

MODEL 107 PROBE TYPE MULTIPOINT LEVEL SWITCH

Digital Circuitry For Difficult Services, Pushbutton Menu Driven Calibration

TS107

- Intrinsically Safe probe circuit is standard.
- R.F. Admittance type circuitry
- Insensitive to process coatings and buildup.
- All digital large direct reading LCD display.
- Reads level directly in gallons, meters, tons, etc.
- Digital pushbutton setup and calibration.
- Simple, two point calibration. You don't have to empty the tank to calibrate accurately.
- Can be direct or reverse calibrated at will.
- Built-in self-diagnostics warns of miscalibration.
- Choice of integral or remoted electronics module.
- Design is accurate, simple, and very reliable.
- Process temperature -350 to +750°F (-210 to 435°C)
- Corrosion resistant, NACE #MR-01-75 optional.
- High or Low relay failsafe action.
- Adjustable 1-30 second time delay.
- High reliability; 100 hour operational quality testing.
- Epoxy sealed electronics module survives harsh environments and area vibration.
- Process pressure may be from hard vacuum to as high as 10,000 psig (-1 to 700 Bar).
- Choose from application specific probe shapes, styles, configurations, and process connections.
- Wide choice of wetted materials includes Steel, Stainless, Teflon®, Kynar®, Monel, and Ceramics.
- Threaded, flanged, or bracket mounting.



Model 107D in Exproof Housing with Type 51 Rod Probe

APPLICATION

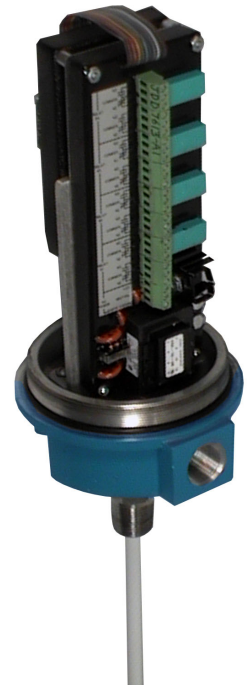
The Model 107C and 107D probe type switches use RF Admittance technology to produce switching action when a material level crosses the switchpoint position set on its sensing probe. Many probe configurations are available; the proper Type is determined by the service. The Model 107 can accurately detect the interface position between two liquids with different dielectric constants. The unit will even average out a cloudy interface and produce a precise switching action as its position passes the setpoint. A limitation is that one of the liquids must be nonconductive. The 107 is not sensitive to density (specific gravity) variations.

OPERATION

The Model 107 utilizes admittance technology to measure how much of its sensing probe is covered by the liquid. This is accomplished by generating a radio frequency pulse of energy which travels from the sensing probe to the ground reference (usually the tank wall). The amount of liquid between the two determines how much energy is transferred. The amount of energy flowing (very small and low level in all cases) is a highly repeatable measure of the liquid level or interface position. The amount is compared to an internal reference and produces a switching action at selected material elevations.



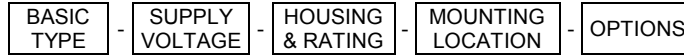
Model 107D Front View Showing Display, Keyswitches, and Probe Connections



Model 107D Rear View Showing Relay and Power Connections

DELTA CONTROLS Corporation

MODEL 107 NUMBERING SYSTEM



PROBE FOR THIS LEVEL SWITCH SPECIFIED SEPARATELY

MODEL EXAMPLE

107C - 1 - 4X - 10P - AA

M/N	* RELAYS
107C	2 RELAYS
107D	4 RELAYS

* BOTH HAVE I.S. PROBE CIRCUIT
RELAYS ARE 5 AMPS @ 125/250 VAC, DPDT

M/N	DESCRIPTION
1	120 VAC 50/60 HZ
2	240 VAC 50/60 HZ
3	24 VDC

M/N	DESCRIPTION	
AA	NONE	
PSM	2" PIPESTAND OR SURFACE MOUNTING BRACKET FOR "7W" REMOTE ELECTRONICS HOUSING	
PH	PROBE HEAD HSG WITH TERMINALS FOR REMOTE MOUNTING OF ELECTRONICS HSG	4X HOUSING
		7 HOUSING
DW	DISPLAY WINDOW FOR "4X" HOSEPROOF	
EC	EPOXY COATING TO MEET NEMA 4X FOR HSG	
ZZ	SPECIAL CONFIGURATION OR FEATURE	

M/N	DESCRIPTION
AA	NONE, INTEGRAL
#P	REMOTE, POLY JACKETED CABLE, 160°F MAXIMUM
#D	REMOTE, TEFLON JACKETED CABLE, 450°F MAXIMUM

REPLACE # WITH TOTAL LENGTH OF CABLE REQUIRED, IN FEET

M/N	MATERIAL	DESCRIPTION
4X	FIBERGLASS	4X HOSEPROOF REMOTE MOUNT ONLY
7W	ALUMINUM	EXPLOSION PROOF CLASS 1, DIV 1, GRPS B,C,D,E,F,G ; ALSO 4 HOSEPROOF FOR INTEGRAL OR REMOTE MOUNT

HOUSINGS ARE THIRD PARTY LISTED

BASIC SPECIFICATIONS

Differential Control: Each point is independently programmable to full range of sensing units.

