

HydroRanger is a non-contacting level monitoring controller that features advanced relay alarming, differential level measurement, open flow monitoring, and volume conversion. For water authorities, municipal water and wastewater plants, HydroRanger is an economical, low-maintenance solution delivering control efficiency and productivity needed to meet today's exacting standards. It offers single-point monitoring with 6 relays standard, as well as digital communications with built-in Modbus RTU via RS-485. HydroRanger is compatible with Dolphin Plus, allowing for PC configuration and set-up. Sonic Intelligence® advanced echo-processing software provides increased reading reliability. HydroRanger uses Milltronics continuous ultrasonic echo ranging technology to monitor water and wastewater of any consistency up to 15 m (50 ft) in depth. Achievable resolution is 0.1% with accuracy to 0.25% of range. Unlike contacting devices, HydroRanger is immune to problems caused by suspended solids, harsh corrosives, grease or silt in the effluent, reducing downtime.



Product Features

- Monitors wet wells, weirs and flumes
- Digital communications with built-in Modbus RTU via RS-485
- Compatible with SmartLinX system and Dolphin Plus configuration software
- Single point level monitoring
- 6 relays standard
- Anti-grease ring / tide mark build-up

Technical Specifications

Power

- ac version: 100–230 Vac \pm 15%, 50 / 60 Hz, 36 VA (17W)
- dc version: 12–30 Vdc (20W)

Environment

- location: indoor/outdoor
- altitude: 2000 m max.
- ambient temperature: -20 to 50°C (-5 to 122°F)
- relative humidity: suitable for outdoor (Type 4X / NEMA 4X / IP65 enclosure)
- installation category: II
- pollution degree: 4

Range

- 0.3 to 15 m (1 to 50 ft) dependent on transducer

Accuracy

- 0.25% of maximum range or 6 mm (0.24"), whichever is greater

Resolution

- 0.1% of program range* or 2 mm (0.08"), whichever is greater

Programming

- primary: hand held programmer
- secondary: PC running Dolphin Plus software

Display

- 100 x 40 mm (4 x 1.5") multi-field back lit LCD

Enclosure

- Type 4X / NEMA 4X / IP65, polycarbonate

Temperature Compensation

- range: -50 to 150°C (-58 to 302°F)
- source: integral transducer sensor, TS-3 temperature sensor, programmable fixed temperature

Temperature Error

- sensor: 0.09% of range
- fixed: 0.17%/°C deviation from programmed value

Outputs

mA outputs (2)

- 0–20 mA or 4–20 mA, max. loading 750 Ω , 0.1% resolution

Transducer Drive

- 315V peak

Relays

- six, 4 Form 'A' / 2 Form 'C'
- all relays rated 5A at 250 Vac, non-inductive

Communication

- RS-232 running Modbus RTU or ASCII via RJ-11 connector
- RS-485 running Modbus RTU or ASCII via terminal blocks
- optional: Smartlinx® cards, RS-485 modem kit

Inputs

mA (analog) (1)

- 0–20 or 4–20 mA, from alternate device, scaleable

Discrete (2)

- 10-50 Vdc switching level
- logical 0 = <0.5 Vdc
- logical 1 = 10 to 50 Vdc
- 3 mA maximum draw

Transducer

- compatible models: Echomax® series and ST-H series (44 kHz)

Cable

- transducer and mA output signal to be 2-3 copper conductors, twisted, with shield** and drain wire, 300V 0.5–0.75mm² (22–18AWG)

Weight

- 1.37 kg (3.02 lbs)

Approvals (pending)

- CE***, FM, CSA_{US/C}, UL Listed
- CSA Class I, Div. 2, Group A, B, C and D; Class II, Div. 2, Group F and G, Class III

