



EW500 Series

Energy Calculators

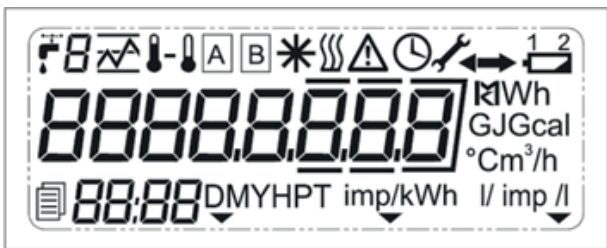
For Heating and Chilled Water Energy Metering

APPLICATION

Honeywell Home EW500 energy calculators are used for energy consumption metering in hydronic heating and cooling systems. They are typically combined with a pair of temperature sensors and a mechanical or ultrasonic flow sensor, for example Honeywell Home EW370 or EW480 Series, to provide the full functionality of a heat meter.

EW500 energy calculators are suitable for energy metering of heating energy, cooling energy or heating and cooling energy transported in one pipeline. The switch between heating and cooling register happens automatically when the Δt turns negative and the supply temperature falls below the programmed threshold.

Metered values, error logs and configuration changes are stored in a non volatile memory. The calculator can be read out over the display or remotely. For local readout the meter is equipped with a multiple line 8+4 digit LCD display.



For remote readout the EW500 offers a variety of retrofittable interface modules, including M-Bus and Modbus. The calculator's standard configuration can be modified by using a PC software and connecting over the ZVEI standard optical interface on the front of the device with optical interface EWA3001798. A separate permission level is available for user and legalisation access to avoid unauthorised tampering with approval relevant configuration items.

Temperature sensors are not supplied with the calculator and have to be ordered separately. Standard configuration is prepared for 2-wire Pt500 temperature sensors. A model is available for 4-wire Pt100 temperature sensors.

The housing is closed with two sealable screws. It has protection class IP54 as standard. As special configuration it is also available with IP65 or IP68. EW500 energy calculators are supplied with a backplate for mounting to a wall.



SPECIAL FEATURES

- Suitable for ultrasonic and mechanical flow sensors
- Up to two field retrofittable communications modules, including M-Bus and Modbus.
- Four additional configurable pulse inputs
- Versatile power supply

TECHNICAL DATA

Operating temperatures	
Temperature range:	1 - 180 °C
Temperature difference:	3 - 175 K
Ambient temperature:	5 - 55 °C
Specifications	
Temperature sensors:	Pt500 with 2-wire leads (standard) or as special version for Pt100 with 4-wire leads
Protection class:	IP54 (standard) IP65 or IP68 on request
Display:	LCD, 8+4-digit with symbols
Suitable flow sensors:	Ultrasonic or impeller / turbine
Nominal flow:	0.6 - 3000m ³ /h
Energy unit:	kWh or MWh

Specifications	
Volume unit:	m ³
Total values:	99.999.999 kWh 9.999.999.9 MWh 99.999.999 - 99.999.999 m ³
Values displayed:	Energy – Power – Volume – Flow rate – Temperature
Measuring cycle:	10 s
Environmental class:	C (M1, E1)
Battery life:	10 + 1 years
Interfaces:	Optical Two slots for retrofittable communication modules
Approvals:	MID

FUNCTION

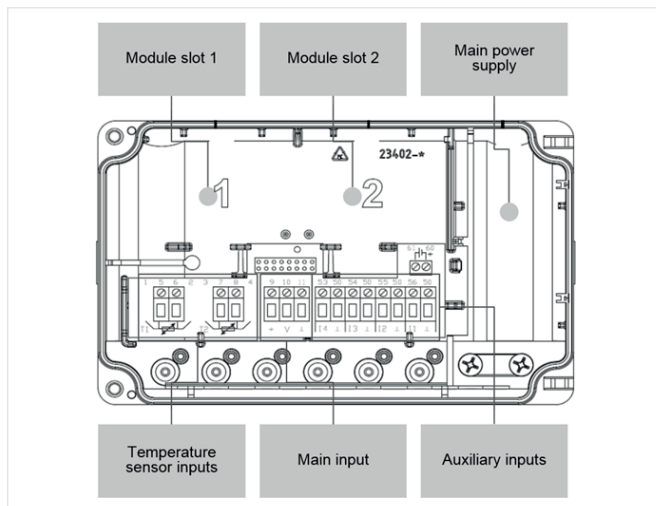
- Measurement and display of current data.
- Calculation and display of average data for period, set in the range of 1 minute to 24 hours.
- Calculation, archiving and display of measured data in five groups with configurable time cycles.
- Setting, archiving and display of up to two independent tariffs.
- Setting, archiving and display of accounting data.
- Error log (last 83 records) and occurrence log (last 256 records) with timestamp.
- Configuration change log (last 83 records) and metrological change log (last 62 records) with timestamp.
- Device parametrisation with PC software or, with limitations, by using push buttons on front of calculator housing.

