

The Evinox ultrasonic heat meter range has been designed for use in both heating and cooling residential metering applications. The meters employ the latest technology to guarantee high quality and outstanding long-term measurement stability. The sensor body is constructed from brass and has no moving parts, making it virtually maintenance-free.

The meters feature high quality paired PT1000 temperature probes to ensure performance according to the EN 1434 standard, and can operate with water temperatures up to a max of 95°C and nominal pressure of 16 bar.

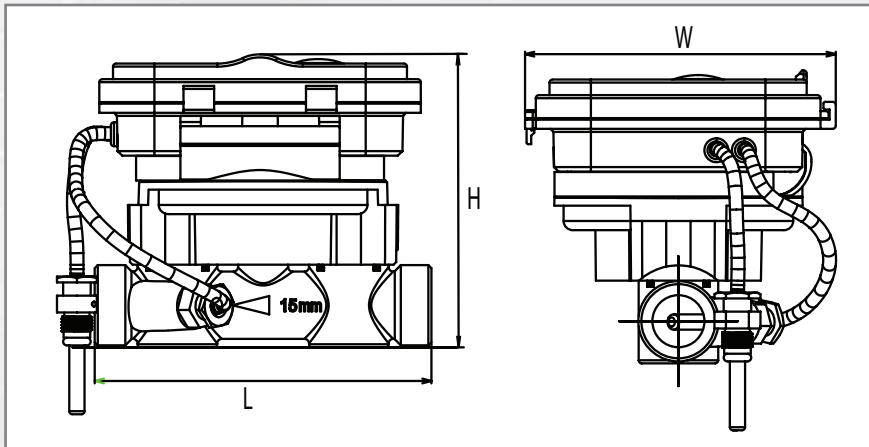
Available in two Protocols:-

- **MBus** - Power supplied via network
- **RS485 ModBus** - Separate 5 Volt power supply required
- **MBus** - Available with optional dual outputs

Technical Specification

- MID Approved / EN 1434 Compliant (Class 2 accuracy)
- $q_1 = 0.03 \text{ m}^3/\text{h}$, $q_p = 1.5 \text{ m}^3/\text{h}$ $q_s = 3.0 \text{ m}^3/\text{h}$ (RC15) (Refer to the technical table below for full details of domestic range)
- Heating / Cooling Medium: Water
- Min water temp: 4°C
- Max water temp: 95°C
- Temperature probe s: PT1000 Platinum Resistance
- Reaction time of the probe sensors: 3 sec
- Max. temperature deviation of the probe pair: < 0.1 °C
- Display: LCD (9 digits + decimal point)
- Communication interface: Option of RS485 (ModBus) or M-BUS protocol
- Unit of heat displayed: kWh
- Battery: 3,6 V lithium battery cell
- Battery Life: 10> years
- External 5V d.c. auto switching (RS485 ModBus)
- Ambient temperature: +5 / +55 °C
- Storage temperature: -30 / +60 °C
- PN/PS: 1,6 MPa (16 bar)
- Pressure loss at nominal flow rate: < 20 Kpa
- Protection class: IP65
- Temperature sensor cable length: 1.5 m (one sensor fitted on flow rate transducer)
- Suitable for vertical or horizontal installation, supply pipe

Fixed Head Dimensional Drawing



	RC15	RC20	RC25	RC32	RC40
DN (mm)	15	20	25	32	40
q_s (m ³ /h) Max.	3	5	7	12	20
q_p (m ³ /h) Nominal	1.5	2.5	3.5	6	10
q_1 (m ³ /h) Min.	0.03	0.05	0.07	0.12	0.20
Dimensions					
L (mm)	110	130	160	180	200
W (mm)	101	101	101	101	101
H (mm)	75	78	81	84	88
Connection Sizes	G 3/4" B	G1" B	G1 1/4" B	G1 1/2" B	G2" B

Ultrasonic Heat Meters

Domestic Range RC 15 - 40

Evinox heat meters are available with the following display / body configurations:-

