PUNE TECHTROL PVT LTD
'S' 18, MIDC, Bhosari, Pune - 411026, India
Ph : +91-20-66342900, 27121052 / 8055 Fax : +91-20-66342998
Email : ho@punetechtrol.com Web : www.punetechtrol.com

Techtrol RATED NSIC-CRISIL SE1A

INSTRUCTION & MAINTENANCE MANUAL FOR R F ADMITTANCE POINT LEVEL SWITCH ' RFA'.

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We are glad to know that you are using a reliable ' TECHTROL PRODUCT ' for proper and safe functioning of the same we suggest you to go through our ' INSTRUCTION & MAINTENANCE MANUAL ' carefully before installing our instrument.

INTRODUCTION & WORKING :

R F Admittance Switch consists of a Sensing Probe with an integral electronic Switching Unit. The Sensing Probe comprises of 3 elements viz. Sensing Rod, SS Coat guard shield and PTFE Insulation for liquids / Ceramic insulation for solids & slurries. The combination of special electronics & Coat guard technique provides immunity against material build up on the Probe and Container wall. The system consists of the following,

The Sensing Probe and
The Electronic Switching Unit.

The sensing probe consists of three sections,

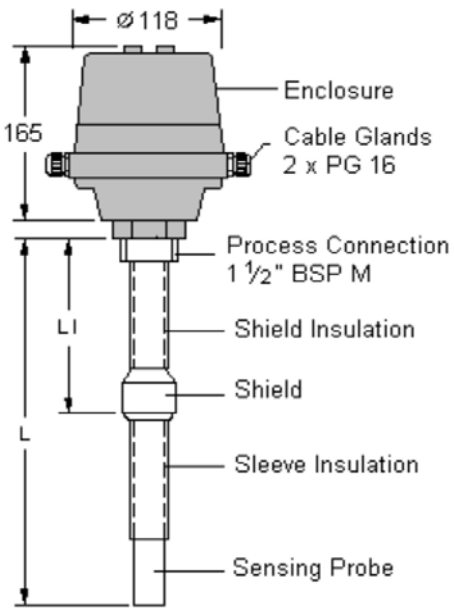
1. Measuring Section
2. Coat guard Section
3. Ground section

The Coat Guard section guards the system against the transmission of RF signal through any coating on the sensing element from the measuring section to the ground. The only available path to the ground for the RF signal is through the service material in the hopper.

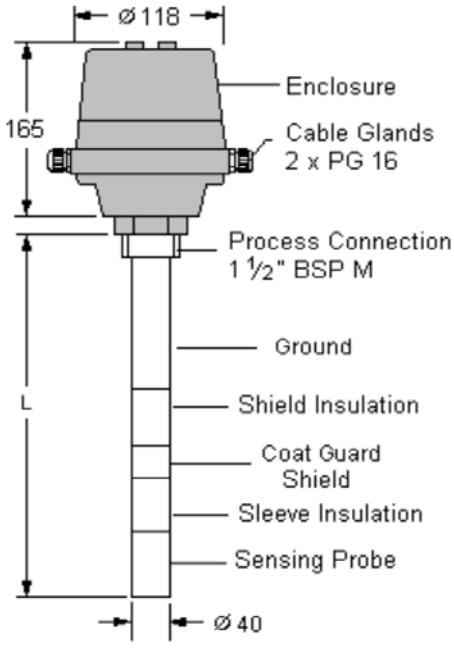
APPLICATION :

Cement, Sand, Lime, Soda Ash, Talcum powder, Milk / Chocolate powder, Coffee, Sugar, Salt ,Resin powder & Pellets, Fertilizer, Wheat Flour, Rice Barley, Butter, Iron powder, Carbon, Calcium, Slurry, Sludge, Sewage, Coal, Wax, Cream, Sodium Carbonate, Ink, Alcohol, Beer, Waste Water, Syrup, Chromium Acid, Sesame.

STANDARD PROBE WITH INTEGRAL SWITCHING UNIT



HEAVY PROBE WITH INTEGRAL SWITCHING UNIT



INSTALLATION :

Mounting of the Probe would depend upon its construction and may differ from application to application. Depending on the application, the rigid probe can be mounted vertically, either from top or horizontally, from hopper side.

The standard unit has screwed, 1½" BSP mounting, which can be mounted laterally on the container wall at the desired level of the material to be controlled. The probe rod should be in horizontal position or pointed slightly downward.

For installing the probe vertically from the top, sufficient clearance (equal to the probe length minimum) should be available above the hopper top to facilitate hoisting of the probe for insertion into the hopper.
Following precautions should be taken during installations.

The probe should not be bent or position distorted.

In case of flat strip probe , the edge of the strip should face ground so that the strip surface remains perpendicular to the ground plane.

The shield element of the probe (standard probe) should extend at least 50 mm in to the vessel. The extended probe should be mounted in such a way that it does not extend further than necessary in to the vessel (for boot level probe the mounting socket length should not be more 'than 25 mm).

During filling operation, the material should not fall directly onto the probe. Otherwise protection shield should be provided over the probe.

During installation of the probe with screw mounting, turn the Hexagonal mounting bush of the probe and not the housing.

SWITCHING UNIT INSTALLATION :

The standard unit has electronics integral with the probe. For remote mounting of Switching Unit away from the probe, the Housing is suitable for back panel mounting.

For wiring and connections, refer the enclosed drawing. For remote unit only the supplied ' THREE TERMINAL ' connecting cable should be used for interconnecting the probe with Switching unit.

The Switching unit should not be mounted at the location where the ambient temperature is not more than 60^{O} C.

Precaution should be taken to avoid the falling of Sun rays on the Switching unit housing. In case it is not possible to avoid, a suitable sun protection cover should be provided over the housing.

