



DIN 35mm

## Features :

- Pump Protection From Dry Run and Overflow Condition
- Specially Designed Sensors
- Trip Relay & Alarm Relay Indication
- 5A SPST Output Relay (Resistive)
- Manual Start Switch Facility
- Water Levels & Trip Indication LED's
- Used for Two Tank Monitoring, Single Tank Water Level Monitoring
- Selectable Suction and Delivery Mode in Single Tank Operation

### Display Specifications

|            |        |
|------------|--------|
| Type       | Analog |
| No. of LED | 4      |
| No. of Key | 1      |

### LED Indication Chart

| LED Colour | Notation | Indication                     |
|------------|----------|--------------------------------|
| Green      | ON       | Power ON                       |
| Yellow1    | S        | Suction Tank Level Indication  |
| Yellow2    | D        | Delivery Tank Level Indication |
| Red        | R        | Relay Indication               |

### Input Specifications

| Functions       |                                                                                                                                                                                                                              |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Function        | The product operates in following modes<br>1) Single Tank Mode<br>Suction logic : Single level, Two level,<br>With / without alarm<br>Delivery logic : Single level, Two level,<br>With / without alarm<br>2) Dual Tank Mode |
| Input Sensor    | Stainless steel prods                                                                                                                                                                                                        |
| Time Setting    |                                                                                                                                                                                                                              |
| Trip Settings   | According to the levels of sensor placed in the water tank                                                                                                                                                                   |
| Recovery Time   | 2sec                                                                                                                                                                                                                         |
| Reset           | Automatic                                                                                                                                                                                                                    |
| Accuracy        |                                                                                                                                                                                                                              |
| Trip Time Delay | 2sec (approx.)                                                                                                                                                                                                               |
| Time Accuracy   | ±5% of 2 sec                                                                                                                                                                                                                 |

### Output Specifications

|               |                   |
|---------------|-------------------|
| Relay Contact | 1 NO (Resistive)  |
| Relay Rating  | 5A@250VAC / 28VDC |

### Auxiliary Supply Specifications

|                   |                    |
|-------------------|--------------------|
| Supply Voltage    | 85 to 270V AC / DC |
| Frequency         | 50 / 60Hz          |
| Power Consumption | 4VA max            |

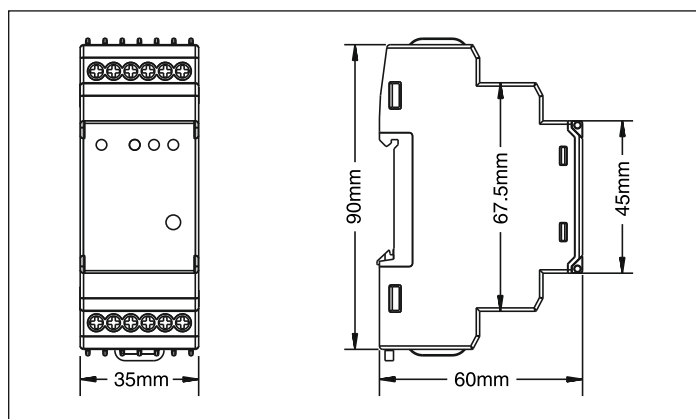
### Environmental Specifications

|                              |                                                                          |
|------------------------------|--------------------------------------------------------------------------|
| Temperature                  | Operating Temperature : 0° to 50°C<br>Storage Temperature : -20° to 70°C |
| Humidity (non - condensing)  | Upto 95% RH                                                              |
| Pollution Degree             |                                                                          |
| For PCB                      | 2                                                                        |
| For Product                  | 3                                                                        |
| Degree of Protection Devices | IP20                                                                     |

