LARSEN & TOUBRO

# INSTRUCTION MANUAL

Digital Panel Meter

Single Function Meter

1XXX LED Series

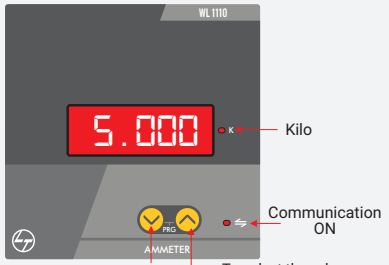
Manufacturer assumes no responsibility for a hazard or damage caused by incorrect or non-application of any of the instructions attached herein. Under no circumstance shall Larsen & Toubro be liable for any consequential or resulting injury or for loss, damage or expense directly or indirectly from the use of this product. Sufficient care is taken to provide all information regarding the product but Larsen & Toubro does not claim any responsibility for the damage caused by using the product directly or indirectly. Use according to the operating instructions, professional practices, wiring rules, codes, safety regulations applicable to the given installation.

During normal operation of this instrument ,hazardous voltages are present at the rear terminals, which can cause injury or death. Installation ,disconnection or removal of the meter should be carried out only by qualified, trained personnel, after de-energizing connected circuits. Improper installation , including improper grounding will void warranty. Product warranty void if seal is broken.

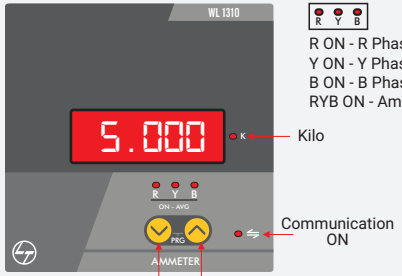
## 1.Features

- Site selectable for 3 P 4W, 3P 3W, 1P
- Accuracy class 1 as per IEC 62053-21, class 0.5 as per IEC 62053-22
- True RMS measurement
- Auto and manual scrolling
- Field programmable CT, PT ratio
- Site selectable 1A/5A
- Phase wise and average display of voltage & current as per applicable meter
- Inbuilt selector switch for 3 phase models
- Wide operating range of 80 to 300 V AC auxiliary supply
- Suitable for 50/60 Hz

## 2. LED Indication

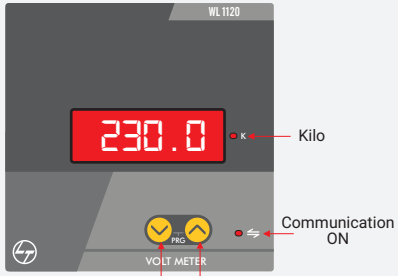



SINGLE PHASE AMMETER

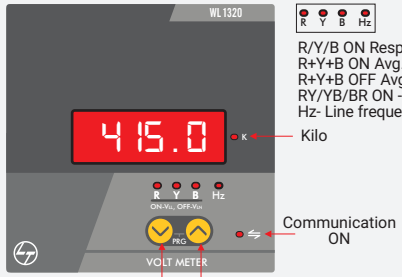



R ON - R Phase Amps
Y ON - Y Phase Amps
B ON - B Phase Amps
RYB ON - Amps Avg. Value

THREE PHASE AMMETER




SINGLE PHASE VOLTMETER




R/Y/B ON Respective P-N Voltage
R+Y+B ON Avg. Voltage $V_{LL}$
R+Y+B OFF Avg. Voltage $V_{LN}$
RY/YB/BR ON - Respective P-P Voltage
Hz- Line frequency

THREE PHASE VOLTMETER


FREQUENCY METER

## 3.Technical Specification

| | | |
|---|---|---|
| Type of measurement | Type | 3 Ph 4 W, 3 Ph 3 W, 1 Ph |
| | | True RMS, 64 samples per cycle 1 sec update time |
| Measurement accuracy | | Class 1 as per IEC 62053-21 |
| | | Class 0.5 as per IEC 62053-22 |
| Display type and resolution | LED | 4 digit |
| Measuring circuit | Input voltage | 50 - 550 $V_{LL}$ |
| | | PT Primary and Secondary user programmable for LT and HT applications |
| | | Burden: 0.2VA max per phase |
| | Input current | -/5A and -/1A site selectable |
| | | Current range from 10% to 120% of In (50mA-6A), Starting current: 0.4% of full scale |
| | | CT Primary and Secondary user programmable for LT and HT applications |
| | Frequency | 40 - 70 Hz |
| Auxilliary circuit | Aux voltage | 80 - 300V AC |
| | Aux burden | <5VA |
| | Freq range | 40 - 70 Hz |
| Electrical requirements | Test of power consumption | as per IEC 62053-21 |
| | Voltage dips & interrupts | as per IEC 62053-21 |
| | Short time over current protection | 10A max continuous, 20 times of In for 3 sec |

