I N S T R U C T I O N - M A N U A L

CONDUCTIVITY POINT/S LEVEL SWITCH

JAYCEEAQUA– 4000 SERIES

FUNCTION:

Conductivity level limit switches are based on the principle of measuring level through the electrical properties of the process material. As the name suggests, the conductivity based level switches sense the level of water or other conductive liquids that have free ions.

Jaycee make JAYCEEAQUA conductivity level switches offer a wide range of customization options to meet any application's needs. They are designed to control the level of all conductive service mediums, offering up to 4 different points of level monitoring and control. Models are available with fixed rigid probes, or with flexible rope type probe attached to the housing. These switches suit applications involving both alarm point detection and on/off pump valve control. Installing this level switch is easy and operation is maintenance-free.

MEASURING SYSTEM:

The complete system, JAYCEEAQUA -4000… series, consists of: -
Sensing probe/s and Electronic Switching unit
The sensing probe consists of rod or flexible wire, depending upon the application.

PRIMARY AREA OF APPLICATION

Any electrically conductive liquid.

TECHNICAL SPECIFICATIONS:

SWITCHING UNIT:

Housing:	DIN RAIL, suitable for back panel mounting
Ambient temperature:	0 ° C to +60° C
Mains Voltage:	65-265V AC (+/-15%), 50 Hz or 24 V DC
Output:	1 sets of potential free c/o contacts rated at 5 amps, 230VAC for resistive loads per switch point.
Power consumption:	3 VA
Safety operation:	Field selected switch over for minimum or maximum (FSL/FSH) switching points.

Switch status display:	LED L1 to L4 for four points of level monitoring and L5 for power ON/ timer.

SENSING PROBE:

Mounting:	Screwed – 1/2" BSP (standard), Above 1/2" BSP and flanged mounting (As per application and requirement)
Sensing Probe:	Stainless steel 304/ 316 rod / rope type
Insulation:	PTFE (standard) Other insulation on request and as per application.
Operating temperature:	200 ° C max. (Inside vessel)

INSTALLATION OF JAYCEEAQUA:

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

The standard unit has screwed, 1/2" 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 horizontally 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 tank top to facilitate to hoist the probe over the tank top for insertion into the tank.

Following precautions should be taken during installations:-

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

During installation of probe with screwed mounting, turn the hexagonal mounting bush of the probe and not the housing.

In case of flexible wire probe, without mounting head, each wire should be connected through a single wire extension to the switching unit. Individual single terminal connected could be used for joining the probe and the extension cable

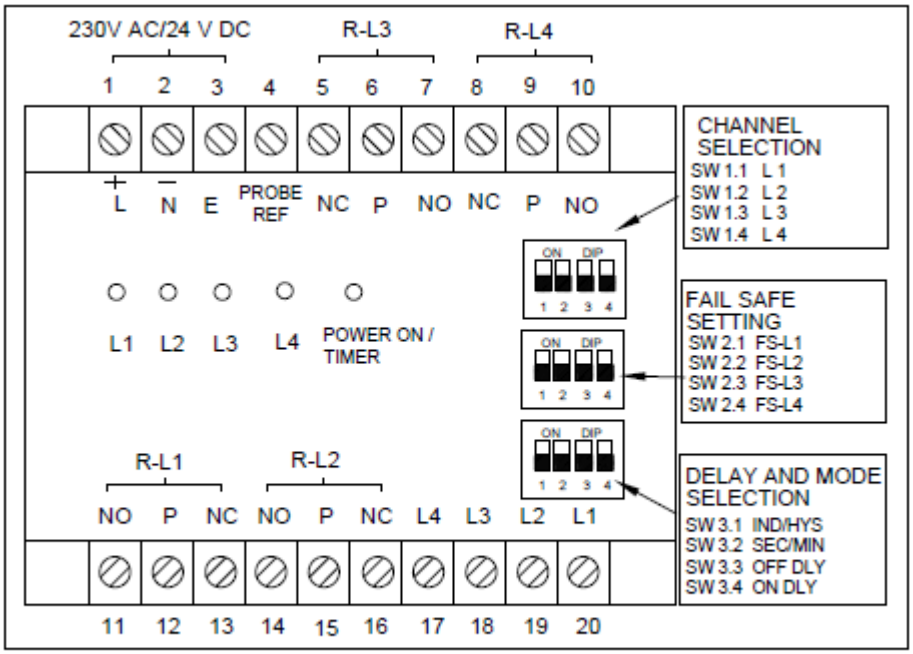
SWITCHING UNIT INSTALLATION:

The standard unit has electronics suitable for remote mounting, off the probe; the housing is suitable for back panel mounting.