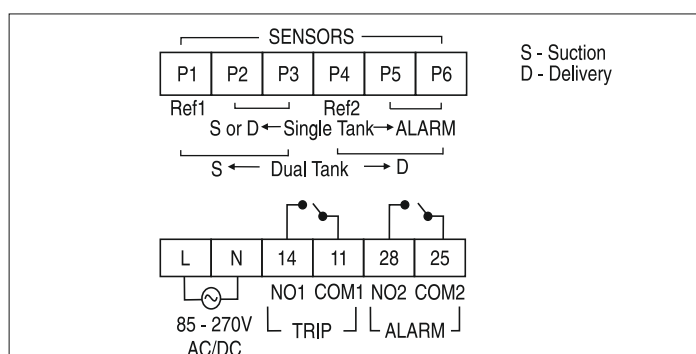
### Mechanical Specifications

|                         |                                       |
|-------------------------|---------------------------------------|
| Mounting                | DIN Rail                              |
| Weight                  | Sensors : 50gms each<br>Unit : 100gms |
| Screw Tightening Torque | 0.5 NM                                |

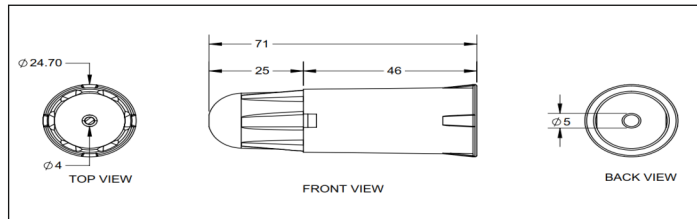
### Dimensions



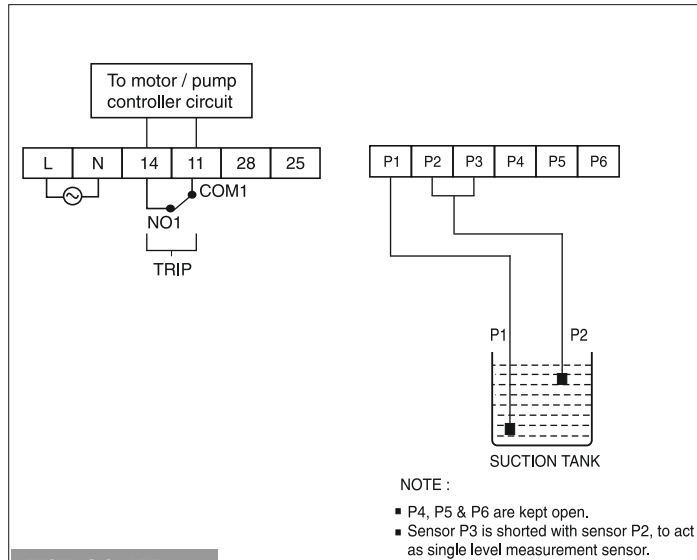
### Terminal Connection



### Input Sensor Dimensions



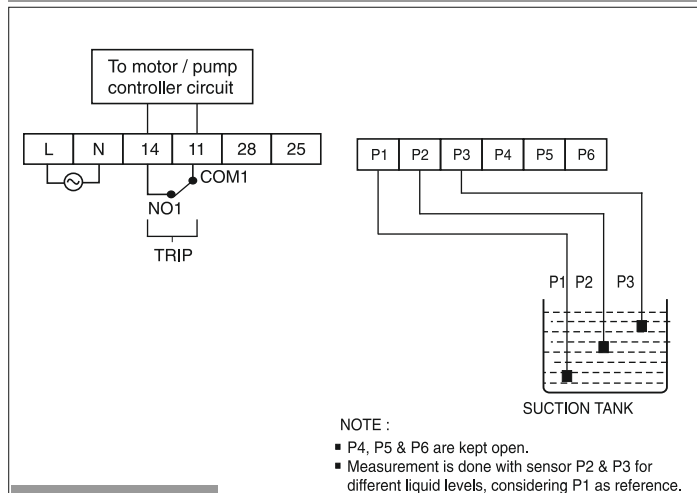
### SINGLE TANK SINGLE LEVEL\_SUCTION LOGIC



#### TESTING CHART

| Sr. No. | P1 | P2=P2+P3 | Relay1 Status | Relay2 Status | LED1 Power ON | LED2 Suction  | LED3 Delivery | LED4 Relay | Remark                          |
|---------|----|----------|---------------|---------------|---------------|---------------|---------------|------------|---------------------------------|
| 1       | IN | OUT      | OFF           | ON            | ON            | Fast Blinking | OFF           | OFF        | Relay2 will be OFF Continuously |
| 2       | IN | IN       | ON            | ON            | ON            | ON            | OFF           | ON         |                                 |