CONSTRUCTION

Overview	Components
	1 Lock screw 2 LCD 3 Top cover, made of transparent plastic 4 Optical interface 5 Space for extension slots 6 Terminal strip 7 Cable grommets 8 NOT VISIBLE: Backup 1/2 AA-cell lithium battery 9 Type plate 10 Push buttons 11 Base plate, made of light grey plastic 12 Replaceable main D-cell lithium battery

METHOD OF OPERATION

INTERFACES



EW500 Series energy calculators have the following interfaces as standard:

- One main pulse input
- Four auxiliary inputs
- Two temperature sensor inputs
- Two slots for communication modules

Main Pulse Input

The main pulse input is for connection of the main flow meter. The EW500 can work with any flow meter with a pulse output, e.g. impeller or ultrasonic type flow meters. The rated flow range with which the EW500 can work with is from 0.6 to 3 000 m³/h. The pulse value range is from 1 to 10 000 dm³ per pulse or from 0.01 to 300 pulses per dm³. The pulse cable is typically supplied with the flow meter. Maximum pulse cable length is 15 metres.

Auxiliary Inputs

Auxiliary inputs are used to connect additional meters to the EW500, as alarm inputs or as additional input for the main meter. As standard the auxiliary inputs are configured as follows:

- Aux input 1 and 2: pulse in, pulse value 1 litre
- Aux input 3 and 4: pulse in, pulse value 10 litres

Inputs configuration can be changed in the field over the front optical interface.

Temperature Sensors

The EW500 is configured for connection of a pair of two wire Pt500 temperature sensors as standard. A special version is available for use with four wire Pt100 temperature sensors.

Communication Modules

The following communication modules are available for EW500 energy calculators:

- M-Bus, in conformity with EN 13757-2:2005 and EW13757-3:2013
- RS485, in conformity with Modbus RTU
- Pulse out, with two outputs class OC
- Pulse in/out, with two inputs and two outputs class OC
- Analogue with two outputs 4 - 20mA
- LonWorks

All communication modules are retrofittable without infringing device approval. Standard configuration of the module slots is as follows:

- Slot 1: M-Bus protocol with 2 400 Baud
- Slot 2: Modbus protocol with 9 600 Baud, 8E1

M-Bus and Modbus communication modules can be retrofitted without further configuration to the meter as long as an M-Bus module is inserted in slot 1 and a Modbus (RS485) module is inserted in slot 2.

Note: The EW500 does not have an auto detect function for communication modules. When a non standard setup is required, calculator configuration must be changed accordingly.

POWER SUPPLY

Main Power Supply

The main power supply is located in a bay on the backplate of the calculator. It is accessible when the front part is removed. As standard the EW500 is supplied with a 3.6V C cell lithium battery with a nominal lifetime of 10 + 1 years. (I.e. ten years operation and one year storage and transit time.) The main power supply is replaceable either by a 230V mains power supply unit or by another battery of the same type.

Backup Power Supply

Backup power supply is realised in form a second 1/2AA sized battery located inside the calculator housing. It is not replaceable and is only discharged when main power supply fails, e.g. when the calculator is opened. When supplied by the backup battery the functions of the calculator are limited to the operations. The backup battery has a lifetime of approx. five years.

