3.7 POWER MODE

The M90E36A has four power modes. The power mode is solely defined by the PM1 and PM0 pins.

Table-2 Power Mode Mapping

PM1:PM0 Value	Power Mode
11	Normal (N mode)
10	Partial Measurement (M mode)
01	Detection (D mode)
00	Idle (I mode)

4 SPI / DMA INTERFACE

4.1 INTERFACE DESCRIPTION

The interface can work in two modes: Slave (SPI) mode and Master mode, which is also named DMA (Direct Memory Access) mode. The interface mode is determined by the DMA_CTRL pin as below:

Mode	DMA_CTRL	Description
Slave (SPI) Mode	0	The interface works as normal four-wire SPI interface.
Master (DMA) Mode	1	The interface operates as a master and dumps data to the other devices.

SPI/DMA Mode Selector J3
***Note – Refer Data Sheet below

Power Mode Selection Jumper.

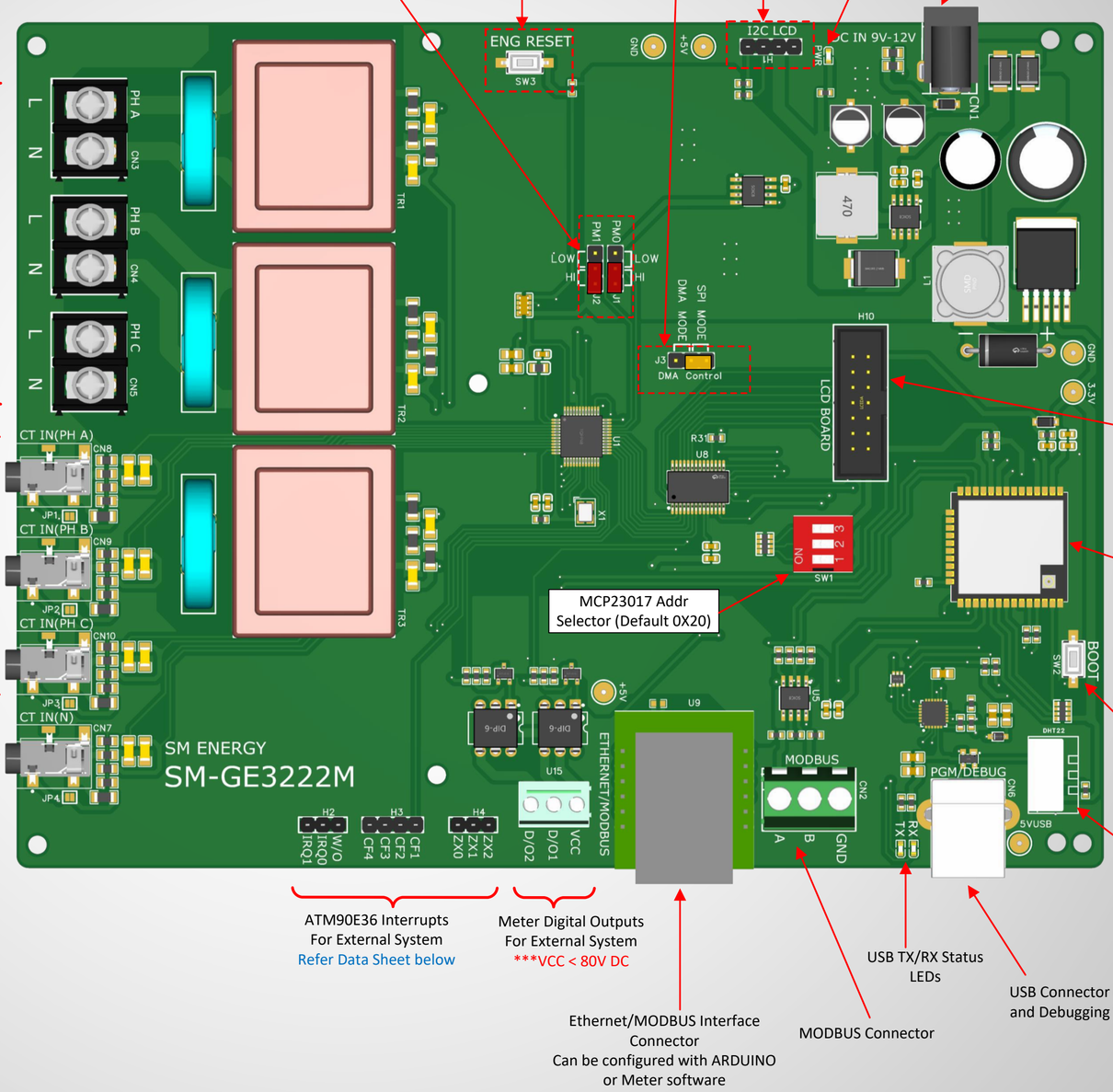
ATM90E36 Energy IC Reset

I2C LCD Connector (For Front Panel)

