

## Application :

**RISH EM 3490** is a 96mm x 96mm panel mounted kilowatt hour meter it measures active energy with class 1.0 accuracy having 7 digit auto-resetting electro-mechanical counter. The unit provides LED indication for healthy phase, load reverse current. The RISH EM 3490 is available in three version 3phase 3 wire, 3 phase 4 wire unbalanced load and single phase and is ideal for secondary metering in industrial applications.

## Product Features:

- Class 1.0 Accuracy
- Available in 3 phase 4 wire, 3 phase 3 wire and single phase version.
- Led indication: Healthy phase, Reverse Current
- Applicable to Standards IS 13779, IEC 62053-21
- 7 Digit auto-resettable mechanical counter
- True RMS measurement
- Fully programmable CT ratios
- Fully isolated current input
- Built in transient protection
- State of art SMD technology
- Pulse output: one potential free relay contact

## LED Indication:

### -3 phase voltage status:

The unit contains three green LED, one for each voltage phase. Three illuminated LED's indicate active monitoring of each of the three phases. In case if any one phase voltage is missing the appropriate LED will switch 'OFF'. However the meter will continue to accurately measure energy for the available voltage phases. In case of phase sequence error all three LED will start blinking with a repetition rate of 1Hz.

### -Reverse connected current transformer :

Three red LED's are provided for each of three phases. Illumination of the red LED indicates a reverse connected CT. The meter will continue to register the energy consumption even if the CT's are reverse connected.

### -Pulse Indication:

The unit features a red LED pulse indicator which flashes at rate proportional to measured power.

### Low back depth:

The instrument has very low back depth (behind the panel) of less than 80 mm in spite of optional features like pulse output

### Enclosure Protection for dust and water:

conforms to IP 54 (front face)

### Compliance to International Safety standards

Compliance to International Safety standard  
IEC 61010-1- 2001

## Advantages:

- Since CT ratio is user selectable, a single meter can be used for all application
- Low VA burden
- Tamper proof
- Easy to wire

## Technical Specifications:

### Accuracy:

Active energy (kWh) Class 1.0

### Input Voltage:

Nominal input voltage (AC RMS)

#### Three Phase

Line-Line	110V L-L (85V to 130V)
Line-Neutral	240V L-n (180V to 270V)
Line-Line	415V L-L (330V to 470V)
Line-Line	440V L-L (380V to 495V)

#### Single Phase

110V L-N (99V to 121V)  
240V L-N (216V to 264V)

### Input Current:

Nominal input current 5A or 1A (To be Specified while ordering).

System CT Primary Ratios : 5A - 9999A or 1A - 9999A  
(Programmable by thumbwheel switches at the back of meter)

Max Continuous Input Voltage : For 3 Phase 120% of Nominal Value For single phase 110% of Nominal Value

Start up current 0.2% of the rated current

Max continuous input current 120% of Nominal Value

### Pulse output

Pulsed output Relay contact  
Pulse duration >=40ms

### Auxiliary Supply:

AC Auxiliary Supply Self powered

### VA Burden:

Nominal input voltage burden < 15 VA per Phase  
Nominal input current burden < 0.2 VA per Phase

### Counter:

Counter: 7 digit electro-mechanical counter  
Reading resolution 1 per kW.h (for no multiplier)

### LED Indication:

LED indicator display: 3 x green: Voltage phase monitoring  
3 x red : Reverse connected CT warning.

Pulse indicator Red LED flashing at a rate proportional to measured power.  
Multiplier Indicates counter reading to be multiplied with.

### Overload Withstand:

Max short duration Current 20 x Rated value for 0.5 second.

### Operating Measuring Ranges

Voltage (AC RMS)

#### Three Phase

Line-Line	110V L-L (85V to 130V)
Line-Neutral	240V L-n (180V to 270V)
Line-Line	415V L-L (330V to 470V)
Line-Line	440V L-L (380V to 495V)

#### Single Phase

110V L-N (99V to 121V)  
240V L-N (216V to 264V)

Current 5A ( 0.25A to 6A)  
1A ( 0.05A to 1.2A)

Power Factor 0.5 inductive – 1 – 0.8 capacitive  
Frequency 45Hz to 55 Hz

## Technical Specifications:

### Enclosure style:

Enclosure style	96 X 96 DIN Quadratic)
Enclosure material	Polycarbonate (Self extinguish & non dripping as per UL 94 V-0)
Terminals	M4 Screw Type
Fixing	4 side clamps

### Dimension:

Dimension	96mm high x 96mm wide x 80mm deep
Panel cutout	92mm x 92mm
Weight	320-400 gm

### Reference conditions for Accuracy:

Reference temperature	23°C +/- 2°C
Voltage	±1% of Rated Value
Input waveform	Sinusoidal (distortion factor less than 2%)
Input frequency	50 Hz ±0.3%

### Applicable Standards:

Standard	IS 133779, IEC62053-21 IEC 61010-1- 2001 (CAT III 300V ac rms / Pollution Degree 2)
IP protection	IP54 ( Front Only)

### Dielectric Strength

2.2 kV AC, 50Hz for 1 minute.

