

ECHOTEL® 940/941

Installation and Operating Manual



Ultrasonic

Level

Switches



Magnetrol®

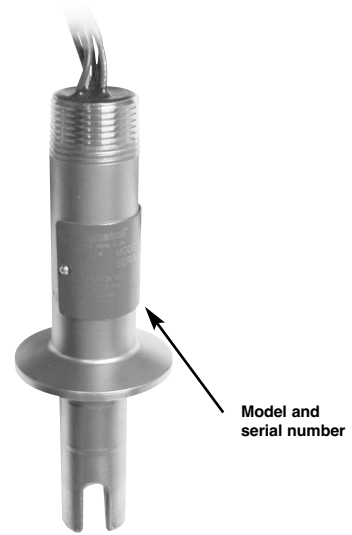
UNPACKING

Unpack the instrument carefully. Make sure all components have been removed from the foam protection. Inspect all components for damage. Report any concealed damage to the carrier within 24 hours. Check the contents of the carton/crates against the packing slip and report any discrepancies to Magnetrol. Check the nameplate model number to be sure it agrees with the packing slip and purchase order. Check and record the serial number for future reference when ordering parts.

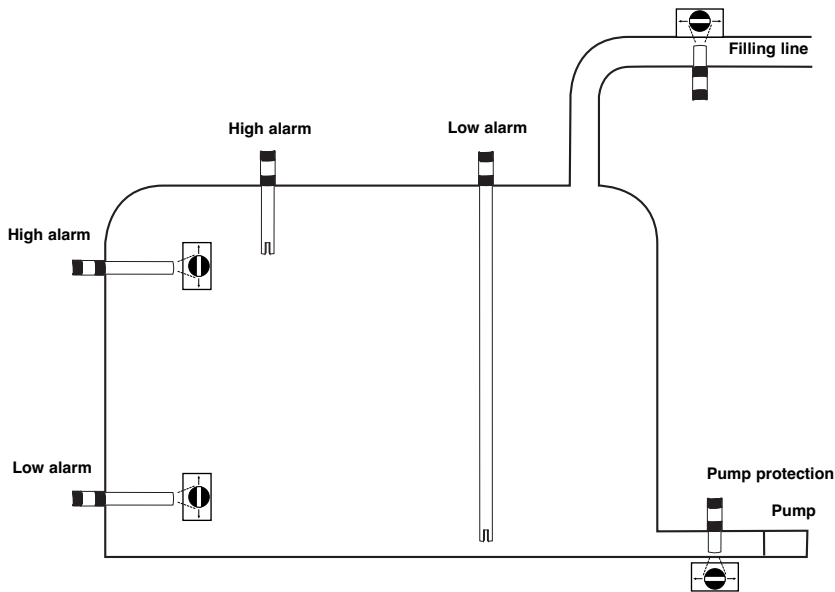


These units are in compliance with:

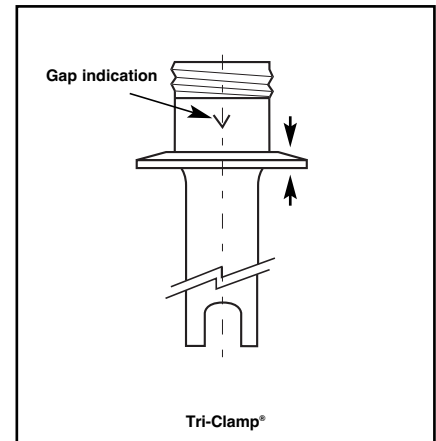
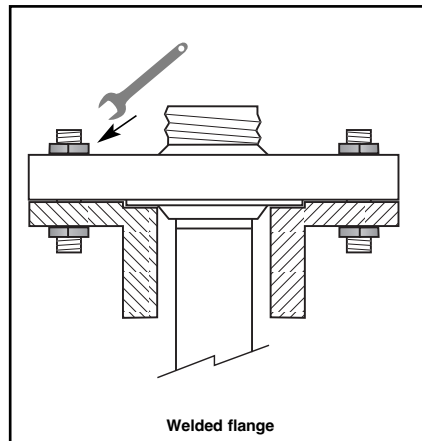
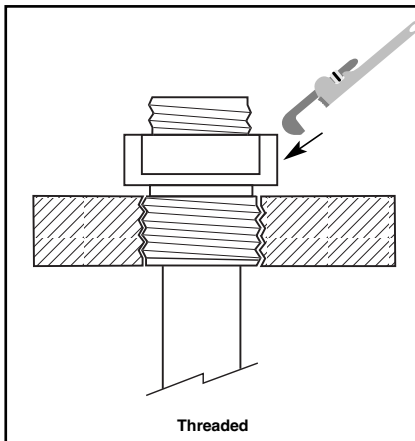
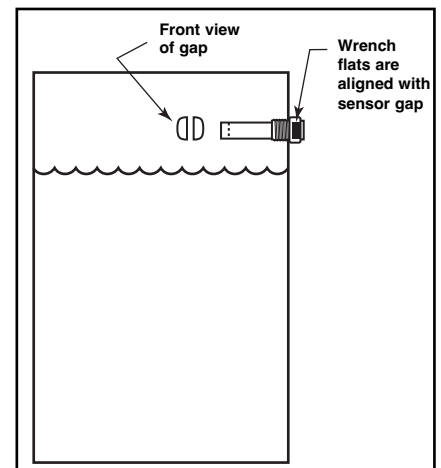
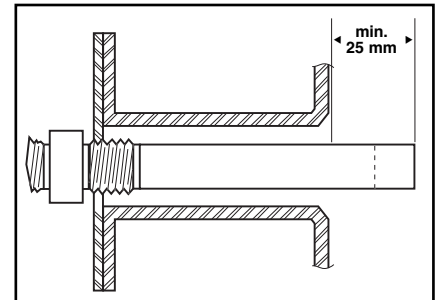
1. The EMC directive 2014/30/EU. The units have been tested to EN 61326: 1997 + A1 + A2
2. The PED directive 2014/68/EU (pressure equipment directive). Safety accessories per category IV module H1.

