

COMPACT ENERGY METER

Heating Model P/N 4440
Heating / Cooling Model P/N 4450



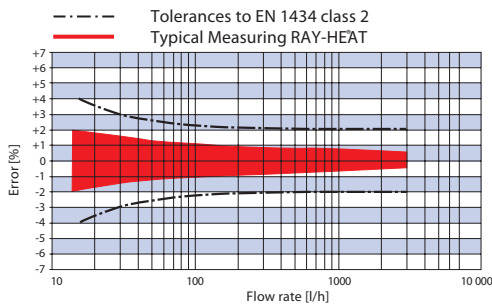
APPLICATIONS

- Heating Systems
- Cooling Systems
- Solar Systems
- Ground Source Heat Pumps
- Co-Generation
- Heat Reclaim Systems

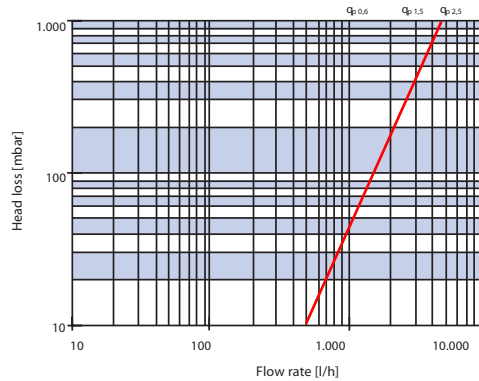
FEATURES

- Fully electronic compact heat meter or compact cooling & heat meter for recording energy and volume data
- Highly accurate recording of heating or cooling & heating energy at temperatures up to 195 °F
- Can be mounted horizontally or vertically
- Lithium battery guarantees a longer life than calibration interval
- Single-line, 7-digit LCD display for easy meter reading
- Pulse Output for Energy or Flow
- 3/4" Union Connections

TYPICAL ERROR GRAPH



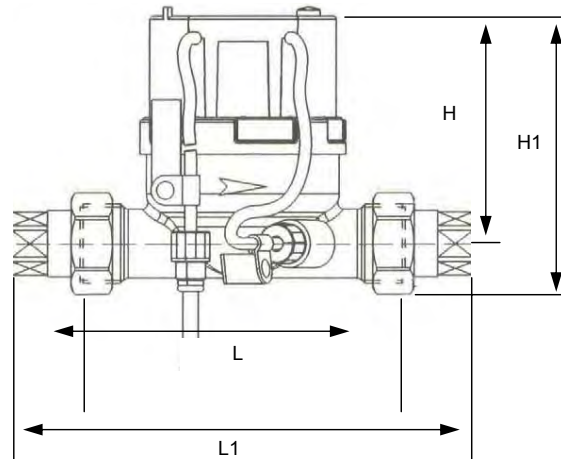
HEAD LOSS DIAGRAM



TECHNICAL DATA for Flow Meter

Flow rate ranges	Maximum GPM	22
	Nominal Flow GPM	11
	Minimum GPM	0.11
Head loss at 11 gal/min	PSI	3.5
Starting flows	GPM	0.026
Operating pressure	Maximum PSI	150
Installation	Mounting Position	Any
Weight	LB.	2.18

DIMENSIONS	
L	5.12"
L1	10.20"
H	2.96"
H1	3.94"



TECHNICAL DATA FOR CALCULATOR

Basic features	Ambient class		EN 1434 class C
	Protection class		IP 54
	Type		Compact heat meter to EN 1434
	metrological class		Dynamics qp/qi100:1 class 2
Display	Display indication		LCD, 7-digit
	Unit		MWh - kWh - GJ - MJ - kW - m3/h - l/h - m3 - l
	Total values		9 999 999 - 999 999,9 - 99 999,99 - 9 999,999
	Values displayed		power - energy - flow rate - temperature
Temperature-Input	Temperature sensor type		Pt 500 / 2-wire
	Measuring cycle	T s	32
	Absolute temperature measurement range	°F	32...302
	Max. frequency	Hz	ca. 4
Volume - / energy-pulse	Max. input voltage	V	30
	Max. input current	mA	100
	Max. voltage drop at active output	V/mA	2/27
	Max. current through inactive output	µA/V	5/30
Open Collector (high current sink)	Max. reverse voltage without destroying outputs	V	6
	Pulse duration	ms	125
	Min. Pukse breakpause	ms	125
	Operating voltage	UN VDC	3,0 (lithium battery)
Supply-voltage	Nominal power	PN µW	30

