



## YARWAY

### Features

- The Yarway Series 3000 five probe and above alarm system represents the latest advancement in electronic level indication.
- The 3000 Series has upgraded internal diagnostics for monitor clock faults, power supply faults and level fault.
- Based on the conductivity probe technology now widely accepted in the industry, it was specially designed to meet increasing demand for a reliable, cost effective means of sensing water in various applications. The probes can be mounted directly to the pressure vessel or column.
- The probes are welded stainless steel HP and IP electrode with zirconia insulator (3000 psig @ saturation, up to 1200°F [207 barg @ saturation, up to 649°C]) or threaded stainless steel LP electrode with Teflon® insulator (850 psig @ 525°F [58 barg @ 274°C]).
- The Series 3000 consists of three major components: the column with probes, the detection and verification unit and the remote display.
- The number of probes can be selected and spaced to indicate liquid level through a desired range.
- The column is custom manufactured to provide the most accurate indication for any application.
- Independent detection circuitry for each probe allows selecting relay output for alarms or trips.
- Local indication is standard within the Type 4X/IP65 D&V enclosure. Bright red and green indicator for the control room is standard.

### Note

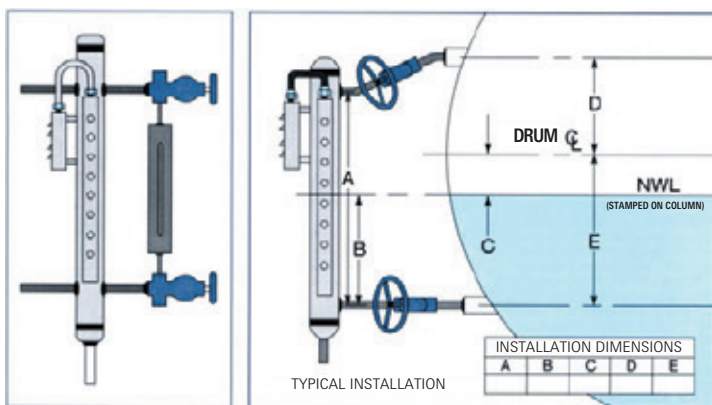
Teflon® is a registered trademark of E.I. du Pont de Nemours & Company.



Optional Door Mounted  
Red/Green LED Display Shown

### Typical applications

- Boiler Drum Level
- Equipment Drains (Desuperheaters, Control Valves, Sootblower Systems)
- Receiver Tanks (Condenser, Water Tank, Deaerator)
- Flash Tanks, Feedwater Heaters



### Water Columns

#### Ratings

3000 psig [207 barg] @ saturation

1800 psig [124 barg] @ saturation

850 psig [58 barg] @ saturation

#### Materials of Construction

Seamless Pipe and 1 1/2" NPS [40 mm] vessel stub fittings 8" [200 mm] length and 3/4" NPS [20 mm] stub drain connections. Standard water column is 3" NPS [80 mm], 30" [760 mm] length. Pipe schedules: [3000 psig] Sch 160, [1800 psig] Sch 160 and [850 psig] Sch 160. Probe covers are stainless steel IP32. Each standard 30" [760 mm] comes with 36" [915 mm] HT probe wires extending from the conduit connection.

- Optional:
- Remote junction box (Type 4X/IP65).
  - Prewired column mounted junction box (Type 3R/IP22).
  - Extended length column over 30" [760 mm].
  - 2" NPS [50 mm] and 3" NPS [80 mm] vessel fittings.
  - Redundant probe level indication. (Requires 4" [100 mm] diameter column)
  - Isolation and Drain Valves.
  - 3/4" NPS [20 mm] vent connection.
  - Flanged or Female socket weld connections.
  - Insulation heat jacket.
  - Weldolet/Bossets on connections.
  - Welded support brackets.

#### Manufacturer's Standard Materials

SA 106 gr B UNS K03006 to  $T_{max} = 1000^{\circ}\text{F}$  [538°C] EN 10210-1, S275J0H

Optional:

SA 335 gr P22 UNS K21590 to  $T_{max} = 1200^{\circ}\text{F}$  [649°C] EN 10210-1, S275J0H

SA 312 TP316 UNS S31600 to  $T_{max} = 1500^{\circ}\text{F}$  [816°C] DIN 17175 X5CrNiMo17-12-2/1.4401

#### Extended delivery time optional materials

SA 335 gr P11 UNS K11597 to  $T_{max} = 1200^{\circ}\text{F}$  [649°C] DIN 17175 13CrMo 4 4 (1.7335)

SA 335 gr P91 UNS K90901 to  $T_{max} = 1200^{\circ}\text{F}$  [649°C] DIN 17175 X20CrMoV 12 1 (1.4922)

SA 312 TP304 UNS S30400 to  $T_{max} = 1500^{\circ}\text{F}$  [816°C] DIN 17175 X5CrNi 18-10/1.4301

$T_{max}$  established by ASME B&PV Code Sect IID  
EN/DIN material = closest equivalent

#### Density error correction options

1. Steam heating tube for overall span density error correction.
2. Probe placement offset for single user specified operating point error correction.

#### Electrodes

1. Welded Stainless steel HP and IP electrode with zirconia insulator – 3000 psig @ saturation, up to 1200°F [207 barg @ 649°C].
2. Threaded stainless steel LP electrode with Teflon<sup>®</sup> insulator – 850 psig @ 525°F [58 barg @ 274°C].

#### Hazardous Area Usage

Diode barrier sets for intrinsically safe protection are available for electrode/sense wire energy limiting if water column is used in a class.

### Specifications

- Up to twelve level switch/indication applications per pcb, cascable to accept unlimited add-on probes.
- Independent detection circuit for each probe.
- Failure of any channel or probe does not disable system.
- Standard Green LED internal D&V display, yellow LED for faults.
- Every level has a relay output for alarms and trips with remote Red/Green LED indication (flash programmable).
- Low voltage mixed dual frequency sine wave used for water detection (<12 Vac RMS nominal).
- Net integral zero current waveform. No DC = no possibility of electrolysis of water or plating.
- D&V accepts up to three additional Red/Green LED remote displays.
- Redundant internal power supply.
- Relay outputs for level and electronic faults.
- Internal diagnostics for monitor clock faults, power supply faults and level fault.
- Patent Pending.
- Enclosure: Type 4X/IP65
- Maximum sensitivity: 1µS/0.1MΩ-cm water
- Input Power: 120Vac/240 Vac nominal, 50-60 Hz 45 VA nominal  
Unit incorporates MOV protection
- Relay contacts: Form C, SPDT  
10A @ 120 Vac  
5A @ 240 Vac  
8A @ 28 VDC
- Operating Temperature: 0-160°F [-17°C/+71°C]

### Standard Assembly

- Type 4X/IP65 Enclosure.
- One Remote Red/Green LED Display with programmable flash.
- Water Column with Probes.

### Optional

- 4-20mA loop output.
  - Dual primary level power supplies.
  - Type 4X/IP65 enclosure for remote displays.
  - Door mounted Red/Green LED display for local viewing.
  - Trip By-pass Key switch.
  - Continuity check for short/open probe/wire detection. Short based on less than 1/10 nominal water conductivity.
- Meets requirements of ANSI/ISA S84-01-96 "Safety Instrumented Systems" with optional dual primary level power supplies and short/open detection specified.