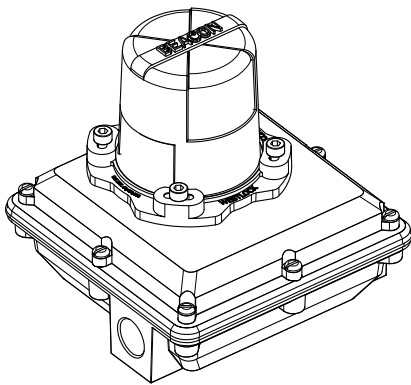


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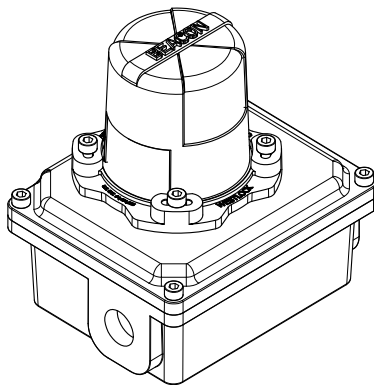
INSTALLATION AND OPERATING INSTRUCTIONS

Installation and operating instructions for Westlock 3000 series with mechanical switches, inductive proximity sensors or Magnum proximity switches

AccuTrak 3000 Series - resin



AccuTrak 3000 Series - metallic



IEC Ex SIR 05.0049X
Exia II* T* Ga
Exia IIIC T120°C Da IP6X
Tamb -*°C to +*°C

SIRA 05 ATEX 2242X
II 1 G Ex ia II* T* G*
II 1 D Ex ia IIIC T120°C Da IP6X

* variables based on construction and internal components.

Ta = -20°C to +40°C (plastic enclosure)

Ta = -40°C to +60°C (metal enclosure, subject to limitations of installed devices)

1 PRODUCT DESCRIPTION

The equipment may be used in a CAT 1, 2 or 3 environment (internal component dependant) in the presence of flammable gases / vapours and dusts. The apparatus groups cover IIA, IIB and IIC (internal component dependant) with temperature classes of T1 through to T4 or either T5 or T6 internal component dependant. The maximum ambient temperature range is -40 to +60°C (dependant on enclosure material and internal components).

The 3000 series valve position monitor provides end of travel indication by the means of either electrical switch or inductive sensors mounted within the enclosure. These are activated by cams mounted on the rotary shaft.

The 3000 series enclosure construction comprises of a shaft passing through the enclosure base and cover (when fitted with visual beacon). The two part enclosure has an integral gasket seal. The shaft has up to two 'O'ring seals in both the cover and housing bearings. This product is available in three materials, Zytel resin, aluminum or stainless steel 316.

The housing has the option of up to three cable entries (dependant on enclosure material) for connection to an external power source via appropriate ATEX and IEC Ex certified cable glands; M20 x 1.5p, M25 x 1.5p, 1/2"-14 NPT, 3/4"-14 NPT, Pg13.5 or any other suitable thread that can maintain IP6X ingress rating.

Note: Before installation of this product, please ensure that the product and its certification are suitable for the intended application.

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.



Warning

Electrostatic hazard, clean only with damp cloth.

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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 AccuTrak is mounted correctly, it may be necessary to stroke the actuator to the fully closed position.



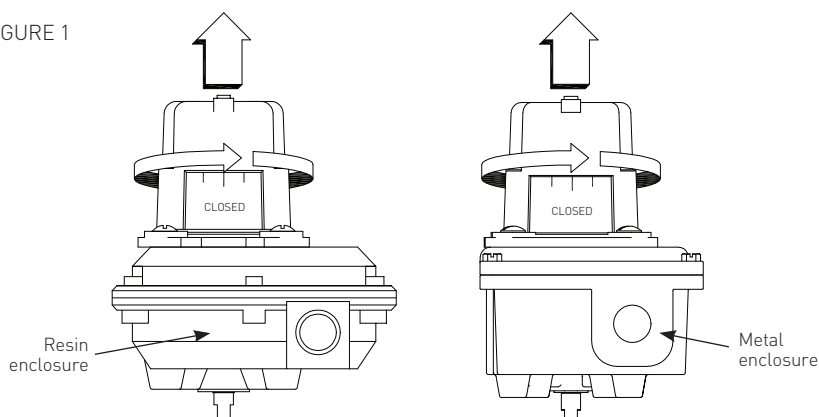
Warning

Before stroking the actuator to the fully closed position in any step of this mounting process, please ensure that the process is safe to do so and that all hands are kept away from the moving shaft.

