Installation, Operating and Maintenance Instructions

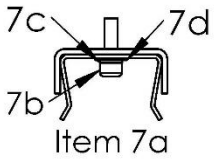
Model	SLR
Hazardous Classification	Exi (Intrinsically Safe)
Regional Certification	ATEX / IECEx / UKCA

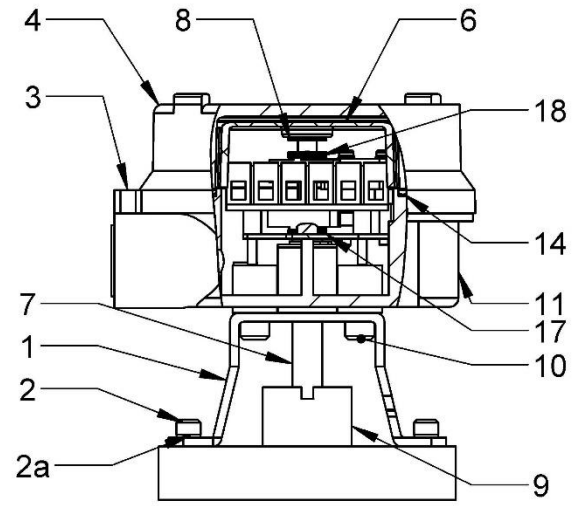
Instructions

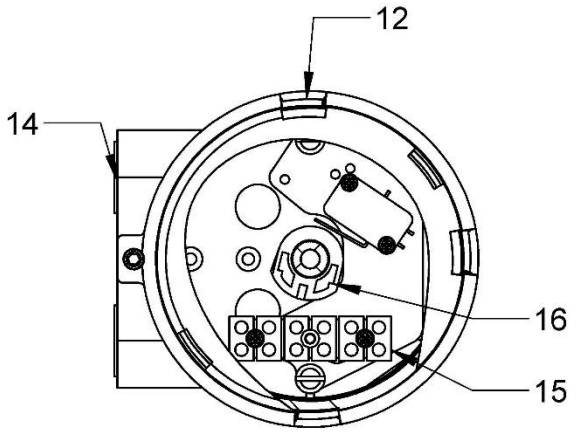
Type SLR Valve Position Monitors are designed to provide high accuracy feedback of valve position to plant control systems. These instructions outline the requirements for ensuring a long and trouble free service life from the monitors.

Installation – Mounting

(refer to diagram below)







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Attach mounting bracket (1) to the actuator using fasteners (2) and lockwashers (2a) provided with mounting kit (if supplied by Imtex).

Fit monitor assembly to actuator ensuring that the NAMUR shaft (7) engages the shaft of the actuator (9). If a torque coupler (7a) is used instead of the NAMUR shaft on Non-NAMUR actuators, ensure this is securely fitted to the underside of the monitor using the screw, flatwasher and lockwasher supplied (7b/7c/7d) before fitting over the flats on the actuator shaft (9).

Secure the assembly using the screws (10) provided with the mounting kit.

Operate the actuator to ensure proper alignment between monitor and actuator. Eccentricity of the shaft must not exceed 0.25mm. If it should be

necessary, re-align monitor by loosening mount screws (10). Retighten screws when satisfied with alignment.

Installation - Wiring & Switch Setting

Once the monitor is fitted to the actuator, loosen cover lock screw (3) and part rotate cover (4) counter-clockwise to remove.

Lift Inner Indicator (6) up to remove it from Indicator Alignment Spline (8).

Bring field wiring into the enclosure via the conduit entries (14) fitted with a suitable cable gland. Use blanking plugs to block off any un-used cable entries. NOTE: Suitable IP6x rated cable glands, blanking plugs and thread adaptors must be used to maintain monitor IP rating.

Connect field wiring to the terminals (15) within the enclosure according to the wiring diagram and terminal labelling.

