

Echotel® 910 is an integral mounted ultrasonic tip sensitive level switch with integrated DPDT relay. The Echotel® 910 is ideally suited for pump protection (also for vacuum), overflow prevention, high or low level alarm in clean liquid applications with or without foam.

### FEATURES

- \* Does not require any calibration.
- \* Dual electrical entries and various housings are standard available.
- \* A built-in averaging circuit ensures no false alarms due to most effervescence or turbulences.
- \* Actuation is determined by the length of the transducer and is available in lengths between 3 cm (1.20") and 254 cm (100").
- \* All materials exposed to process in 316/316L SST (1.4401/1.4404).
- \* Field selectable high/low level failsafe.

### APPLICATIONS

- LIQUIDS: Any clean liquids.
- VESSELS: Any mounting position.
- PROCESS CONDITIONS: Unaffected by
  - shifting dielectric, density, or PH
  - presence of foam, turbulence, visible vapors
  - fast drain/fill rates
  - transducer coating and air bubbles
  - vacuum conditions.

### AGENCY APPROVALS

| Agency  | Approvals  |
|---|--|
| ATEX  | II 1/2 G Ex d+e/d IIC T6 Ga/Gb, flameproof enclosure |
| FM/CSA <sup>①</sup>   |  |
| Russian Authorisation Standards <sup>①</sup>                    |  |
| Other approvals are available, consult factory for more details |  |

<sup>①</sup> Consult factory for proper model numbers and classifications

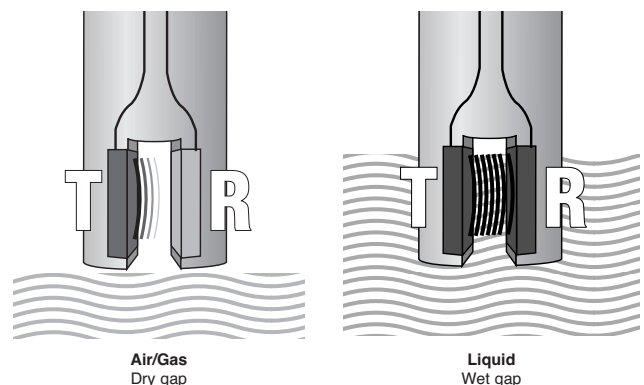
**NOTE:** For applications where self-checking is required, use Echotel® 961.

### Rugged and cost effective

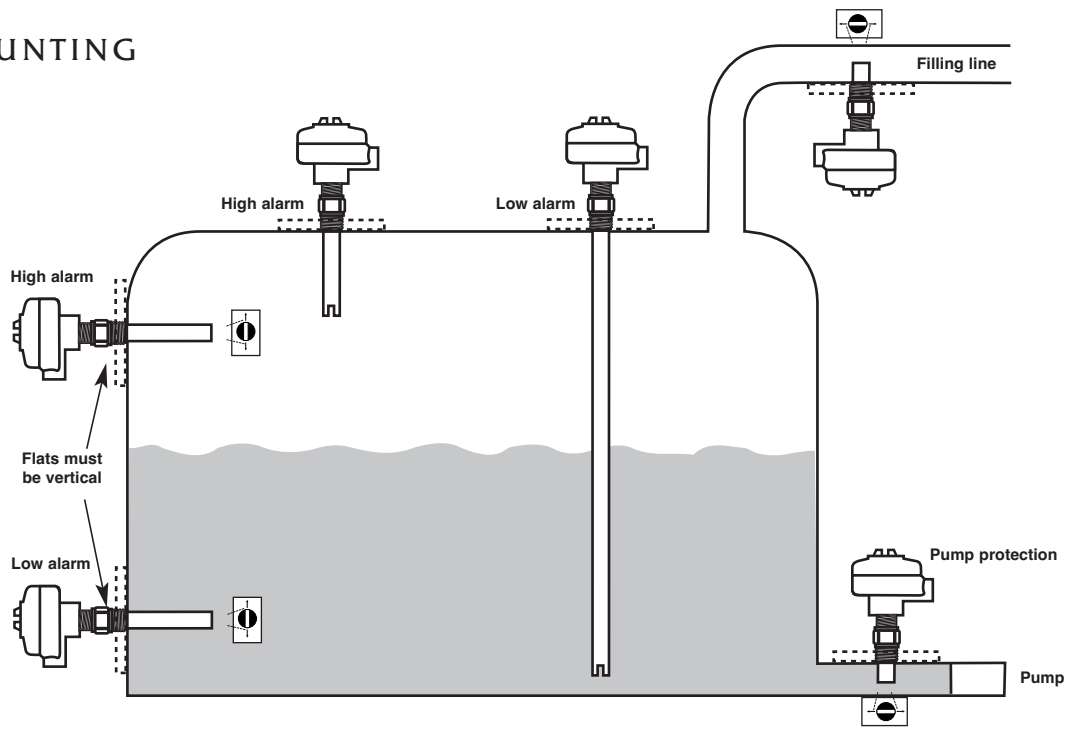


### PRINCIPLE OF OPERATION

The Echotel® 910 operates on a two crystal "transmit-receive" principle. The signal is converted into ultrasonic energy and transmitted across the sensing gap toward the receiver crystal. When there is air in the gap, the high frequency ultrasonic energy will not be received. When there is liquid in the gap, the ultrasonic energy will propagate across the gap and actuate the relay.



