



Installation and operating Instructions

LCIE 02 ATEX 6056

Please retain for future use

MAGNETIC LEVEL GAUGE SWITCH –TYPE DR6

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INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS

1: General:

The TC Fluid Control DR6 is attached to the side of a magnetic level gauge chamber to provide a point level switch. The switch can be adjusted over the float operating range to give the required switch point. The switch unit consists of an aluminium housing fitted with either 1 or 2 bi-stable reed contacts (dependent on model) activated by the magnetic field of the float. The switch is designed to change state with either a rising or falling level.

2: Principle of Operation:

As the float within the chamber passes the switch unit, the magnetic field from the float activates the reed switch. This changes the state of the switch from normally closed to open. The switch status will only reverse when the float passes in the opposite direction.

3: Technical Specification:

		Type DR6-S,D	
Contact Type:	Reed Contact		
Switching Behaviour:	Bi-stable	DR6-S	SPDT
		DR6-D	DPDT
Switch Rating:	230V AC, 60VA, 1.0 AMP 230V DC, 30W, 0.5 AMP		
Maximum Temperature:	150 Deg C		
Cable Connection:	1 x M20 entry (2 x plugged ¾" NPT)		
Housing:	Aluminium (Coated grey)		
Housing Protection:	IP66		
Marking:	Explosion proof – II 2G EExd d IIC T5 – T6 LCIE 02 ATEX 6056		
Ambient temperature	T5 +55°C, T6 +40°C Maximum		

WARNINGS

Do not operate the magnetic Level gauge or switches in the immediate vicinity of strong electromagnetic fields as this may give rise to incorrect readings and operation.

4: Installation and Commissioning:

- Installation and commissioning of the DR6 switch should only be carried out by qualified and experienced personnel.
- Installation of this unit must be in compliance with the applicable national standards i.e. EN60079-14
- This switch should only be used within the limits detailed in the technical specification. Strict observance of the technical specification should be ensured at all times.
- Ensure the correct orientation of the switch. (Cable connection facing down)
- Where insulation is provide it is correctly fitted between the switch body and level gauge chamber.

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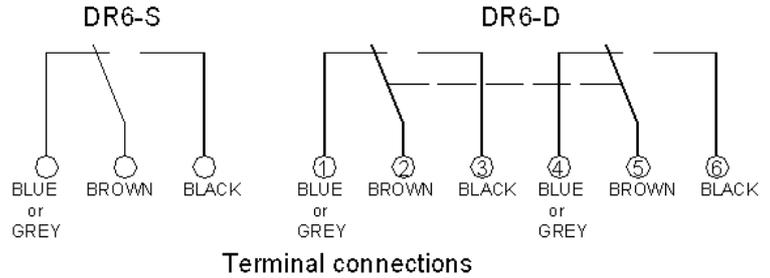
5: Electrical Connection:



The connection should be carried out as shown in the connection diagram below with 3 x 0,75mm² cable as a minimum, according to the desired switching function. When selecting the cable, ensure that it is suitable for the area of application (temperature, weather influences, aggressive atmosphere etc.) The cable entry must be with a suitable certified cable gland to maintain the required IP rating



Earth: An external earth point is provide on the bottom left hand fixing screw Where a green/yellow conductor should be connected to a suitable earth point as required by local conditions



Terminal connections are also indicated on the inside of the lid of the switch.



Warning!

The switching of inductive or capacitive loads can result in damage to the reed contact. This can lead to a malfunction of the downstream control and to physical injury or property damage.

With an inductive load the magnetic switch can be protected with either a RC module or shunt diode (see below). Varistors should not be used as the response time will not protect the reed contact from switching transients.

Capacitive loads are generally associated with long connection cable lengths (above 50m), a protective resistor of 22Ω (EExd d) in series with the common connection will limit the peak current.



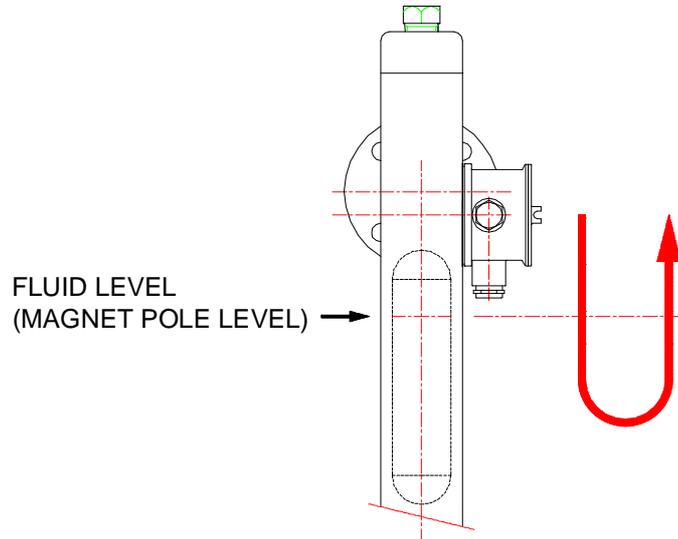
Overloading of the magnetic switch can result in damage to the built-in reed contact. This can lead to a malfunction of the downstream control and to physical injury or property damage. You **MUST** ensure that the switch rating maximum values given in the technical data are adhered too.

