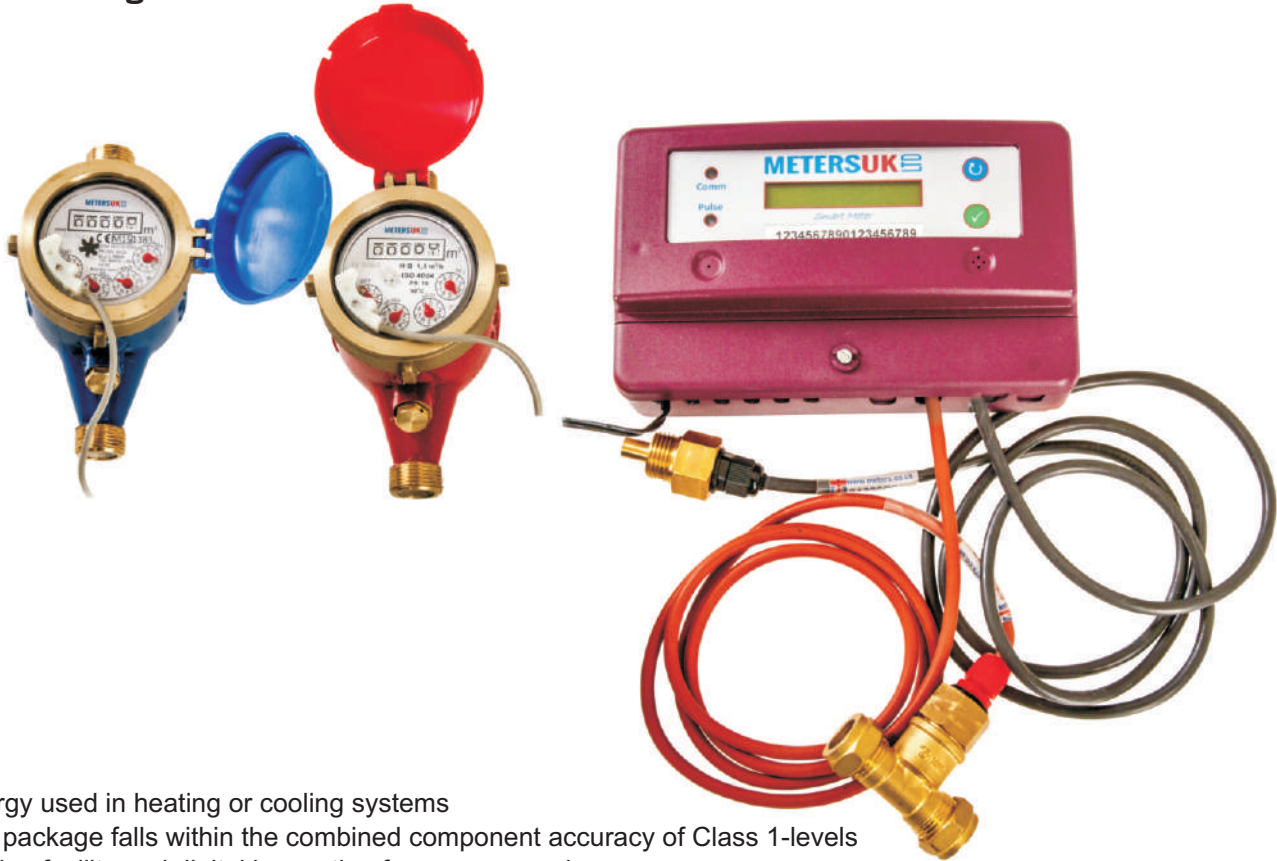


# SmartHeat<sup>45</sup>

## Thermal Energy Calculating Smart Heat Meters



### KEY FEATURES

- Calculates the energy used in heating or cooling systems
- The complete heat package falls within the combined component accuracy of Class 1-levels
- 'On site' programming facility and digital key option for reprogramming
- Manufactured to EN 1434 -1-1997
- Suitable for all billing applications - including Renewable Heat Incentive
- Open collector pulsed output - (with grab circuit) - as standard
- Digital high accuracy temperature sensors with ROM chip
- Sensors do not need to be in matched pairs
- M-Bus to En13757-2/3/4 & En1434-3 and Modbus to En15745-2/4 and 2007