For monitors fitted with standard cam/spline activated switches/sensors, drive the actuator to the first required indication position and set the bottom switch by lifting and rotating the bottom cam (16). Secure the cam by allowing it to fully re-engage with the spline (17).

Repeat the process for each switch in-turn by lifting/pushing down the appropriate cam, rotating and re-engaging as desired position is reached.

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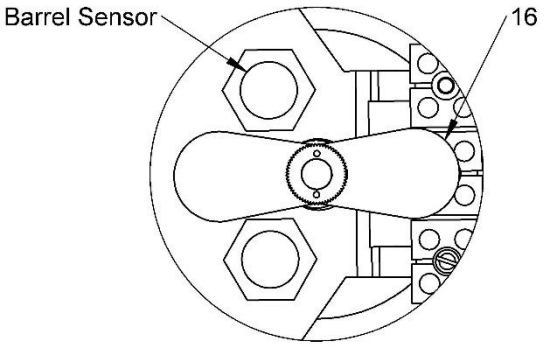
Barrel/Slot Sensor Setting

Drive the actuator to the first required indication position and set the first switch by pushing round the lower metal shim on the shaft (16) to cover the sensor.

Repeat the process for each sensor in-turn by driving the actuator to the indication position and adjusting the appropriate shim to cover the corresponding sensor.



Transmitter Setting

NOTE: The Type SLR Transmitter is factory set to provide position information over a 90 Degree span. Specific information on the method for setting the zero and span for the transmitter option supplied is detailed on the attached Set Up Sheet.

Drive the actuator to the position intended to indicate the 'low' signal. Set the zero point for the transmitter either locally (when available) or using suitable configuration software. Drive the actuator to the position intended to indicate the 'high' signal. Set the span point either locally (where applicable) or using suitable configuration software.

Once completed, verify that indication is as required by fully stroking the actuator. Then refitting the Inner Indicator (6) to the Indicator Alignment Spline (8), ensuring that the indicated Open/Close meets the user requirement once the Cover (4) is refitted. If not, adjust the Indicator (6) position on the Spline (8) accordingly.

Align the Cover (4) to the Housing (11), ensuring the Cover Lugs (12) are positioned such that a Clockwise rotation of the cover will seal the Cover (4) onto the Housing O-Ring (14). Once located, secure the Cover (4) with the Cover Lock Screw (3).

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SPECIAL CONDITIONS FOR CERTIFIED ENCLOSURES

Installation should be carried out by suitably trained personnel to an applicable Code of Practice (eg IEC/EN60079-14).

Only suitably IP rated cable glands, thread adaptors and blanking plugs are permitted for use with enclosure.

⚠ WARNING - Monitor includes external plastic parts and presents Electrostatic Hazard: Clean Only with a Damp Cloth.

⚠ WARNING - Do not install on an external source of heating or cooling e.g. by hot/cold air blowing temperature units

SPECIAL CONDITIONS OF USE

Under certain extreme circumstances, exposed plastic and unearthed metal parts of the enclosure may store an ignition-capable level of electrostatic charge. Therefore, the user/installer shall implement precautions to prevent the build-up of electrostatic charge, e.g. locate the equipment where a charge-generating mechanism (such as wind-blown dust) is unlikely to be present and clean with a damp cloth.

For installation purposes, each switch or sensor shall be considered as a separate intrinsically safe circuit.

The user/installer shall install the SLR Valve Position Monitor taking into account any restrictions or special conditions for safe use that are applicable to the previously certified devices that are that are used in the construction of the Monitor, as defined in the manufacturer's instructions.

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Maintenance – incl. Live Maintenance

The Type SLR requires no servicing during normal working life, if installed correctly. However, it is advisable to check mounting screws/bolts, o-rings and terminal wiring for signs of loosening or corrosion as part of the routine plant maintenance to ensure continued operation.

Ensure safety warnings are observed during maintenance.

