CHURCHILL CONTROLS

Winston

Capacitive Level Measurement Probe

Key Features:

- *Robust and reliable - no moving parts*
- *Measures any liquid (conductive or non-conductive) e.g. water, diesel, hydraulic fluid, oil, kerosene*
- *Probe lengths from 200mm…6000mm*
- *Integral high and low level trip relays*
- *Voltage and current output (typically 0…5V + 4…20mA)*
- *Active or passive current output*
- *User-configurable span, offset, meter calibration, trip point and trip hysteresis*
- *Selectable damping for measuring agitated liquids*

Applications:

- *Diesel fuel gauge*
- *Process control*
- *Monitoring fuel, clean water and waste water tanks in boats*

INTRODUCTION

The ***Winston*** Capacitive Level Measurement Probe comprises a stainless steel tube with a concentric Teflon-coated wire. It calculates liquid level from the change in capacitance between the tube and the wire due to the dielectric constant of the liquid.

MECHANICAL CONSTRUCTION

The electronics are housed in a small head box, which includes the terminals for external wiring and the switches used to configure and calibrate the probe.

An alternative construction is available with the terminals and switches in a separate control box. This version is intended for applications where the probe is not normally accessible, such as monitoring of fuel and water tanks in boats. The control box can be housed behind the dashboard or control panel.

ANALOGUE OUTPUTS

The ***Winston*** provides two independent outputs (one voltage the other current). The current output can be configured as either active or passive. An active output sources current into an external load, and requires the unit to be fed from a DC supply. A passive output does not require a supply, since the unit is powered from the current loop. When configured to give a passive current loop interface the voltage output and the trip outputs are inactive.

All outputs can be electronically damped to minimise fluctuations due to agitation of the liquid.

TRIP OUTPUTS

The ***Winston*** includes two relays that provide high and low level trips, with user-configurable trip points and hysteresis. These can be used to provide alarms or to control pumps or valves. For example, if used to control a pump that fills the tank, the low trip could be configured to close at 25% and open at 45%. If used to control a valve that empties the tank the high trip could be configured to close at 80% and open at 75%.

CALIBRATION

The ***Winston*** is supplied with its input calibrated such that 100% signifies the probe fully immersed in water, and 0% signifies the probe completely unimmersed. The user can re-calibrate the probe to measure alternative fluids, or to use only part of the probe length.

The units are also calibrated such that 0…100% gives a span of 0…5V on the voltage output and 4…20mA on the current output. The user can change these if required to any range within the stated limits.

SPECIAL VARIANTS

Because is uses microprocessor technology, the ***Winston*** can be supplied configured for customer-specific applications. For example, scaling profiles can be incorporated such that the output indicates the volume of liquid in an irregularly-shaped tank.

Please contact the supplier to discuss any special requirements.

TECHNICAL SPECIFICATIONS

Power requirements:	If using active outputs only:	7.0…30.0VDC 2mA + current output
	If using trip level outputs:	10.0…30.0VDC 40mA max + current output
	If using current loop output:	7.0…30.0VDC 4mA minimum
Maximum Output Span:	0…10.00V + 0…25.00mA	
Trip outputs:	Volt-free contacts rated 240VAC 1A	
Accuracy:	±1% of probe length ±1% of maximum output span	
Fixing:	1” BSP thread or flange	
Head box and optional control box:	67 x 98 x 35mm, sealed to IP68	

In the interest of improvement the above specifications are subject to change without notice.

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