### SMARTHEAT PRODUCT LIST

4500 Standard Pulse Version  
4501 1 Pulse Input  
4502 2 Pulse Input

4580 Standard Modbus Version  
4581 Modbus 1 Pulse Input  
4582 Modbus 2 Pulse Input

4560 Standard M-Bus Version  
4561 M-Bus 1 Pulse Input  
4562 M-Bus 2 Pulse Input

### OTHER OPTIONS AVAILABLE

Glycol \* Vegetable Glycerine \* Thermal Oil

### DETAILS AND DIMENSIONS

#### Cases

#### Case Front Panel

#### Case Size

#### Mounting

#### Case Weight

Heavy duty nylon case with Perspex front viewing panel

Two programming buttons located on the front panel. Communication LED & Pulse LED

186mm w x 108mm h x 58mm d

Wall mounted

0.9kg

## DETAILS AND DIMENSIONS

<b>Voltages</b>	230 volts (standard) 110 volts (export only) 24 volts
<b>LCD Display</b>	16 Characters - single line
<b>Environmental Class</b>	Conforms to the operational requirements of both Class B (Domestic Outdoor Installations) Class C (Industrial Installations)
<b>Temperature Operating Range</b>	0°C to 90°C
<b>Accuracy Class</b>	Class1—complete unit - falls within Accuracy Class1 MID (2004) EN 1434 Parts 1- 6 2016 OIML R75
<b>Temperature Sensors</b>	Smart Heat Fixings
<b>Long Distance Sensors</b>	(LD Version). Perfect data accuracy transferable up to 100 meter cable lengths manufactured in 5, 10, 20, 50 and 100 metres
<b>Security Labels</b>	No peel permanent security labels 45.7 x 25.4mm available on request.
<b>Smart Heat Pipe Fittings</b>	<b>Flow parts 15-50mm</b> screwed connections. Conex T pieces suitable for copper/ plastic/steel pipes with threaded immersion pockets
<b>Smart Heat Pipe Fittings</b>	<b>Flow Parts 50-200mm</b> Flanged to PN16. Threaded welding boss and threaded immersion pockets suitable for steel pipes
<b>Flow Meters 15 to 50mm</b>	Multi Jet Dry Dial Turbine suitable for Vertical or Horizontal mounting. Screwed male connections. Maximum temperature 40°C Chilled and heating 90°C Manufactured to EN 4064. Anti magnetic security pulsed output Mid Compliance TCM/10 - 4792
<b>Low flow error compensation</b>	Software compensation greatly improves accuracy at low flow rates
<b>Power Consumption</b>	Idle 0.03amps. Operational 0.1amp. The repeatable nature of the output over temperature for band gap - based sensors means that an accuracy factor of up to 0.02% is possible
<b>CE Conformity</b>	Conforms to Low voltage directive 73/23/EEC
<b>Conformity</b>	Conforms to both RoHS and WEEE directives
<b>Pulse Output</b>	Open collector - with grab circuit - bandwidth 50ms - 10 pulses per kWh/mWh
<b>Wiring</b>	16 way terminal block on PCB. Removal of terminal case cover is required Sealable terminals on completion of wiring
<b>Programming</b>	Two buttons on front case - scroll and accept
<b>Re-programming Option</b>	Via Dongle. 3 wire terminal clips into circuit board for reprogramming
<b>Operational Error Codes</b>	<b>ERROR 1</b> No sensors connected or shorted to 5 volts <b>ERROR 2</b> Data shorted to 0 volts <b>ERROR 3</b> Data transmission error <b>ERROR 4</b> Only 1 sensor connected <b>ERROR 5</b> Not a pair (either two hot or two cold)

FOR FLOW PARTS, PLEASED REFER TO OUR TOMi and MAXi RANGES