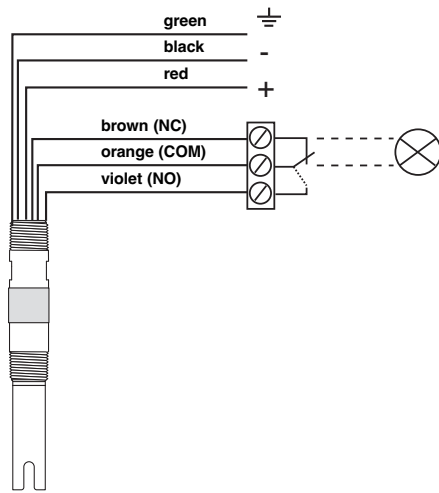


MOUNTING



Nozzle mounting: gap must be free

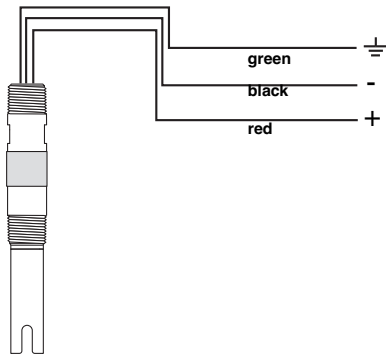




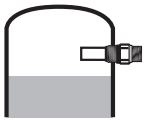
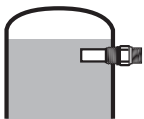
OUTPUT

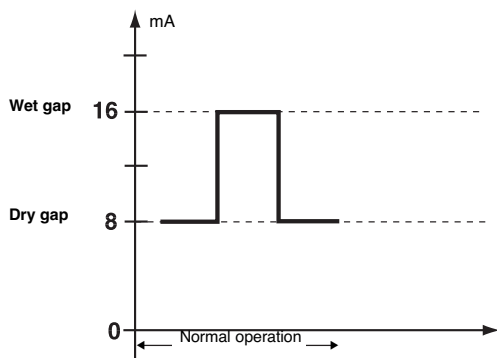
Level	Relay	Wiring
	De-energized	
	Energized	

IMPORTANT: When power is lost or gap is dry; the relay de-energizes.



OUTPUT

Level	Current
	8 mA (± 1 mA)
	16 mA (± 1 mA)



SPECIFICATIONS

PERFORMANCE SPECIFICATIONS

Description	Specification
Response time	0,5 s typical
Repeatability	± 2 mm (0.078")
Ambient Temperature	-40 °C up to +85 °C (-40 °F up to +185 °F)
Humidity	0-99 %, non condensing
Electromagnetic Compatibility	Meets CE requirements (EN 61326: 1997 + A1 + A2)

