



WattmonMEGA

Remote Monitoring & Control Platform



Features

WattmonMEGA is a flexible data logging and control platform that runs a web server and uPHP, a PHP-compatible scripting language.

Easy to Use

- Configurable through a web browser
- Advanced automation without the need to program a single line of code

Communications

- RS-485 Modbus RTU Port for communication with multiple devices
- RS-232 Serial Port
- Dallas OneWire bus

Inputs and Outputs

- 2 Analog inputs: 0-5V and 0-330V DC
- 4 digital inputs (3 with pulse counting)
- 4 digital outputs
- 1 integrated 5A relay

Power

- Wide input voltage range: 6-60V DC
- High efficiency DC-DC converter
- Low power consumption of < 2 Watts

Network

- 100Mbit Ethernet
- Supports several USB cellular dongles in GPRS and 3G mode

Storage

- 8 GB MicroSD card included
- 512 KB RAM

Conformity

Emission	CISPR 11 Class A CISPR 22 Class A
Surge Withstand	1kV IEC61000-4-5
ESD	8kV Air discharge, 6kV Contact discharge IEC61000-4-2
Fast Transient	1kV IEC61000-4-4

Applications

- Solar/Wind Energy Monitoring
- Battery Monitoring
- Grid-Tie inverter performance monitoring
- Water pumping and automatic tank level control
- Weather stations
- Cell Tower Monitoring
- Solar Irradiation Monitoring
- Megawatt Scale solar farms
- Home Automation



Material

Cover	ABS (Black)
Base	ABS Noryl (Black)

Dimensions & Weight

Length	130 mm
Width	70 mm
Height	75 mm
Weight	200 g

Features & Benefits

- **Highly versatile**
Lets you customise it to your exact needs
- **Easy to use**
Allows non-programmers to configure and automate
- **Web based**
Accessible from your phone, tablet and pc.
- **Industry compliant**
Integrate new and existing devices easily using Modbus RTU/TCP
- **Local storage**
Securely store your data locally in CSV format, control who can see it
- **Programmable**
Write your own scripts in a built-in editor using a PHP compatible language

Introduction

WattmonMEGA is designed for remote monitoring and control and can be accessed through a 3G or GPRS USB dongle or over Ethernet. The web interface is optimized for size and speed, and fully responsive, so it works well on both mobile devices and standard web browsers.

Wattmon can work as a fully stand-alone web server and store & present data directly from the device. This can prove problematic on some setups that do not have public IP addresses. Wattmon solves this problem by

routing access through an optional proxy server when required, making it possible to access the device through multiple firewalls without issues. Wattmon can also be configured to push data to the ems.wattmon.com subscription-based portal, or as CSV data to a server of your choice.

Modbus RTU Support

Wattmon acts as a Modbus master and can interface with up to 8 Modbus RTU-compliant slave device and 1 Modbus TCP devices such as current sensors, power meters, inverters and charge controller, which can all be daisy-chained. A simple device configuration tool lets you define and integrate a new device quickly. It can be configured for any baud rate up to 115200 with different parity settings as required.

It supports the following data types:

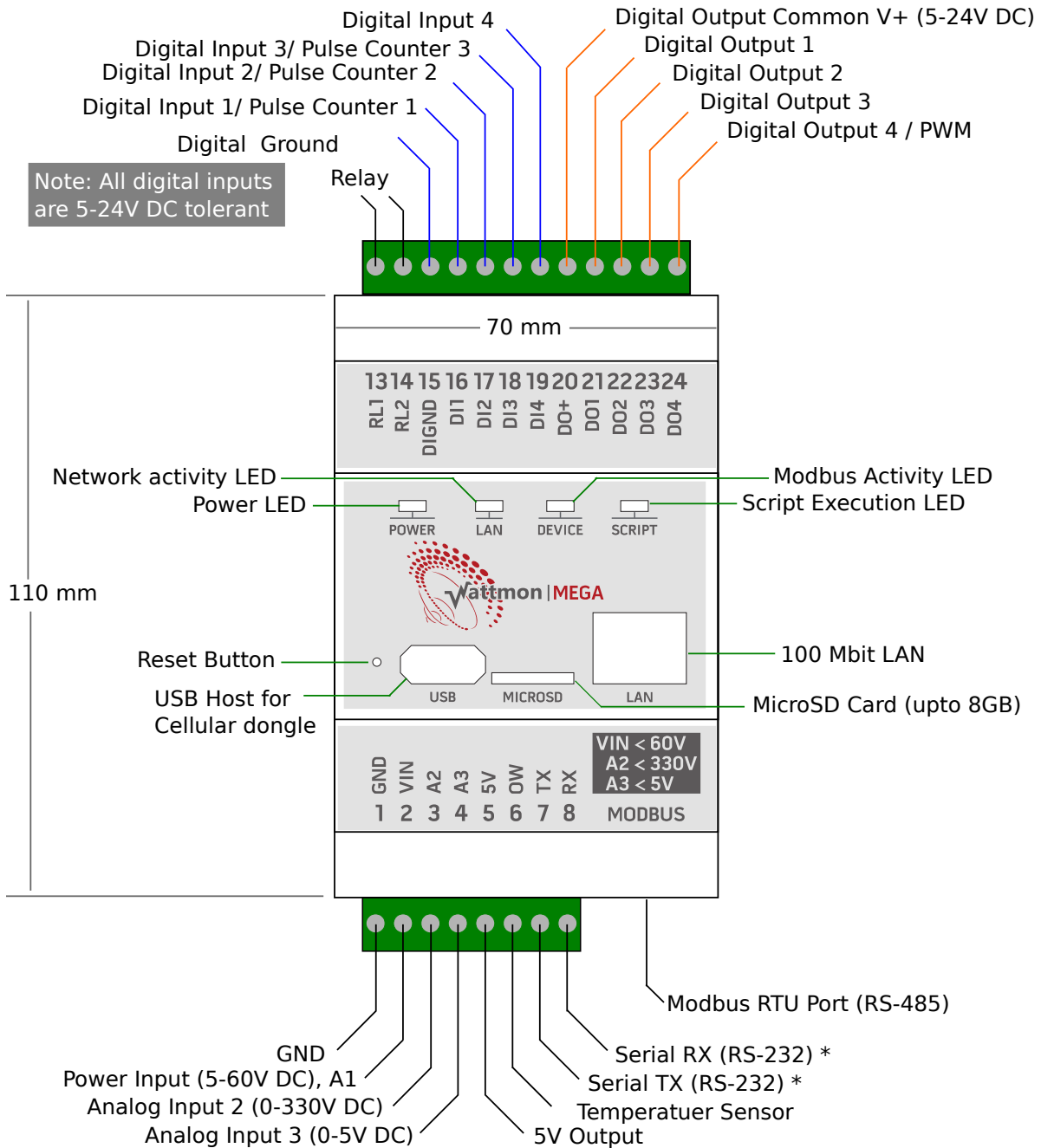
- IEEE754 floats (big and little endian)
- INT32 (big and little endian)
- UINT32 (big and little endian)
- INT16

Customizable

Wattmon is highly flexible and can easily be customized for your needs. Although it is well suited for energy monitoring, it can do much more. Unlike most Internet-enabled data loggers, Wattmon does not only upload data to a cloud but instead stores it locally on a MicroSD card, with up to three years of storage. The real power of the device lies in the automation of outputs or alerts based on inputs from the data being logged. For the hobbyist and home automation enthusiast, this product delivers a powerful combination of advanced features and user-friendliness and was designed to be usable by non-programmers.



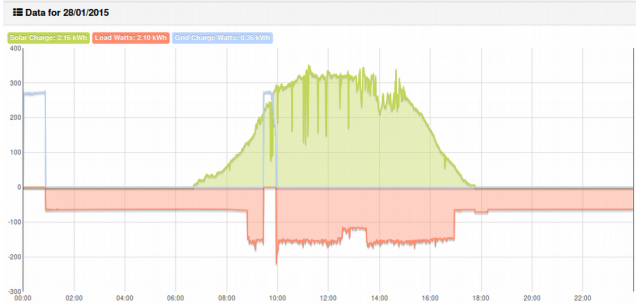
Connection Diagram



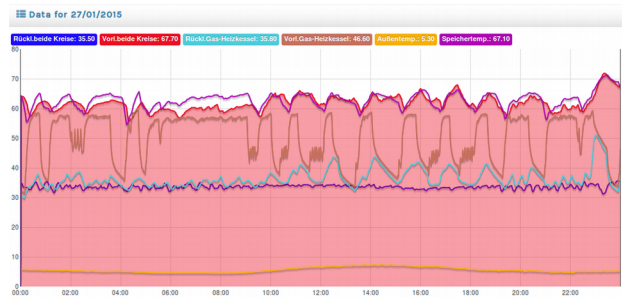


Web Server

The inbuilt web server lets you view your sensor values graphically, as well as allows for downloading of relevant data via CSV. An intuitive interface makes it easy to configure your system with minimum hassle.



Daily graph of solar charge and load in kWh



Example of daily graph for an automated heating system controller using Wattmon

The web interface lets you view live data as well as historic data, and provides access to all the configuration options needed to set up and manage the device.