2.3 With the actuator in the correct position, attach the 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.

FIGURE 1

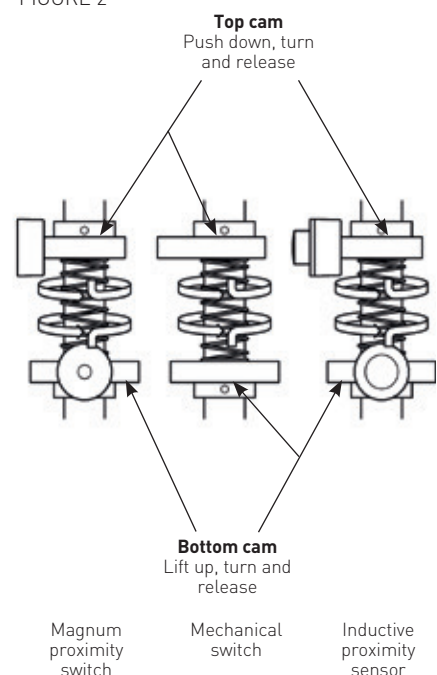


2.5 To set switches, lift the bottom cam and turn until the switch has activated and then release. The spring will push the cam back onto the splined shaft. See Figure 2.

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. See Figure 2.

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 2



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3 FIELD WIRING AND INSTALLATION



Warning

The 3000 series should always be handled with care when the cover is removed.



NOTE

Before electrical installation, please read and follow the wiring diagram located inside the cover. The electrical ratings can be found on the product identification 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 to the aluminum or stainless steel enclosures 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 or IEC 60079-14.

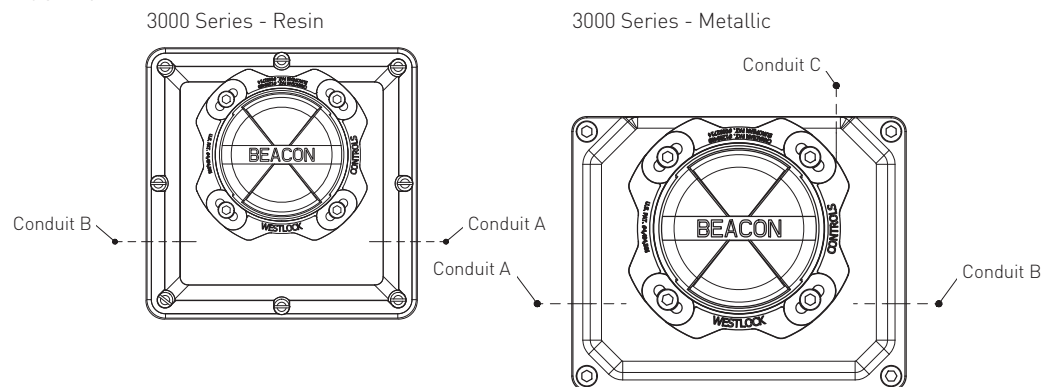
3.3 The 3000 Series resin housing can offer up to two conduit entries whereas the 3000 metallic can offer up to three entries of the following thread sizes: M20 x 1.5p, M25 x 1.5p, 1/2" - 14 NPT, 3/4" - 14 NPT. Other thread types/sizes are possible providing they can achieve the IP rating of the enclosure. The entries are detailed on the product identification label found on the product cover. Please see below the designated conduit location (Figure 3).

3.4 The certification applies to equipment without cable glands. When mounting the enclosure in the hazardous area, only suitably rated IP66/67 or 68 ATEX and IEC Ex certified glands must be used.

3.5 All unused cable entries must be plugged with a suitably rated IP66/67 or 68 ATEX and IEC Ex certified blanking devices.

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 fourth digit identifies the switch / sensor type. The fifth digit details the enclosure material: R = Resin, A = Aluminum, S = Stainless steel.

FIGURE 3



The table below details the applicable ambient ranges. Please note that the resin enclosure limits the lower ambient temperature, as per Note 1, when the switch ambient is equal or higher.

