

Energy meter

WMZ-G1



Function

The WMZ-G1 is an energy meter for thermal solar systems and conventional heating systems. The WMZ-G1 calculates energy by integrating flow rate and temperature from a Vortex Flow Sensor (VFS) Grundfos Direct Sensors™ and temperature difference in the flow and return piping using a Relative Pressure Sensor (RPS) Grundfos Direct Sensors™. The calculated heat energy value is displayed in kWh (kilowatt hours) and stored. A power failure protection guarantees that the adjusted system parameters and the calculated heat energy quantity are maintained in the case of power loss.

Grundfos Direct Sensors™ Technology

The VFS combines the established vortex principle with the direct exposure of the sensor chip to the media gives a superior sensitivity and fast response. The VFS sensor detects the pressure pulsation generated by the vortices and converts the pulsation and temperature into an electrical output signal. The VFS sensor has shown to be 5 times higher in accuracy with faster flow response than most common turbine flow meters. The RPS sensor transforms the pressure and temperature of the medium into electrical signals. The pressure signals are linearized to compensate for temperature variations.

Product range

- Code 257202A WMZ-G1 Heat energy meter functions with VFS flow/temperature sensor and RPS pressure/temperature sensors
- Code NA15014 RPS Grundfos Direct Sensors 2 in 1 Pressure / temperature sensor 0 - 150 psi / up to 250° F, includes connecting wire
- Code NA15015 VFS Grundfos Direct Sensors 2 in 1 Flow / temperature sensor 1/4 - 3 gpm / up to 250° F, includes connecting wire
- Code NA15016 VFS Grundfos Direct Sensors 2 in 1 Flow / temperature sensor 1/2 - 10 gpm / up to 250° F, includes connecting wire

Technical specifications

WMZ-G1 energy meter

Housing plastic:	PC-ABS
Display:	4 lines LCD
Inputs:	2 Grundfos Direct Sensors
Output:	1 relay
Switching relay capacities:	2 (1) A 24V=
Interface:	VBus data connection
Power supply:	24V AC or DC

Vortex Flow Sensor (VFS)

Flow measuring range:	NA15015 0.25 - 3 gpm (1-12 lpm)
	NA15016 0.50 - 10 gpm (2-40 lpm)
Flow accuracy:	1.5%
Flow response time:	< 1 sec.

Relative Pressure Sensor (RPS)

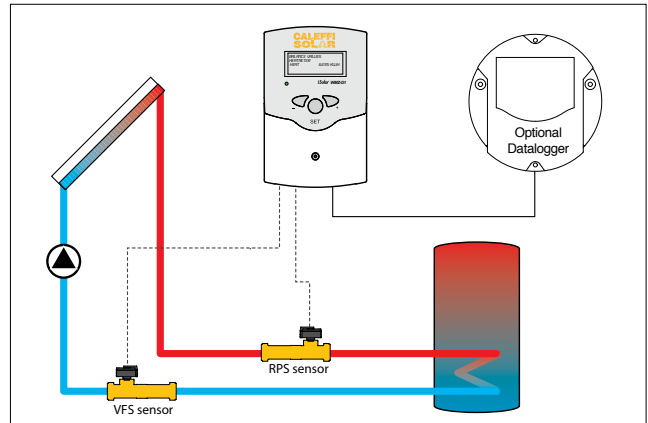
Pressure measuring range:	0 - 150 psi (0-10 bar)
Pressure accuracy:	2% FS
Pressure response time:	< 1 sec.

VFS and RPS temperature specifications

Max. fluid temperature:	250° F (120°C)
Temperature accuracy range:	32 - 210° F (0-100°C)
Temperature accuracy:	2%
Temperature response time:	< 1sec.
Suitable fluids:	water, glycol solution
Max percentage of glycol:	50%
Materials:	- Body: brass
	- Seals: EPDM
	- Sensor housing: composites (PPS, PA66)
Connection:	1" male union thread
Optional separate fittings:	1/2", 3/4" & 1" sweat tail pieces and union nuts

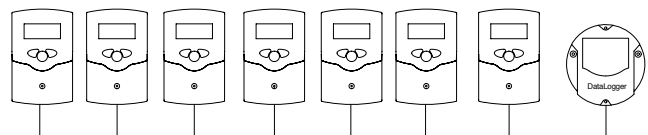
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System diagram



Multinode network

Additional WMZ-G1 energy meters can be cascaded together on the VBus connection. One WMZ-G1 is configured as the master and additional WMZ-G1 meters are configured as slaves. Up to 16 meters can be cascaded together with two conductor wire (bell wire) at least 20 AWG and up to 150 feet for transmission of data values to a connected PC or DL2 datalogger.



The connection sequence is arbitrary, up to 16 can be cascaded together