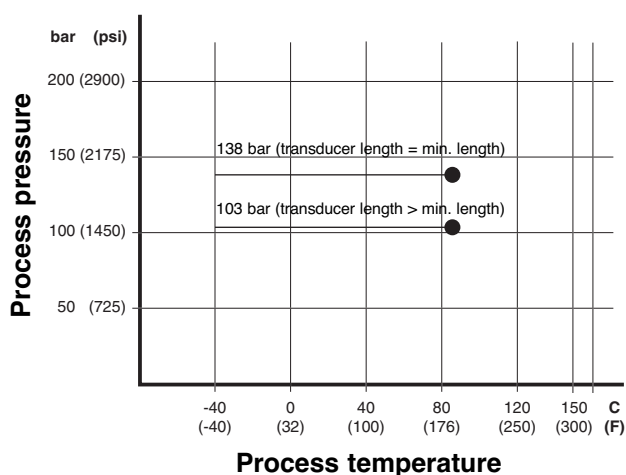
PHYSICAL/FUNCTIONAL SPECIFICATIONS

Description	Specification	
Input voltage	12 - 35 V DC	
Power consumption	< 1 W	
Signal output	Current Shift	8 mA (± 1 mA) - dry gap or 16 mA (± 1 mA) - wet gap
	Relay	SPDT: 1 A @ 30 V DC
Potted cable	45 cm (18") flying leads of 18 AWG wires	
Net Weight	510 g (unit with 3/4" NPT transducer and shortest length)	

TRANSDUCER SPECIFICATIONS

Description	Specification
Material	316/316L SST (1.4401/1.4404)
Mounting	Threaded (NPT/BSP) – Flanged (ANSI) – Hygienic (Tri-Clamp®)
Actuation length	From 3 cm up to 250 cm (1.2" up to 98.4")
Operating process temp.	-40 °C up to +85 °C (-40 °F up to +185 °F)
Max pressure	103 bar @ +85 °C (1500 psi @ +185 °F) - transducer length > min. length 138 bar @ +85 °C (2000 psi @ +185 °F) - transducer length = min. length Flanged models are downrated to the design pressure of the selected flange

TEMPERATURE/PRESSURE RATING



MODEL IDENTIFICATION

A complete measuring system consists of:

1. One code for electronics and transducer
2. OPTION: Standard cable length is 45 cm (18"). Specify cable length separately when a longer cable is required.
3. OPTION: **052-7012-002**: code for Echotel 941 cast aluminium housing with terminal block, 3/4" NPT cable entry, IP 65
052-7012-003: code for Echotel 940 cast aluminium housing with terminal block, 3/4" NPT cable entry, IP 65

BASIC MODEL NUMBER

9 4 0 – N	Echotel® 940 OEM switch with integrated 1 A SPDT relay
9 4 1 – N	Echotel® 941 OEM switch with current shift output 8/16 mA

PROCESS CONNECTION Threaded

1 1 M	3/4" NPT
1 2 M	3/4" BSP (G 3/4")
2 2 M	1" BSP (G 1")

ANSI Flanges

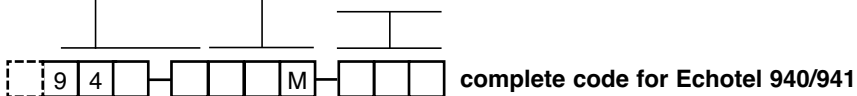
2 3 M	1"	150 lbs ANSI RF
3 3 M	1 1/2"	150 lbs ANSI RF
4 3 M	2"	150 lbs ANSI RF

Hygienic

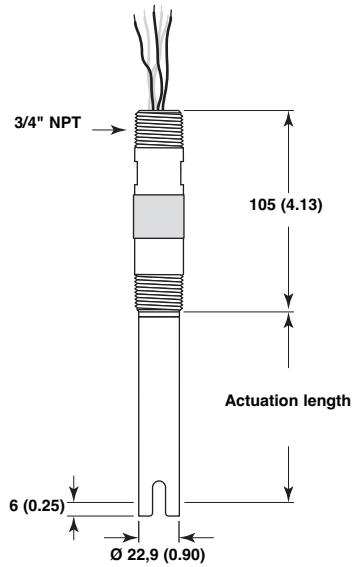
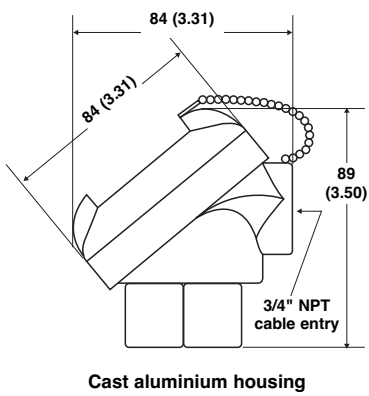
3 T M	1 1/2"	Tri-Clamp®
4 T M	2"	Tri-Clamp®