## MOUNTING



## ELECTRICAL SPECIFICATIONS

| Description                   |                           | Specification  |
|-------------------------------|---------------------------|--|
| Line Voltage ( $\pm 10\%$ )   |                           | 240/120 V AC, 50-60 Hz – 24 V DC   |
| Power Consumption             |                           | 2.5 VA Nominal   |
| Electronics Temperature       |                           | -40°C to +70°C (-40°F to +160°F)   |
| Process Pressure/Temperature  |                           | 55,2 bar at -40°C to +120°C (800 psi at -40°F to +250°F)   |
| Response Time                 |                           | 0,5 s typical  |
| Repeatability                 |                           | $\pm 2$ mm (0.078")  |
| Output Relay                  | Goldflash relay           | DPDT, 8.0 A (resistive)  |
|                               | Hermetically sealed relay | DPDT, 5.0 A (resistive)  |
| Housing                       |                           | IP 65, anti-corrosive painted cast aluminium or 316 stainless steel  |
| Sensor material               |                           | 316/316L SST (1.4401/1.4404)   |
| Failsafe                      |                           | Field selectable high or low level alarm   |
| Electromagnetic compatibility |                           | Meets CE requirements (EN 61326: 1997 + A1 + A2)   |
| Approvals                     |                           | ATEX II 1/2 G Ex d+e/d IIC T6 Ga/Gb, flameproof enclosure<br>Other approvals are available, consult factory for more details |

### QUICK RESPONSE CELL (QRC)

Several models are available for extra quick shipment, within max. 15 days after factory receipt of purchase order, through the Quick Response Cell (QRC).

Models covered by QRC service are conveniently green coded in the selection data charts.

To take advantage of QRC, simply match the green model number codes (standard dimensions apply).

QRC delivery is limited to a maximum of 5 units per order. Contact your local representative for lead times on larger volume orders, as well as other products and options.

## SELECTION DATA

### Optional transducer mounting flanges

Thread-on mounting flanges can only be used in combination with 3/4" NPT process connection transducer.

### Thread-on flanges for use with 3/4" NPT-M connections

| ANSI B16.5 flanges |            | Part No.     |              |
|--------------------|------------|--------------|--------------|
|                    |            | Carbon steel | 316/316L SST |
| 1"                 | 150 lbs RF | 004-5867-041 | 004-5867-043 |
| 1 1/2"             | 150 lbs RF | 004-5867-021 | 004-5867-001 |
| 2"                 | 150 lbs RF | 004-5867-022 | 004-5867-002 |
| 3"                 | 150 lbs RF | 004-5867-023 | 004-5867-003 |
| 4"                 | 150 lbs RF | 004-5867-024 | 004-5867-004 |
| 6"                 | 150 lbs RF | 004-5867-025 | 004-5867-005 |
| 1"                 | 300 lbs RF | 004-5867-042 | 004-5867-044 |
| 1 1/2"             | 300 lbs RF | 004-5867-026 | 004-5867-006 |
| 2"                 | 300 lbs RF | 004-5867-027 | 004-5867-007 |
| 3"                 | 300 lbs RF | 004-5867-028 | 004-5867-008 |
| 4"                 | 300 lbs RF | 004-5867-029 | 004-5867-009 |
| 6"                 | 300 lbs RF | 004-5867-030 | 004-5867-010 |
| 1"                 | 600 lbs RF | 004-5867-051 | 004-5867-050 |
| 1 1/2"             | 600 lbs RF | 004-5867-046 | 004-5867-045 |
| 2"                 | 600 lbs RF | 004-5867-049 | 004-5867-048 |

# SELECTION DATA

**A complete measuring system consists of:**

1. One order code for ECHOTEL® series 910 electronics and transducer
2. Optional: Order code for thread-on mounting flanges, consult factory for other sizes or materials

## BASIC MODEL NUMBER

|       |  |
|-------|--|
| 9 1 0 | Echotel® 910, ultrasonic level switch with relay |
|-------|--|