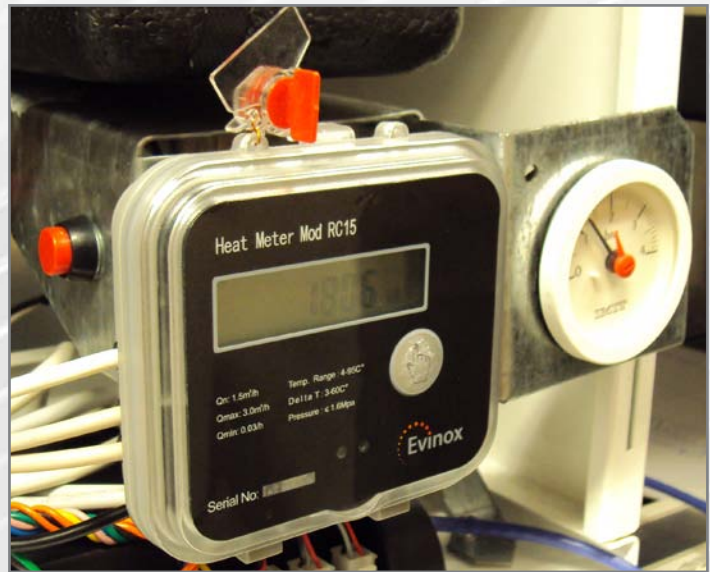
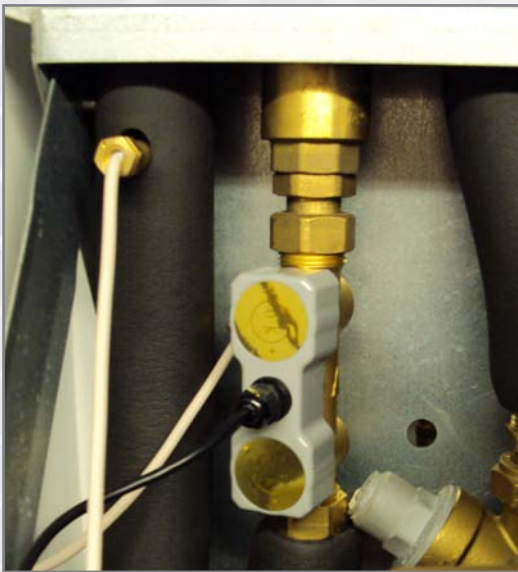
Fixed Head

The fixed head mounting option features a fully rotating head and is suitable for use in standalone metering applications or for use in simple metering stations.



Remote Head

This option features a separate ultrasonic body with remote display head mounted using a bespoke fixing bracket. This is for use in our ModuSat HIU range or other suitable appliances.



Heat Meter Models & Part Numbers

Model	RC15	RC20	RC25	RC32	RC40
Size	DN15	DN20	DN25	DN32	DN40
RS485 Modbus Fixed Head Meter	RC15-RS485-FH	RC20-RS485-FH	RC25-RS485-FH	RC32-RS485-FH	RC40-RS485-FH
RS485 Modbus Remote Head Meter	RC15-RS485-RH	RC20-RS485-RH	RC25-RS485-RH	RC32-RS485-RH	RC40-RS485-RH
MBUS Fixed Head Meter	RC15-MBUS-FH	RC20-MBUS-FH	RC25-MBUS-FH	RC32-MBUS-FH	RC40-MBUS-FH
MBUS Remote Head Meter	RC15-MBUS-RH	RC20-MBUS-RH	RC25-MBUS-RH	RC32-MBUS-RH	RC40-MBUS-RH

Ultrasonic Heat Meters

Domestic Range RC 15 - 40

Network Communication Protocols

Evinox heat meters are available for use with the following communication protocols:-