PULSE OUTPUT

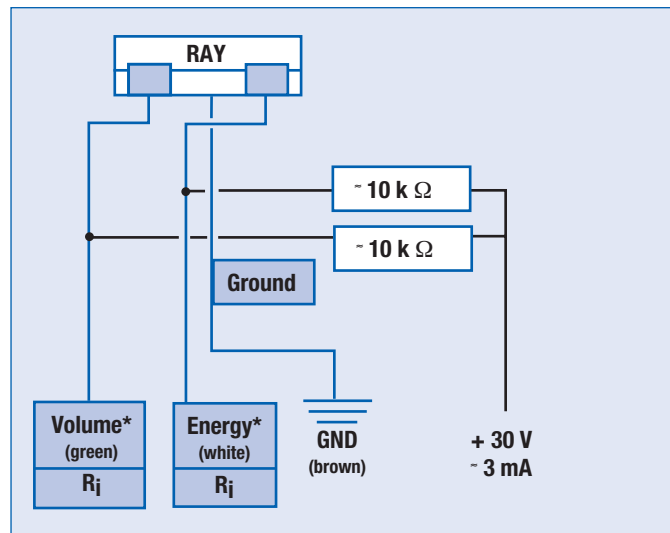
The outputs are open-collector circuits. The collector branch contains only 0 ohm resistance, i.e. there is no internal current limiting. If required, this must be provided externally by a collector resistor.

$$R_i \geq 5 \times R_V$$

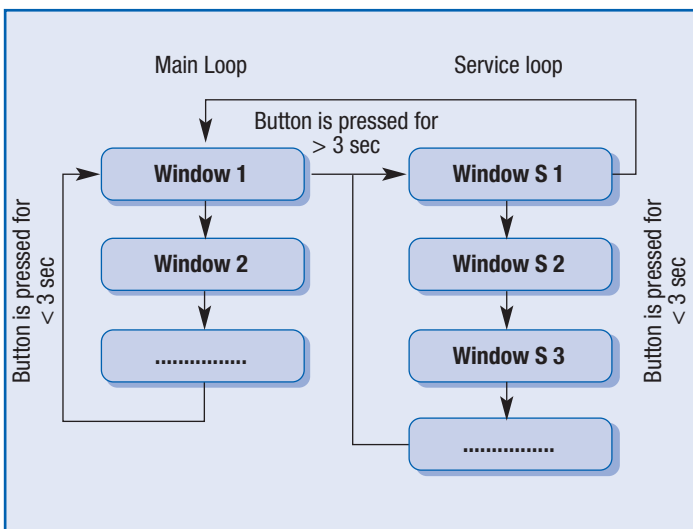
$$R_V = \frac{U}{I} \quad R_V = \frac{30 \text{ V}}{3 \text{ mA}} = 10 \text{ k } \Omega$$

- *Cooling & Heat Meter
- *EC= Energy cold (white)
- *EH= Energy heat (green)

EXAMPLE



OVERVIEW OF LOOPS



OPERATION

The integrator display has two loops.

- Main loop
- Service loop

The main loop is configured to display the data for current energy and energy on reading date. The service loop displays the current data for flow rate, temperatures, power, volume and next reading date.