The entire web server runs off the Micro SD card and can be modified as per your requirements, including logo & UI adaptations.

Platform

The Wattmon platform consists of a WattmonMEGA master unit (WMMEGA) and zero or more add-on modules. The different devices Cynergy supplies are described below. Any other third party Modbus-RTU complaint device can also be integrated.

DC Current Sensing - C252, C1002

This is a Hall effect DC current sensor module (dual channel) able to measure amps without the requirement of a physical connection. The module comes in 25A and 100A versions.

Analog Inputs - A10

This module has 10 analog inputs, and can be provided with 5V DC inputs or 300V DC inputs – the higher version can be used to measure high voltage battery banks.

Digital I/O - I808

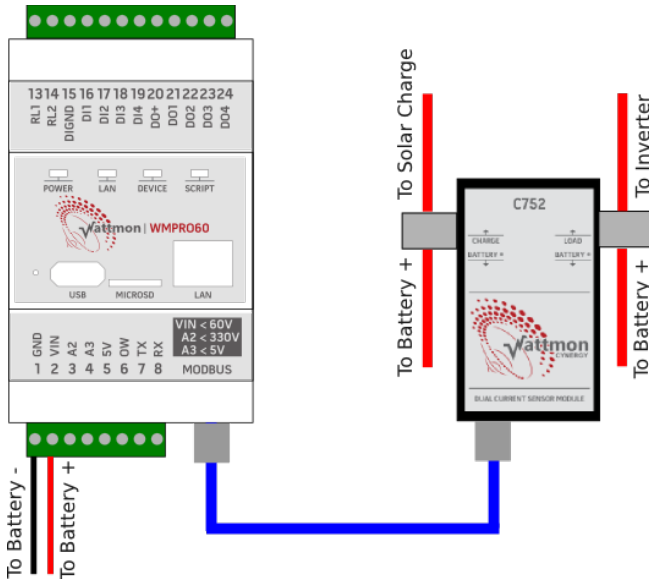
This module has 8 digital inputs and 8 digital output that can be used to control relays and get signal information from switches or other devices.



Applications

Battery Monitoring

WattmonPRO can easily monitor voltage and battery current using an add-on sensor such as the C252 or C1002, and calculate both solar and load kWh, as well as keep track of battery state of charge.



- Fronius
- Power-One
- Kaco
- Emerson

AC Energy Monitoring

One or more AC Power meters with Modbus output can be connected and power can be remotely monitoring through the Internet.

Controlling Loads

Wattmon can be configured to switch digital outputs on or off depending on various triggers such as battery voltage or state of charge, time of day or any combination of variables or inputs from devices. This can be used to perform load shedding by switching off high current circuits when power is not available or to automate battery charging.

Remote Portal

Remote subscription-based portal can be used to view consolidated data from various sites in one place, thus providing installers with a powerful overview of their installations.

String Monitoring

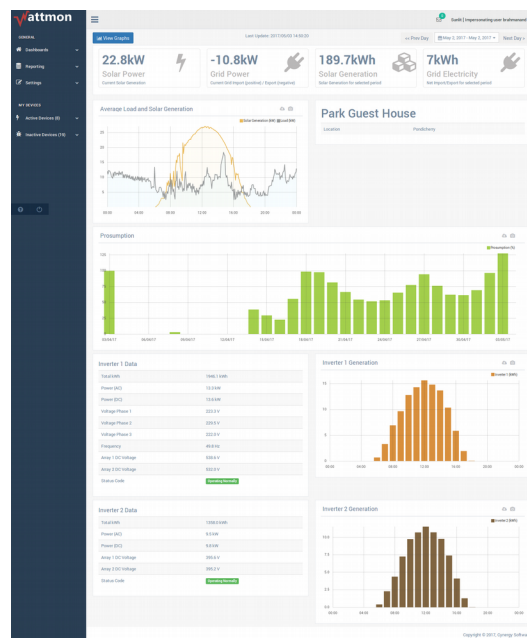
With various add-on modules Wattmon can be used to monitor multiple strings. For Hall-effect current sensing, the C252 (25A) or C1002(100A) module can measure two strings – multiple modules can be daisy chained together to monitor several strings.

The new S5 module can be used to measure upto 5 strings with a 50mV shunt resistor.

Inverter Monitoring

Wattmon has drivers for the following inverters:

- Delta (RPI Series)
- Schneider (Conext Series)
- Studer (over RS-232)
- Victron (over RS-232)





Datasheet Rev 1.1

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For more information visit our website:

<http://www.wattmon.com>

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