CONFIGURATION

Standard Configuration

EW500 calculators are supplied with the following standard configuration:

Main pulse input value:	Depending on version
Installation place of flow meter:	Return pipeline
Auxiliary inputs:	1+2: pulse in, 1 litre / pulse 3+4: pulse in, 10 litres / pulse
Communication modules:	Both slots empty Slot 1: M-Bus protocol Slot 2: Modbus protocol
Temperature sensors:	Pt500, two-wire
Power supply:	Main: 3.6V D-cell lithium battery Backup: 3.6V 1/2AA-cell lithium battery

EW5001CM calculators differ as follows

Communication modules:	Slot 1: M-Bus module installed Slot 2: empty
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EW5001CT calculators differ as follows

Communication modules:	Slot 1: empty Slot 2: RS485 module installed
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EW5001CDZ calculators differ as follows

Main pulse input value:	Field programmable (default: 10 litres /pulse)
Installation place of flow meter:	Field programmable (default: return pipeline)

EW5001JDZ calculators differ as follows from EW5001CDZ

Temperature sensors:	Pt100, 4-wire
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CONFIGURATION CHANGE

Configuration Change

Meter configuration can be accessed and changed within the limits of the MID by one of the following ways:

- Connecting a PC to the meter with the USB optical interface (OS.-No. EWA3001798) and running the EW500SET configuration software for basic configuration. Optionally with an additional Expert dongle (OS.-No. EWP500-XPRT) for advanced configuration.
- Doing basic configuration with two push buttons on the front of the calculator housing.
- Programming basic M-Bus specific data over the M-Bus master unit once the calculator has been wired to the M-Bus.

For detailed information on configuration options please see the Operating Instructions (Literature-No. EN2H-0462GE25). The EW500SET configuration software can be downloaded free of charge from the Honeywell Home metering website at

homecomfort.resideo.com

TRANSPORTATION AND STORAGE

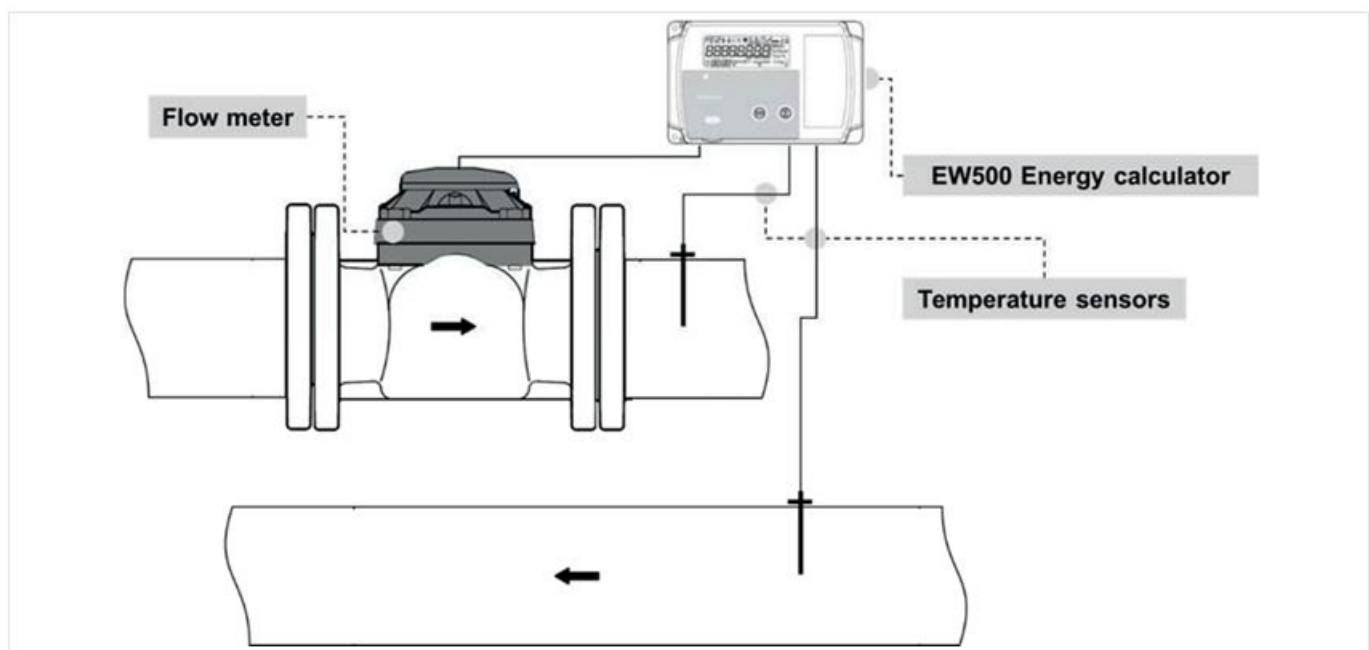
Keep parts in their original packaging and unpack them shortly before use.