- **RS485 ModBus**
- **Mbus**

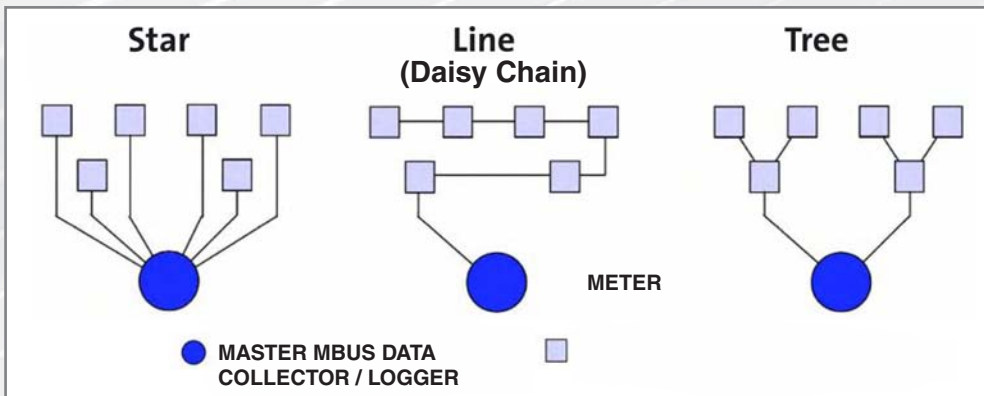
The RS485 ModBus model requires a 5 Volt separate power supply.

The Mbus model obtains its power supply via the network.

The meters can be supplied as standard with our ModuSat HIU range or sold separately.

Mbus System Architecture

When used for standalone metering applications using Mbus protocol the meters can be connected either in a daisy chain, star or tree system architecture.



Star: All meters are wired directly to the central point. In the case of an error, the measuring instrument can be switched on or off to localize the defect.

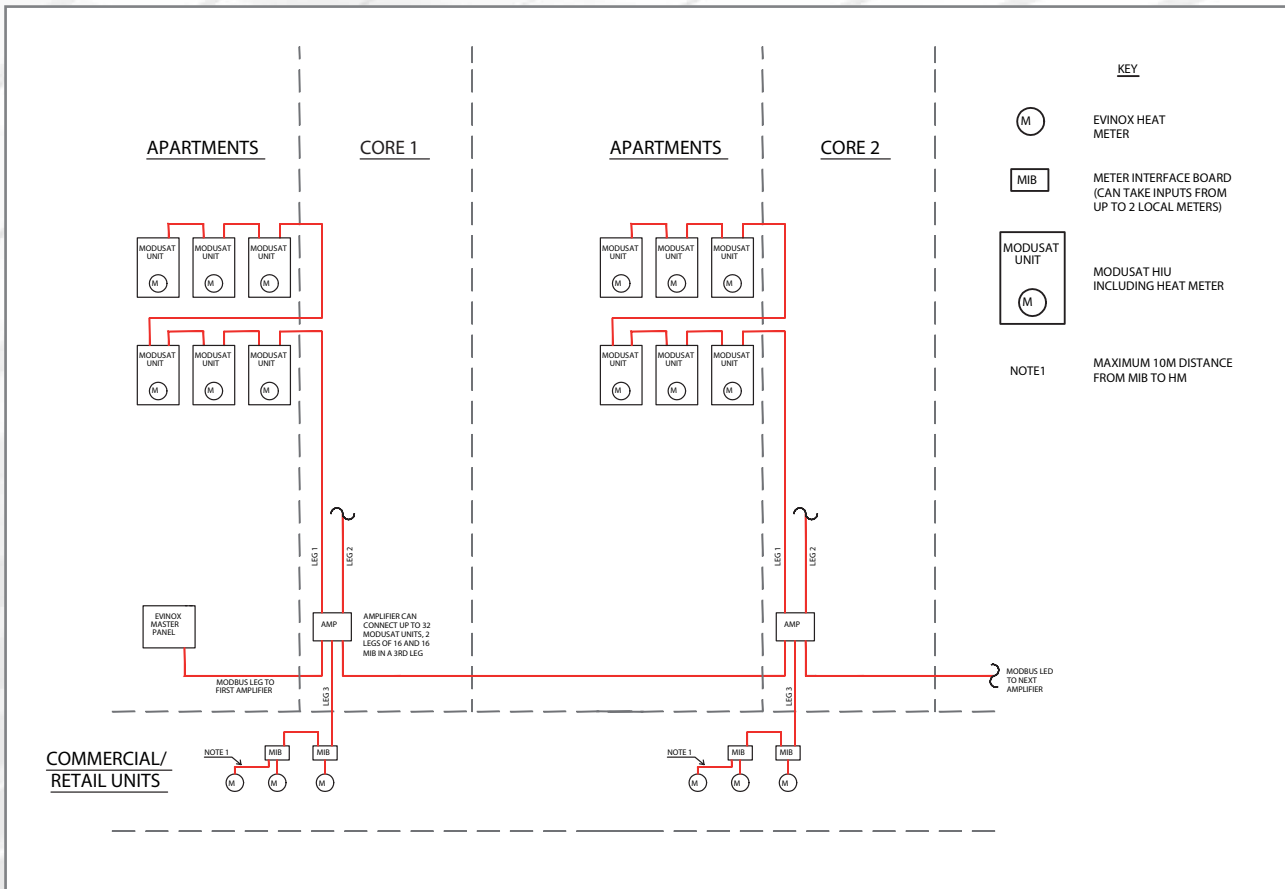
Line (Daisy Chain): The meters are wired sequentially. While this is cost effective, start up operation and troubleshooting can be costly under certain circumstances. Due to the high voltage drop, this structure is not recommended.

