

10_2 Responsibility Declaration - Annexure A :

Block diagram, Similarities and differences in ZEUS Rxx Series :

ZEUSmeters are direct connected / CT connected energy meter with different forms, are used for various metering application like commercial and residential. Service voltage and current Class rating are key specification. Other features like KYZ , LoRa are optional. Meter with LoRa communication are designed for AMR functionality.

Block Diagram ZEUS R2S and R12S meter :

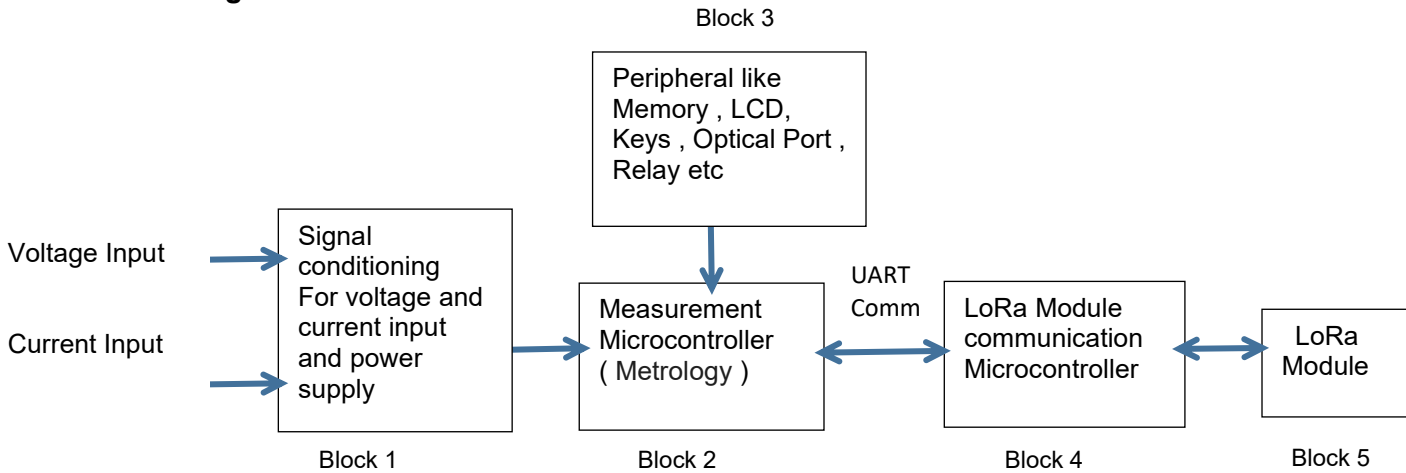


Figure:1

Similarities in ZEUS R2S and R12S series:

Main Control Chip: The primary processor or "microcontroller" of the product is remain the same across all models.

RF Module: The RAK3172-T radio frequency module responsible for wireless signals is identical.

Antenna Design and Position: The antenna design, type, gain, and physical placement within the all models device enclosure is consistent (same).

Operating Parameters: All models are operating on the same frequency bands and at the same power levels.

Differences in Voltage and current connection:

R12S : External Neutral is connected to meter

Block 1: Signal conditioning For voltage and current input and power supply

A. Resistor divider network for scaling down voltage for phases from high voltage to low voltage that can be measured by Microcontroller.

B. CT's are used for measurement of current.

C. Power supply is used to derive SMPS to power ON the meter.

Block 2 : Measurement Microcontroller (Metrology) Block :

Powered from 3.3 V DC supply, Measurement block is micro-controller that accepts input from block 1 and using internal ADC values converted to electrical parameters.

Block 3 :Peripheral Components of the Meteorology MCU

The Measurement Micro controller is connected to the following components:

- Memory – For storing energy consumption data and device configurations.
- LCD Display – For local display of metering values.
- Keys/Buttons – For user interaction and device configuration.
- Optical Port – For local data reading or programming using an optical probe.

Block 4 : LoRa communication Microcontroller Block :

Powered from 3.3 V DC supply, Communication to Measurement block is established via this micro-controller. The micro-controller also communicates with LoRa RF module for data transactions.

Block 5 : LoRa RF Module Block :

FCC approved module for Wireless RF communication.