FAIL SAFE MODE SELECTION :

Depending upon the process requirement, the minimum or maximum fail - safe mode can be selected in the R F Admittance Level Switch.

In R F Admittance Level Switch the Relay is in energised condition. When level changes state the relay de - energizes. Thus, besides level alarm condition, the operator gets an alarm even in case of mains failure or the instrument failure. This imparts a better overall reliability of operation.

Maximum fail safe mode means the relay de - energizes when the level exceeds the desired point or when mains supply fails.

Minimum fail safe mode means the relay de - energizes when the level drops below the desired level or when mains supply fails.

NOTE : The contacts shown in the connection drawing are for Fail Safe High condition. The contacts will reverse when Fail Safe Link is changed to Low position.

ELECTRICAL CONNECTIONS TO RF ADMITTANCE SWITCH :

Please refer the connection diagram for the electrical connection. Appropriate Mains Voltage should be connected to the terminals of the instrument as specified. The connectors are suitable for 1.5 mm^2 cable cross section.

SET POINT SWITCHING CALIBRATION :

There is single adjustment in the Switching Unit and is accessible from the top. There are three LEDs on the top of the Switching Unit. YELLOW LED indicates Power ON conditions. GREEN LED indicates the Relay is in energized state. RED LED indicates the Alarm condition and Relay is in de-energized state. The set point adjustment is done by multiturn variable capacitor. **(Please do not Stress the capacitor, it is made of glass).**

Select the Fail Safe Mode.

Keep the time delay pot at minimum.

Turning the capacitor clockwise will raise the level at which the relay operates. Turning the capacitor counter clockwise will lower the level at which the relay operates.

Please use an insulated tool (small screw driver with minimum metal portion outside the insulation). for adjustment. Do not turn the capacitor beyond its limit as would damage the same.

Hopper should be empty or the level should be more than 300 mm below the probe.

Turn the capacitor in full counter clockwise position. Using the insulated tool turn the capacitor adjustment slowly in clockwise direction till the relay just operates and Green LED glows. Repeat the operation couple of times to confirm the point of switching.

Rotate the adjuster further CLOCKWISE by Half a turn / One turn / Two turns depending on the application and the probe construction and mounting orientation. (Do not turn the adjuster counter clockwise). The instrument is now set for desired switching point.

Adjust the Time Delay Pot as per your requirement.

MAINTENANCE :

In normal conditions R F Admittance Switch needs no maintenance.

However, if the material has build up tendency ; over a time the probe should be cleaned whenever need occurs.

Ensure that the Cable Glands and the Housing Lid are sealed to prevent ingress of moisture.

TECHNICAL SPECIFICATIONS :

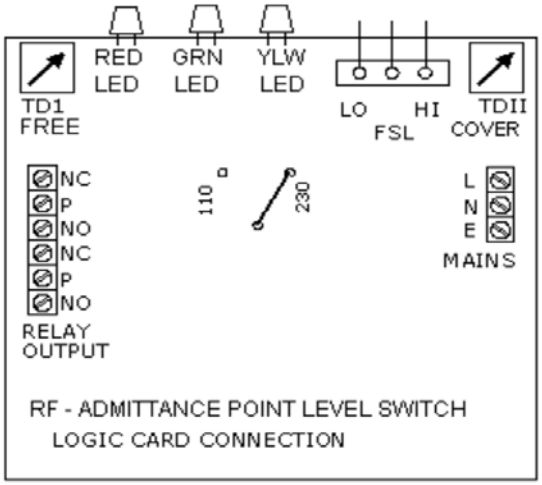
SENSING PROBE -

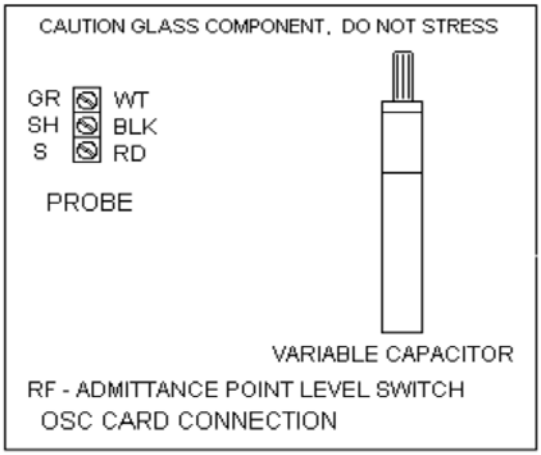
Type	Standard or Heavy
Std. Probe Length	350mm (Max. 3000 mm).
Sense Rod	SS304
Coat Guard Shield	SS304
Grounding	GI / SS304 (Optional).
Insulation	a. PTFE (150^{O} C).
	b. Ceramic (250^{O} C).
Operating Temp.	150^{O} C / 250^{O} C with GI. Temp. stand off.
Mounting	Top / Side.
Process Connection	Screwed - 1½" BSP (M) (Std.).
	Flanged - 1½" NB, BS - 10 T ' D '.

INTEGRAL SWITCHING UNIT -

Enclosure	Cast Aluminium, Weather Proof, Powder coated. Integral with Probe.
Cable Entry	2 x PG 16 (POLYMER).
Ambient Temperature	0^{O}C to + 60^{O}C.
Supply	230 / 110 V AC 50 Hz. (± 15%) or 24 VDC.
Power Consumption	2 VA
Output	2 Sets of potential free c/o contacts rated at 5 Amps.
	230 V AC (resistive load).
Switching delay	Continuously adjustable from 2 to 20 sec. Probe free and covered.
Safety Operation	Field selectable switch over for min. or max. (FSL / FSH) switching.
LED display	GREEN - Normal ; RED - Alarm ;
	YELLOW - Power ON.

CONNECTION DRAWING :





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