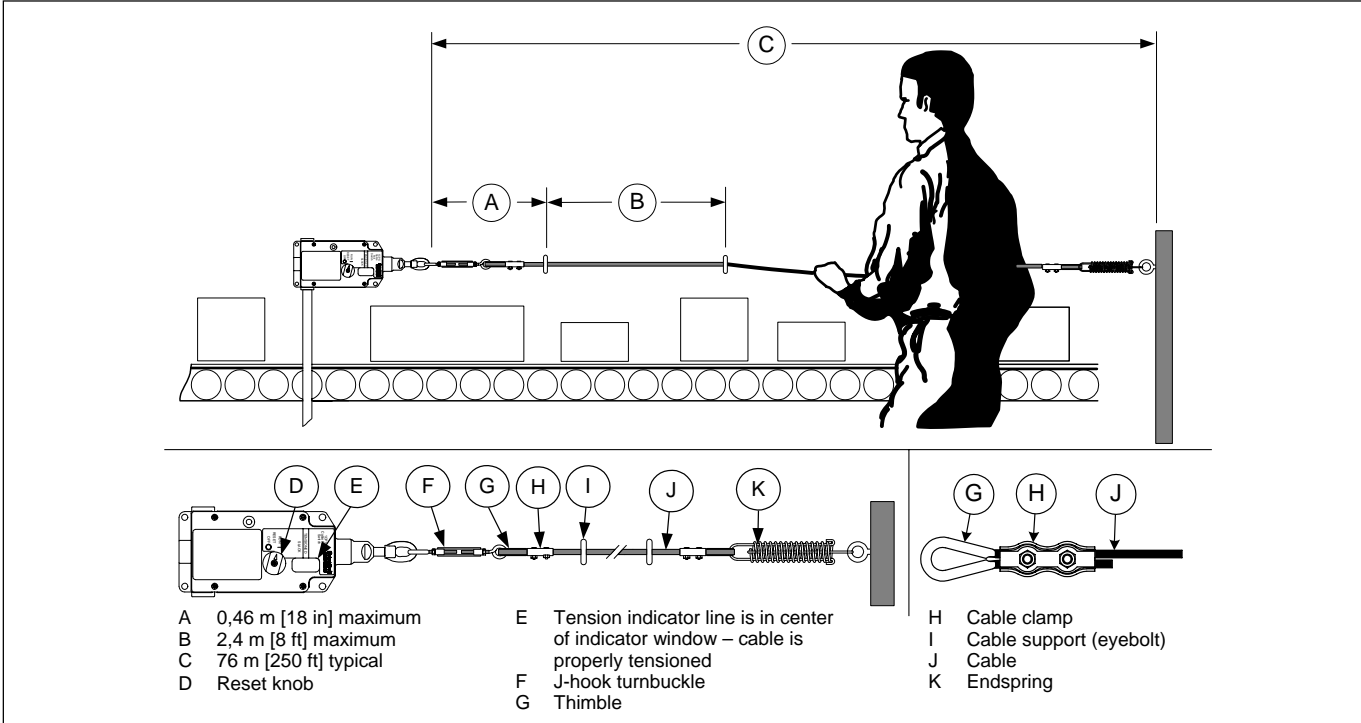


- A = Total temperature variation
- B = Setup point - Ideally at middle of temperature extremes
- C = Cable Pull Switch usable temperature span without endspring or second CPS
- D = Cable Pull Switch usable temperature span with endspring or second CPS
- E = Cable span distance

