

## Level-Trac Model LT-440 Control Unit Dynamic Water Density Compensation

The Quest-Tec LT-440 provides an exclusive means of achieving accuracy with Guided Wave Radar, or any other loop powered instrument, when used in a water column to determine level in a high pressure steam system.

Water density increases as the temperature of steam condensate decreases. This can create a significant error to the actual water level in the water column as compared to the water level in the steam drum. For example, the density of water in a steam drum operating at 650° F is 599.54 kg/m<sup>3</sup>. The sub cooled water in a water column may be only At 615° F, and have a density of 657.49 kg/m<sup>3</sup>. This would result in an error of 8.9% of the water height in the column as compared to the steam drum. A water column with 30" of water indicated, could be expected to be nearly 3" lower than what is actually in the drum. Even an accurate measurement of level at the water column would result in a Water Density Error.

The LT-440 utilizes the data collected from at least 4 thermocouples installed on the water column and determines an actual average water temperature. The primary loop is dynamically corrected and a secondary loop is communicated to any device included in the loop.

### Alarm and Trip Logic:

Each LT-440 control unit is supplied with four DPDT relays for alarm and trip actuation. Each probe has a dedicated DPDT relay to be programmed and used as the application requires. The relays are programmable to be in the energized (failsafe) or de-energized mode as Normal. Normal may be independently programmed as wet or dry, as the application re-quires.

The LT-440 is equipped with a door mounted indicator that can be programmed to match a conductivity based probe system or display an analog configuration of all or any part of the range. The LT-440 has the capacity to control and drive two additional remote displays. Remote displays are available with up to 36 points.

### Fault Logic:

A Fault Indicator will illuminate if a thermocouple zeros or exceeds a given set point. Any individual thermocouple that indicates a failure will be ignored when estimating water temperature.

### Programming:

Questtec will supply the control unit programmed and tested per the user requirements. Each control unit is serialized and fully traceable.

Questtec Solutions is an integrator of Guided Wave Radar systems, specializing in boiler drum service. Questtec can supply the Guided Wave Radar instrument, Water Column, LT-440 Control Unit and Remote displays. Questtec is a proud holder of ASME "S" and "U" Certificates, and the National Board's "R" designation.

### Features:

- NEMA 4X Fiberglass Reinforced Polyester Enclosure
- 100-240 VAC 48-63 Hz Power Supply
- Data Collected from (4) Thermocouple inputs to correct water density error.
- System Fault Logic and Indication
- Low Power Consumption, 0.25 Amp Maximum
- Loop input for drum temperature