The Switching unit should not be mounted at the location where the ambient temperature is not more than 60° C.

Precaution should be taken to avoid fall of Sunrays on to the Switching Unit housing. In case it is not possible to avoid, a suitable Sun protection cover should be provided over the housing.

For wiring and connection, follow the below steps,

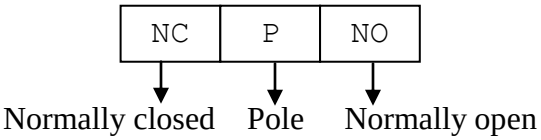


NOTE:- RELAY CONTACTS SHOWN ARE FOR POWER ON CONDITION (FAIL SAFE HIGH CONDITION)

Power Supply:-
Connect 230V AC supply to L, N, E terminal 1,2,3 respectively.
Or connect 24V DC between + and – terminal 1 & 2 respectively.

Probe Connection:-
Terminal 20- Channel 1, Terminal 19- Channel 2, Terminal 18- Channel 3, Terminal 17- Channel 4
Terminal 4 - Reference probe.

Relay Connection:-
For switching operation four relays are available RL1 to RL4, one for each channel.
Normally relay is in energized condition. When level changes the state, relay de-energizes.



Switch status display:- LED L1 to L4 for four channels for level monitoring And L5 for power ON / timer.

Switches:-
DIP SW1 switch for channel selection purpose.
DIP SW2 switch for fail safe mode selection.
DIP SW3 switch for mode selection (independent / hysteresis i.e. pump control) and for delay settings.

Channel Selection Procedure:-

DIP SW1 is used for channel selection, in that four sub switches are available, one for each channel.

Switch position upwards = ON = Active
Switch position downwards = OFF = De-active

Fail safe mode selection procedure:-

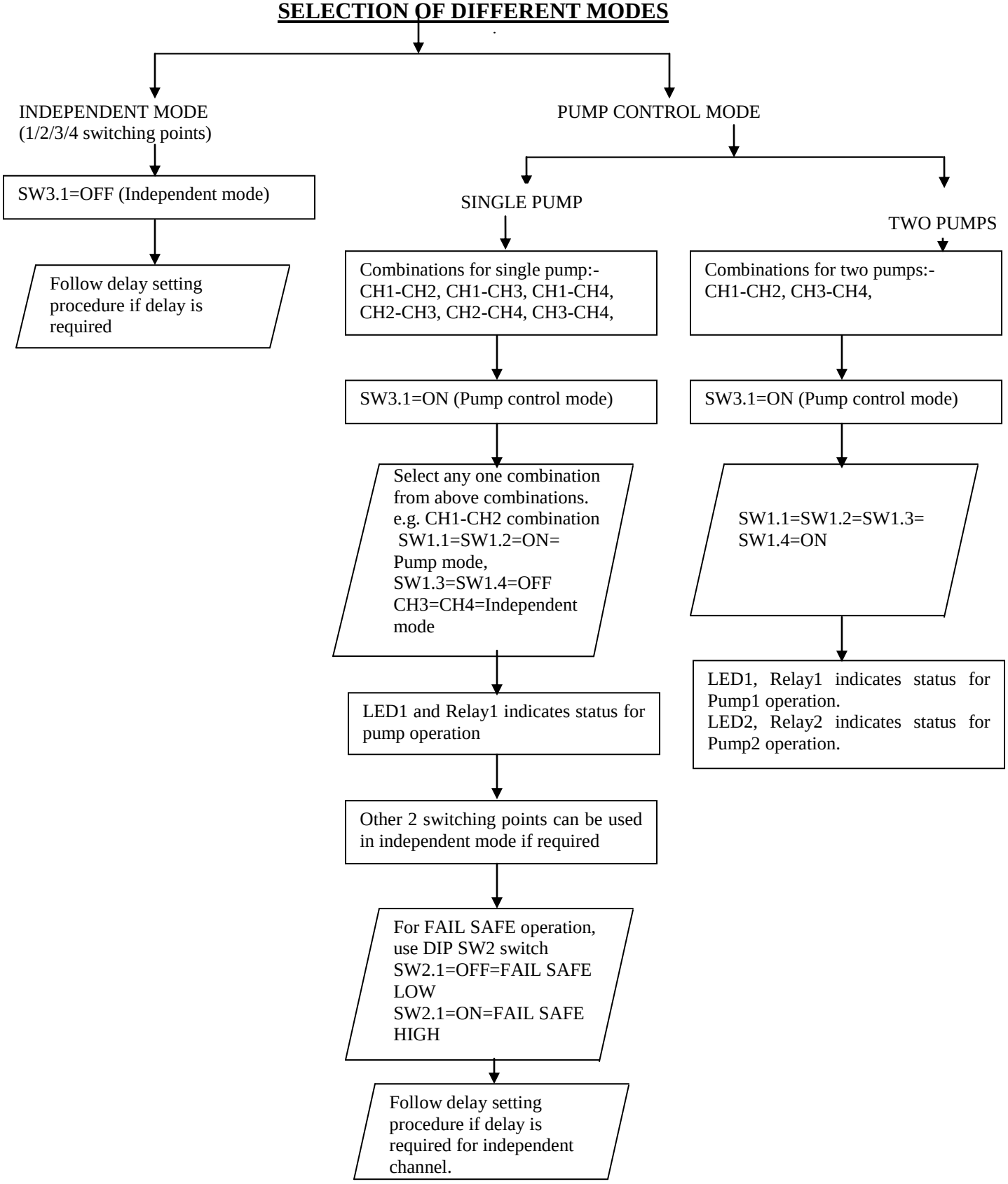
Depending upon the process requirement, the minimum or maximum fail-safe mode can be selected in the JAYCEEAQUA.
In JAYCEEAQUA normally the Relay is in energized condition. When level changes state the relay de-energizes. Thus, besides level alarm condition, the operator gets an alarm even in case of mains failure or the instrument failure. This imparts a better overall reliability of operation.