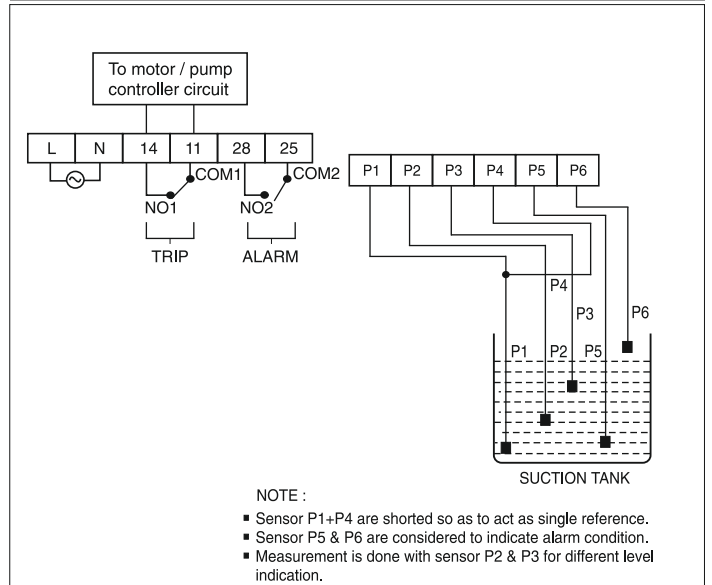
### SINGLE TANK TWO LEVEL\_SUCTION LOGIC



#### TESTING CHART

| Sr.No. | P1 | SENSOR CONDITION |     | Relay1 Status | Relay2 Status | LED1 Power ON | LED2 Suction  | LED3 Delivery | LED4 Relay |
|--------|----|------------------|-----|---------------|---------------|---------------|---------------|---------------|------------|
|        |    | P2               | P3  |               |               |               |               |               |            |
| 1      | IN | OUT              | OUT | OFF           | ON            | ON            | Fast Blinking | OFF           | OFF        |
| 2      | IN | IN               | OUT | OFF           | ON            | ON            | Slow Blinking | OFF           | OFF        |
| 3      | IN | IN               | IN  | ON            | ON            | ON            | ON            | OFF           | ON         |
| 4      | IN | IN               | OUT | ON            | ON            | ON            | Slow Blinking | OFF           | ON         |
| 5      | IN | OUT              | OUT | OFF           | ON            | ON            | Fast Blinking | OFF           | OFF        |

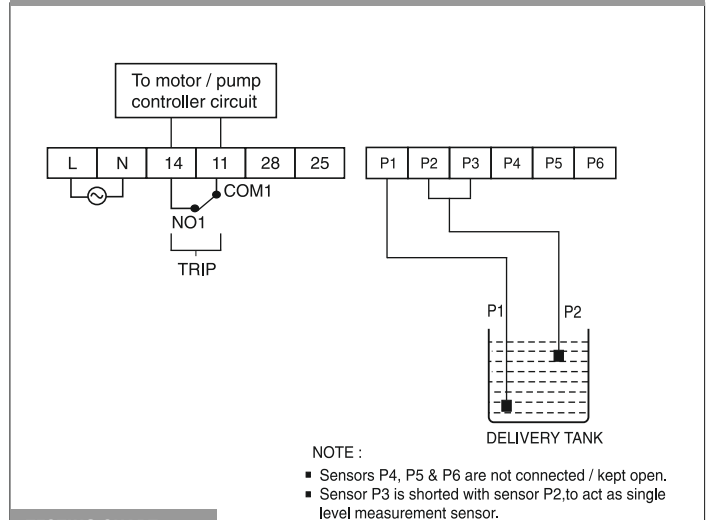
### SINGLE TANK TWO LEVEL with alarm\_SUCTION LOGIC