## APPROVALS/ CABLE ENTRY / HOUSING MATERIALS

|   |                             |           |   |
|---|-----------------------------|-----------|---|
| A | Weatherproof –              | 3/4" NPT  | dual cable entry, anti-corrosive coated aluminium |
| V | ATEX flameproof enclosure – | 3/4" NPT  | dual cable entry, anti-corrosive coated aluminium |
| W | ATEX flameproof enclosure – | M20 x 1,5 | dual cable entry, anti-corrosive coated aluminium |
| 5 | ATEX flameproof enclosure – | 3/4" NPT  | single cable entry, stainless steel               |

## PROCESS CONNECTION - SIZE/TYPE

### Threaded

|     |               |
|-----|---------------|
| M A | 3/4" NPT      |
| M 2 | 1" NPT        |
| M 9 | 1" BSP (G 1") |

### ANSI Flanges

|     |        |         |         |
|-----|--------|---------|---------|
| M 1 | 1"     | 150 lbs | ANSI RF |
| M E | 1"     | 300 lbs | ANSI RF |
| M H | 1"     | 600 lbs | ANSI RF |
| M C | 1 1/2" | 150 lbs | ANSI RF |
| M F | 1 1/2" | 300 lbs | ANSI RF |
| M D | 2"     | 150 lbs | ANSI RF |
| M G | 2"     | 300 lbs | ANSI RF |
| M J | 2"     | 600 lbs | ANSI RF |

### EN (DIN) Flanges

|     |       |             |                   |
|-----|-------|-------------|-------------------|
| M R | DN 25 | PN 16/25/40 | EN 1092-1 Type A  |
| M X | DN 25 | PN 63/100   | EN 1092-1 Type B2 |
| M S | DN 40 | PN 16/25/40 | EN 1092-1 Type A  |
| M Y | DN 40 | PN 63/100   | EN 1092-1 Type B2 |
| M M | DN 50 | PN 16       | EN 1092-1 Type A  |
| M T | DN 50 | PN 25/40    | EN 1092-1 Type A  |
| M W | DN 50 | PN 63       | EN 1092-1 Type B2 |
| M Z | DN 50 | PN 100      | EN 1092-1 Type B2 |

### Hygienic

|     |                   |
|-----|-------------------|
| M 3 | 1 1/2" Tri-Clamp® |
| M 4 | 2" Tri-Clamp®     |
| M 5 | DN 25 DIN 11851   |
| M 6 | DN 32 DIN 11851   |
| M 7 | DN 40 DIN 11851   |
| M 8 | DN 50 DIN 11851   |

## INPUT POWER / RELAY OUTPUT

|   |                                   |   |                                      |
|---|-----------------------------------|---|--------------------------------------|
| 1 | 240 V AC/8 A DPDT goldflash relay | J | 240 V AC/5 A DPDT herm. sealed relay |
| 2 | 24 V DC/8 A DPDT goldflash relay  | K | 24 V DC/5 A DPDT herm. sealed relay  |
| 0 | 120 V AC/8 A DPDT goldflash relay | H | 120 V AC/5 A DPDT herm. sealed relay |