Unit cover may be removed in Hazardous Area when circuits are live ONLY when they are connected to certified Safety Barrier. Faulty Switches or Sensors can be interchanged for new if required by loosening applicable terminals (15) and retaining screws (19). **TAMPERING WITH THE HOUSING OF THE SWITCH OR SENSOR TO GAIN ENTRY TO INTERNAL WIRING IS STRICTLY PROHIBITED.**

Inspection & maintenance to ATEX/ UKCA / IECEx enclosures to be carried out by suitably trained personnel with applicable code of practice (eg IEC/EN60079-17). Repairs to Type SLR ATEX / UKCA / IECEx enclosures are not normally permitted. Please consult factory.

Certification

Exia IIC T4/T6 Gb

Ex ia IIIC $T_{(x)}$ Txx°C Db

II 2 GD

Ambient Temperature range for unit is function dependent – values calculated from scheduled document A190424 are reproduced on the product label.

Referenced Standards

The following standards have been referred to in these instructions and are applicable to the use of this product when used in an environment where an explosive atmosphere may be present:

IEC 60079-0:2017 7th Ed

IEC60079-11:2011 6th Ed

IEC 60079-31:2013 2nd Ed

IEC/EN60079-0:2018

EN60079-11:2012

EN60079-31:2014

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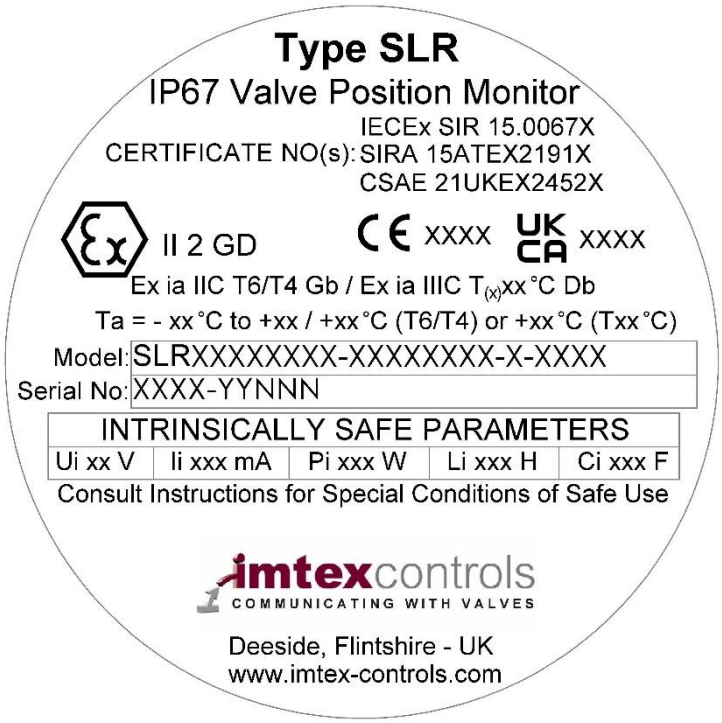
Product Markings

The label on the monitor should be as shown below:



NOTE: The year of manufacture of the monitor can be obtained from the last 2 digits of the serial number.

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Cable Entries

The number and type of cable entry on the Monitor can be determined by reference to the 7th digit of the Format 1 part number or the 5th digit of the 2nd block in Format 2 part number.

For example, in the following part numbers –

Format 1 - **SLR17S5SR-1OO**

the 7th digit is a '5' which corresponds to the monitor having 2 off M20 x 1.5 cable entry. Refer to table below for details.

DIGIT	ENTRIES SUPPLIED
5	(2) M20 X 1.5
B	(2) ½"NPT

Format 2 - **SLR217000OO-SSOO2SR2-0-WGOO**

the 5th digit / 2nd block is a '2' which corresponds to the monitor having 2 off M20 x 1.5 cable entry. Refer to table below for details.