The following parameters apply during transportation and storage:

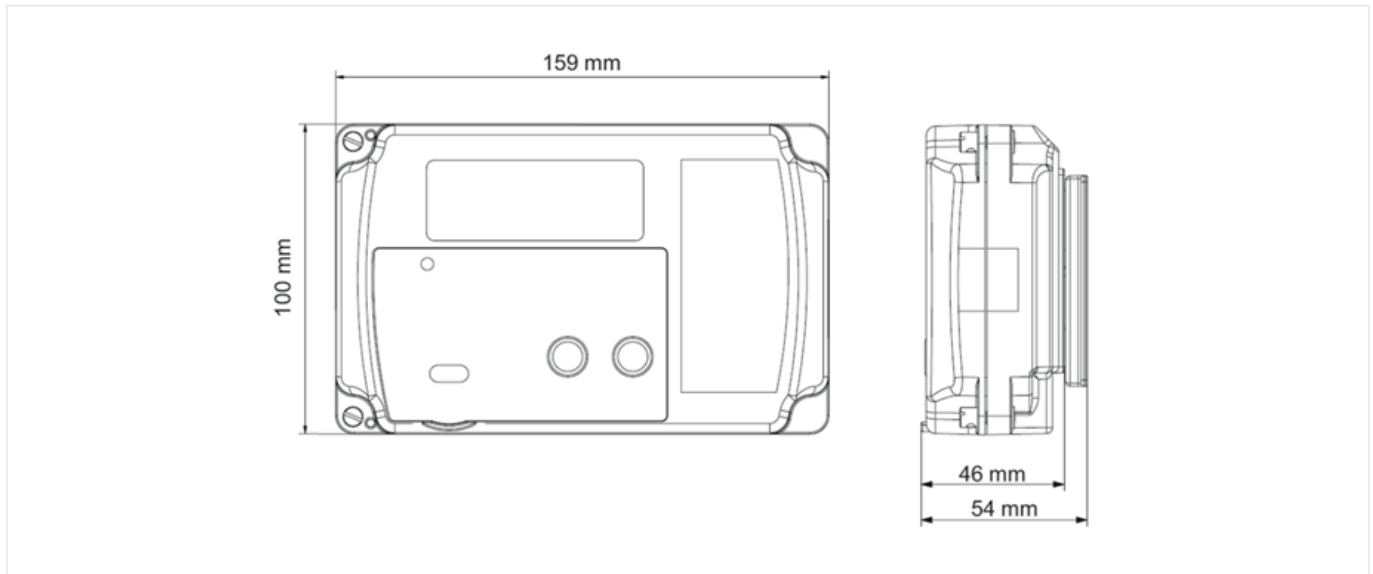
Parameter	Value
Environment:	clean, dry and dust free
Min. ambient temperature:	-25 °C
Max. ambient temperature:	60 °C
Min. ambient relative humidity:	0 % *
Max. ambient relative humidity:	93 % *

*non condensing

INSTALLATION EXAMPLE



DIMENSIONS



Note: Weight: 0.35kg

ORDERING INFORMATION

The following tables contain all the information you need to make an order of an item of your choice. When ordering, please always state the type, the ordering or the part number.

Options

EW500 Series with two free communication slots (no modules installed)

Pulse value	Units	Order number
1 litre/pulse	MWh, 1 decimal place	EW5001CD0001
2.5 litres/pulse		EW5001CD0003
10 litres/pulse	kWh without decimal place	EW5001CD0010
50 litres/pulse	MWh, 1 decimal place	EW5001CD0050
100 litres/pulse		EW5001CD0100
250 litres/pulse		EW5001CD0250
1000 litres/pulse		EW5001CD1000

EW500 Series with two free communication slots – main pulse value and pipeline (return / supply) field configurable

Pulse value	Units / Temperature sensors	Order number
-	depending on pulse value / 2-wire Pt500	EW5001CDZ
-	depending on pulse value / 4-wire Pt100	EW5001JDZ

EW500 Series with installed M-Bus module and one free communication slot

Pulse value	Units	Order number
10 litres/pulse	kWh without decimal place	EW5001CM0010
100 litres/pulse	MWh, 1 decimal place	EW5001CM0100

