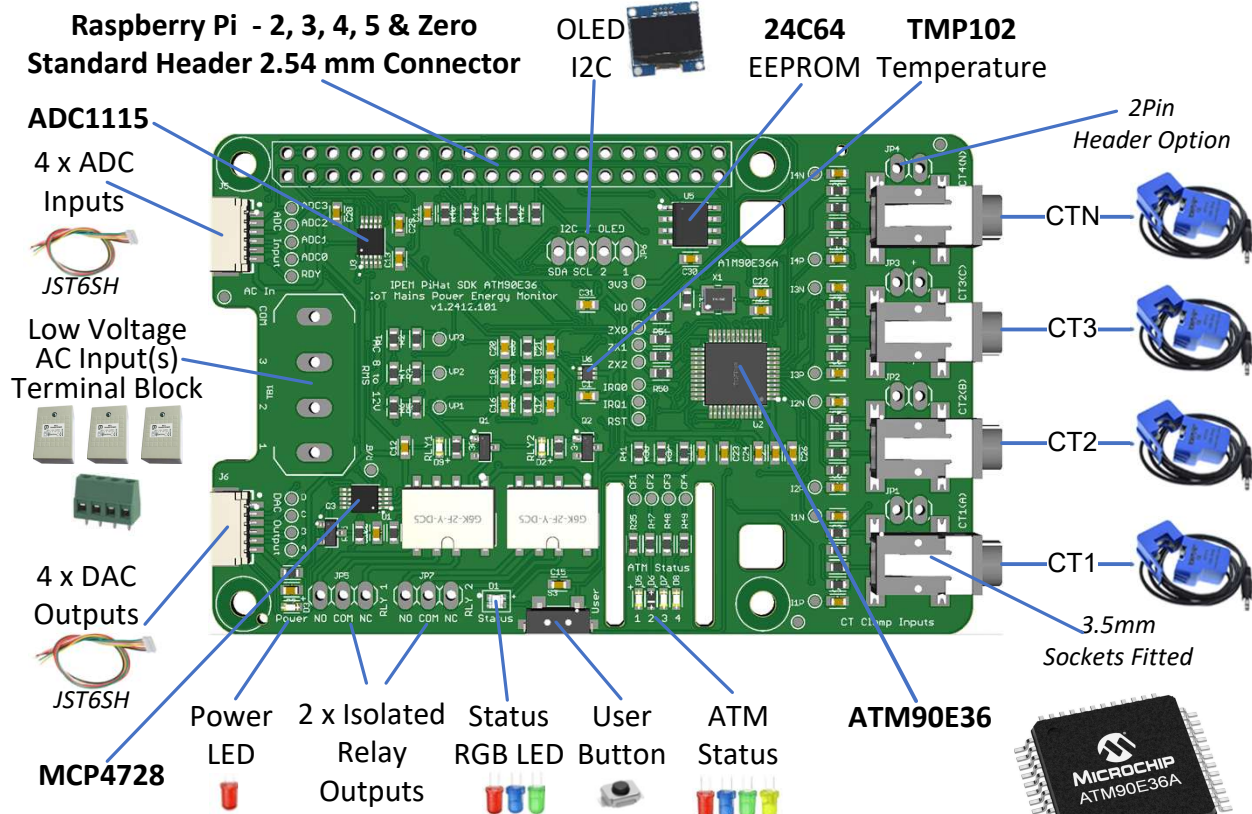


New
Q1
2025

IPEM Raspberry Pi – ATM90E36 PiHat Mains Energy Monitor



SDK boards are SMT fitted and fully tested. 2.54mm Headers and Terminal block require soldering.

- **ATM90E36 Accurate Mains Power Energy Monitor**
 - Single, Split or Three Phase Star Y or Delta Δ Voltage Inputs.
 - Single phase (Home, Office, Workshop etc.)
 - Multiple Single Phases. (Different circuits, rings, Inverters etc.)
 - Dual Phase (2 x Live -Typically for USA. i.e. 2 x 110V)
 - Three Phase Star (3 x Live and 1 x Neutral)
 - Three Phase Delta (3 x Live)
 - Solder Jumper Configuration
 - Four separate ATM Status LEDs
- **PiHat supports all current versions of the Raspberry Pi**
- **Low Voltage Sensing 12V AC Input for Electrical Safety**
- **24C64 I2C EEPROM**
 - Parameters, Data Logging, Buffering, Configuration etc.
- **MCP4728 12bit I2C DAC**
 - Four Independent Buffered Output Channels
 - Configured for Default DAC Out, or Modulated (Example MPPT)
 - Configurable Solder Pads
 - On-Board DAC EEPROM (For DAC Codes and Addressing)
 - Drive DAC based on CT Clamp Current / Power
 - PWM Output based on CT Clamp Current / Power
- **ADS1115 16bit I2C ADC**
 - Four Analogue (Max 3V3) Inputs
- **TMP102 I2C Ambient Temperature Sensor**
- **Isolated Relay Control**
 - Two independent 30V 2A Normally Open, or Closed, Outputs
 - External Control based on Time, Current etc.
- **WS2812 Status RGB LED**
- **User Interfaces**
 - GPIO
 - I2C
 - UART
 - **OLED Interface**
 - Power Pin Configuration Jumpers

Features

AC Input (12V)

* The ATM Chip needs a LOW Voltage AC input to provide sync with 50Hz/60Hz Mains Frequency and Sinewave Phase.

* This can be a Single, Split or Full Three Phase (Y or Δ).

* Three Phase needs 3 x AC In.

AC Power Monitoring

* For Safety, all boards operate on LOW Voltage derived from a SELV / Wall AC/AC Power Supply.

* Recommended 12V AC such as from a Bell Transformer

Recommended

* The YHDC Current Transformer SCT-013-000 (100A/50mA), is recommended.

* The AC Input Voltage must be via transformer for Galvanic Isolation for electrical safety. Example GreenBrook DAT01A or TLC TC TR7 .

IPEM CT4 Input

* This CT4 input is for an optional fourth Current CT Clamp which is linked to the ATM90E36.

* Neutral I4 Input for full STAR (Y) Three Phase Mains Installation monitoring.

Mains and Solar Power Energy Monitor Boards SDK STEM Overview

IPEM and IPEC Board ATM90E Topology



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IoT Smart Home
Energy Automation

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