Level instruments
Continuous measurement - Ultrasonic transceivers for interface detection

Fig. 4/56 InterRanger DPS 300

Application
The microprocessor-based InterRanger DPS 300 permits measurement of interfaces in one or two primary clarifier tanks in the water and waste water industries. It uses one or two Echomax XCT-12 non-contacting transducers and advanced echo processing algorithms to monitor the sludge blanket extremely accurately, thus significantly improving process efficiency, maximizing throughput, and reducing costs.

Communications via RS-232/RS-485 or bipolar current loop, together with isolated mA outputs, provide the capability for integration in central control systems.

The DPS 300 monitors interfaces in round or rectangular clarifier tanks with a measuring range of 1 to 30 m (3.4 to 100 ft). The self-cleaning transducer operates for extended periods of time without maintenance. The DPS 300 is a cost-effective system for sewage treatment plants where reliable sludge level monitoring can improve the effluent quality.

Major features
- Accurate measurement with dual frequency transceiver
- Aluminum mounting assembly available
- 4 programmable alarm/control relays
- Dolphin Plus and SmartLinx compatible

Technical data

Mode of operation
Measuring principle Ultrasonic interface measurement

Input
Measuring points Max. 2 points per DPS 300
Measuring range Max. 1 to 30 m (3.4 to 100 ft)

Output
- Sensor Echomax XCT-12
- Relays 4 alarm/control relays
- Max. load 750 Ω, isolated
- Resolution 0.1%
- Outputs Max. 2 outputs

Accuracy
Error in measurement 1% of measuring range or 2 cm (0.8”), whichever is greater
Resolution 1% of measuring range or 2 cm (0.8”), whichever is greater
- Temperature compensation
  -50 to +150 °C (-58 to +302 °F)
  integral temperature sensor in transducer
  programmable fixed temperature
- Temperature error
  - With compensation 0.1% of range
  - Fixed temperature 0.22%/°C deviation from programmed value

Rated operating conditions
Ambient conditions
Ambient temperature for enclosure -20 to +50 °C (-5 to +122 °F)

Design
Weight 2.7 kg (6 lbs)
Material (enclosure) Polycarbonate
Degree of protection (wall mount) IP65/NEMA 4X/Type 4X

Electrical connection
- Ultrasonic transducer Compatible models: Echomax XCT-12, RG62-A/U coaxial cable with low capacitance
- Cable connection Two-core copper conductor, twisted, with foil shield, drain wire, 300 V, 0.5 to 0.75 mm² (22 to 18 AWG)
- Electrical connection and relay connection Copper conductor according to local requirements, rated 250 V 5 A

Power supply
AC 100/115/200/230 V ±15%, 50/60 Hz, 31 VA

Displays and controls
- 51 x 127 mm (5 x 2”) graphic LCD with backlighting
- EEPROM (non-volatile), no battery required
- Using removable programmer (option) or Dolphin Plus (option)

Certificates and approvals
CE, CSA, NRTL, UL, FM
Level instruments
Continuous measurement - Ultrasonic transceivers for interface detection

InterRanger DPS 300

Options
Communications
- SmartLinx: protocol-specific modules as interface for popular industrial fieldbus systems
- Dolphin Plus: Windows® compatible configuration software connected to unit via infrared Converter link

Skimmer guard
- Versions
  Type A: 20 cm (8") or type B: 40 cm (16")
- Temperature
  -40 to +80 °C (-40 to +176 °F)
- Material
  Stainless steel hinged conduit with guard, neoprene hinge boot
- Hinge
  ± 90° off vertical
- Weight
  Type A: 1.4 kg (3 lbs), Type B: 2.1 kg (5 lbs)

Mounting assembly
- Versions
- Temperature
- Material
- Weight
  For railings with diameter 50 mm (2") or less, 2 rails spaced 432 to 610 mm (17 to 24") from center
  -40 to +80 °C (-40 to +176 °F)
  Epoxy-coated aluminum, stainless steel mounting parts
  6.5 kg (15 lbs)

Fig. 4/58 InterRanger DPS 300 dimensions

Fig. 4/57 InterRanger DPS 300 connection diagram

Notes:
1. Optically isolated, 750V max. load
2. Use RG62-A/U coaxial (or equivalent) for extensions up to 365 m (1200 ft). Run in grounded metal conduit, separate from other wiring.
3. Each relay has 1 set of form 'C' (SPDT) contacts, relay rated at 5A 250 Vac, non-inductive, when equal or lower rated limiting fuses are installed.
4. Required if mounted adjacent to other InterRanger DPS 300 units or other specified Siemens Milltronics devices. Interconnect all 'SYNC' terminals with a single 18 gauge (0.5mm²) wire.

Note 3
Note 2
Note 1
Continuous measurement - Ultrasonic transceivers for interface detection

**InterRanger DPS 300**

For monitoring interfaces in one or two primary clarifier tanks in the water and wastewater industries.

**Ordering data**

<table>
<thead>
<tr>
<th>Siemens Milltronics InterRanger DPS 300</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>For one clarifier tank ........................</td>
<td>7ML1013</td>
</tr>
<tr>
<td>For two clarifier tanks .....................</td>
<td>C)</td>
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</tbody>
</table>

**Input voltage**

- AC 100/115 V, AC 200/230 V, selectable

**Data communications**

- No module (SmartLinx ready)
- Allen-Bradley® Remote I/O module
- PROFIBUS DP module
- Modbus® RTU module
- DeviceNet® module

**Enclosure**

- Standard enclosure
- Wall mount, drilled, 7 x M20

**Instruction Manual**

- None
- English
- French
- Spanish
- German

**Approvals**

- CE, CSA, FM

**Accessories**

- Handheld programmer
- ComVerter, infrared link
- M20 cable gland kit (6 M20 cable glands, 6 M20 nuts, 3 stop plugs)
- Mounting Kit InterRanger DPS 300, wall mount
- Skimmer for InterRanger DPS 300 (wall mount)
- Type “A”, with NPT thread
- Type “A”, with BSP thread
- Type “B”, with NPT thread
- Type “B”, with BSP thread
- Transducer spray cleaning nozzle
- Transducer spray cleaning nozzle instruction manual

**Additional Instruction Manual for InterRanger DPS 300**

- English
- French
- Spanish
- German

**C) Subject to export regulations AL: N, ECCN: EAR99.**

1) for skimmers 20 cm (8”) or less in height.

2) for skimmers 40 cm (16”) or less in height.

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