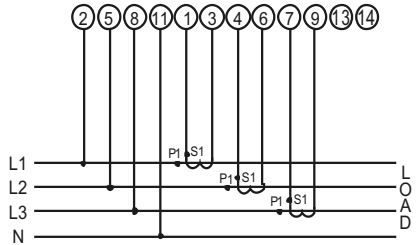
### Environmental

Operating temperature	0 to +55°C
Storage temperature	-20 to +65°C

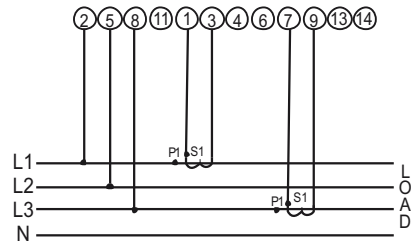
## Electrical Connections:

### Wiring :

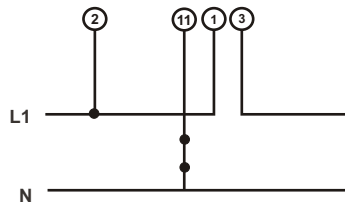
Input connections are made directly to shrouded screw clamp terminals. Numbering is clearly marked on the plastic molding. Choice of cable should meet local regulations. Terminals for both current and voltage inputs will accept up to two 12 AWG diameter cables.



For 3 Phase 4 Wire Unbalanced Load

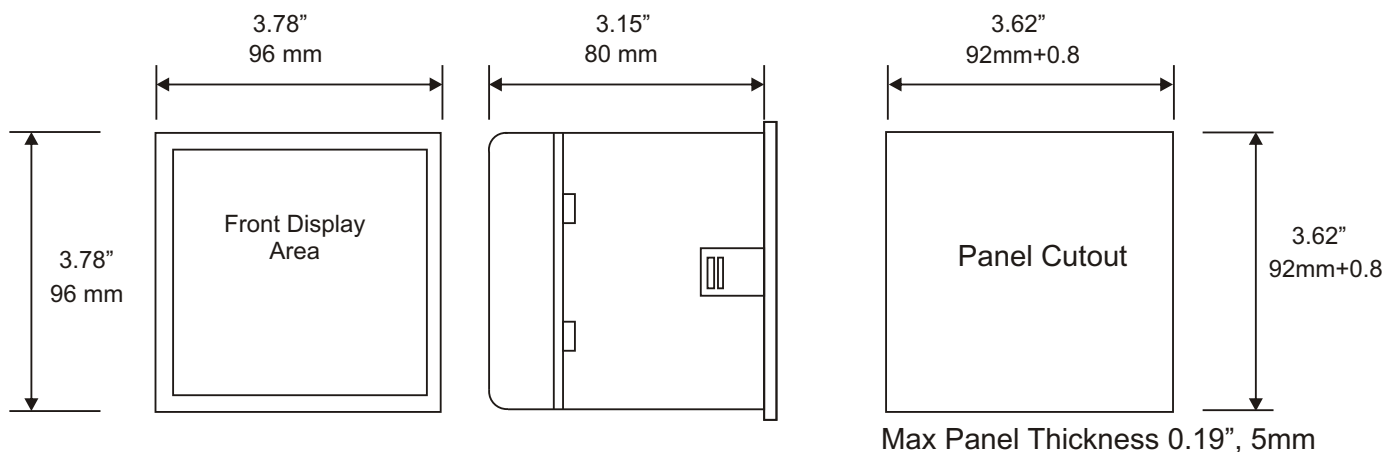


For 3 Phase 3 Wire Unbalanced Load



For Single Phase

## Dimensions



## Parameter Measurement and Display:

Ordering information	Ordering Code <i>RISH EM 3490</i>
<b>System Type (Connection network)</b>	
3 Phase 3 Wire	3
3 Phase 4 Wire	4
Single Phase 1	
<b>Input Voltage</b>	
<b>Three Phase</b>	
110V L-L (63.5V L-N)	110
230V L-L (133V L-N)	230
415V L-L (239.6V L-N)	415
440V L-L (254V L-N)	440
480V L-L (277V L-N)	480
<b>Single Phase</b>	
110V L-N (99V to 121V)	110
240V L-N (216V to 264V)	240
<b>Input Current</b>	
5 Amp	5
1 Amp	1
<b>Auxiliary Supply Voltage</b>	
Self Powered	SP
<b>Pulse Output for energy measurement</b>	
1 Pulse output	S



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