

CRANE[®]

Energy Flow Solutions

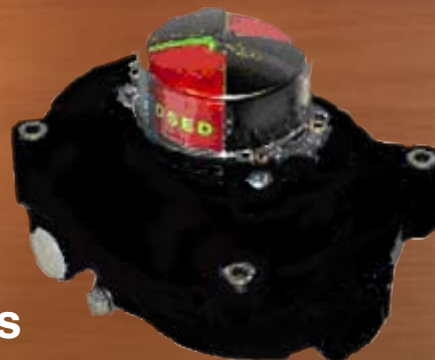
CRANE Limit Switches



CCR Series



CCA Series



CXA Series

CRANE[®]

CCR Series - Economical General Purpose



The CCR Series Limit Switch provides a compact design and the most economical solution for both visual and remote electrical indication of rotary valve/actuator position. Integral NAMUR mounting legs provide additional cost savings by eliminating the need for a separate mounting bracket. The CCR Series Limit Switch is designed for use in NEMA 4x weather proof applications and also intrinsically safe applications.

Materials of Construction:

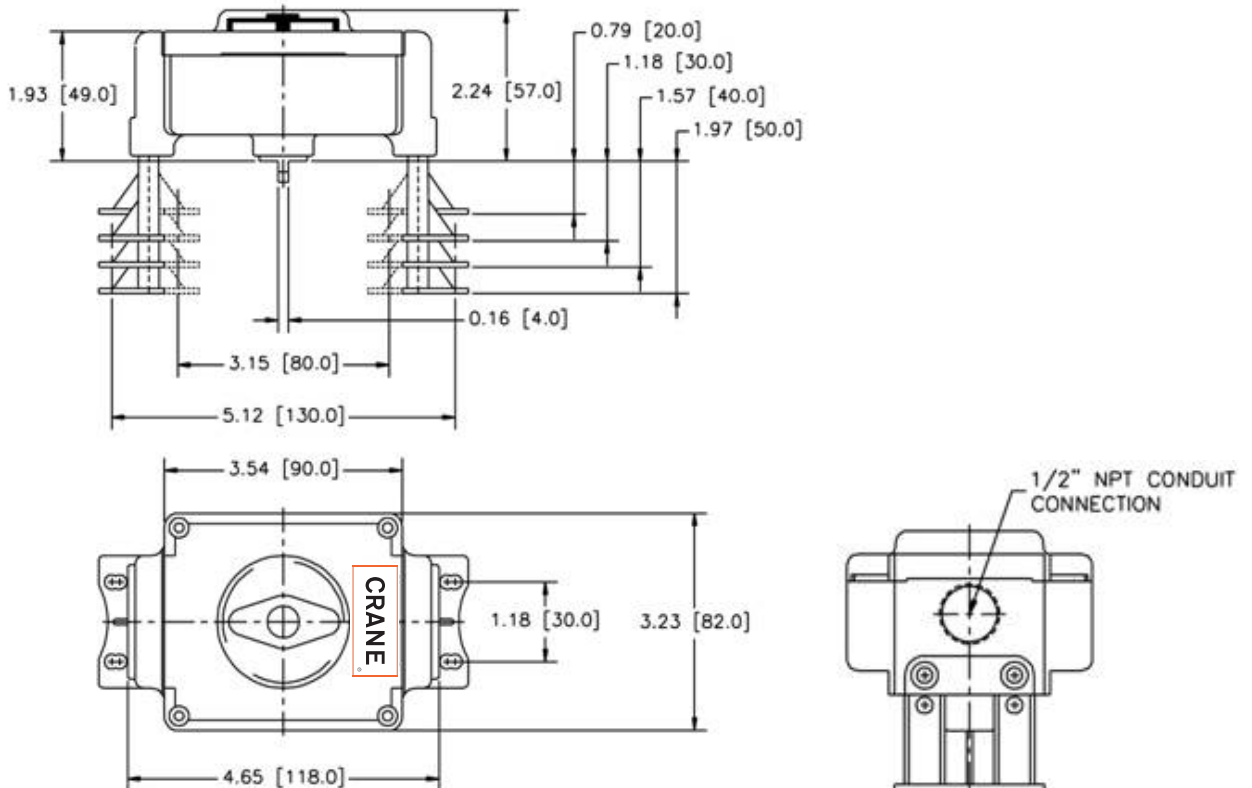
DESCRIPTION	MATERIAL
Housing	Reinforced Noryl
NAMUR Mounting Legs	Reinforced Noryl
Shaft	Stainless Steel
Cam / Splines	UV Resistant Polycarbonate
Housing Cover	UV Resistant Polycarbonate
Terminal Block	Stainless Steel screws & PVC housing
Internal Brackets	Polycarbonate
Fasteners	Stainless Steel
Temperature Range	+14°F to +176°F (-10°C to +80°C)
Weight	0.5 lbs.
Approvals	IP65 waterproof

