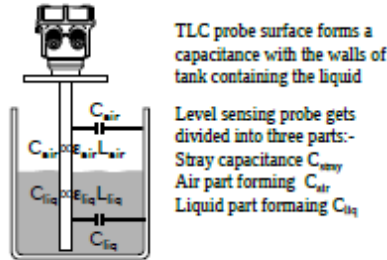




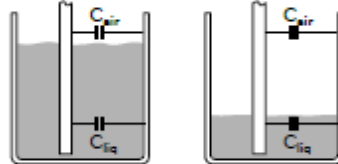
Chave de nível por capacitância TLC para líquidos e pós



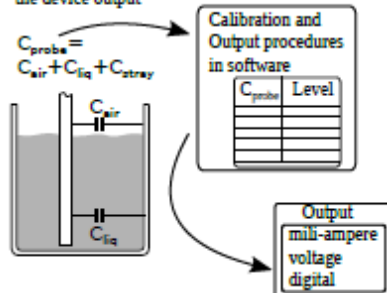
Operating Principle



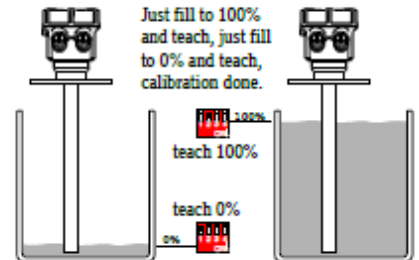
When level increases, C_{liq} increase, C_{air} falls while C_{stray} stays constant as probe/device is held at fixed location with respect to the tank.



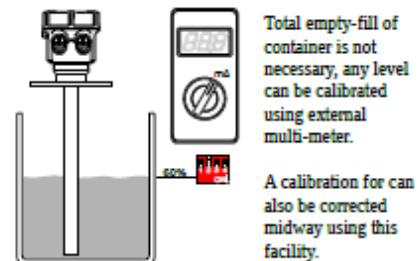
while, with level decreasing, C_{air} increases while C_{liq} falls, so in effect measuring capacitance provides information about liquid level in the tank. Software inside the device holds the higher and lower calibration values, and provides level information on the device output



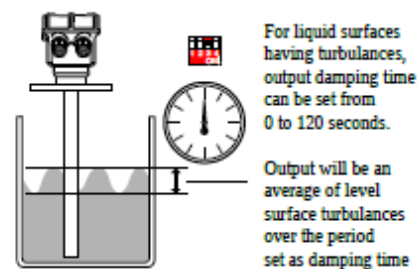
Easy Calibration



Calibrate/Correct Any Level

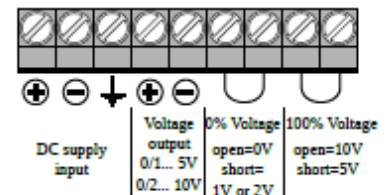


Ajustable Damping



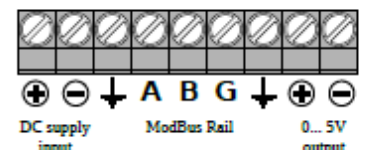
Voltage Output, All in One

Voltage output in 3/4 wire is available to suit most field voltage needs in field selectable configuration.



ModBus with 0... 5V output

ModBus-RTU option is available and supplied with complementary 0... 5V output to assist local test needs.



ModBus-RTU address can be forced to default using onboard DIP switches

Compact Size

Durable Construction

Fluid Turbulation Stability

Simple Calibration

Easy Installation

Order Code

TLC	Capacitance Liquid Level Transmitter
Hxxx	Enclosure: HAN: Aluminum Non-Hazardous IP-66/68, HAX: Aluminum Flameproof Ila, I Ib and I Ic, HSN: Stainless steel, HES: Specially designed enclosure as per customer requirement
Tx	Material Temperature (T1: max 80°C, T2: max 200°C, TS: Customer specified - Special designed)
Rx	Sensor rigid/flexible type, RD : Rigid Rod Sensor, RP : Flexible Rope Sensor for Solids (6/12mm), RL: FlexibleRope Sensor for Liquids (2mm), RS : Specially designed sensor)
Sx	Sensing Surface Material (S6:SS-316, SL:SS-316L, ST: PTFE coated, SF: PFA coated, SS: Special surface)
Ix	Insulation type : I0: None, IP: Partly PTFE insulated, IT: Full PTFE insulated, IC: Partly ceramic insulated,
Gx	Inactive Length or Sensor Extension Material (G0: None, G4: SS-304, G6: SS-316, GL: SS-316-L, GS: special material)
Wx	Stilling Well Material (W0: None, W4: SS-304, W6: SS-316, WL: SS-316-L, WS: special material)
Px	Process Connection Type : (PB1: BSP 1", PB2: BSP 1 1/4", PB4: BSP 1 1/2", PBS: BSP 2") (PN1: NPT 1", PN2: NPT 1 1/4", PN4: NPT 1 1/2", PNS: NPT 2") (PT1: Triclover/Triclamp 1 1/2", PT2: Triclover/Triclamp 2") (PCS: Special Process Connection) (PFL: Flanged Type - description of flange - FL -at the end of order code)
Cx	Process Connection Material (C4: SS-304, C6: SS-316, CL: SS-316L, CS: Special material)
EIL	Integral Electronics 4-20mA output, loop powered
EIV	Integral Electronics 0-10V/2-10V/0-5V/1-5V field selectable outputs, three wire system
EIM	Integral Electronics with ModBus interface and complementary 0-5V output, supports both local (DIP switch) and remote (ModBus) calibrations.
EIR	Blind Integral Electronics suitable for Trumen ICT series Remote Indicator-Controller-re-Transmitter units using ordinary 2-core shielded inter-connection cable with 1...1.5 sq mm conductors.
Lxxxx	Insertion length (125mm to 3000mm)
FLxx	Flange type and bore size specified for ASA/ANSI/JIS/DIN/Custom
ICT	Remote Indicator, Controller and re-Transmitter suitable for remote applications using EIR/EIL electronic inserts
Sx	SA : 80-260V AC 50/60Hz, SD : 16-32V DC
Rxx	RS3: 3 SPDT Relays (Cast Aluminum IP-65 Enclosure), RK2: 2NO/2NC Contactors (MS Sheet IP10 Enclosure)