Equipment	Tamb (Ta) range	
Inductive Proximity Sensor (IFM) Type: NS5002 (PTB 01ATEX2191) (IECEx BVS 06.0003)	ATEX	(T6) -20°C to +55°C
	(1G)	(T5) -20°C to +60°C
	IEC	-20°C to +60°C -25°C to +60°C
Inductive Proximity Sensor (TURK): Sensors Type Group A (KEMA 02ATEX1090X) (IECEx KEM 06.0036X)	-40°C to + *°C (* See certificate ≤ +60°C)	
Cylindrical Inductive Sensors (P+F) Types NC and NJ (PTB 00ATEX2048X) (IECEx PTB 11.0037X)	-40°C to + *°C (* See certificate ≤ +60°C)	
Cuboidal Inductive Sensors (P+F) Types NJ and NC (PTB 00ATEX2032X) (IECEx PTB 11.0021X)	-40°C to + *°C (* See certificate ≤ +60°C)	
SN-Sensors (Pepperl + Fuchs) Types NJ (PTB 00ATEX2049X) (IECEx PTB 11.0092X)	(T1 - T6) -40°C to +60°C	
MAGNUM XT90 Proximity Switch	(T1 - T6) -40°C to +60°C	
V3 Micro Switches	(T1 - T6) -40°C to +60°C	
CS Transmitter	(T1 - T4) -40°C to +60°C	
RS Transmitter (Bourns Type 3852C)	(T1 - T4) -40°C to +60°C	

NOTES

- The working ambient temperature of the enclosures shall be as follows;
Resin enclosure: -20 to +40°C
Aluminum or stainless steel enclosure: -40 to +60°C
- The maximum upper ambient temperature of the equipment when installed with P&F sensors is dependent on its certificate parameters with regards to 'T' class and barrier type.
The maximum upper ambient temperature shall not be considered to be higher than the following limits: Resin enclosure = +40°C
Aluminum or stainless steel enclosure = +60°C.
- If the CS or RS transmitter is used in conjunction with any switches, sensors or solenoids then the max surface temp for gas and dust shall be shown on the label.

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3.7 The electrical ratings of the internal components are as follows:

Switch type	Electrical rating	CAT N°
V3 Mechanical SPDT Gold Plated - Simple Apparatus	Ui = 30 V, li = 100 mA, Pi = 1 W, Ci = 10 nF, Li = 10 µH	1
Magnum XT90 Proximity Switch - Simple Apparatus	Ui = 30 V, li = 100 mA, Pi = 1 W, Ci = 10 nF, Li = 10 µH	1
CS Transmitter	Ui = 28 V, li = 100 mA, Pi = 0.75 W, Ci = 68.3 nF, Li = 0 µH	1
RS Transmitter (Bourns type 3852C)	Ui = 28 V, li = 100 mA, Pi = 0.75 W	1
IFM NS5002 (BVS 04 ATEX E153) Ex ia IIB only*	Ui = 15 V, li = 50 mA, Pi = 120 mW, Ci = 80 nF, Li = 110 µH	1
Turck Sensors (KEMA 02 ATEX 1090X - Type group 'A')	Ui = 20 V, li = 60 mA, Pi = 200 mW, Ci = 150 nF, Li = 150 µH	1

* IFM NS5002 - for IIC gas group drop to CAT 2.