Power LED

9 – 12V DC Input (Device Power Input)

Line Voltage Inputs
< 250V AC



Front Panel IDC connector

ESP32 GPIO0 Boot (Programming/ Firmware Update)

DHT22 Temperature and Humidity Sensor

USB TX/RX Status LEDs

USB Connector (Programming and Debugging With Arduino)

MODBUS Connector

Ethernet/MODBUS Interface Connector
Can be configured with ARDUINO or Meter software

ATM90E36 Interrupts For External System
Refer Data Sheet below

Meter Digital Outputs For External System
***VCC < 80V DC

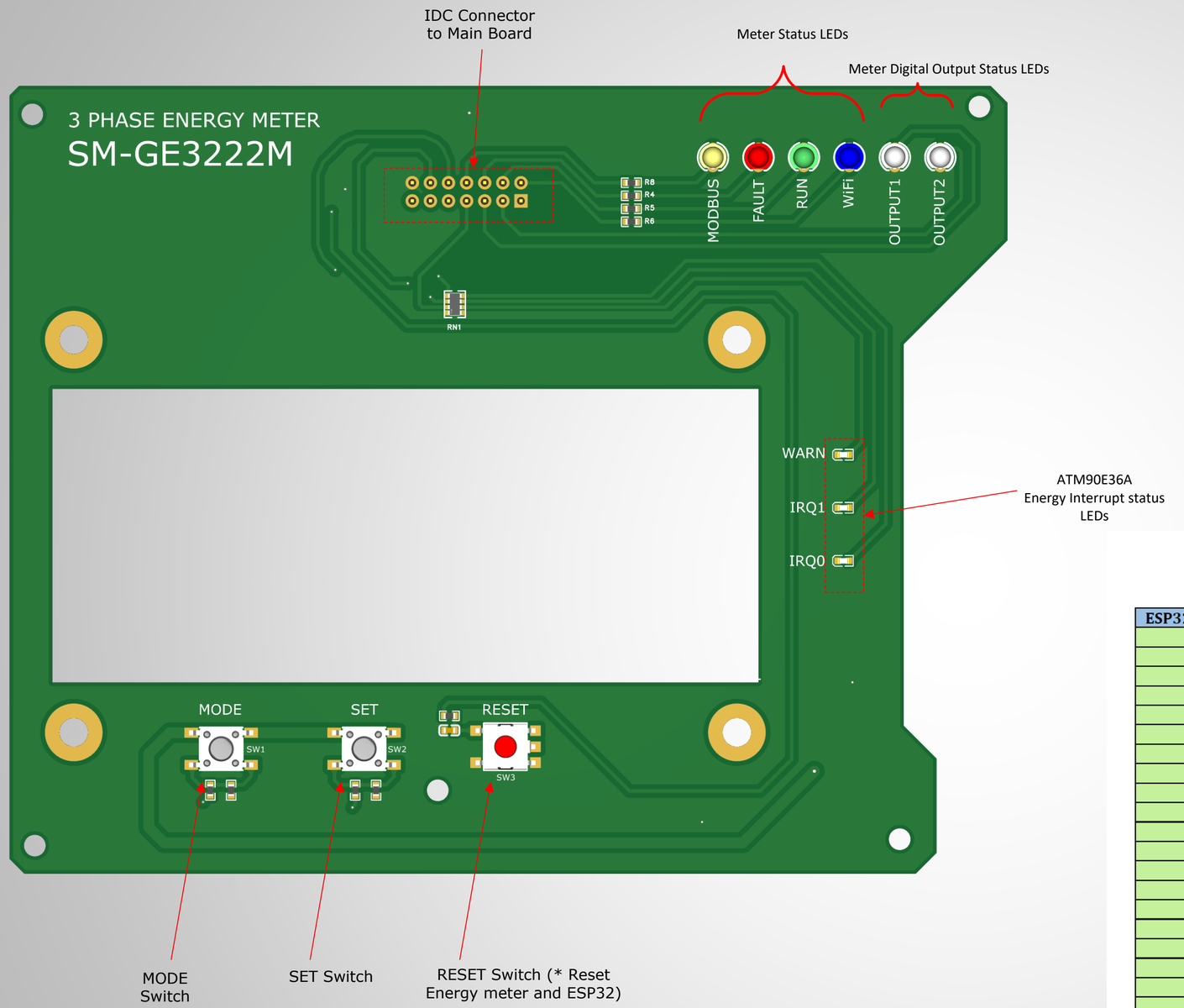
Line Current CT Inputs

Netral CT Input

Current Transformers Can be Used:
20A/25mA SCT-006
30A/1V SCT-013-030 (JP1,JP2 and JP3 jumper Should be Open)
50A/1V SCT-013-050 (JP1,JP2 and JP3 jumper Should be Open)
80A/26.6mA SCT-010
100A/50mA SCT-013-000
120A/40mA: SCT-016
200A/100mA SCT-024
200A/50mA SCT-024

*** Note: JP1,JP2 and JP3 jumper Links Should be open When using Voltage output type current sensors. For Current Output types above jumpers should be shorted.

*** Note: Refer Atmel M90E36A Datasheet for more information.Use the Link below
https://ww1.microchip.com/downloads/en/DeviceDoc/Atmel-46004-SE-M90E36A-Datasheet.pdf



ESP32 PIN Configuration and Functions (Meter SM-GE3222M)

ESP32 Pin No	Pin Name	Pin Fuction
4	(SENSOR_VP) GPIO36	DC Input Voltage Sensing
5	(SENSOR_VN) GPIO39	Not Used
6	GPIO34	Not Used
7	GPIO35	Not Used
8	GPIO32	MODE input Switch
9	GPIO33	SET input Switch
