

# FlowMate

innovation | technology | energy efficiency

## eXergy Optimizer

## for FlowMate Moon



Your solution to High Performance Green Buildings



## eXergy Optimizer for MOON

Innovative solutions in Flow control and energy measurement

### FlowMate eXergy Optimizer

#### Innovative, All-in-One Energy and Flow Controller

**FlowMate eXergy Optimizer** is not only an innovative, all-purpose energy meter for cooling and heating, but also a pump optimizer to achieve remarkable energy conservation and performance for green buildings.

The unbeatable combination of **FlowMate eXergy Optimizer** and **Moon Series Dynamic Balancing Control Valves** delivers the most intelligent, all-in-one solution for flow and energy control. Multiple functions are integrated in one single platform for easy management.

Flow rate will be maintained constant at  $\pm 5\%$  of the desired flow rate, regardless of the loading.

- Pressure Independent Modulating Control Valve
- Commissioning
- Energy calculator
- Pump Optimization

#### Optimal Energy Solution

**FlowMate eXergy Optimizer** works incredibly well with Moon Series to provide a perfect balance of accuracy, repeatability and economy. This brings the optimal flow and energy control solutions.

#### Proactive Energy Check and Balance

Conventional energy meter provides energy check and calculation only.

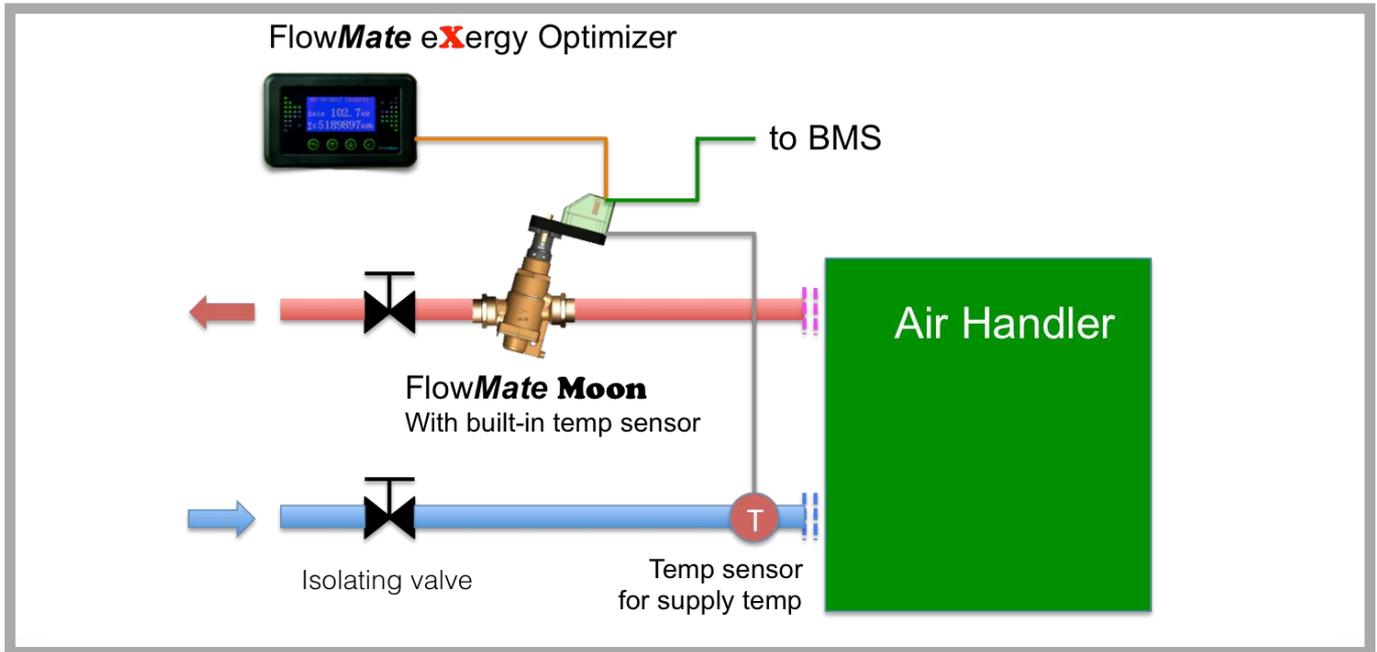
**FlowMate eXergy Optimizer** integrates with **Moon Series** to become a powerful controller to check and also balance the energy usage. It takes proactive and preventive actions to minimize energy usage, by means of efficient energy practices like flow and pump optimization.

#### High Compatibility with Existing Systems

Installation is simple and hassle free. There is no upstream or downstream requirements for installation, and is highly compatible with most hydronic systems.



# eXergy Optimizer for MOON



Heat transmitted to or from a body can be determined from a knowledge of its mass, specific heat capacity and change of temperature.

In a heat meter the rate of change of enthalpy between the flow and return through a heat exchanger is integrated with respect to time. The equation for its operation is as follows:

$$Q = \int_{t_0}^{t_1} q_m \Delta h dt$$

where

**Q** is the quantity of heat given up or absorbed;

**q<sub>m</sub>** is the mass flow-rate of the energy-conveying liquid passing through the heat meter;

**Δh** is the difference between the specific enthalpies of the energy-conveying liquid at the

flow and return temperatures of the heat-exchange circuit;

**t** is the time.

If the instrument determines mass by volumetric means, its equation becomes:

$$Q = \int_{v_0}^{v_1} k \Delta \theta dV$$

where

**Q** is the quantity of heat given up or absorbed;

**V** is the volume of liquid passed;

**k** called the heat coefficient, is a function of the properties of the energy-conveying liquid at the relevant temperatures and pressure;

**Δθ** is the temperature difference between the flow and return of the heat exchange circuit.

# eXergy Optimizer for MOON

## Technical Specification

### Measurement

Media temperature range	0 ... 120 °C
Media differential temperature	2 ... 20 °C
Accuracy	
Temperature	+/- 0.15 °C
Flow rate	+/- 5%

### Temperature input

Measuring range	0 ... 120 °C
Sensor type	Pt1000, 4-wire
Cable connection	4 x AWG26 x 3m
Measurement resolution	0.01 °K

### Power supply

Main supply	from FlowMate Moon
Max. cable length	3 m
Backup battery	3.0V CR1220 cell (for eXergy optimizer only)

## Technical Specification

### Environment

Environment class	EN 1434 class A
Ambient temperature	5 ... 55 °C
Storage temperature	-5 ... +70 °C
Enclosure	IP54
EMC	Domestic and light industrial

### Pulse output

ON time	> 50 ms
ON current	< 10 mA
External power supply	< or equal 24V DC
Max. cable length	50 m

### Physical specification

L x W x D (mm)	160 x 100 x 45
Weight	330 g
Mounting	Wall mount
Housing material	Polycarbonate

From concept to finished product, FlowMate exacts the highest levels of quality, precision and workmanship. To ensure that our clients enjoy maximum benefits, assurance and quality of service, FlowMate implements rigorous testing, manufacturing practices and protocols. To enjoy the next level of flow control that FlowMate offers, please contact us. Our highly skilled professionals will be pleased to advise and assist you.