



Arad Technologies Proprietary
FCC ID:VIDICON240V



ICON RF Specification



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1 Introduction

The following document describes the technical specification of the Electricity Meter transceiver (ICON) for the USA market.

The ICON meter is single phase class 2.0 ANSI C12.20 Electricity Meter. The meter includes a Tx/Rx integrated module for RF communication.

The ICON includes the following modules:

- Sensor board – measure the power consumption (kWh). The sensor board can be 240 VAC or 120 VAC type.
- Display board – 9 digits LCD
- Tx/Rx board - RF transmitter & Receiver that operate in 916.3 MHz range.

The RF capabilities enable the transmission of the meter reading and some extra information to a Collecting unit. In addition specific parameters can be programmed via the RF link.

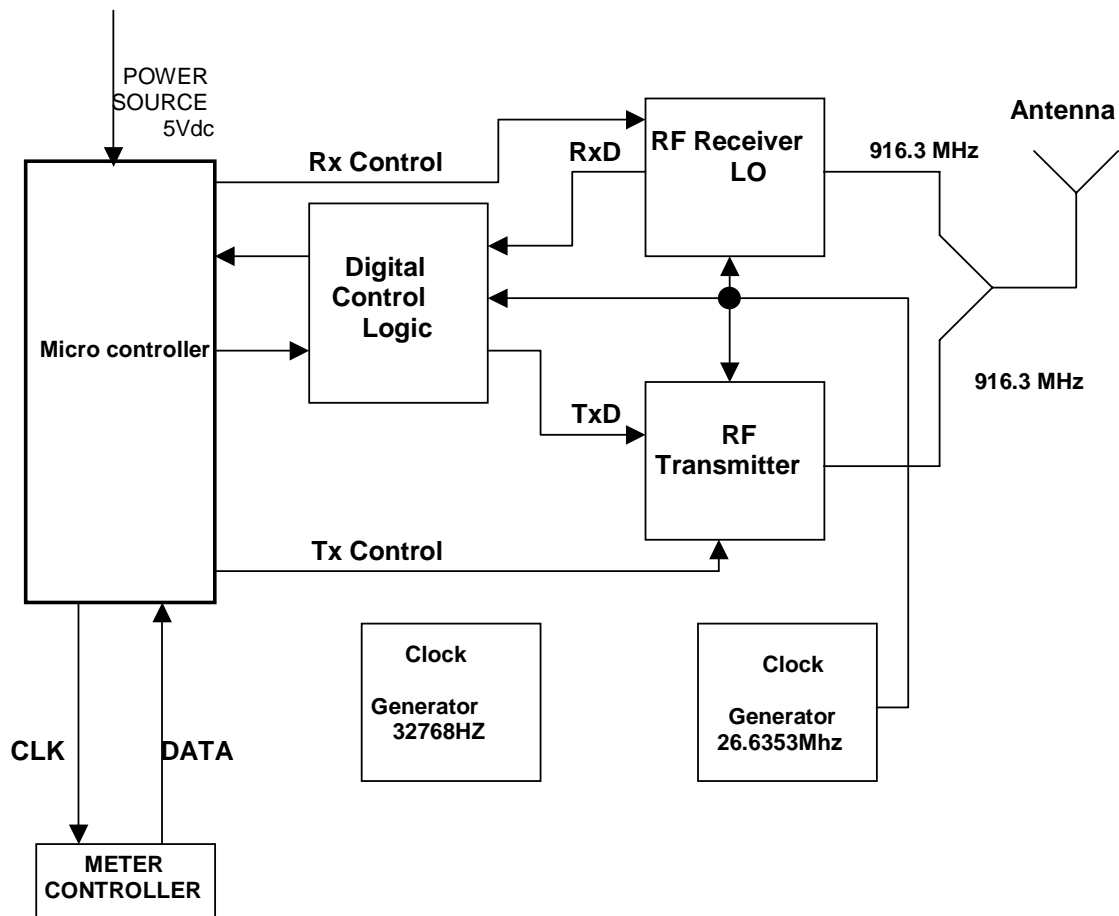
Note: The Tx/Rx module based on board LC-TMW, FCC ID: NTAXMETER10.