10	GPIO25	MCP23017-PORTA Inturrupt Sense
11	GPIO26	MCP23017-PORTB Inturrupt Sense
12	GPIO27	MAX485 TXRX Control pin for MODBUS (RS485)
13	GPIO14	W5500 Eternet MODULE Select
14	GPIO12	Not Used
16	GPIO13	Not Used
23	GPIO15	Not Used
24	GPIO2	Not Used
25	GPIO0	BOOT Enable
26	GPIO4	DHT22 (AM2302) Sensor Data pin
27	GPIO16	MAX485 RO pin (RXD)
28	GPIO17	MAX485 DI pin (TXD)
29	GPIO5	ATM90E36 SPI Chip Select Pin
30	GPIO18	ATM90E36 SPI SCLK
31	GPIO19	ATM90E36 SPI MISO
33	GPIO21	I2C SDA
34	RXD0	Debug/Programming (USB) RX
35	TXD0	Debug/Programming (USB) TX
36	GPIO22	I2C SCK
37	GPIO23	ATM90E36 SPI MOSI

ESP32 PIN Configuration and Functions (Meter SM-FE102M)

ESP32 Pin No	Pin Name	Pin Fuction
4	(SENSOR_VP) GPIO36	DC Input Voltage Sensing
5	(SENSOR_VN) GPIO39	Not Used
6	GPIO34	Not Used
7	GPIO35	Not Used
8	GPIO32	MODE input Switch
9	GPIO33	SET input Switch
10	GPIO25	MCP23017-PORTA Inturrupt Sense
11	GPIO26	MCP23017-PORTB Inturrupt Sense
12	GPIO27	MAX485 TXRX Control pin for MODBUS (RS485)
13	GPIO14	W5500 Eternet MODULE Select
14	GPIO12	Not Used
16	GPIO13	Not Used
23	GPIO15	Not Used
24	GPIO2	Not Used
25	GPIO0	BOOT Enable
26	GPIO4	DHT22 (AM2302) Sensor Data pin
27	GPIO16	MAX485 RO pin (RXD)
28	GPIO17	MAX485 DI pin (TXD)
29	GPIO5	ATM90E36 SPI Chip Select Pin
30	GPIO18	ATM90E36 SPI SCLK
31	GPIO19	ATM90E36 SPI MISO
33	GPIO21	I2C SDA
34	RXD0	Debug/Programming (USB) RX
35	TXD0	Debug/Programming (USB) TX
36	GPIO22	I2C SCL
37	GPIO23	ATM90E36 SPI MOSI