THE WISDOM WITHIN

ARAD
TECHNOLOGIES LTD.
Controlled Wireless Meters

CENTRON
RF Specification

Table of Content

1 Introduction

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

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

The CENTRON includes the following modules:
- Sensor board – measure the power consumption (kWh). The sensor board can be 240 VAC or 120 VAC type.
- Display board – 5 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.
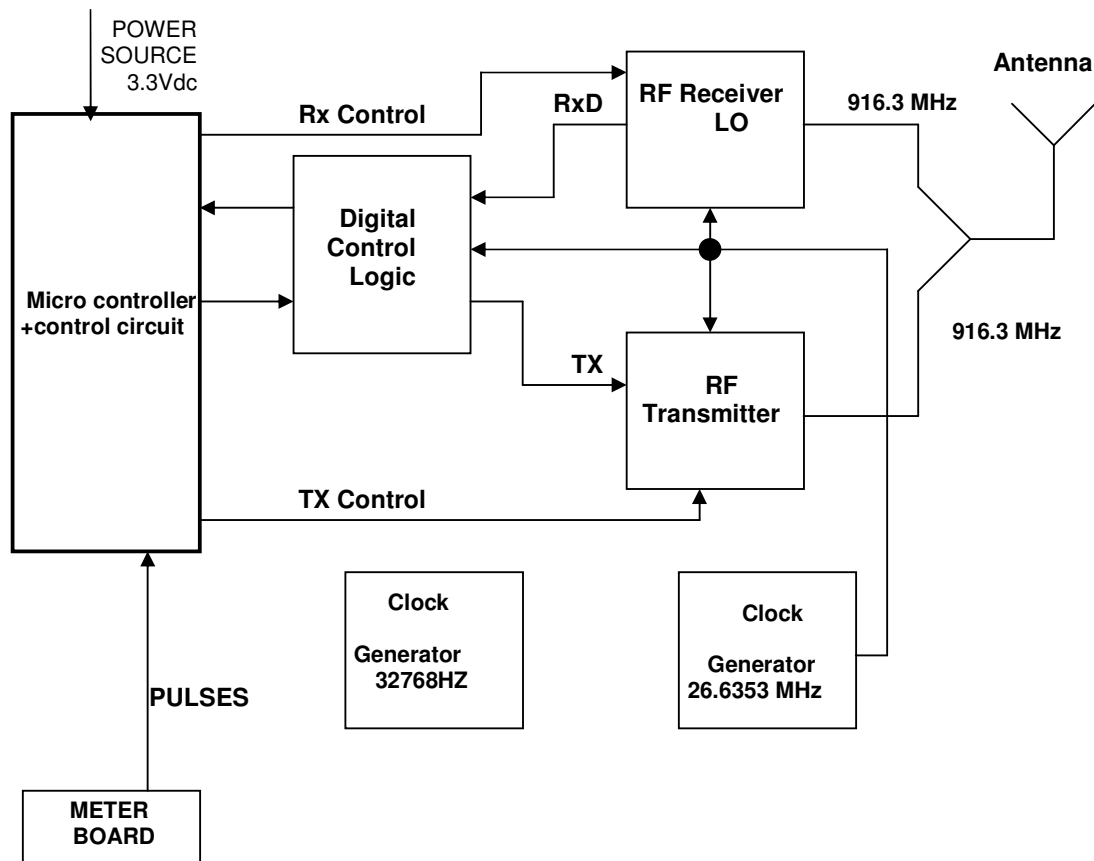
Note: The Tx/Rx module based on board LC-TMW, FCC ID: NTAXMETER10