Switch position upwards = ON = Minimum Failsafe
Switch position downwards = OFF = Maximum Failsafe

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

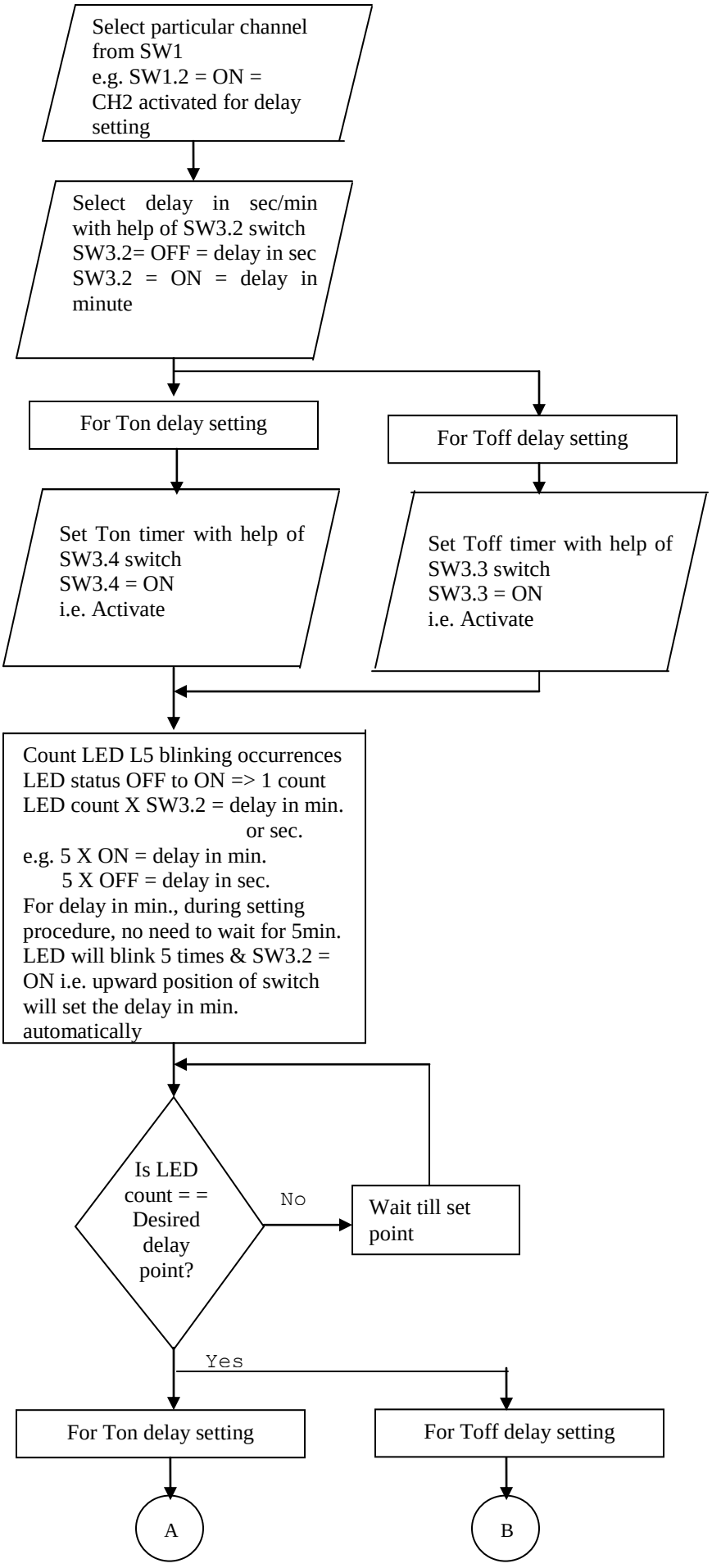
DIP SW2 is used for fail safe mode selection, in that four sub switches are available, one for each channel.