Level Range: Independently programmable On or OFF switchpoints anywhere along the length of the probe. Switching points may be set anywhere from 0-32,000 Sensing Units ("MSU"). 5 SU is the recommended minimum

Number of Relays:

Model 107C - 2 each DPDT 5A @ 250 VAC

Model 107D - 4 each DPDT 5A @ 250 VAC

Time Delay: 0.25 to 30 seconds programmable.

Operating Temperature: -40 to +180°F (-40 to +80°C).

Temperature Effect (0-150°F): Typically less than 0.25%.

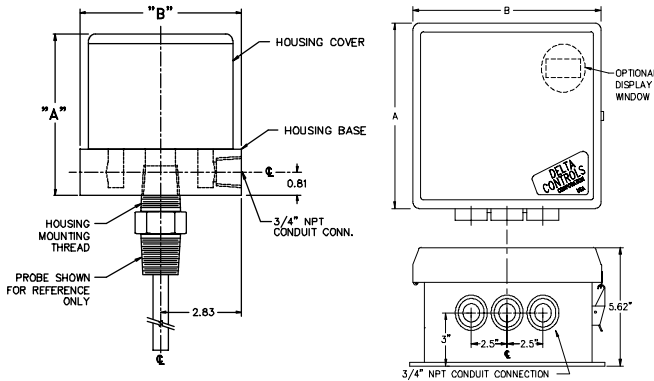
Probe Sensing Circuit: Intrinsically safe.

Electronics Modules: Potted for high reliability.

ELECTRONICS LOCATION

Integral mounting produces a simple one-piece unit, which generally results in the lowest installed cost. Alternately, the Model 107 electronics module may be located 50 feet (C/F for up to 100 feet) away from the probe. A coaxial cable connects the remoted electronics to the sensing probe. The probe may be mounted either vertically or at an angle. The material level must move past the points on the probe where switch action is to occur.

OUTLINE DIMENSIONS



'7WI' INTEGRAL HOUSING

4X REMOTE ELECTRONICS SURFACE HOUSING

CALIBRATION

Calibration is simple and easy. The Model 107 can be calibrated using any two levels in the tank. The tank does not have to be completely filled or emptied, you need only to change the level to get a required second known elevation.

CALIBRATION PROCEDURE

1. Measure the level of material in the tank or set the level in the tank to a known level. Press the NEXT button until CAL PT 1 is displayed. Press the INCREASE or DECREASE buttons until the actual level in the tank is displayed. Then press SAVE.
2. Change the level of material in the tank to another known level. The amount of change is not critical, however the farther apart the two calibration points are, the more accurate will be the calibration. Press the NEXT button until CAL PT 2 is displayed. Press the INCREASE or DECREASE buttons until the new level in the tank is displayed. Then press SAVE. Calibration can be done at any time, even in service.
3. To set up the relays, Press the NEXT button until the relay setpoints ("IN" & "OUT") are displayed. Press the INCREASE or DECREASE buttons until the "IN" setpoint is reached. Then press SAVE. Repeat for the "OUT" setpoint.

THIRD PARTY LISTING

Housing: Explosionproof, Class 1, Division 1, Groups BCD, EFG; also 4X Hoseproof

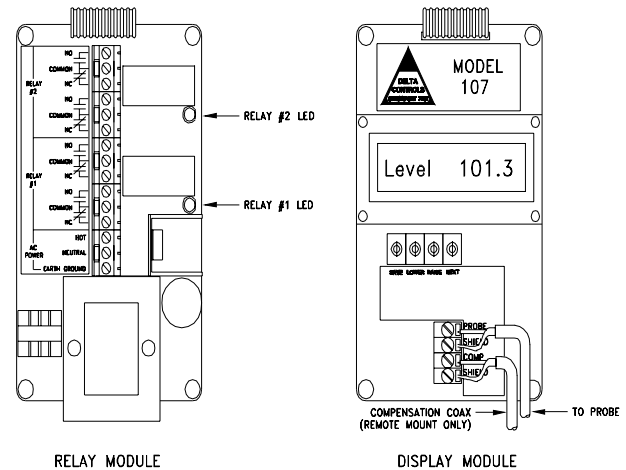
CSA (Canada) NRTL/C (USA)



Sanitary (Worldwide)

ISO 9001 Quality System

MODULE LAYOUT WITH WIRING



DELTA CONTROLS CORPORATION
 Engineered Sensors – For Difficult Services
 585 Fortson Street
 Shreveport, La. 71107 - USA



Ph: +1(318) 424 8471
 Fx: +1(318) 425 2421
 E-mail: sales@deltacnt.com
 Web: www.claustemp.com