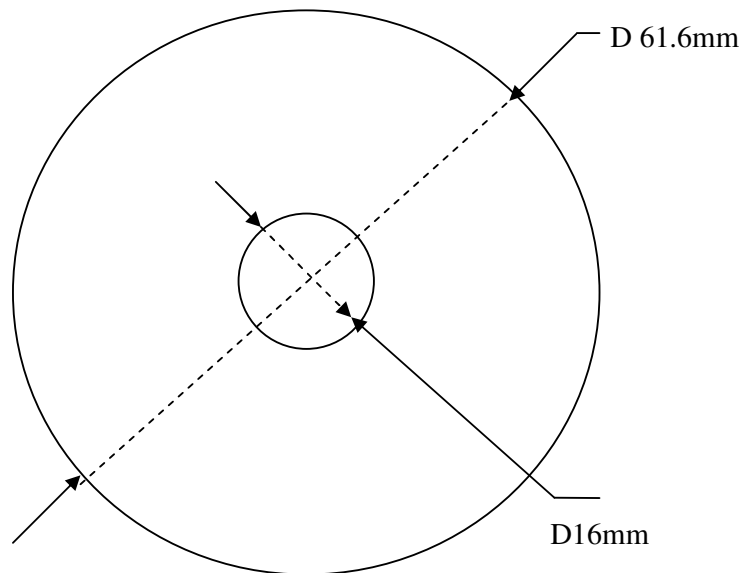# 2 CENTRON Description

2.1 *CENTRON TX/Rx Board*

2.1.1 Block diagram

2.1.2 Operational Modes

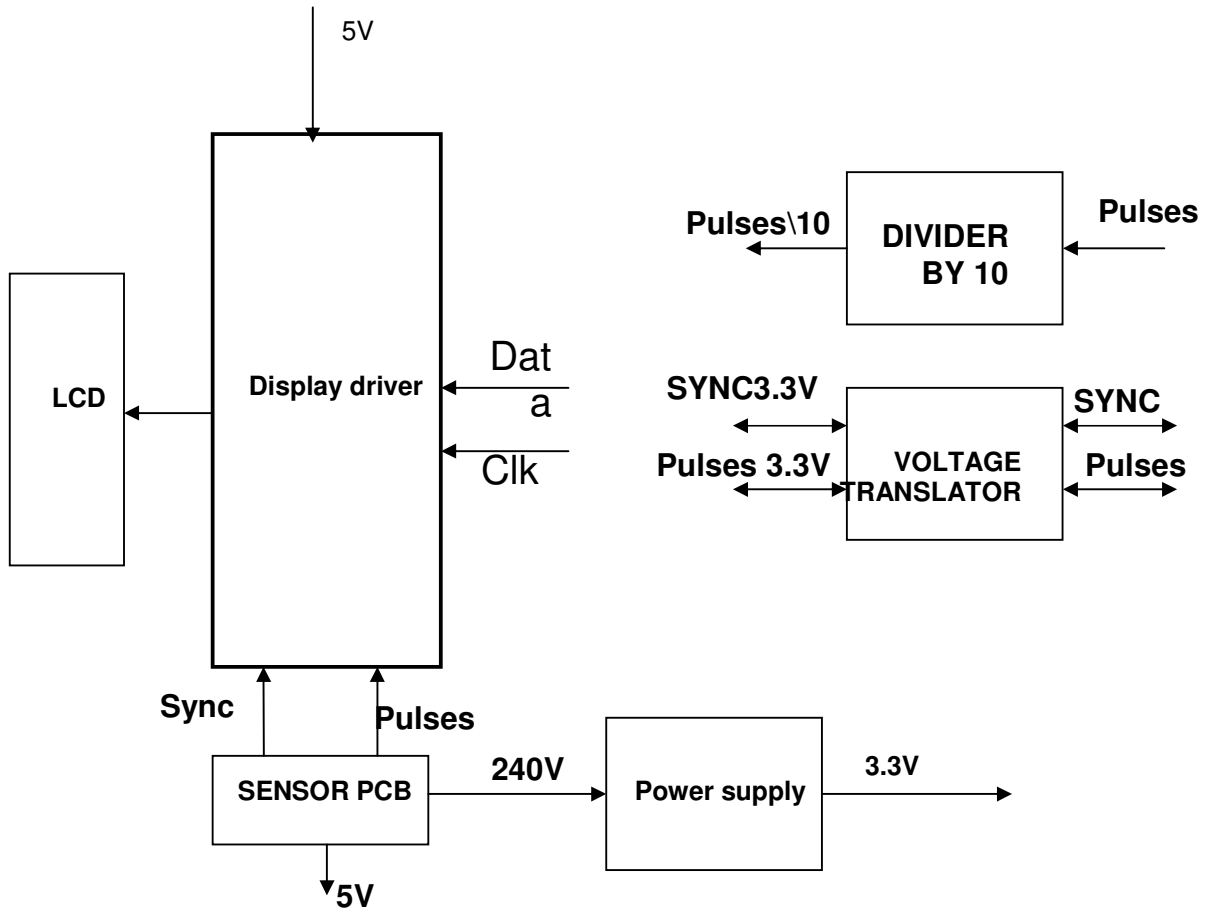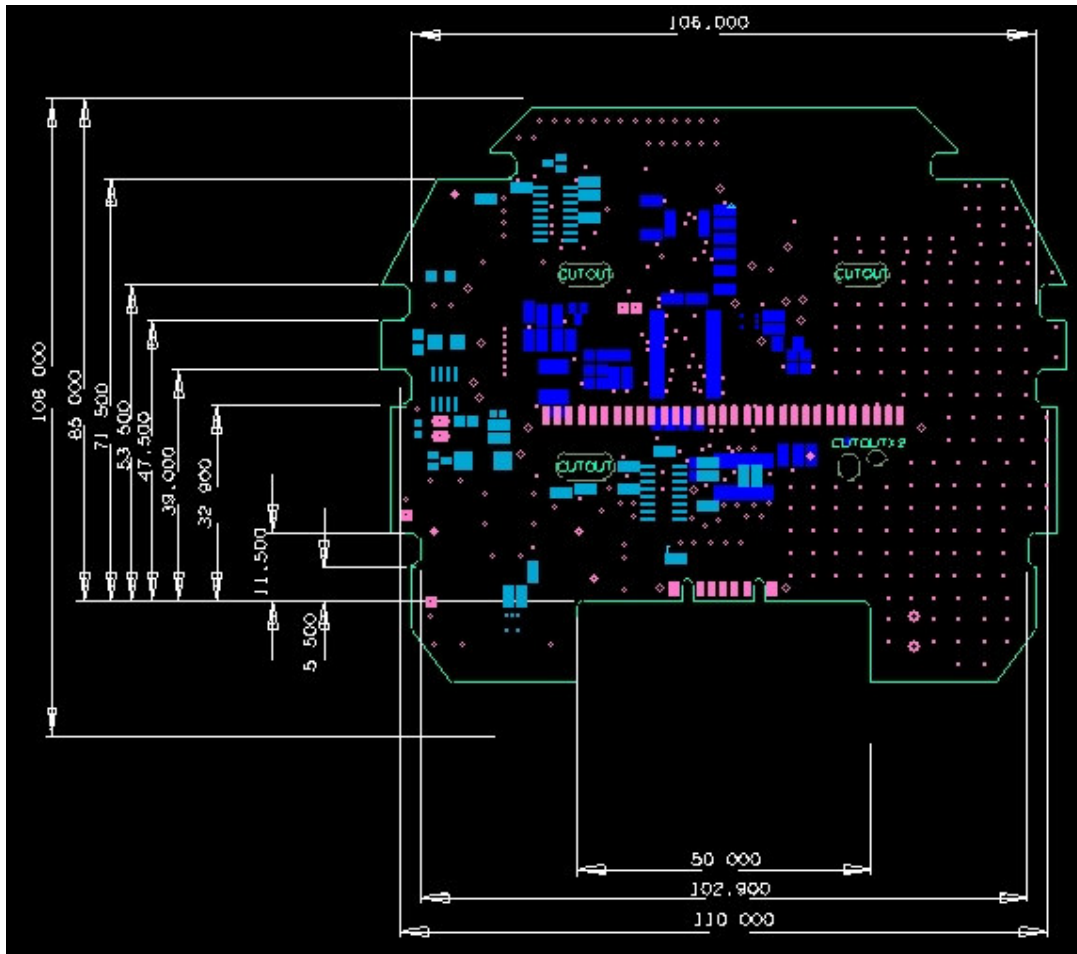| Mode	Microcontroller	Serial Port	Digital Logic	Receiver	Transmitter
Transmit	On (fast clock)	Disabled	On	Off	On
Receive	On (fast clock)	Disabled	On	On	Off
Idle/Sleep	On (32768 Hz clock)	Disabled	Off	Off	Off

2.1.3 Board Dimension

D 61.6mm

D16mm

2.2 *ICON Logic and Display board*

2.2.1 Block diagram

2.2.2 Board Dimension

3 **Electrical Performance**

3.1 *CENTRON 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	11.02 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

3.2 **CENTRON   Logic and Display board**

3.2.1   Serial communication/ Digital circuits

The CENTRON board based on driver Micro Controller for the LCD, and divider circuit that devide the pulses from the sensor board by 10, and power translation circuits to translate the 5v level to 3.3 level.

The CENTRON sensor board communicates with display board by pulses and sync signals.

3.2.2   Power source

The CENTRON display board power by the 240 volt power line. By internal power supply that provide 3.3 volt. The sensor board provide separated 5 volt for the LCD controller.

3.2.3   Antenna

The CENTRON has an integral Antenna. The antenna located on CENTRON 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: -40º C to +85ºC
- Storage Temperature: -40º C to +85ºC
- Humidity: Up to 95%