2 ICON Description

2.1 *ICON Tx/Rx Board*

2.1.1 Block diagram

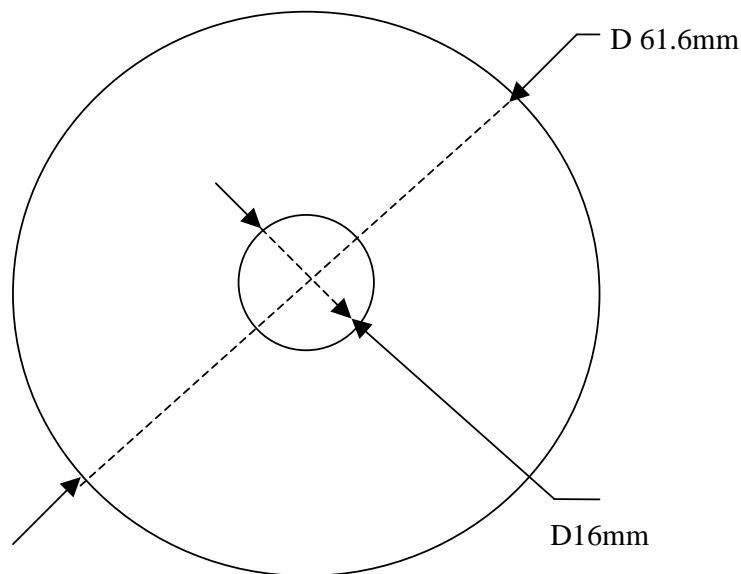




2.1.2 Operational Modes

Mode	Microcontroller	Serial Port	Digital Logic	Receiver	Transmitter
Transmit	On (fast clock)	Disabled	On	Off	On
Receive	On (fast clock)	Disabled	On	On	Off
Idle/Sleep	On (32768 Hz clock)	Disabled	Off	Off	Off