#### TESTING CHART

| Sr.no. | P1=P1+P4 | SENSOR CONDITION |     |     |     | Relay1 Status | Relay2 Status | LED1     | LED2          | LED3     | LED4  |
|--------|----------|------------------|-----|-----|-----|---------------|---------------|----------|---------------|----------|-------|
|        |          | P2               | P3  | P5  | P6  |               |               | Power ON | Suction       | Delivery | Relay |
| 1      | IN       | OUT              | OUT | OUT | OUT | OFF           | ON            | ON       | Fast Blinking | OFF      | OFF   |
| 2      | IN       | OUT              | OUT | IN  | OUT | OFF           | OFF           | ON       | Fast Blinking | OFF      | OFF   |
| 3      | IN       | IN               | OUT | IN  | OUT | OFF           | OFF           | ON       | Slow Blinking | OFF      | OFF   |
| 4      | IN       | IN               | IN  | IN  | OUT | ON            | OFF           | ON       | ON            | OFF      | ON    |
| 5      | IN       | IN               | IN  | IN  | IN  | ON            | ON            | ON       | ON            | OFF      | ON    |
| 6      | IN       | IN               | IN  | IN  | OUT | ON            | OFF           | ON       | ON            | OFF      | ON    |
| 7      | IN       | IN               | OUT | IN  | OUT | ON            | OFF           | ON       | Slow Blinking | OFF      | ON    |
| 8      | IN       | OUT              | OUT | IN  | OUT | OFF           | OFF           | ON       | Fast Blinking | OFF      | OFF   |
| 9      | IN       | OUT              | OUT | OUT | OUT | OFF           | ON            | ON       | Fast Blinking | OFF      | OFF   |

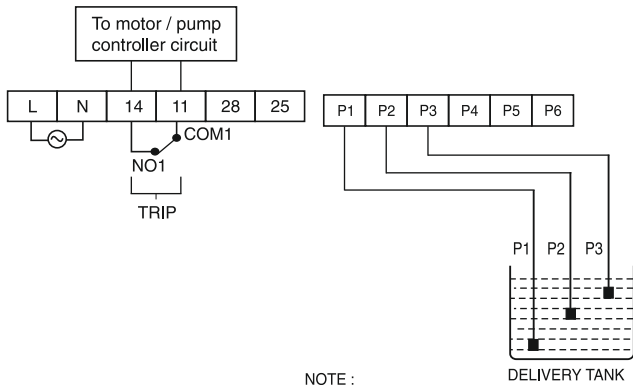
### SINGLE TANK SINGLE LEVEL\_DELIVERY LOGIC



#### TESTING CHART

| Sr. No. | P1 | P2=P2+P3 | Relay1 Status | Relay2 Status | LED1 Power ON | LED2 Suction | LED3 Delivery | LED4 Relay |
|---------|----|----------|---------------|---------------|---------------|--------------|---------------|------------|
| 1       | IN | OUT      | ON            | ON            | ON            | OFF          | Fast Blinking | ON         |
| 2       | IN | IN       | OFF           | ON            | ON            | OFF          | ON            | OFF        |