P&F Sensor number	ATEX Certificate number	IEC Ex Certificate number	CAT N°
NJ2-V3-N...	PTB00ATEX2032X (SUPP 2)	IECEX PTB 11.0021X	1
NCB2-V3-N0...	PTB00ATEX2032X (SUPP 2)	IECEX PTB 11.0021X	1
NCB1,5-...M...-N0...	PTB00ATEX2048X (SUPP 1)	IECEX PTB 11.0037X	1
NCB2-12GM...-N0...	PTB00ATEX2048X (SUPP 1)	IECEX PTB 11.0037X	1
NCN4-12GM...-N0...	PTB00ATEX2048X (SUPP 1)	IECEX PTB 11.0037X	1
NCB5-18GM...-N0...	PTB00ATEX2048X (SUPP 1)	IECEX PTB 11.0037X	1
NCN8-18GM...-N0...	PTB00ATEX2048X (SUPP 1)	IECEX PTB 11.0037X	1
NCB10-30GM...-N0...	PTB00ATEX2048X (SUPP 1)	IECEX PTB 11.0037X	1
NCN15-30GM...-N0...	PTB00ATEX2048X (SUPP 1)	IECEX PTB 11.0037X	1
NJ2-11-N...	PTB00ATEX2048X (SUPP 1)	IECEX PTB 11.0037X	1
NJ2-11-N-G...	PTB00ATEX2048X (SUPP 1)	IECEX PTB 11.0037X	1
NJ2-12GM-N...	PTB00ATEX2048X (SUPP 1)	IECEX PTB 11.0037X	1
NJ4-12GM-N...	PTB00ATEX2048X (SUPP 1)	IECEX PTB 11.0037X	1
NJ5-18GM-N...	PTB00ATEX2048X (SUPP 1)	IECEX PTB 11.0037X	1
NJ8-18GM-N...	PTB00ATEX2048X (SUPP 1)	IECEX PTB 11.0037X	1
NJ2-11-SN-G...	PTB00ATEX2049X (SUPP 1)	IECEX PTB 11.0092X	1
NJ2-11-SN...	PTB00ATEX2049X (SUPP 1)	IECEX PTB 11.0092X	1
NJ2-12GK-SN...	PTB00ATEX2049X (SUPP 1)	IECEX PTB 11.0092X	1
NJ3-18GK-S1N...	PTB00ATEX2049X (SUPP 1)	IECEX PTB 11.0092X	1
NJ4-12GK-SN...	PTB00ATEX2049X (SUPP 1)	IECEX PTB 11.0092X	1
NJ5-18GK-SN...	PTB00ATEX2049X (SUPP 1)	IECEX PTB 11.0092X	1
NJ5-30GK-S1N...	PTB00ATEX2049X (SUPP 1)	IECEX PTB 11.0092X	1
NJ8-18GK-SN...	PTB00ATEX2049X (SUPP 1)	IECEX PTB 11.0092X	1

3.8 Before replacing the enclosure cover, ensure that both of the housing and cover sealing surfaces are clean and undamaged. Tighten the cover screws hand tight using a suitably sized screwdriver or a metric 8 mm A/F spanner / socket.

3.9 The 3000 series position monitor has the option for position feedback by the means of a resistive signal (RS) or current signal (CS) transmitter.

The RS transmitter electrical ratings are - 1 K Ohms (standard) or 5 K or 10 K Ohms (optional).

The CS transmitter electrical ratings are - current loop 4-20 mA at 18 to 24 V DC.
See separate installation and operating instructions VCIOM-04112.

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4 PRODUCT REPAIR AND SERVICE

- 4.1** Inspection of this product shall be carried out periodically by suitably trained personnel in accordance with the applicable code of practice such as EN 60079-17 or IEC 60079-17 to ensure that it is maintained in a satisfactory condition.
- 4.2** The equipment is not intended to be repaired by the user. The repair of this equipment is to be carried out by the manufacturer, or their approved agents, in accordance with the applicable code of practice, such as EN 60079-19 or IEC 60079-19.
- 4.3** The equipment contained within this product can be replaced with like-for-like parts/assemblies.
- 4.4** The certification of this product has been approved based on the material of construction as per the drawings listed in the schedule within this certificate. Any replacement parts that are not made in accordance to the listed drawing will invalidate the approval / certification.
- 4.5** Replacement parts must be purchased through Westlock Controls or via an approved Westlock Controls distributor.

Engineering document reference

These installation and operating instructions are based on the latest engineering update, reference ECN#13047, and form part of the certification for the 3000 series. To ensure you have the most recent version of this IOM, please check the document library on our website (westlockcontrols.com) to ensure this document has the latest ECN number.

Translations

Where translated the copy is taken from the original English document VCIOM-05083-EN as checked by the relevant notified certification body and therefore the original English document will prevail. No rights or liability can be derived from any translation.

Previous documents

VCIOM-05083 replaces all previous installation and operating instructions for the 3000 series including VCIOM-02682 and TECHUK-32/36.



WARNING

This symbol warns the user of possible danger. Failure to observe this warning may lead to personal injury or death and/or severe damage to equipment.



ATTENTION

This symbol identifies information about operating the equipment in a particular manner that may damage it or result in a system failure. Failure to observe this warning can lead to total failure of the equipment or any other connected equipment.



NOTE

This symbol draws attention to information that is essential for understanding the operation and/or features of the equipment.