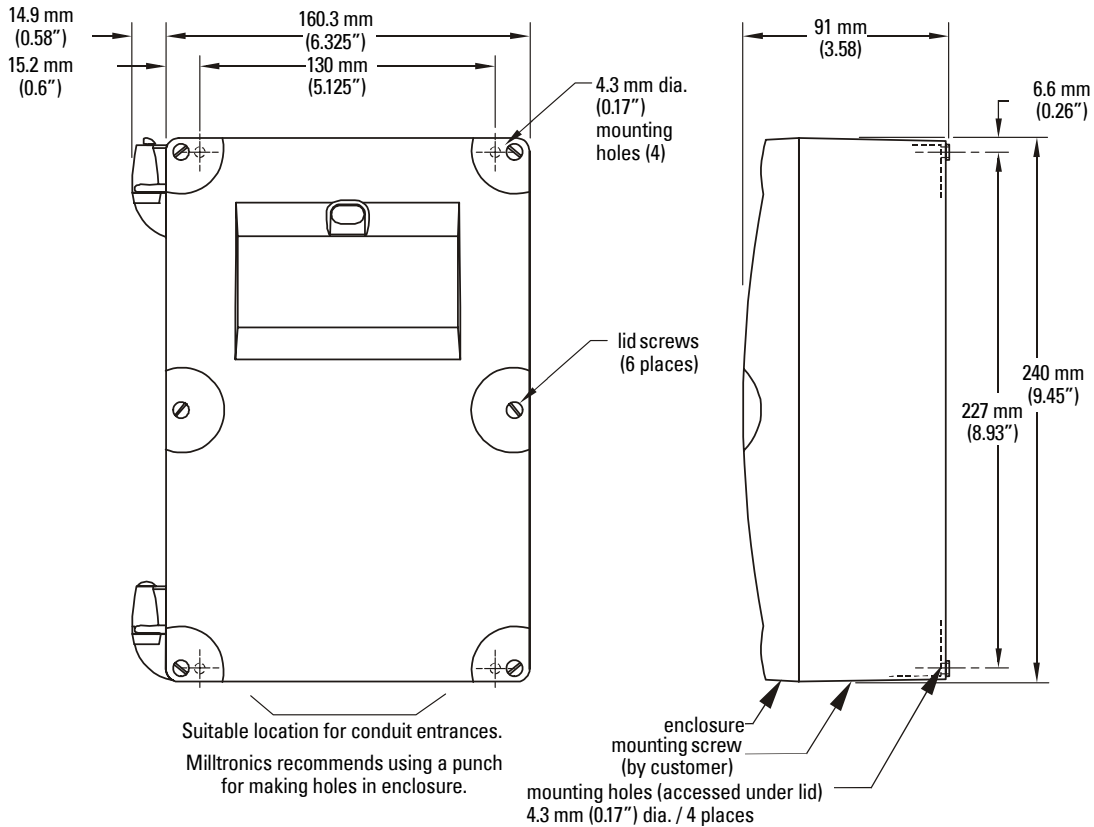
* Program range is defined as the empty distance to the face of the transducer plus any range extension.

**Shielding preferred - braided screen

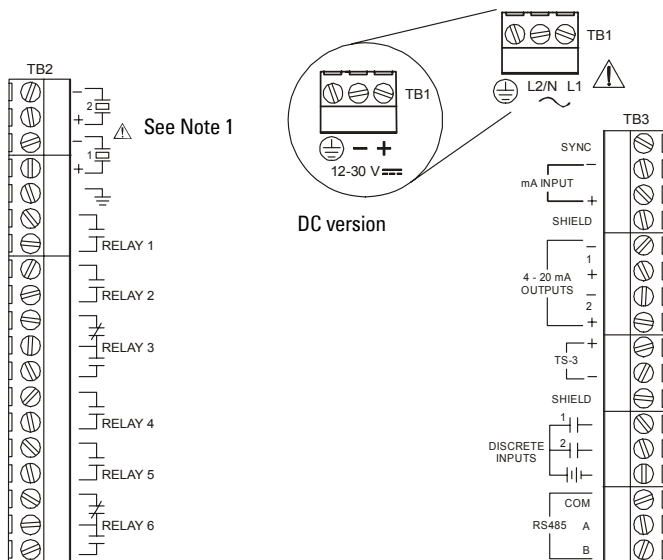
***EMC performance available upon request.

Specifications are subject to change without notice.

Dimensions



Wiring



Relays shown in de-energized position.

Notes

- 1) Use 2-3 copper conductors, twisted with shield, for extensions up to 365 m (1200 ft). Run in grounded metal conduit, separate from other wiring.

- Verify that all system components are installed in accordance with instructions.
- Connect all cable shields to the HydroRanger Shield Connections. Avoid differential ground potentials by not connecting cable shields to ground (earth) anywhere else.
- Keep exposed conductors on shielded cables as short as possible to reduce noise on the line caused by stray transmissions and noise pickup.