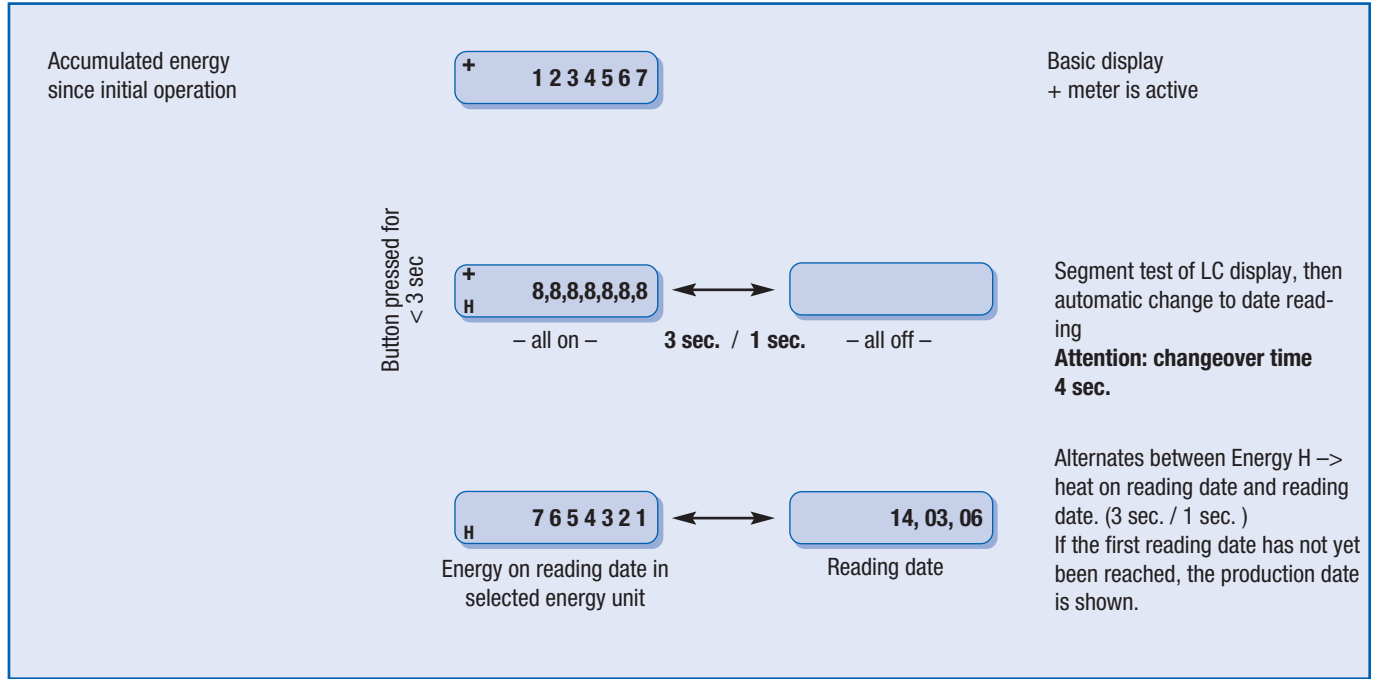
A button is mounted on the front panel of the meter. This can be pressed for a short or long time. A short press of the button (< 3 seconds) switches to the next display within a loop and a long press (> 3 seconds) switches between the display loops.

Note

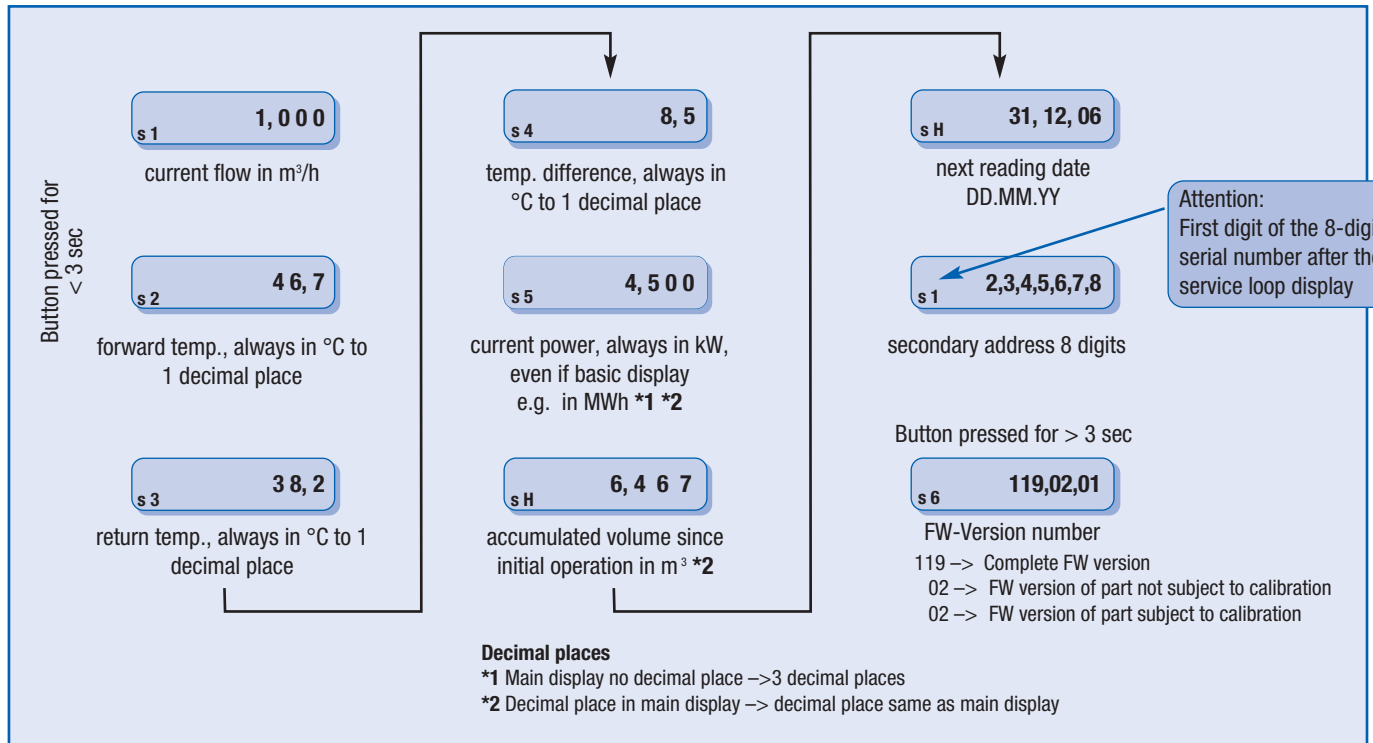
The LC display has a power save mode, which is activated by pressing a button. The display switches off automatically and changes to the power save mode if the button is not pressed for 5 minutes.