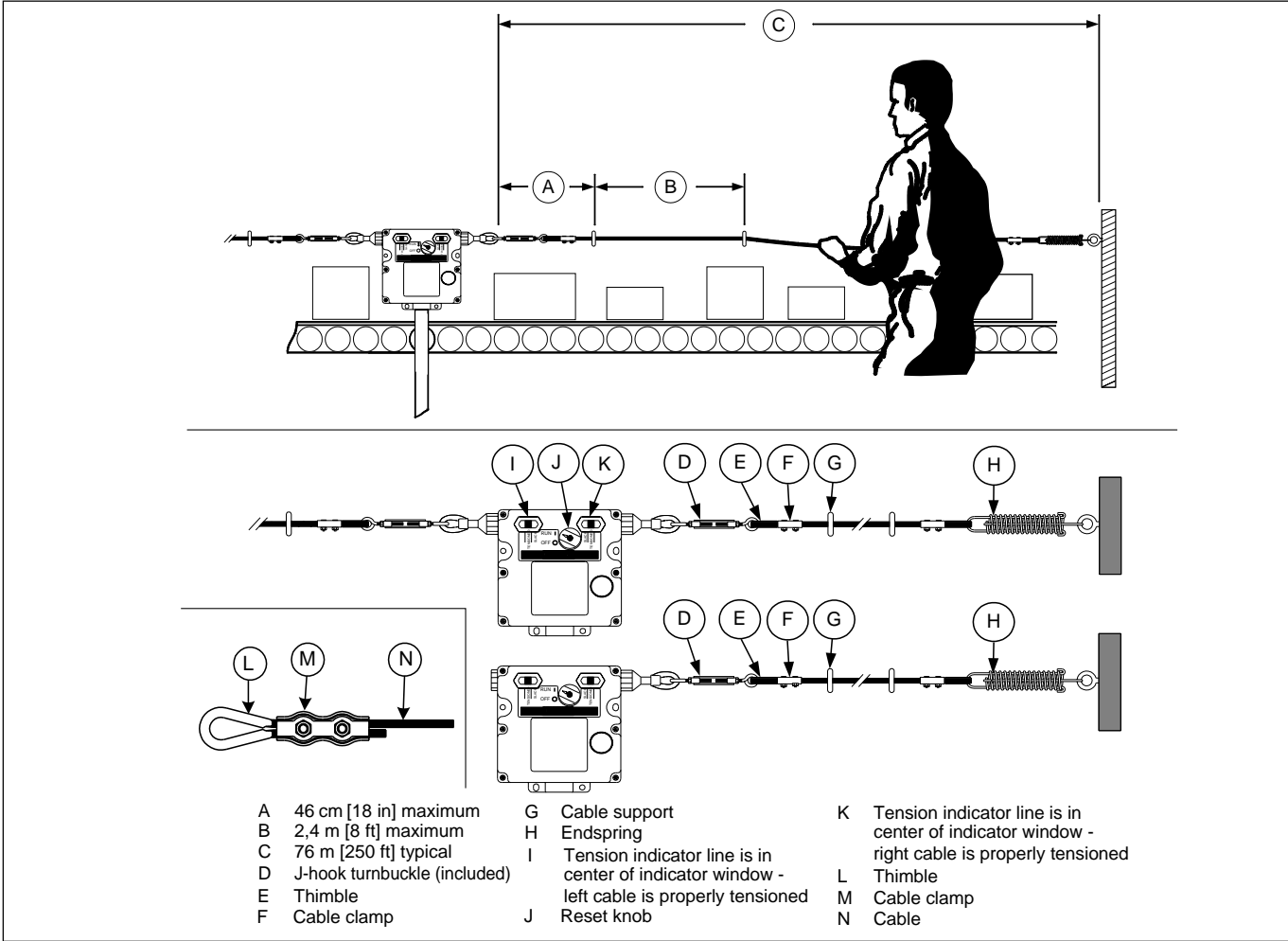
CPS

Application information

1CPS



2CPS



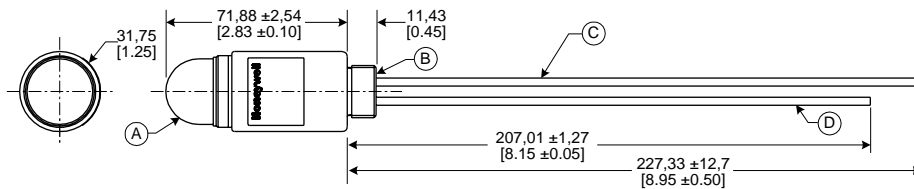
CPS

Hardware packets (available separately)

| Listing | Accessory |
|-------------|---|
| CLSZC1 | Cable - 7,6 m (25 ft) length |
| CLSZC2 | Cable - 15,2 m (50 ft) length |
| CLSZC3 | Cable - 30,5 m (100 ft) length |
| CLSZC4 | Cable - 45,7 m (150 ft) length |
| CLSZC5 | Cable - 61 m (200 ft) length |
| CLSZC7 | Cable - 76,2 m (250 ft) length |
| CLSZTC | (2) Thimbles (2) Low-profile Duplex Cable Clamps |
| CPSZ1S | (1) Draw-bar Endspring |
| CPSZK1 | (1) J-hook Turnbuckle with Lock Nuts (2) Thimbles (2) Low-profile Duplex Cable Clamps (16) Sets of Cable Supports ((16) 1/4-20 Eye Bolts, (32) 1/4-20 Nuts, (32) Flat Washers, (16) Lock Washers) |
| CPSLED24 | Multicluster LED Accessory - 24 Vdc (conduit mount) |
| CPSLED120 | Multicluster LED Accessory - 120 Vdc (conduit mount) |
| CPS-BRACKET | Mounting bracket (to be used with 1CPS or 2CPS) |
| CPSZTB | J-hook turnbuckle with lock nuts (included with 2CPS) |