# SINGLE TANK TWO LEVEL CONTROLLER\_DELIVERY LOGIC



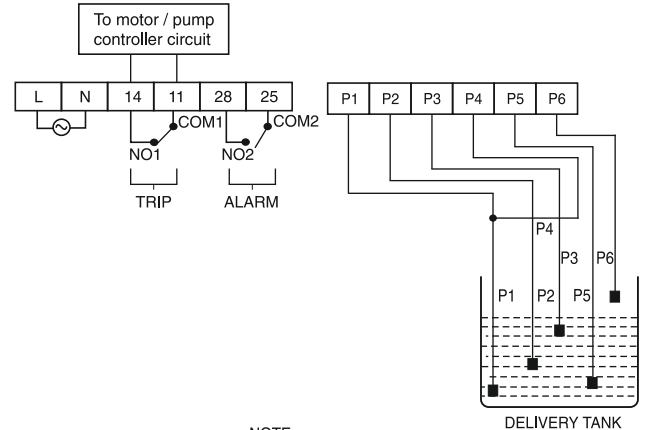
NOTE :

- P4, P5 & P6 are kept open.
- Measurement is done with sensor P2 & P3 for different liquid levels, considering P1 as reference.

## TESTING CHART

| Sr.No. | P1 | SENSOR CONDITION |     | Relay1 Status | Relay2 Status | LED1 Power ON | LED2 Suction | LED3 Delivery | LED4 Relay |
|--------|----|------------------|-----|---------------|---------------|---------------|--------------|---------------|------------|
|        |    | P2               | P3  |               |               |               |              |               |            |
| 1      | IN | OUT              | OUT | ON            | ON            | ON            | OFF          | Fast Blinking | ON         |
| 2      | IN | IN               | OUT | ON            | ON            | ON            | OFF          | Slow Blinking | ON         |
| 3      | IN | IN               | IN  | OFF           | ON            | ON            | OFF          | ON            | OFF        |
| 4      | IN | IN               | OUT | OFF           | ON            | ON            | OFF          | Slow Blinking | OFF        |
| 5      | IN | OUT              | OUT | ON            | ON            | ON            | OFF          | Fast Blinking | ON         |

# SINGLE TANK TWO LEVEL with alarm\_DELIVERY LOGIC



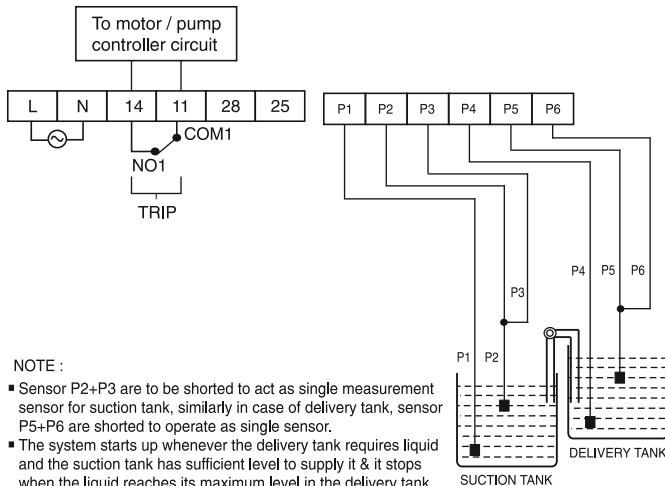
NOTE :

- Sensor P1+P4 are shorted so as to act as single reference.
- Sensor P5 & P6 are considered to indicate alarm condition. Measurement is done with sensor P2 & P3 for different level indication.