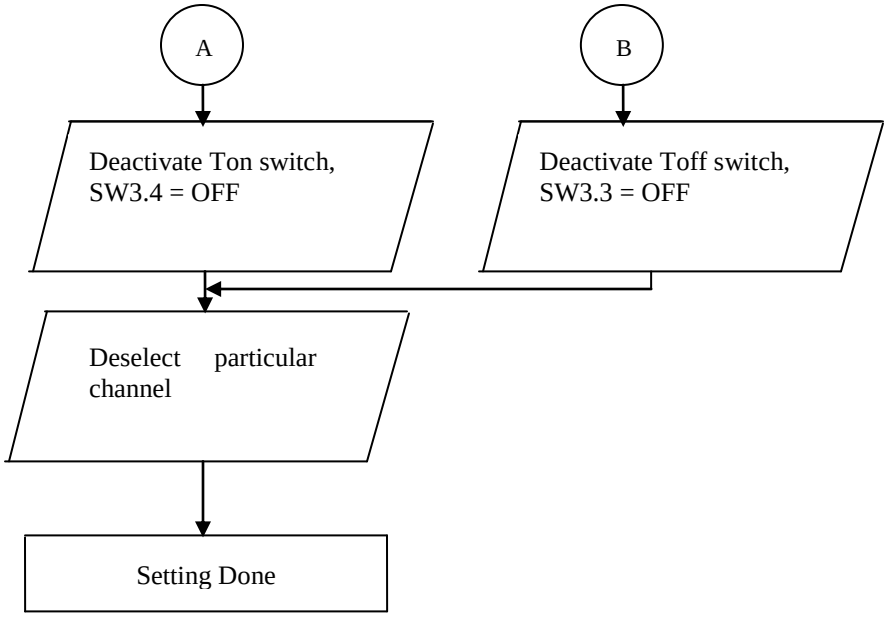
SELECTION OF DIFFERENT MODES



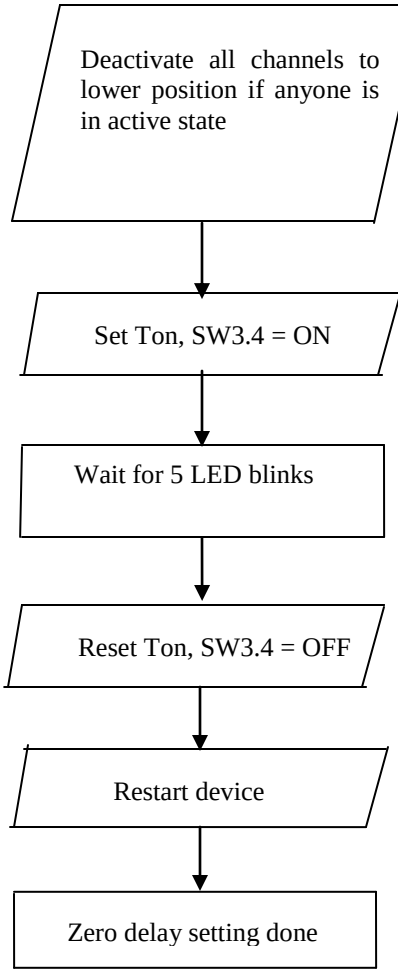
Note:- For combination of single pump mode and independent channel, if delay is required for any independent channel, first reset all channels, set delay for particular channel as per delay setting procedure and then select two points for pump control action by above method.