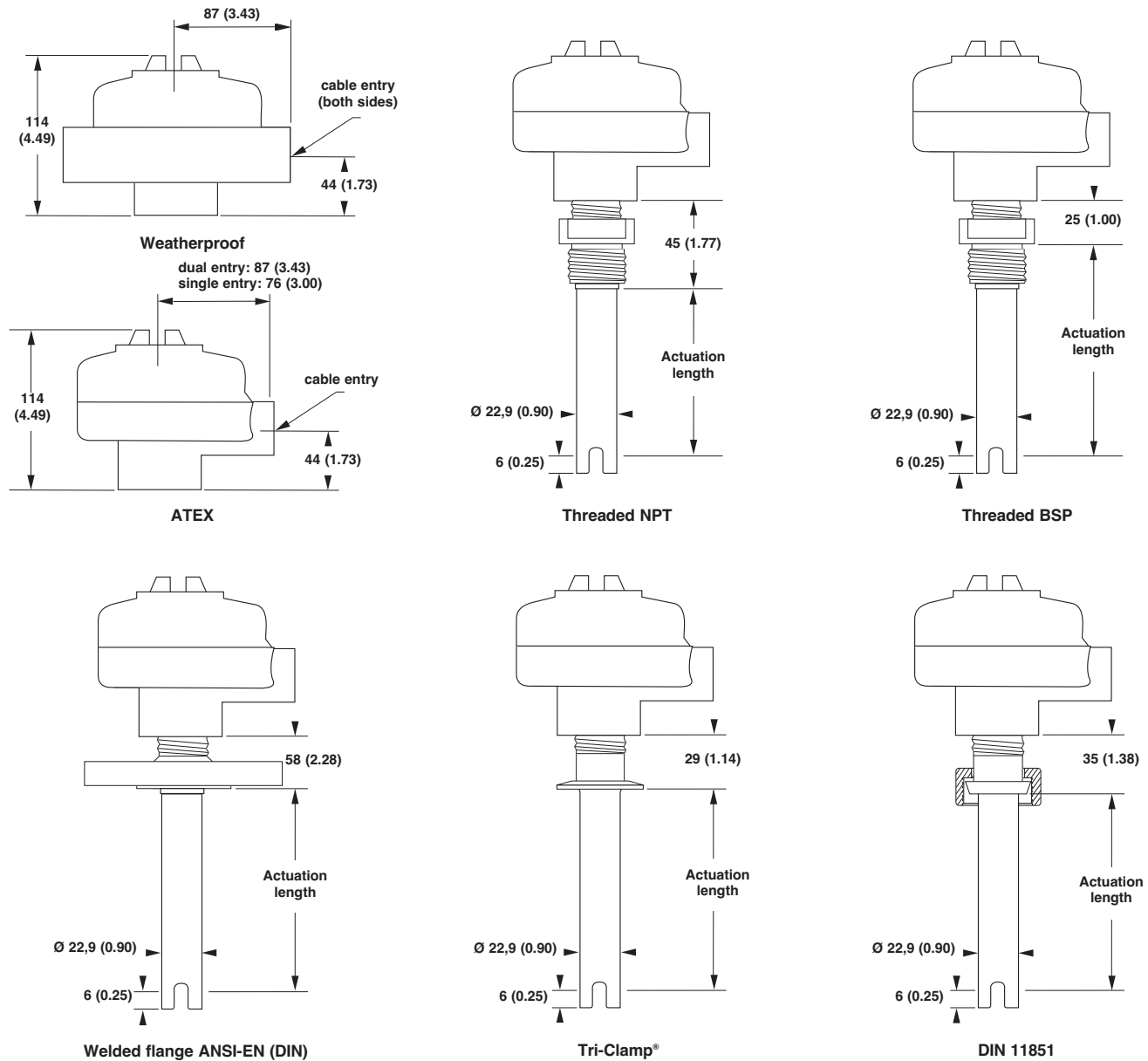
ACTUATION LENGTH – Specify per cm (0.39") increment  
 Total insertion length = actuation length + 6 mm (0.25")

|       |   |
|-------|---|
| 0 0 3 | Minimum 3 cm (1.2") – for NPT connections       |
| 0 0 5 | Minimum 5 cm (2.0") – for all other connections |
| 2 5 4 | Maximum 254 cm (100.0")                         |

9 1 0 M      complete order code for Echotel® 910

X = product with a specific customer requirement

# DIMENSIONS IN mm (inches)



## QUALITY ASSURANCE - ISO 9001:2008



THE QUALITY ASSURANCE SYSTEM IN PLACE AT MAGNETROL® GUARANTEES THE HIGHEST LEVEL OF QUALITY DURING THE DESIGN, THE CONSTRUCTION AND THE SERVICE OF CONTROLS. OUR QUALITY ASSURANCE SYSTEM IS APPROVED AND CERTIFIED TO ISO 9001:2008 AND OUR TOTAL COMPANY IS COMMITTED TO PROVIDING FULL CUSTOMER SATISFACTION BOTH IN QUALITY PRODUCTS AND QUALITY SERVICE.

## PRODUCT WARRANTY

ALL MAGNETROL® ELECTRONIC AND ULTRASONIC LEVEL CONTROLS ARE WARRANTED FREE OF DEFECTS IN MATERIALS AND WORKMANSHIP FOR 18 MONTHS FROM THE DATE OF ORIGINAL FACTORY SHIPMENT. IF RETURNED WITHIN THE WARRANTY PERIOD; AND, UPON FACTORY INSPECTION OF THE CONTROL, THE CAUSE OF THE CLAIM IS DETERMINED TO BE COVERED UNDER THE WARRANTY; THEN, MAGNETROL INTERNATIONAL WILL REPAIR OR REPLACE THE CONTROL AT NO COST TO THE PURCHASER (OR OWNER) OTHER THAN TRANSPORTATION. MAGNETROL® SHALL NOT BE LIABLE FOR MISAPPLICATION, LABOR CLAIMS, DIRECT OR CONSEQUENTIAL DAMAGE OR EXPENSE ARISING FROM THE INSTALLATION OR USE OF THE EQUIPMENT. THERE ARE NO OTHER WARRANTIES EXPRESSED OR IMPLIED, EXCEPT, SPECIAL WRITTEN WARRANTIES COVERING SOME MAGNETROL® PRODUCTS.



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UNDER RESERVE OF MODIFICATIONS

|                   |  |
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