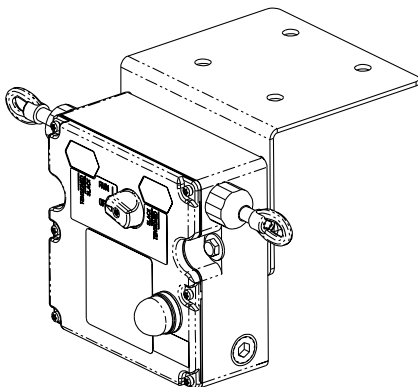
CPS

CPSLED



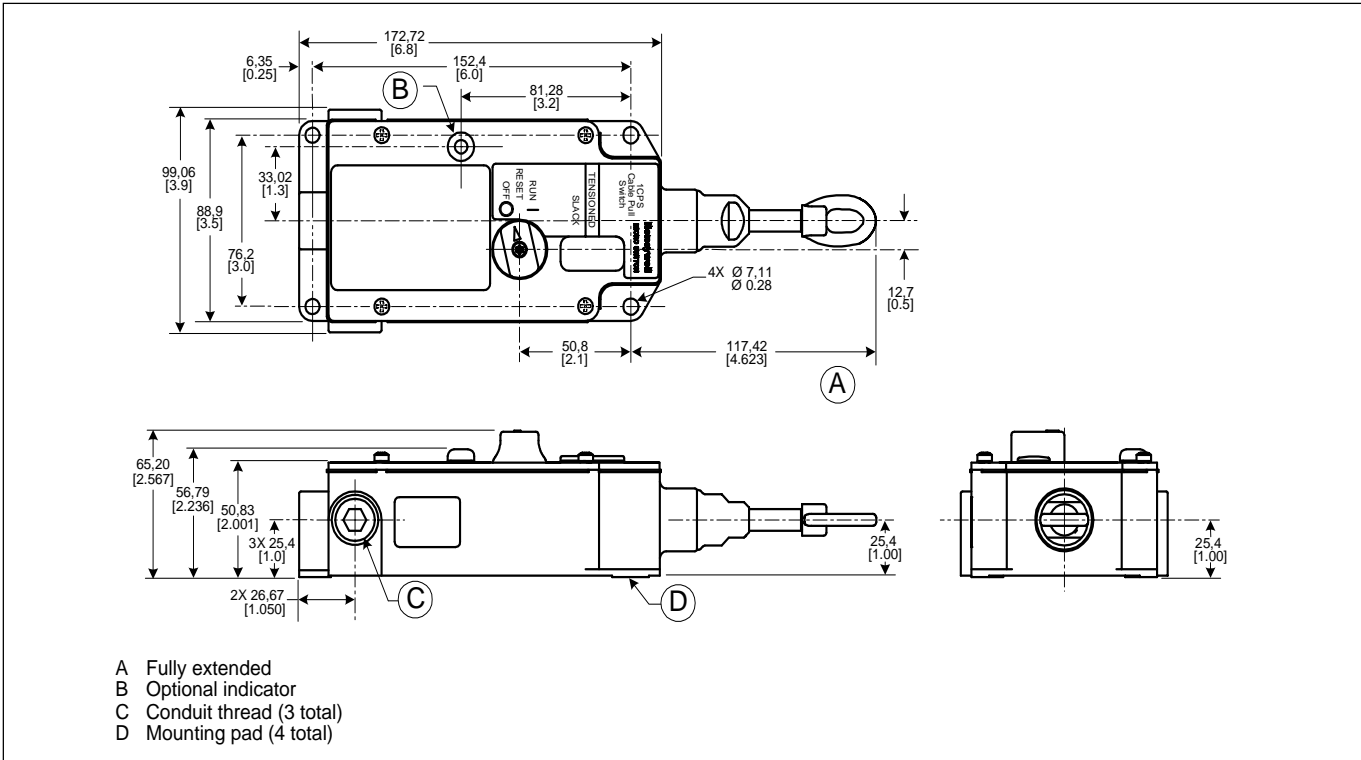
- A Multi-LED red pilot light
- B 1/2-14 NPOm Thread
- C 18 AWG red PVC insulation
- D 18 AWG black PVC insulation