DIGIT	ENTRIES SUPPLIED	DIGIT	ENTRIES SUPPLIED
1	(1) M20 x 1.5	A	(1) ½" NPT
2	(2) M20 x 1.5	B	(2) ½" NPT

NPT Threads conform to ANSI/ASME B1.20.1 and shall be made up wrench tight.

Metric Thread tolerance to ISO 965-1 and ISO 965-3

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Electrical Characteristics

Format 1 – **SRXXXxxxx-xxx**
Format 2 – **SRXxXXxXXxx-xxxxxxxx-x-xxxx**

Mechanical Switch w/ Gold Contacts	
Function No	16 & 55 (format 1) / 16 (format 2)
Electrical Ratings	10.0A @ 125/250VAC 0.5A @ 125VDC
Operating Life	400, 000 Cycles
Not Recommended for circuits operating under 20mA @ 24VDC	

Mechanical Switch w/ Gold Contacts	
Function No	17 & 56 (format 1) / 17 (format 2)
Electrical Ratings	1.0A @ 125VAC 0.5A @ 30VDC
Operating Life	100, 000 Cycles
Recommended for use in 24VDC computer input circuits	

Reed Switch (A140077)	
Function No	25 & 58 (format 1) / 25 (format 2)
Electrical Ratings	0.5A (switching) / 1.0A (Steady State) @ 120V Max 10W/VA Max
Operating Life	5,000, 000 Cycles
Where reed switches are installed at the end of long cable runs, it is the responsibility of the installer to ensure suitable precautions are taken to ensure cable capacitance does not induce premature switch failure. Consult Imtex for further information	

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Reed Switch w/ Choke (A140077-SU)	
Function No	25 & 58 (format 1) / 40 (format 2)
Electrical Ratings	0.15A @ 125VAC / 30VDC 680µH 10 Ohms
Operating Life	5,000, 000 Cycles
Where a reed switch with choke is used, the installer must carry out an ignition capability assessment of the full circuit (in accordance with EN60079-11:2012,Annex A).	

Tungsten Reed Switch (A140088)	
Function No	25 & 58 (format 1) / 30 (format 2)
Electrical Ratings	Max Current: 3.0A Max Power 100W/VA Max Min Power: 2 Watts
Operating Life	5,000, 000 Cycles
Not Recommended for circuits operating under 90mA @ 24VDC	

V3 NAMUR Proximity Sensor	
Function No	42 & 52 (format 1) / 42 (format 2)
Electrical Ratings	Target Present – Current < 1mA Target Absent – Current > 3mA 5 to 25VDC (Nominal 8VDC)
Operating Life	Unlimited Cycles
Use with intrinsically safe repeater barrier. Namur sensors fully conform to EN60947-5-6 (VDE0660 Part 212) standard.	

Cylindical/Slot NAMUR Proximity Sensor	
Function No	43 & 53 (format 1) / 43 & 47 (format 2)
Electrical Ratings	Target Present – Current < 1mA Target Absent – Current > 3mA 5 to 25VDC (Nominal 8VDC)
Operating Life	Unlimited Cycles
Use with intrinsically safe repeater barrier. Namur sensors fully conform to EN60947-5-6 (VDE0660 Part 212) standard.	

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Non-Contact Transmitter	
Function No	70 (format 1) / 70 & 71 (format 2)
Electrical Ratings	12 to 28 VDC R < (U-9) / 0.02 Linearity < 1% FS Repeatability < 0.36°
Operating Life	Unlimited Cycles

Potentiometer	
Function No	70 (format 1) / 73 (format 2)
Electrical Ratings	Resistance: 10k ohms Output Smoothness: 0.1% (Max) Electrical Travel: 340° ± 3° Power Rating: 1.0W @ 70°C Tolerance: ± 20% Linearity: ± 2.0%
Operating Life	1, 000, 000 Cycles

Terminal Wiring

Wiring connection details are provided in the unit, with detail of the assigned connection displayed on the terminal block.

Further Details

For further information on this product contact:

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