Tree: This is a combination of star and line structures. The individual branches are created as lines so that a defect will merely affect the corresponding branch. Repeaters (signal amplifiers) can be utilised in the branches and provide additional safety and isolation of the individual sections.

Ultrasonic Heat Meters

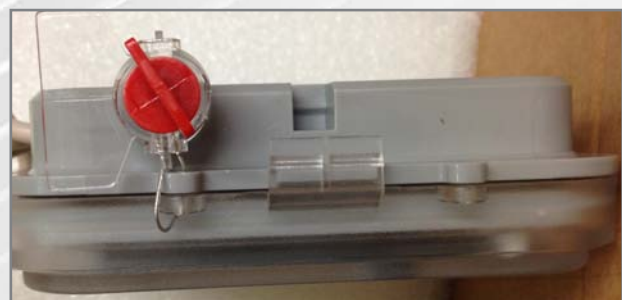
Domestic Range RC 15 - 40

RS485 ModBus (Mixed Use) HIU's with Commercial Metering



Evinox Ultrasonic Energy Meter - Tamperproof Seal

The Evinox Ultrasonic energy meter features a tamperproof security seal, which includes a plastic ratchet. If prohibited access is obtained, the seal will shatter leaving clear evidence of tampering. The images below, show the plastic ratchet and security seal;



Security Seal with Plastic Ratchet

Temperature Probes

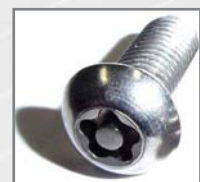
If either the Flow or Return probe is removed an alarm signal is sent to the master identifying the Apartment meter that has been tampered with. Evinox can notify the building owner immediately should this situation occur.

Ambiguous Meter Reading Alerts

when utilising Evinox metering and billing services to read meters, automatic system settings can be put in place to alert the building owner / operator to ambiguous readings and possible tampering. For example, where no mains cold water readings are being recorded but there are domestic hot water readings, this will set off a system alarm. These readings should be in proportion as the ModuSat HIU is supplied with mains cold water to provide domestic hot water.

ModuSat HIU Security Screws

The Evinox Ultrasonic Energy Meter is typically installed within the ModuSat primary pipework and connected to the ModuSat Control Board for remote metering and billing via a BUS network. To protect the internal components from unqualified or unauthorised access, security screws can be used in place of standard screws so only authorised personnel can gain access to the ModuSat internal components, including the energy meter.



Example Security Screw