CCR Series

Features:

- Engineered resin housing
- 3D position indicator
- Designed for use in NEMA 4, 4x environments
- General purpose and intrinsically safe options
- Mechanical or inductive switches

Dimensional Specifications inches [mm]:



How To Order CCR Series:

CCR Series: (Example on page 2 CCR-01-1-H)

SWITCH TYPE

- 01 – Mechanical SPDT
- 03 – Mechanical SPDT (gold plated contacts)
- 70 – Proximity V3 P&F NJ2-V3-N
- 71 – Proximity V3 P&F NBB2-V3-US
- 73 – Proximity V3 P&F NBB2-V3-E2

RATING (see note)

- 5 amp @ 250VAC, 0.5amp @ 24VDC, resistive/inductive
- 0.1 amp @ 120VAC, resistive
- 2-wire, NAMUR Output, 15mA max, not amplified
- 2-wire, 5 to 200mA, 20 to 140 volts (AC or DC)
- 3-wire, PNP, 5 to 100mA @ 30VDC, Amplified

SWITCH QUANTITY

- 1 – One Switch
- 2 – Two Switch

TERMINAL STRIP

- H – Standard Circuit Board Strip (6 Poles)

Note: The recommended minimum load for switch type 01, is 50mA. All other switch types are suitable for applications as low as 1mA.

CCA Series - Conventional with Multiple Options



The CCA Series Limit Switch provides a compact design and low cost for both visual and remote electrical indication of rotary valve/actuator position. The wide variety of options make the CCA Series the ideal multi-purpose Limit Switch for use in NEMA 4X general purpose applications. Hermetically sealed and solid state switch options also make the CCA series suitable for use in intrinsically safe applications and Class I & II Division 2 Groups A, B, C, D, F & G hazardous applications.

Materials of Construction:

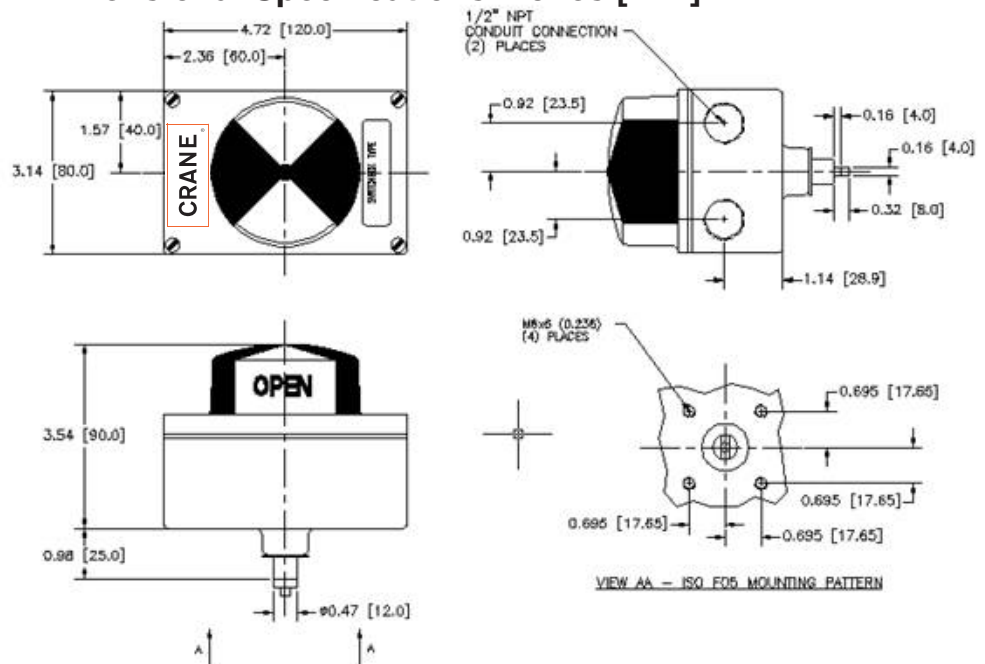
DESCRIPTION	MATERIAL
Housing	Aluminum – Polyester Coated or Stainless Steel
Cover	Polycarbonate, Aluminum or Stainless Steel
Shaft	Stainless Steel
Cam / Splines	UV Resistant Polycarbonate
3D Rotor	UV Resistant Polycarbonate
Terminal Block	Stainless Steel screws & PVC housing
Internal Brackets	Stainless Steel
Fasteners	Stainless Steel
Temperature Range	-40°F to +176°F (-40°C to +80°C) -14°F to +212°F (-26°C to +100°C) for P&F switches only. Low and High temperature versions also available
Weight	1.25 lbs.
Enclosure Approvals	UL and CUL, NEMA 4,4X also CENELEC IP65
Switch Approvals	Mechanical Switches: are suitable for general purpose applications. Gold plated versions can also be used on intrinsically safe applications. Proximity Switches: are suitable for intrinsically safe applications and also hazardous locations Class I & II Division 2 Groups A, B, C, D, F & G