## TESTING CHART

| Sr. No. | P1=P1+P4 | SENSOR CONDITION |     |     |     | Relay1 Status | Relay2 Status | LED1 Power ON | LED2 Suction | LED3 Delivery | LED4 Relay |
|---------|----------|------------------|-----|-----|-----|---------------|---------------|---------------|--------------|---------------|------------|
|         |          | P2               | P3  | P5  | P6  |               |               |               |              |               |            |
| 1       | IN       | OUT              | OUT | OUT | OUT | ON            | ON            | ON            | OFF          | Fast Blinking | ON         |
| 2       | IN       | OUT              | OUT | IN  | OUT | ON            | OFF           | ON            | OFF          | Fast Blinking | ON         |
| 3       | IN       | IN               | OUT | IN  | OUT | ON            | OFF           | ON            | OFF          | Slow Blinking | ON         |
| 4       | IN       | IN               | IN  | IN  | OUT | OFF           | OFF           | ON            | OFF          | ON            | OFF        |
| 5       | IN       | IN               | IN  | IN  | IN  | OFF           | ON            | ON            | OFF          | ON            | OFF        |
| 6       | IN       | IN               | IN  | IN  | OUT | OFF           | OFF           | ON            | OFF          | ON            | OFF        |
| 7       | IN       | IN               | OUT | IN  | OUT | OFF           | OFF           | ON            | OFF          | Slow Blinking | OFF        |
| 8       | IN       | OUT              | OUT | IN  | OUT | ON            | OFF           | ON            | OFF          | Fast Blinking | ON         |
| 9       | IN       | OUT              | OUT | OUT | OUT | ON            | ON            | ON            | OFF          | Fast Blinking | ON         |

# TWO TANK SINGLE LEVEL



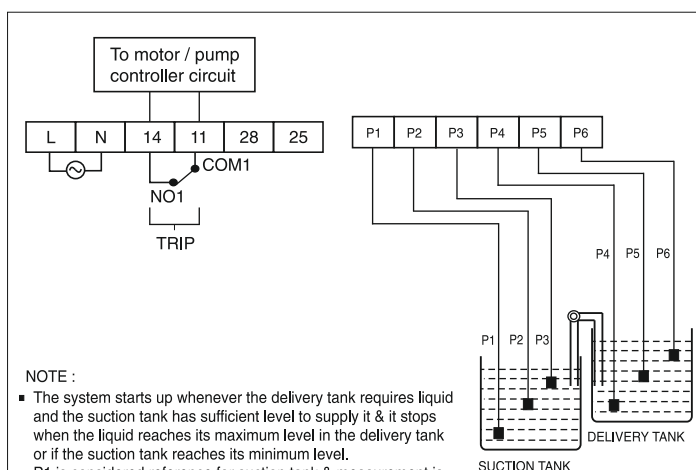
NOTE :

- Sensor P2+P3 are to be shorted to act as single measurement sensor for suction tank, similarly in case of delivery tank, sensor P5+P6 are shorted to operate as single sensor.
- The system starts up whenever the delivery tank requires liquid and the suction tank has sufficient level to supply it & it stops when the liquid reaches its maximum level in the delivery tank or if the suction tank reaches its minimum level.

## TESTING CHART

| Sr. No. | SENSOR CONDITION |                 |           |          | Relay1 Status | Relay2 Status | LED1 Power ON | LED2 Suction  | LED3 Delivery | LED4 Relay |
|---------|------------------|-----------------|-----------|----------|---------------|---------------|---------------|---------------|---------------|------------|
|         | P1 (Ref1)        | P2=P2+P3 (Ref2) | P4 (Ref2) | P5=P5+P6 |               |               |               |               |               |            |
| 1       | IN               | OUT             | IN        | OUT      | OFF           | OFF           | ON            | Fast Blinking | Fast Blinking | OFF        |
| 2       | IN               | IN              | IN        | OUT      | ON            | OFF           | ON            | ON            | Fast Blinking | ON         |
| 3       | IN               | IN              | IN        | IN       | OFF           | OFF           | ON            | ON            | ON            | OFF        |
| 4       | IN               | OUT             | IN        | IN       | OFF           | OFF           | ON            | Fast Blinking | ON            | OFF        |

