

ACCUTRAK 2200 SERIES - IEC EX CERTIFIED

INSTALLATION AND OPERATING INSTRUCTIONS

Installation and operating instructions for Westlock 2200 series with mechanical switches, inductive proximity sensors or magnum proximity switches



IEC Ex ITS 08.0029X

Ex d IIB+H2 T* Gb Tamb -*°C to +*°C

Ex tb IIIC T*°C Db Tamb -*°C to +*°C IP6X

Flat cover -20°C to +110°C (T4); -20°C to +75°C (T5); -20°C to +60°C (T6)

Beacon cover -30°C to +110°C (T4); -30°C to +75°C (T5); -30°C to +60°C (T6)

Stainless Steel (R2) -60°C to +110°C (T4); -60°C to +75°C (T5); -60°C to +60°C (T6)

Environmental parameters: 80 kPa (0.8 bar) to 110 kPa (1.1 bar).

Air with normal oxygen content, typically 21%.

WARNING

Do not open when energized or when an explosive atmosphere is present.

WARNING

Electrostatic hazard, clean only with damp cloth.

The 2200 certification is compliant against the following standards

IEC 60079-0: 2011 Ed.6 Electrical apparatus for explosive gas atmospheres - Part 0 - General requirements

IEC 60079-1: 2007-04 Ed 6 Electrical apparatus for explosive gas atmospheres - Part 1 - Flameproof enclosures 'd'

IEC 60079-31: 2008 Ed 1 Equipment dust ignition protection by enclosure 't'

1 PRODUCT DESCRIPTION

The 2200 series valve position monitor provides two methods of end of travel indication by the means of mechanical switches, inductive proximity sensors or proximity switches and an external visual indicator.

For applications that require position feed back, ancillary components such as a 4-20 mA current signal transmitter or a resistive signal feed back can be installed. To allow this product to be used with network communication bus protocols, the 2200 series enclosure can house various network modules. The 2200 series enclosure is available in either Aluminium or Stainless Steel and comprises of a two parts, a cover and housing. The cover has three variations, flat cover, standard beacon cover or a high cover to suit different applications. The housing can offer up to four of the following conduit entries: M20 x 1.5p, M25 x 1.5p, 1/2"-14NPT or 3/4"-14 NPT cable entries for connection to an external power source via appropriate IECEx certified cable glands.

Note: before installation of this product, please ensure that the product and its certification is suitable for the intended application. This product uses various O-ring materials and an Eastar Copolyester visual indicator.

If the equipment is likely to come into contact with aggressive substances, then it is the responsibility of the user to take suitable precautions that prevent it from being adversely affected, thus ensuring that the type of protection provided by the equipment is not compromised.

Installation of any cable entry devices, conduit entry devices or blanking devices shall not compromise the degree of ingress protection level IP6X for use in the presence of combustible dusts.

The unit has an ingress protection of IP66/67 and therefore any conduit device fitted must maintain this.

Note: these products have been certified with a cable entry temperature rise of 4°C. Ensure that this is taken into consideration when selecting suitable cabling for the ambient temperature in which the product is to be used.

Note: these products are not intended to be assembled directly to process pipe work etc that is heated or cooled to temperatures outside of the range as indicated above.

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2 MOUNTING INSTRUCTIONS

2.1 Attach the mounting bracket and adaptor (if required) to the AccuTrak housing and shaft with the fasteners provided with the mounting kit.

2.2 To ensure that the 2200 series AccuTrak is mounted correctly, it may be necessary to stroke the actuator to the fully closed position.

WARNING

Before stroking the actuator to the fully closed position, please ensure that the process is safe to do so.

2.3 With the actuator in the correct position, attach the 2200 series AccuTrak / bracket to the actuator using the hardware provided in the mounting kit.

2.4 To release the cover, loosen the cover retaining screws. Twist the cover approx 45° and lift up. See Figure 1.

2.5 To set switches, lift the bottom cam and turn until the switch has activated and then release. The spring will push the cam back onto the splined shaft. See Figure 2.