Delay Setting Procedure:-

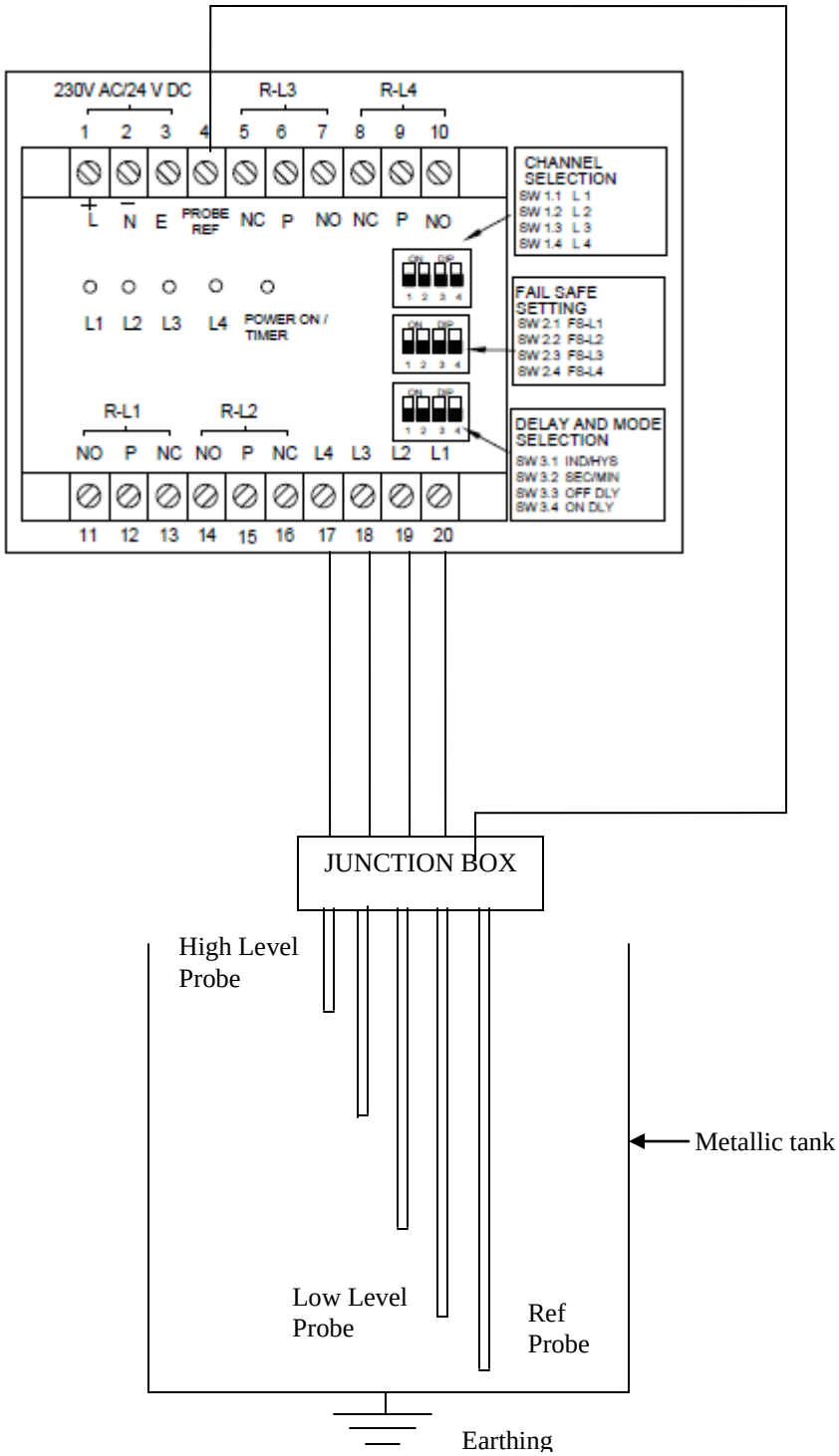




For setting zero delay for all channels:-



GA & Wiring Diagram:-



Note:-

Tank earthing and supply earthing should be same.

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