## TWO TANK TWO LEVEL



## NOTE :

- The system starts up whenever the delivery tank requires liquid and the suction tank has sufficient level to supply it & it stops when the liquid reaches its maximum level in the delivery tank or if the suction tank reaches its minimum level.
- P1 is considered reference for suction tank & measurement is done with sensor P2 & P3 at different liquid levels. Similarly for delivery tank, P4 is considered as reference & measurement is done with sensor P5 & P6 at different liquid levels.

| Sr. No. | SUCTION          |     |     | DELIVERY  |     |     | Relay1 Status | Relay2 Status | LED1     | LED2          | LED3          | LED4  |
|---------|------------------|-----|-----|-----------|-----|-----|---------------|---------------|----------|---------------|---------------|-------|
|         | SENSOR CONDITION |     |     |           |     |     |               |               | Power ON | Suction       | Delivery      | Relay |
|         | P1(Ref1)         | P2  | P3  | P4 (Ref2) | P5  | P6  |               |               |          |               |               |       |
| 1       | IN               | OUT | OUT | IN        | OUT | OUT | OFF           | OFF           | ON       | Fast Blinking | Fast Blinking | OFF   |
| 2       | IN               | IN  | OUT | IN        | OUT | OUT | OFF           | OFF           | ON       | Slow Blinking | Fast Blinking | OFF   |
| 3       | IN               | IN  | IN  | IN        | OUT | OUT | ON            | OFF           | ON       | ON            | Fast Blinking | ON    |
| 4       | IN               | IN  | OUT | IN        | IN  | OUT | ON            | OFF           | ON       | Slow Blinking | Slow Blinking | ON    |
| 5       | IN               | IN  | IN  | IN        | IN  | OUT | ON            | OFF           | ON       | ON            | Slow Blinking | ON    |
| 6       | IN               | IN  | IN  | IN        | IN  | IN  | OFF           | OFF           | ON       | ON            | ON            | OFF   |
| 7       | IN               | IN  | OUT | IN        | IN  | IN  | OFF           | OFF           | ON       | Slow Blinking | ON            | OFF   |
| 8       | IN               | OUT | OUT | IN        | IN  | IN  | OFF           | OFF           | ON       | Fast Blinking | ON            | OFF   |
| 9       | IN               | OUT | OUT | IN        | IN  | OUT | OFF           | OFF           | ON       | Fast Blinking | Slow Blinking | OFF   |

## Compliance

## Applicable EMI / EMC Standards

## Product Standard : IEC 60947-5-1

| Category                                                                      | Reference Standards | Testing Level    |
|-------------------------------------------------------------------------------|---------------------|------------------|
| Radio Frequency Interference Radiation Disturbance Test                       | IEC 61000-4-20      | Class-A          |
| Electrostatic Discharge Immunity Test                                         | IEC 61000-4-2       | Class-A          |
| Radio Frequency Interference Conducted Disturbance Test                       | CISPR 11            | Class-A          |
| Immunity To Conducted Disturbances, Introduced By Radio Frequency Fields Test | IEC 61000-4-6       | Class-A          |
| Electrical Test Transient / Burst Immunity                                    | IEC 61000-4-4       | Class-A          |
| Radiated, Radio-Frequency, Electromagnetic Field Immunity test                | IEC 61000-4-8       | Class-A          |
| Surge Immunity Test                                                           | IEC 61000-4-3       | Class-A          |
| Voltage Dips, Short Interruption And Voltage Variations Immunity Test         | IEC 61000-4-5       | Class-C          |
| AC Voltage Test                                                               | IEC 61000-4-11      | Clause 6.7       |
| Temperature Rise Test                                                         | IEC 61010-1         | Clause 10.1-10.4 |
| Resistance To Heat Test (RTH)                                                 | IEC 61010-1         | Clause 10.5      |
| Single Fault Test (SFT)                                                       | IEC 61010-1         | Clause 4.4       |

## Ordering Information

| Product Code | Supply Voltage     | Certification |
|--------------|--------------------|---------------|
| WLCA-2M-U-CE | 85 to 270V AC / DC | CE            |