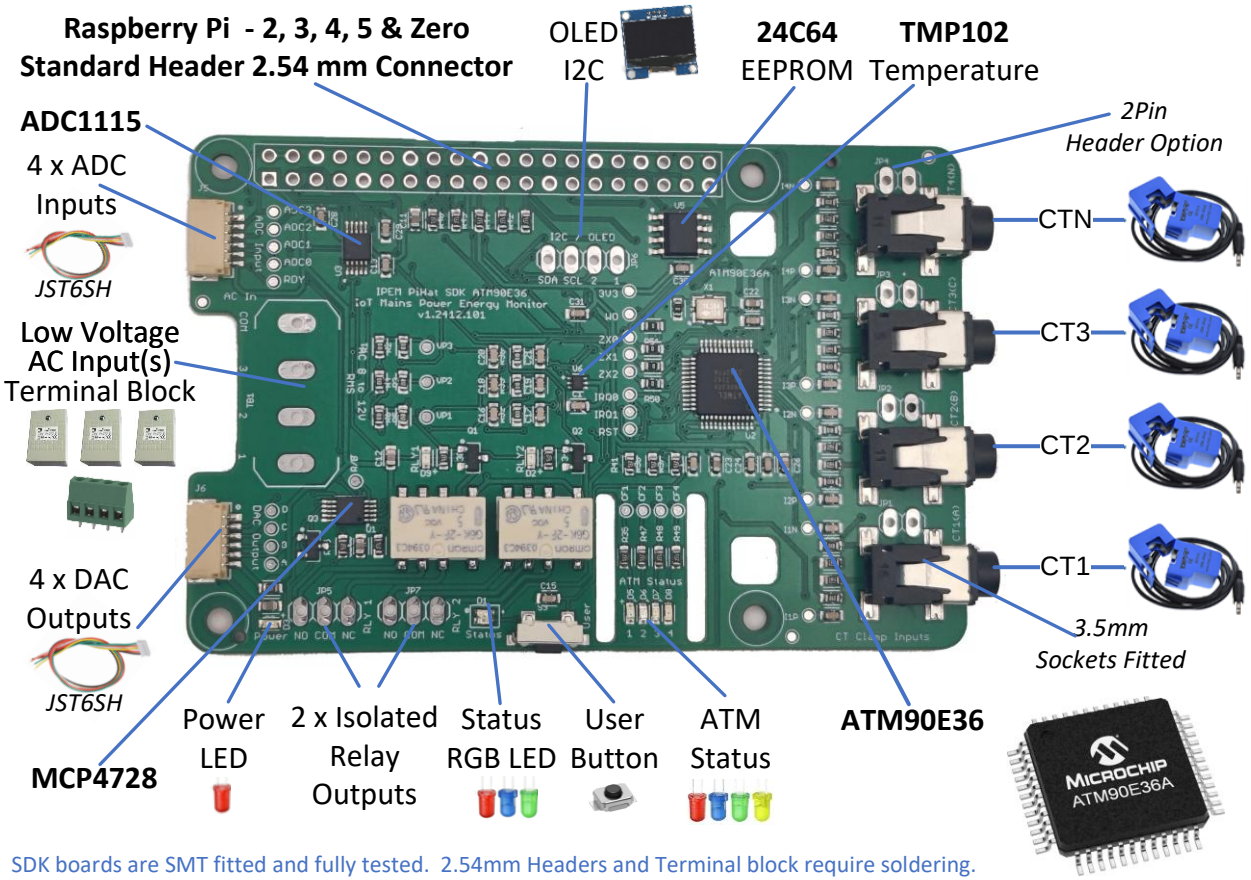
New
Q1
2025

IPEM Raspberry Pi – ATM90E36
PiHat Mains Energy Monitor



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

Features

- **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

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 forth 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

DitroniX.net
IoT Smart Home
Energy Automation

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