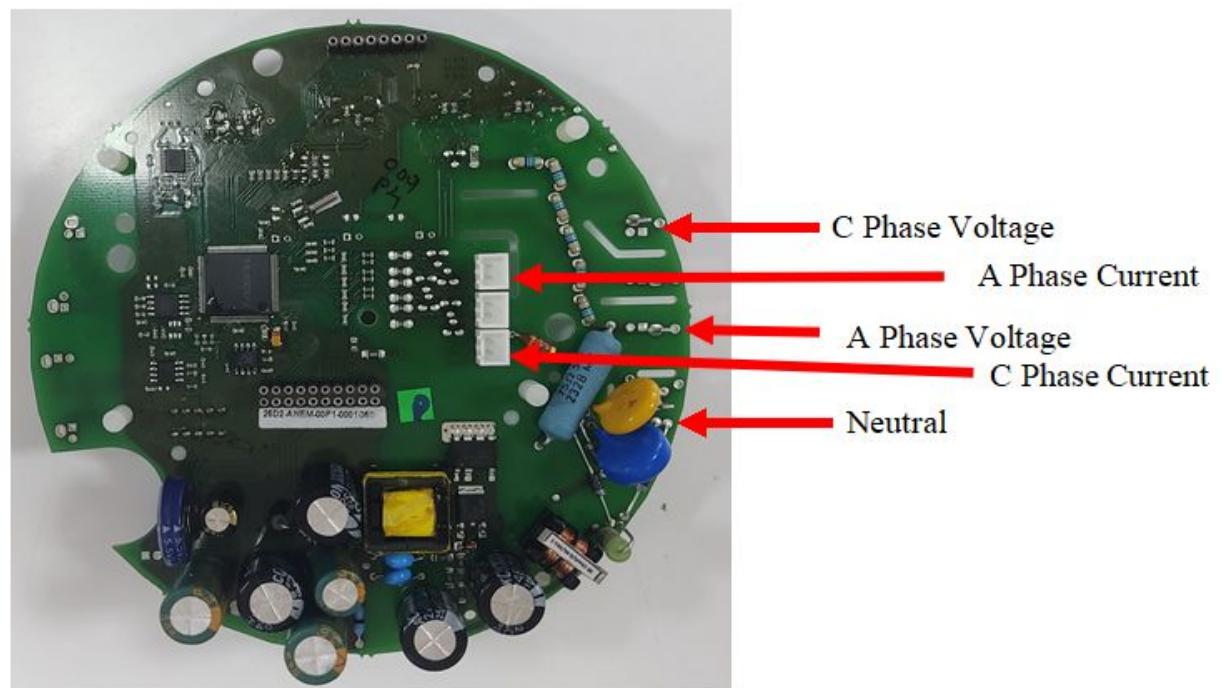
ZEUS R12 Meter PCB

Figure :2

ZEUS R2 Meter PCB

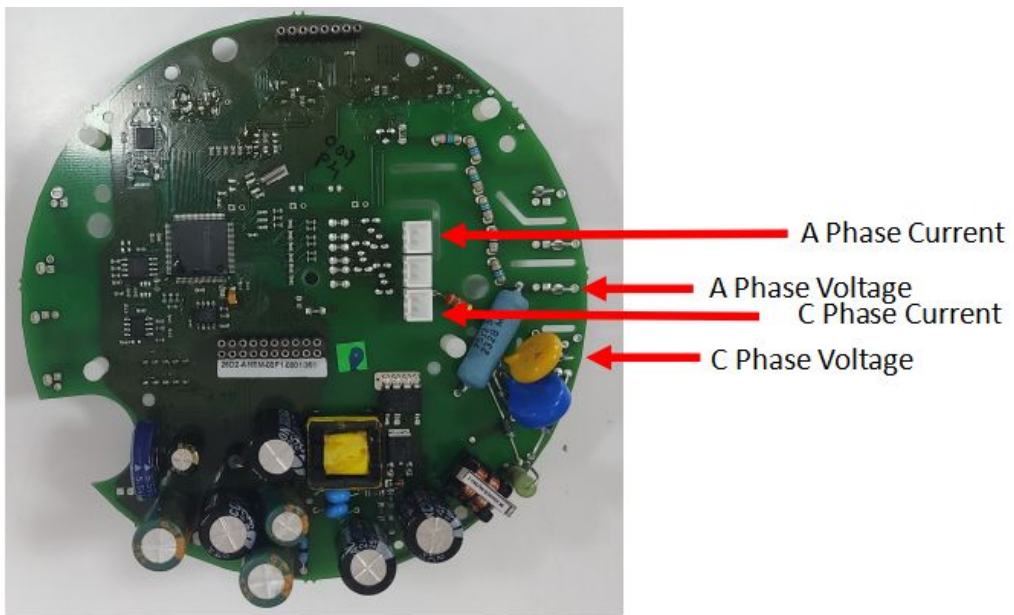


Figure :3

ZEUS R12 Meter Base



Figure :4

ZEUS R2 Meter PCB



Figure :5

Table ZEUS R12S and ZEUS R2S comparison:

Block Features	Differences	Similarity
Voltage and current connection	R2S : Neutral not connected R12S : Neutral connected	Same except differences
Signal conditioning For voltage and current input and power supply	R2S: Phase A Resistor dividers are connected with respect to internal ground and Internal ground is connected to Phase C R12S : Resistor dividers Phase A , C are connected with respect to internal ground which is connected to external Neutral	All hardware is same except Differences
Measurement Microcontroller	No differences	Common firmware and hardware
Peripheral like Memory , LCD, Keys , Optical Port etc	No differences	Common hardware and firmware

LoRa Module communication Microcontroller	No differences	Common hardware and firmware
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