TLC: Capacitance Level Transmitter for Liquids

Features

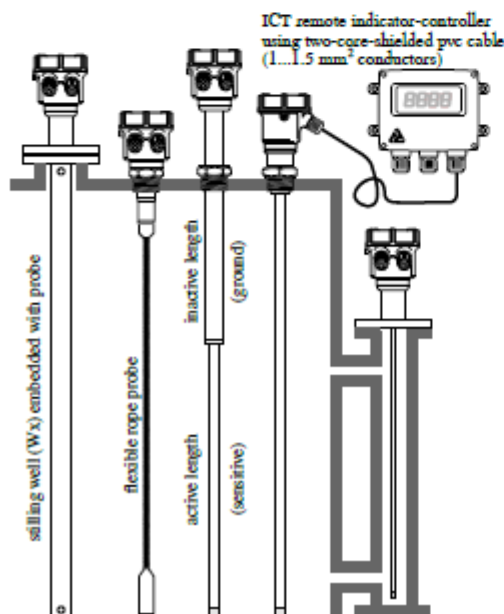
1. Fast Switching Response
2. High temperature durable probes
3. Single sensor allows pump-control & multi-point switching
4. Easy calibration with or without material
5. Remote electronics with std 10 meters cable length
6. External indication LED available
7. Threaded & Flanged Mountings
8. Electronic Inserts support all requirements
9. Ingress protection : IP 68/65 (as per IS-13947)
10. Ex-proof (Ex d T6 IP-66 IIC)
 - Flameproof as per IS/IEC 60079-1:2007
 - Weatherproof (IP-66) as per IS/IEC 60529:2001
 - Suitable for Gas Group : IIC
 - Suitable for Zone 1 & 2 atmospheres

Applications

Capacitance type level limit switch used as a full, empty and demand alarm in containers, hoppers, silos containing bulks and powders of various types.

Typical applications: water, waste water, cereals, beans, edible oil process, animal feed, rice plants, soya plants, dye powder, chalk, gypsum, fly-ash, cement, sand, plastic granules, spices, milk powder,

Typical Mountings



Specifications

EIL Supply	Integral Electronics Two-wire Loop Powered 14-60 VDC
Output	4-20mA Loop powered, Error output 21mA
Loop Resistance	maximum 475 Ohm @ 24DC supply
EIV Supply	Integral Electronics Three/Four wire (negative common) 14-60 VDC
Output	Field Configurable : 0% => 0V/1V (2V for 100%=>10V), 100% => 5V/10V
Load Resistance	minimum 10K Ohm
EIM Supply	Integral Electronics Three/Four wire (negative common) 14-60 VDC
Interface/Output	ModBus-RTU / complementary 0-5V output suitable for > 20K Ohm Calibration/configuration available through ModBus as well as without using DIP switches
EIR Supply	Blind Integral Electronics Two-wire suitable for Remote ICT units. From ICT "sensor +, -" terminals
Output	Loop current to ICT "sensor +, -" terminals
ICT specifications	ICT provides numerical LED indicator, control logic with relay outputs and re-transmission over galvanically isolated 4-20mA output
ICT Power Supply	SA : 80-260VAC, 50/60Hz for AC version SD : 16 to 32VDC for DC version
ICT RSx Relay Rating	SPDT 5 A each @ 24VDC or 220VAC (3 SPDT relays in IP65, max 6 SPDT relays in IP40 metal sheet enclosure)
ICT RKx Relay Rating	Contactors with 2NO/2NC rated at (1, 2 or 3 contactors, only in IP40 metal sheet enclosure)
ICT Isolated Loop Supply	24V +/- 4V Suitable for maximum 25mA load
ICT re-Transmission	4-20mA, Error@21mA, galvanically isolated loop powered section for use with either integrated ICT Isolated Loop Supply or any external DC supply within range 16 to 50VDC
ICT to TLC cable	Shielded 2 Core PVC cable with 1 to 1.5 mm ² conductors cross section
Min. Dielectric Constant	1.8 (non-hygroscopic)
Ambient Temp.	-20°C ... 60°C (-4°F ... 140 °F)
Process Temp.	-20°C ... 100°C (-4°F ... 212 °F)
Extended Process Temperature	PTFE Insulation: -30 °C ... 250 °C (-22 °F ... 482 °F) Ceramic Insulation: -30 °C ... 600 °C (-22°F ... 1,112 °F) (extensions & heat sinks required)
Process Pressure	absolute / max. 15 bar (for ceramic insulation : 1 atm)
Wetted Parts	SS-304, SS-316, SS-316L, PTFE, part ceramic
Process Connection	NPT / BSP 1", 1 1/4", 1 1/2", 2" etc Flanged : ANSI/JIS/DIN/ASA/custom
Probe Insertion Length:	Rigid Rod : 50mm to 3,000mm Flexible Rope : 100mm to 20,000mm

Specifications are subject to change without prior notice