ACTUATION LENGTH – Specify per cm (0.39") increment
Total insertion length = actuation length + 6 mm (0.25")

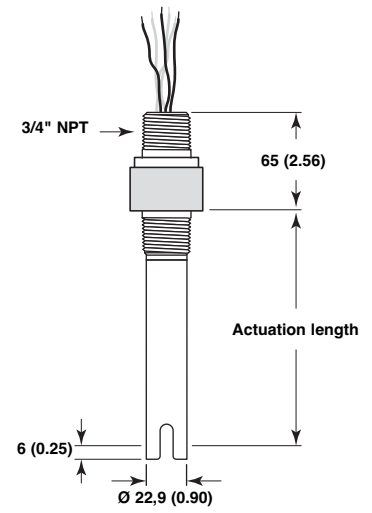
0 0 3	Minimum 3 cm (1.2") – for all connections except BSP
0 0 5	Minimum 5 cm (2.0") – for 3/4" BSP (G 3/4")
0 0 6	Minimum 6 cm (2.4") – for 1" BSP (G 1")
2 5 0	Maximum 250 cm (98.4")



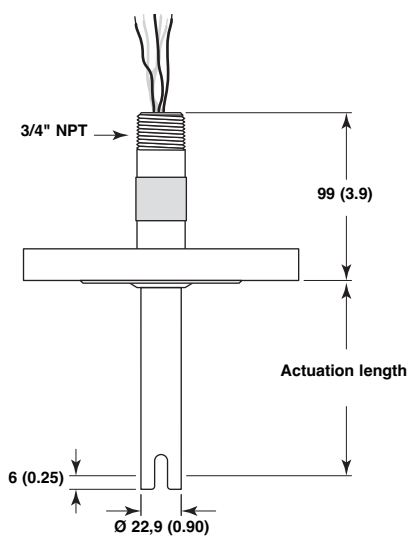
X = product with a specific customer requirement



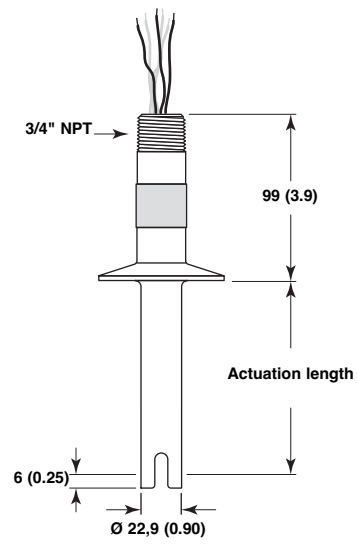
Threaded NPT



Threaded BSP



Welded ANSI flange



Tri-Clamp®

IMPORTANT

SERVICE POLICY

Owners of Magnetrol products may request the return of a control; or, any part of a control for complete rebuilding or replacement. They will be rebuilt or replaced promptly. Magnetrol International will repair or replace the control, at no cost to the purchaser, (or owner) **other than transportation cost** if:

- a. Returned within the warranty period; and,
- b. The factory inspection finds the cause of the malfunction to be defective material or workmanship.

If the trouble is the result of conditions beyond our control; or, is **NOT** covered by the warranty, there will be charges for labour and the parts required to rebuild or replace the equipment.

In some cases, it may be expedient to ship replacement parts; or, in extreme cases a complete new control, to replace the original equipment before it is returned. If this is desired, notify the factory of both the model and serial numbers of the control to be replaced. In such cases, credit for the materials returned, will be determined on the basis of the applicability of our warranty.

No claims for misapplication, labour, direct or consequential damage will be allowed.

RETURNED MATERIAL PROCEDURE

So that we may efficiently process any materials that are returned, it is essential that a "Return Material Authorisation" (RMA) form will be obtained from the factory. It is mandatory that this form will be attached to each material returned. This form is available through Magnetrol's local representative or by contacting the factory. Please supply the following information:

1. Purchaser Name
2. Description of Material
3. Serial Number and Ref Number
4. Desired Action
5. Reason for Return
6. Process details

Any unit that was used in a process must be properly cleaned in accordance with the proper health and safety standards applicable by the owner, before it is returned to the factory.

A material Safety Data Sheet (MSDS) must be attached at the outside of the transport crate or box.

All shipments returned to the factory must be by prepaid transportation. Magnetrol **will not accept** collect shipments.

All replacements will be shipped Ex Works.

BULLETIN N°: BE 51-647.6
EFFECTIVE: AUGUST 2017
SUPERSEDES: September 2014

UNDER RESERVE OF MODIFICATIONS



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