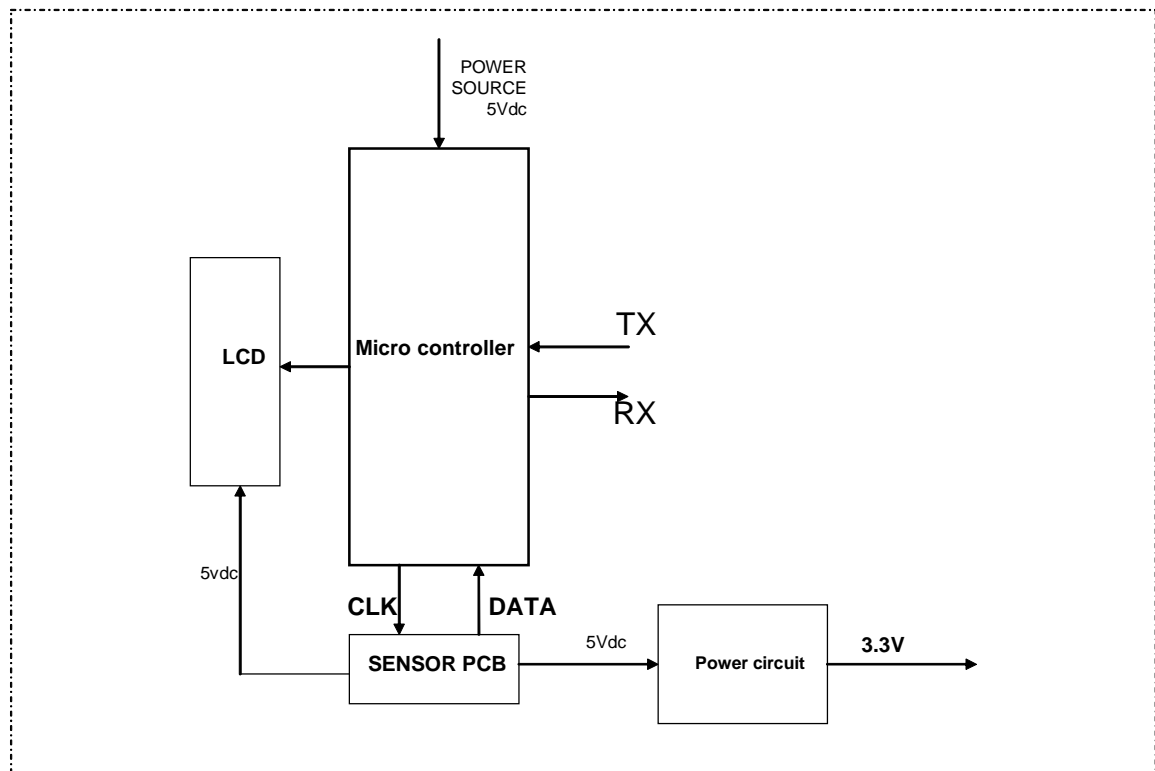
2.1.3 Board Dimension





2.2 *ICON Logic and Display board*

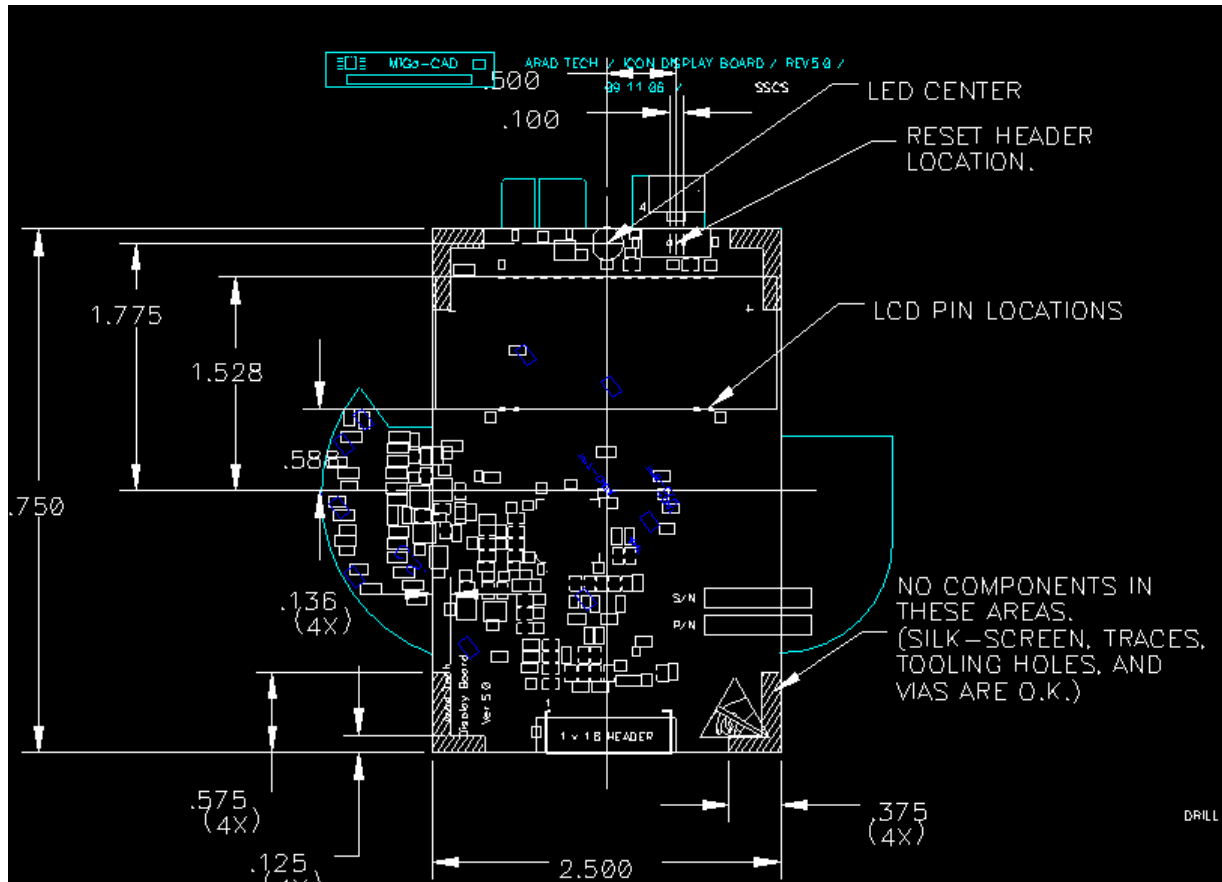
2.2.1 Block diagram





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2.2.2 Board Dimension





3 Electrical Performance

3.1 *ICON Tx/Rx Board*

3.1.1 Transmitter

Parameters	Value
Transmit frequency	916.3 MHz
Modulation	Digital Modulation – Wide Band BFSK
Coding	Manchester
Net bit rate	59.45 kbps
Frequency deviation	175 kHz
Bandwidth @ 6 dB	500 kHz – 700 kHz
Frequency stability including temperature and aging	<50ppm
Peak Output Power without Antenna	9.0 dBm
Peak Output Power spectral density	<8 dBm in any 3 khz
Harmonics	< -54 dBm
TX Pulse duration	4 ms
Transmission rate	Programmable. Less than 0.12%

3.1.2 Receiver

Parameters	Value
Receive frequency	916.3 MHz
Sensitivity (BER 1E-3)	-90 dBm
Modulation	FSK
Frequency deviation	175 kHz
Net bit rate	20 kbps
Coding	Manchester



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3.2 ***ICON Logic and Display board***

3.2.1 **Serial communication/ Digital circuits**

The ICON board based on PIC Micro Controller and LCD and Power Supply circuits.

The ICON board communicates with Tx/Rx board by standard UART communication, (clk&data).

3.2.2 **Power source**

The Icon board includes 5 vdc power source for Display board and 3.3 vdc power for Tx/Rx board

3.2.3 **Antenna**

The ICON has an integral Antenna. The antenna located on ICON board and connected to the Tx/Rx board.

The Antenna type is PCB FPIFA – Printed Circuit Board Folded Planar Inverted "F" Antenna. The Antenna is Omni Directional in horizontal plane. The maximum gain is 4 dBi.

3.3 ***Environmental Conditions***

- Operating Temperatures: -40° C to +85°C
- Storage Temperature: -40° C to +85°C
- Humidity: Up to 95%