WARNING

Before stroking the actuator, please ensure that the process is safe to do so and that all hands are kept away from the moving shaft.

2.6 Stroke the actuator to the opposite end of travel. Set the top cam by pushing down and turning the cam until the switch is activated.

WARNING

Before stroking the actuator, please ensure that the process is safe to do so and that all hands are kept away from the moving shaft.

2.7 Stroke the actuator from one end of stroke to the other several times to check the switch operation. If the switches require adjustment, repeat steps 2.5 to 2.7.

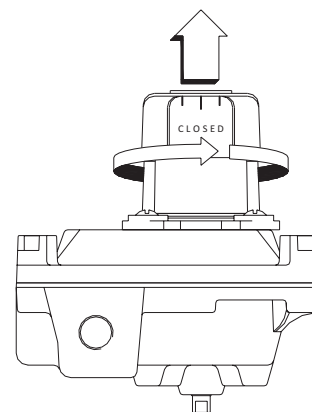


FIGURE 1

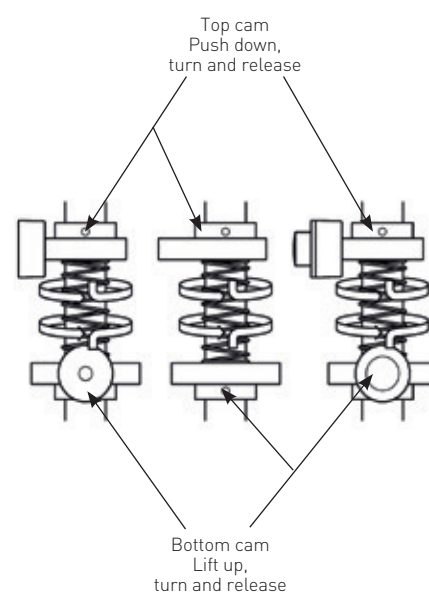


FIGURE 2

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3 FIELD WIRING AND INSTALLATION

WARNING

The 2200 series should always be handled with care when the cover is removed and wired to an electrical power source.

Note

Before electrical installation, please read and follow the wiring diagram located inside the cover. The electrical ratings can be found on the product I.D label.

- 3.1** Field wiring must be carried out in accordance with site, local and national electrical codes / requirements. This includes special attention to earth bond the metal enclosure using the internal and external earth points provided.
- 3.2** Installation of this product shall be carried out by competent personnel in accordance with the applicable code of practice such as EN 60079-14.
- 3.3** The 2200 position monitor housing can offer up to four of the following conduit entries:
M20 x 1.5p, M25 x 1.5p, 1/2"-14 NPT or 3/4"-14 NPT. These entries are detailed on the product I.D label found on the product cover.
Please see Figure 3 for conduit positions.
- 3.4** The certification applies to equipment without cable glands. When mounting the flameproof enclosure in the hazardous area, only suitably rated IP66/67 IEC Ex certified flameproof glands must be used.
- 3.5** All unused cable entries must be plugged with a suitably rated IP66/67 IEC Ex certified blanking devices.

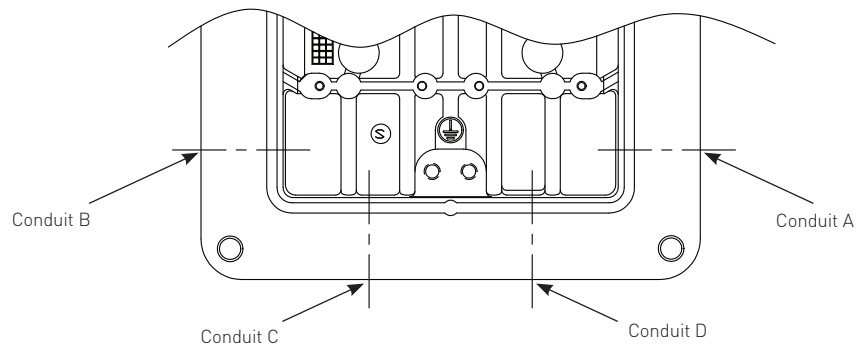


FIGURE 3

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3.6 The first two digits of the Westlock nomenclature signifies the series with the third digit defining whether the product has a visual beacon or not.