CCA Series

Features:

- Epoxy coated aluminum or stainless steel housing
- 3D, Disk or No position indicator
- NEMA 4, 4x, Class I Division 2 & intrinsically safe
- Mechanical, proximity or inductive switches
- World's first wireless option
- Three position dribble control option
- 4 to 20 mA feedback transmitter option
- Actuator Sensor interface option

Dimensional Specifications inches [mm]:



How To Order CCA Series:

CCA Series: (Example on page 4 CCA-B-14-2-1-0-E)

VISUAL POSITION INDICATION

- A – Aluminum cover with no position indicator
- B – Polycarbonate cover with 3D indicator
- C – Aluminum cover with Disk indicator

- F – Metallic cover with 3D indicator
- L – Polycarbonate cover & three-way 3D indicator ('L' Port)
- T – Polycarbonate cover & three-way 3D indicator ('T'Port)

SWITCH TYPE

- 01 – Mechanical SPDT
- 03 – Mechanical SPDT (gold plated contacts)
- 05 – Mechanical DPDT
- 10 – Proximity SPST
- 13 – Proximity SPST, Bifurcated
- 14 – Proximity SPDT (standard)
- 16 – Proximity DPDT
- 70 – Proximity V3 P&F NJ2-V3-N
- 71 – Proximity V3 P&F NBB2-V3-US
- 73 – Proximity V3 P&F NBB2-V3-E2
- 82 – Three-way pneumatic valve
- AS – AS-interface
- DC – Mechanical SPDT

- DD – Mechanical SPDT

- MA – Transmitter plus two Mechanical SPDT switches
- MX – Transmitter only

RATING (see note)

- 5 amp @ 250VAC, 0.5amp @ 24VDC, resistive/inductive
- 0.1 amp @ 120VAC, resistive
- 5 amp @ 250VAC, ¼ HP @ 125VAC, resistive/inductive
- 0.25 amp @ 120VAC, 0.7amp @ 42VAC, resistive
- 1.5 amp @ 120VAC, 0.55amp @ 24VDC, resistive/inductive
- 0.25 amp @ 120VAC, 0.416amp @ 48VDC, resistive
- 0.25 amp @ 120VAC, 0.416amp @ 48VDC, resistive
- 2-wire, NAMUR Output, 15mA max, not amplified
- 2-wire, 5 to 200mA, 20 to 140 volts (AC or DC)
- 3-wire, PNP, 5 to 100mA @ 30VDC, Amplified

- Two inputs plus one 100 mA output
- 3-position control, no position indication, for DA actuator
- Same switch rating as type 01
- Dribble control, no position indication, for SR actuator
- Same switch rating as type 01
- 4-20mA, 9-30 VDC plus switch rated same as type 01
- 4-20mA, 9-30 VDC

SWITCH QUANTITY

- 0 – No Switches (use with 'MX' option)
- 1 – One Switch

- 2 – Two Switches
- 3 – Three Switches (only available with switch types 01 & 03)

TERMINAL STRIP

- 0 – Standard Circuit Board Strip
- 1 – Standard AS-i Terminal Connections

- 2 – Blue Circuit Board Strip (10 poles)
- 5 – 1/8" Pneumatic Connections

COLOR/COATING

- 0 – Black Housing Polyester Powder Coated (Standard)
- S – Stainless Steel

CABLE ENTRY/CONNECTION & OPTIONS

- E – Two ½" NPT
- F – M12 Connector ('AS' option only)

- HA – 5 watt heater (120VAC)
- HD – 5 watt heater (24VDC)

Note: The recommended minimum load for switch type 01, TX and MA is 50mA. All other switch types are suitable for applications as low as 1mA.