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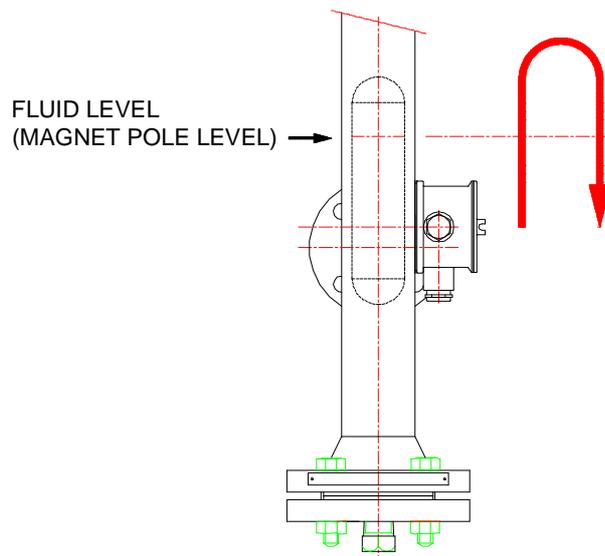
6: Function Testing:

Before installation, it is advisable to pre-set the switch to its correct position. This should be carried out with the Cable entry facing down.

- **TOP SWITCH POSITION.** Reset the switch by holding it firmly against the magnetic level gauge chamber. Carefully slide the switch unit down so that it passes the float and then return upwards passing the float. Position the switch housing accordingly and fix.



- **BOTTOM SWITCH POSITION.** Reset the switch by holding it firmly against the magnetic level gauge chamber. Carefully slide the switch unit up so that it passes the float and then return downwards passing the float. Position the switch housing accordingly and fix.



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7: Mounting onto the Magnetic Level Gauge:

With the cable connections facing downwards, the switch unit should be positioned at the required level. A fixture clip is used to clamp the switch and display unit to the magnetic level gauge chamber.

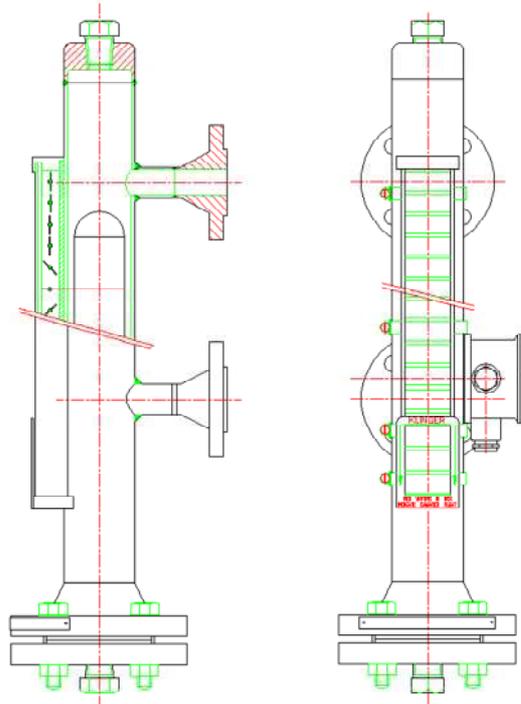


Figure 2 Positioning of the switches

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8: Trouble Shooting Guide

Problem	Problem cause	Rectification procedure
Switch fails to operate	Float magnet faulty	Consult technical sales office. Float may have to be replaced. Simulate float with a suitable bar magnet.
	Switch is incorrectly positioned on the gauge chamber.	Ensure that the nozzle entries are facing down and the switch is sitting firmly against the chamber body.
	When insulation is fitted between the switch and the gauge body, the distance between the float magnet and rocker mechanism has been increased accordingly. Hence a special float is required.	Ensure switch housing sits firmly against the insulation. Ensure correct float has been installed and fitted with the correct magnet system. Please consult the technical sales office.
	Surging in the vessel may cause the float to pass the switch unit at abnormally high speeds (greater than 0.4m/sec). The magnetic field will have insufficient time to activate the magnetic rocker mechanism	Check process conditions. Surging can be caused by changes in the media temperature and/or pressure. Surging in the gauge can be reduced by installing throttling valves or orifice plates between the gauge and vessel.
Switch fails to operate on the gauge	Switch points are outside operating range/parameters specified.	Ensure that the switches are installed within the operating range i.e. within the confines to the vessel connections.
Switch double latches	Switch may not have been reset correctly before operation. Incorrect type of switch installed	Reset the switch; refer to 'function testing' for procedure. Check correct type of switch has been installed for the required switching action.

Un-authorized rework, modifications or alterations will invalidate certification and warranty.

9: Further information

Please contact our Sales office on 0044 (0)1322 622400, or E-mail instruments@tc-fluidcontrol.com

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