HEAT METER

MAIN LOOP

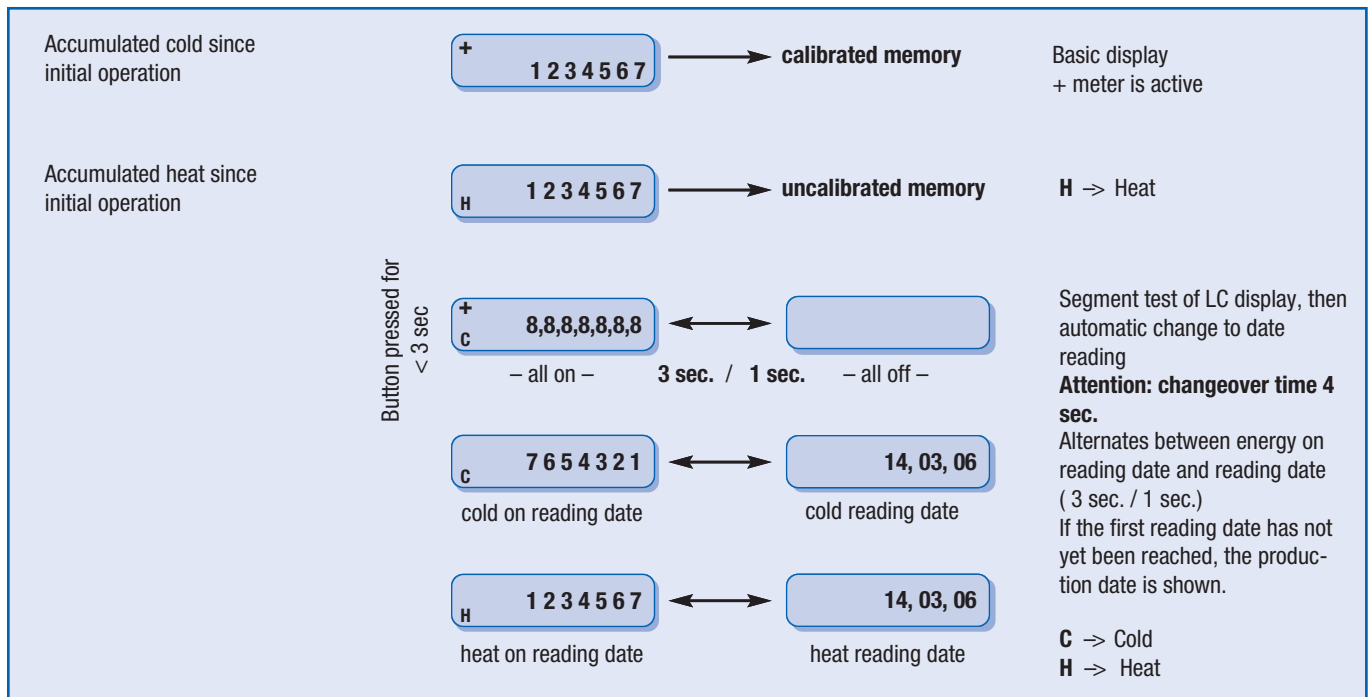


SERVICE LOOP



COOLING & HEAT METER

MAIN LOOP



SERVICE LOOP