| | | |
|---|---|---|
| Electro-magnetic compatibility (EMC) | Fast transients burst test | ±4 kV as per IEC 61000-4-4 |
| | Immunity to electrostatic discharge | ±8 kV air discharge, ±6 kV contact discharge as per IEC 61000-4-2 |
| | Radiated, radio-frequency, electromagnetic field immunity test | 10 V/m as per 61000-4-3 |
| | Immunity to electromagnetic HF fields through conducted lines | 10 V/m as per IEC 61000-4-6 |
| | Surge immunity test | ±6 kV as per IEC 61000-4-5 |
| | Rated power frequency magnetic fields | 1 A/m as per IEC 61000-4-8 |
| | Emission | Class B as per CISPR 22 |
| Insulation properties | Impulse voltage test | ±6 kV as per IEC 62052-11 |
| | AC voltage test | 4 kV double insulation as per IEC 62053-21 |
| | Insulation resistance | 500 V DC as per IS 13779 |
| Operating conditions | Operating temperature | -10° C to +55° C |
| | Storage temperature | -25° C to +70° C |
| | Humidity | 5% to 95% relative humidity non-condensing |
| | Recommended wire | 2.5 sq mm |
| Mechanical conditions | Shock | As per standard IEC 60068-2 |
| | Vibration | 10 to 55 Hz, 0.15 mm amplitude |
| | Casing | Plastic mould protected to IP51 on front |
| Safety | Measurement category | CAT III |
| | Pollution degree | 2 |
| | Protection | IP20 at terminals, IP51 on front |
| Weight & dimensions | Product weight | 300 gms |
| | Bezel dimension (W X H X D) | 96 x 96 x 58 mm |
| | Panel cutout | 92 x 92 mm $^{+0.8}_{-0.0}$ |
| Certifications | | CE, RoHS |

## 4. Programming Mode

### 4.1 Programming keys

To select Edit Mode and save parameter
DOWN to decrement value or parameter

### 4.2 General Programming Guide

- Press UP + Down to enter setup mode
- Enter Password (default value 0000)
  Blink indicates Edit Mode is ON
- Press DOWN to decrement value 0/9/8/7/6/5/4/3/2/1
- Press UP to move to the next digit till 4th digit
  If Password is correct, editing is possible
- Press DOWN to decrement values or to select from available options
- Press UP to save the value of the parameter
- Press DOWN to edit next parameters till end after the configuration of last parameter display screen will prompt "SAVE", display reads "y" (YES)
- Press Down to change to "n" (NO)
- Press UP to save

Note: There is no any other password for these models( default 0000).

### 4.3. Display

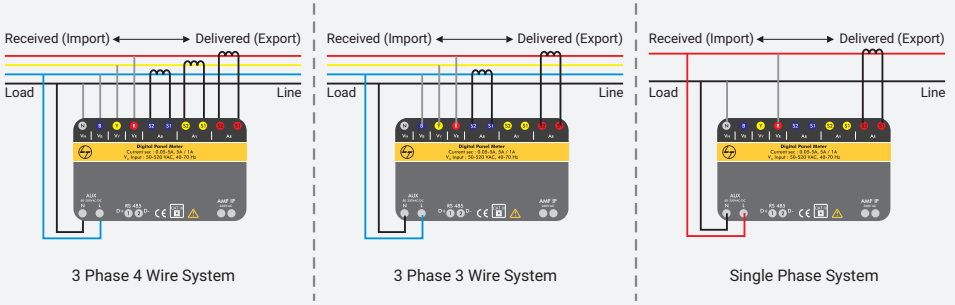
| Programming Parameter | Default | Option/Range |
|---|---|---|
| ConFIG (ConF)<br>Defines the power system configuration. | 3P 4W | 3P 4W *<br>3P 3W<br>1 Phase |
| PT Primary (P.Pri) | 415 | 100V-999kv **<br>To set 33kV Set first four digits (3300) as explained above press UP/DOWN key to place decimal point at appropriate location. LED K will indicate Kilo. |
| PT Secondary** (P.SEC) | 415.0 | 50V to 550V |
| CT Primary*** (C.Pri) | 5.000 | 0.5A - 99KA |
| CT Secondary*** (C.SEC) | 5.000 | 0.5A - 6A |

* applicable for WL1310, WL1320 only
** applicable for WL1120 and WL 1320 only
*** applicable for WL1110 and WL 1310 only

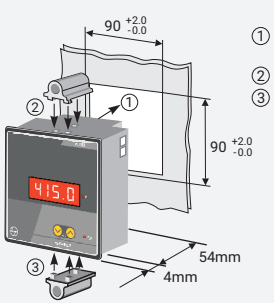
### 4.4. Enabling and Disabling Auto Scrolling

Press DOWN for 6 secs
Display Shows: EnbL.
Again press DOWN for
6 sec Display Shows: dSbL.

## 5. Wiring Diagram




## 6. Mounting Dimensions




**Steps for Mounting**

① Insert meter to panel without clamps

②③ Insert both clamps

## 7. Troubleshooting

1) Meter display does not turn ON.
   a) Check that there is power supply applied on Aux supply terminals.
   b) Check fuse connection (Use fuse connection of specified ratings).
2) Data displayed / reading incorrect.
   a) Check that CT /PT ratios are properly set.
   b) Check if proper configuration mode 3P4W, 3P3W, 1Phase is correctly set.
3) PT readings are incorrect / CT readings are incorrect.
   a) CT connections may be reversed, check and correct CT connection.
   b) Check voltage and current phases are connected in proper sequence.


**In case of complaint please contact**
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