The table below details the applicable ambient ranges:

Series code	Covertype	T Class	Ambient range
224**	Beacon	T6 / T80°C	-30°C to +60°C
224**	Beacon	T5 / T95°C	-30°C to +75°C
224**	Beacon	T4 / T130°C	-30°C to +110°C
226**	Flat	T6 / T80°C	-20°C to +60°C
226**	Flat	T5 / T95°C	-20°C to +75°C
226**	Flat	T4 / T130°C	-20°C to +110°C

Note: the minimum certified ambient temperature for the stainless steel enclosure is -60°C regardless of the cover variant.

3.7 The fourth digit designates the switch / sensor type. The following table details the most common switch / sensor types together with their electrical ratings.

Series code / switch designation	Electrical rating
22*3*	Go switch: 4 A - 120 VAC; 3 A - 24 VDC, 0.5 A - 125 VDC
22*5*	Mechanical (SPDT): 15 A - 125 or 250 VAC; 6 A - 24 VDC
22*6*	Mechanical (DPDT): 10 A - 125 or 250 VAC, 10 A - 28 VDC, 0.2 A - 125 VDC
22*7*	Inductive proximity sensors
22*9*	Magnum ratings: 3 A /120 VAC, 1.5 A /240 VAC or 2 A /24 VDC

Note: the series code signifies the maximum electrical rating of the product, suitable overloading protection must be provided to prevent these values being exceeded.

3.8 The fifth digit indicates the material of the enclosure, either A (aluminium) or S (stainless steel).

3.9 The 2200 series valve position monitor has the option for position feedback by the means of a resistive signal (RS) or current signal (CS).
The RS Transmitter electrical ratings are – 1K Ohms (standard) or 5K Ohms (optional).
The CS Transmitter electrical ratings are – current loop 4-20 mA at 18 to 24 VDC.

3.10 The 2200 series valve position monitor has the ability to connect to bus networks via Netpak modules. With the Netpak options it may be possible to assemble other switches within the enclosure (depending on enclosure cover variation).

3.10.1 Netpak electrical parameters

Netpak option	Electrical parameters
AS-I Actuator sensor interface	24 VDC, 140 mA MAX
Device net	24 VDC, 105 mA MAX
Modbus	24 VDC, 85 mA MAX
Profibus	24 VDC, 120 mA MAX
Foundation fieldbus	9-32 VDC, 34 mA MAX

3.11 Before replacing the enclosure cover, ensure that both of the housing and cover flange surfaces are clean and undamaged. Tighten the cover screws hand tight using a standard 6 mm A/F Allen key ensuring there are no gaps.

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4 PRODUCT REPAIR AND SERVICE

- 4.1** Inspection of this product shall be carried out by suitably trained personnel in accordance with the applicable code of practice such as EN 60079-17.
- 4.2** In the event of any repairs that may be required such tasks must be carried out by suitably trained / competent personnel in accordance with the applicable code of practice such as EN 60079-19.
- 4.3** The certification of this product has been approved based on the materials of construction as per the drawings listed in the schedule within the certificate. Any replacement parts that are not made in accordance to the listed drawing will invalidate the approval / certification.
- 4.4** Replacement parts must be purchased through Westlock Controls or via an approved Westlock Controls distributor.

These installation and operating instructions are based on document TECHUK-42 Rev 2 ECN#12787 used for IEC Ex certification of the AccuTrak 2200 series

Translations

Where translated the copy is taken from the original English document VCIOM-04121-EN as checked by the relevant notified certification body and therefore the English document will prevail. No rights or liability can be derived from any translation.