CPS-BRACKET

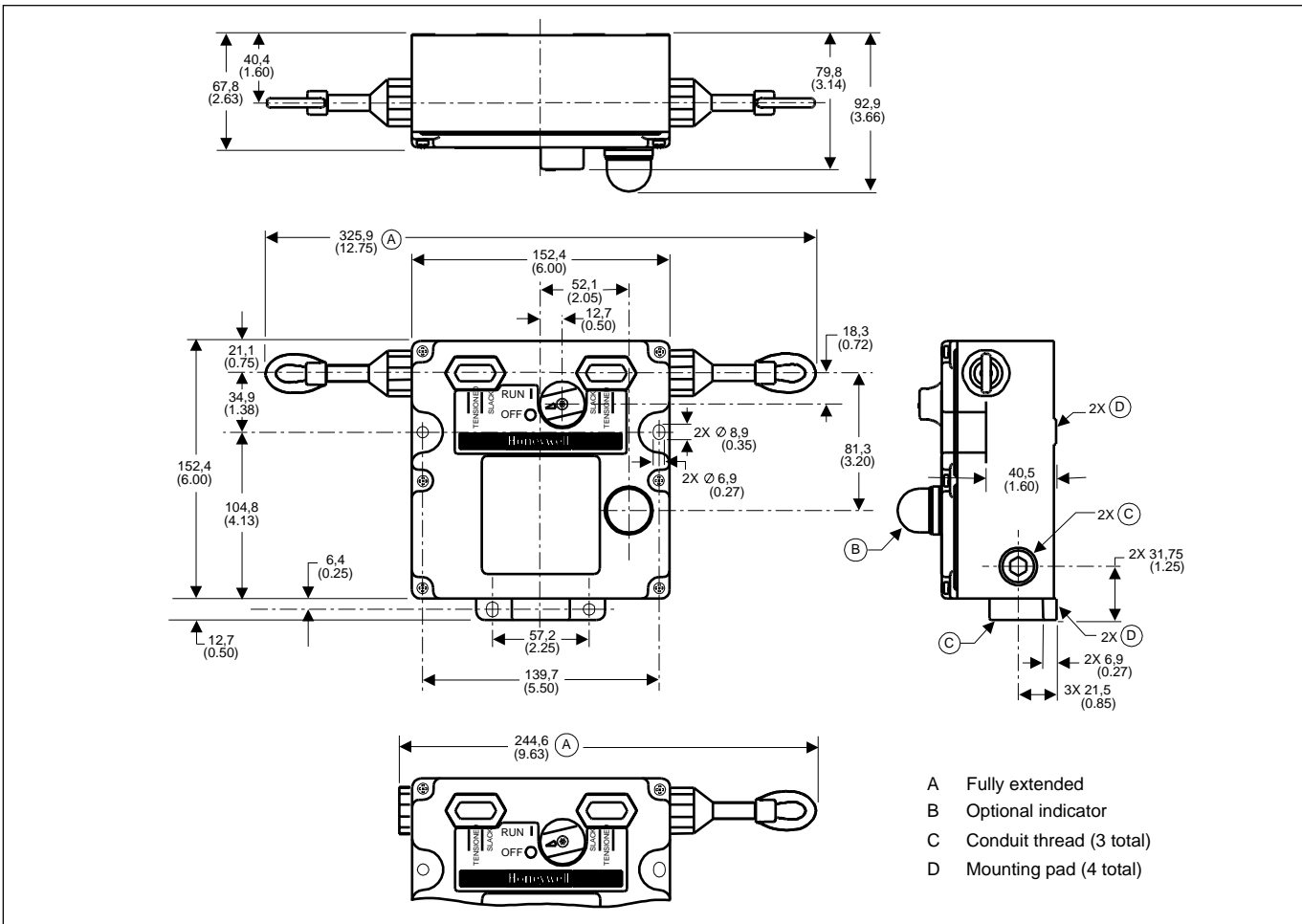


Mounting dimensions (mm/in)

1CPS



2CPS



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