EW500 Series with installed Modbus module and one free communication slot

Pulse value	Units	Order number
10 litres/pulse	kWh without decimal place	EW5001CT0010
100 litres/pulse	MWh, 1 decimal place	EW5001CT0100

Scope of Delivery

- EW500 Series energy calculator
- Wall mounting plate
- Operating and setup instructions

Note: Temperature sensors have to be ordered separately, see 'Accessories' below. EW500 Series calculators do not have an auto detect function for communication modules. When communication modules are retrofitted in the field they have to be configured. For this a PC running configuration software 'EW500SET' and optical interface EWA3001798 are required. The software can be downloaded free of charge and without needing to register from homecomfort.resideo.com

Selection


Selection is based on pulse value and display unit:

- Pulse value of flow sensor and energy calculator must be identical.
- Display unit must be selected in such a way that an overflow is avoided, taking expected flows and device lifetime into account.

Example: an energy calculator is required for use with flow sensor EW3701AP6500. This Woltman WP flow sensor has a pulse value of 100 litres and a nominal flow of 40m³/h. The suitable energy calculator is EW5001CD0100:

- It also has a pulse value of 100 litres.
- As display unit is hat MWh with one decimal place for energy and m³ with no decimal place for volume. At an assumed lifetime of ten years, working approx. 4000 hours per year at typical heating system temperatures, the values reached are approx. 82000 MWh for energy and approx. 3500000 m³ for volume.

The following cross reference lists Honeywell Home flow meters and the suitable EW500 type.

	Flow Meter	Pulse value	Suitable EW500 calculator
	EW3701AP5000	100 litres	EW5001CD0100 EW5001CM0100 (M-Bus) EW5001CT0100 (Modbus)
	EW3701AP5600		
	EW3701AP6500		
	EW3701AP7300		
	EW3701AP8100		
	EW3701AP8500		
	EW3701AP8900		
	EW3701AP9100		
	EW3701AP9203		
	EW473P8303	2.5 litres	EW5001CD0003
	EW473P8725	10 litres	EW5001CD0010 EW5001CM0010 (M-Bus) EW5001CT0010 (Modbus)
	EW473P9025		
	EW473P9125		
	EW473P9225	50 litres	EW5001CD0050
	EW473P9303		
	EW473P9425		
	EW473P9525	100 litres	EW5001CD0100 EW5001CM0100 (M-Bus) EW5001CT0100 (Modbus)
	EW473P9625		
EW473P9925			
	EW4801AP7323	10 litres	EW5001CDZ EW5001JDZ
	EW4801AP8123		
	EW4801AP8523		
	EW4801AP8923		
	EW4801AP9123		

Accessories

	Description	Order number
	Pair of Pt500 temperature sensors, Ø5.2 mm (MID approved)	
	Cable length 2 m	EWA3002680
	Cable length 3 m	EWA3002681
	Cable length 5 m	EWA3002682
	Cable length 10 m	EWA3002679
	Tailpiece for connection of supply temperature sensor	
	R1/2" external thread, M10x1 sensor thread	EWA087HY003
	Brass immersion pockets (MID approved)	
	35 mm, for DN25 and DN32	EWA3002684
	52 mm, for DN40 to DN65	EWA3002685
	85 mm, for DN80 to DN125	EWA3004406
	120 mm, for DN150	EWA3004407
	Ball valve with internal threads	
	For DN15, G 1/2" internal threads	EWA087HY004
	For DN20, G 3/4" internal threads	EWA087HY005
	EWA500C Modules	
	M-Bus module	EWA500C-MBUS
	Pulse output module	EWA500C-PO
	Pulse in-/output module	EWA500C-PIPO
	Pulse in-/output module, 24V	EWA500C-PIPO24V
	RS485 interface, Modbus RTU*	EWA500C-RS485
	LonWorks module	EWA500C-LON
	Analogue module with two 4...20mA outputs	EWA500C-ANALOG
*To avoid premature depletion of the unit's battery, the RS485 and some pulse modules require an external power supply of 6 - 24Vac or 8 - 24Vdc		
	EWA500P Power supply	
	Mains supply unit 230V AC	EWA500P-230V
	Unit configuration	
	Optical interface cable with USB connection	EWA3001798
	Dongle for advanced configuration	EWP500-XPRT
	Configuration software tool, can be downloaded from the Honeywell Home metering microsite at homecomfort.resideo.com	EWP500SET