CXA Series - Explosion Proof



CXA Series

Features:

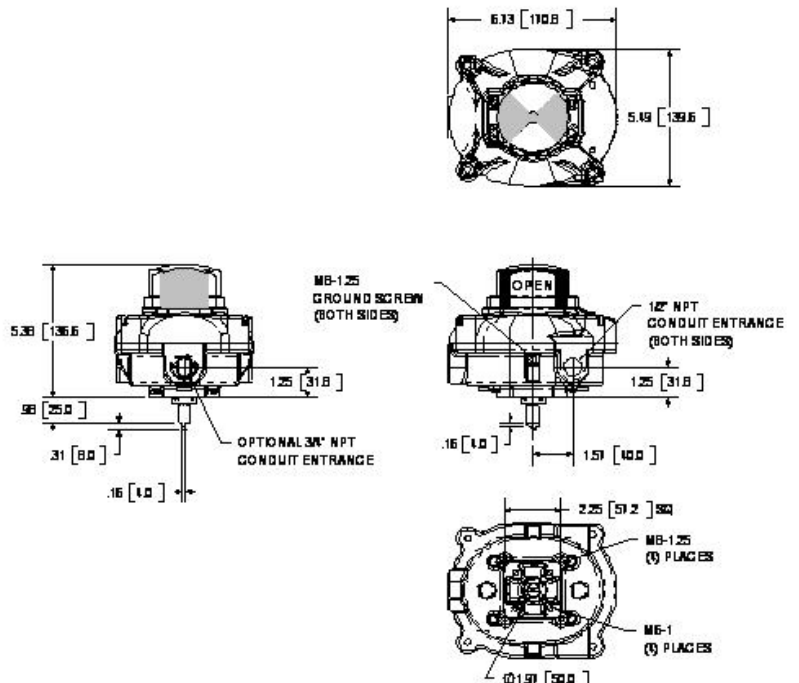
- Epoxy coated aluminum housing
- 3D position indicator
- NEMA 4, 4x, 7 & 9
- Non-incentive and intrinsically safe options
- Mechanical, proximity or inductive switches
- Three position dribble control option
- 4 to 20 mA feedback transmitter option
- Actuator Sensor interface option

The CXA Series hazardous location Limit Switch provides a compact design and low cost for both visual and remote electrical indication of rotary valve/actuator position. The heavy duty design and wide variety of options make the CXA Series the ideal multi-purpose Limit Switch for use in NEMA 4, 4X, 7 & 9 applications.

Materials of Construction:

DESCRIPTION	MATERIAL
Housing	Aluminum – Polyester Powder Coated
Cover	Aluminum – Polyester Powder Coated
Shaft	Stainless Steel
Cam / Splines	Thermo-resistant ABS
3D Rotor	UV Resistant Polycarbonate
Terminal Block	Stainless Steel screws & PVC housing
Internal Brackets	Stainless Steel
Fasteners	Stainless Steel
Temperature Range	-40°F to +176°F (-40°C to +80°C) -14°F to +212°F (-26°C to +100°C) for P&F switches only Low and High temperature versions also available
Weight	3.5 lbs.
Enclosure Approvals	UL and CUL, NEMA 4, 4X, 7 & 9 also CENELEC IP65 & 67
Switch Approvals	Mechanical Switches: are suitable for Class I & II Division 1 Groups C, D, E, F & G. Gold plated versions can also be used on intrinsically safe applications. Proximity Switches: are suitable for intrinsically safe applications and also hazardous locations Class I & II Division 1 Groups C, D, E, F & G Class I & II Division 2 Groups A, B, C, D, F & G

Dimensional Specifications inches [mm]:



How To Order CXA Series:

CXA Series: (Example on page 6 CXA-B-14-2-1-0-G)

VISUAL POSITION INDICATION

- B – 3D
- L – Three-way 3D indicator ('L' Port)
- T – Three-way 3D indicator ('T'Port)
- Z – Three-way 3D indicator ('T'Port, blocked center)

SWITCH TYPE

- 01 – Mechanical SPDT
- 03 – Mechanical SPDT (gold plated contacts)
- 05 – Mechanical DPDT
- 10 – Proximity SPST
- 13 – Proximity SPST, Bifurcated
- 14 – Proximity SPDT (standard)
- 16 – Proximity DPDT
- 70 – Proximity V3 P&F NJ2-V3-N
- 71 – Proximity V3 P&F NBB2-V3-US
- 73 – Proximity V3 P&F NBB2-V3-E2
- AS – AS-interface
- DA – Mechanical Two DPDT plus Two SPDT
- DB – Mechanical Two DPDT plus Two SPDT
- DC – Mechanical SPDT
- DD – Mechanical SPDT
- MA – Transmitter plus two Mechanical SPDT switches
- MX – Transmitter only

RATING (see note)

- 5 amp @ 250VAC, 0.5amp @ 24VDC, resistive/inductive
- 0.1 amp @ 120VAC, resistive
- 5 amp @ 250VAC, ¼ HP @ 125VAC, resistive/inductive
- 0.25 amp @ 120VAC, 0.7amp @ 42VAC, resistive
- 1.5 amp @ 120VAC, 0.55amp @ 24VDC, resistive/inductive
- 0.25 amp @ 120VAC, 0.416amp @ 48VDC, resistive
- 0.25 amp @ 120VAC, 0.416amp @ 48VDC, resistive
- 2-wire, NAMUR Output, 15mA max, not amplified
- 2-wire, 5 to 200mA, 20 to 140 volts (AC or DC)
- 3-wire, PNP, 5 to 100mA @ 30VDC, Amplified
- Two inputs plus one 100mA output
- 3-position control + position feedback, for double acting actuator
Same switch rating as type 01
- 3-position control + position feedback, for spring return actuator
Same switch rating as type 01
- 3-position control, no position indication, for double acting actuator
Same switch rating as type 01
- Dribble control, no position indication, for spring return actuator
Same switch rating as type 01
- 4-20mA, 9-30 VDC plus switch rated same as type 01
- 4-20mA, 9-30 VDC

SWITCH QUANTITY

- 0 – No Switches (use with MX option)
- 1 – One Switch
- 2 – Two Switches
- 3 – Three Switches
- 4 – Four Switches

TERMINAL STRIP

- 0 – Standard Circuit Board Strip (12 poles)
- 1 – Standard AS-i Terminal Connections

COLOR/COATING

- 0 – Black Housing Polyester Powder Coated

CABLE ENTRY/CONNECTION & OPTIONS

- E – Two ½" NPT
- F – M12 Connector ('AS' option only)
- G – Two ½" NPT plus one ¾" NPT
- HA – 5 watt heater (120VAC)
- HD – 5 watt heater (24VDC)

Note: The recommended minimum load for switch type 01 and switch type 05 is 50mA. All other switch types are suitable for applications as low as 1mA.

Limit Switch Options:

All Models:



Mechanical switches offer the most economical choice for general-purpose applications. Available in many contact configurations.



Proximity switches are hermetically sealed to provide maximum environmental protection and extended cycle life. Bifurcated versions can be used effectively on both high and low current applications. Low current versions are available with optional LED.



Inductive proximity switches, Pepperl & Fuchs brand, are available in multiple configurations and are ideal for intrinsically safe applications.

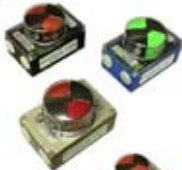
CCA Options:



AS-i (Actuator Sensor interface) option utilizes 2-wire digital communication to simplify wiring plus significantly reduce wiring and commissioning costs.



3-Position and Dribble Control is achieved by utilizing special cams and wiring. Dribble control units can also be provided with optional position feedback switches.



Housings are available in polyester powder coated aluminum or unpainted stainless steel. All housings have two ½" NPT conduit entries.



Housing Cover options include a 3D high profile position indicator with a polycarbonate or aluminum housing cover, a low profile flat disk indicator or a low profile aluminum cover with no position indication.



Feedback Transmitter provides 4-20mA confirmation of valve/actuator position. The transmitter option can be used with or without limit switches.

CXA Options:



AS-i (Actuator Sensor interface) option utilizes 2-wire digital communication to simplify wiring plus significantly reduce wiring and commissioning costs.



3-Position and Dribble Control is achieved by utilizing special cams and wiring. Dribble control units can also be provided with optional position feedback switches.



Feedback Transmitter provides 4-20mA confirmation of valve/actuator position. The transmitter option can be used with or without limit switches.

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