

Self-powered intelligent Thermostatic Radiator Valve (iTRV)

Micropelt MVA 003

battery-free, wireless,
maintenance-free



micropelt
Energy harvesting.

Self-powered intelligent Thermostatic Radiator Valve (iTRV)

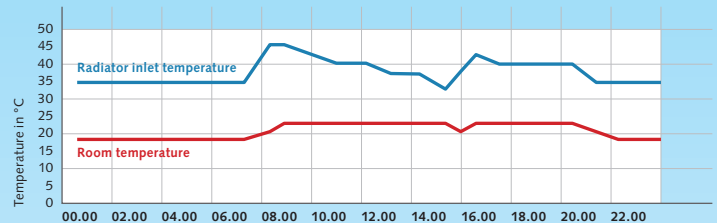
MVA 003



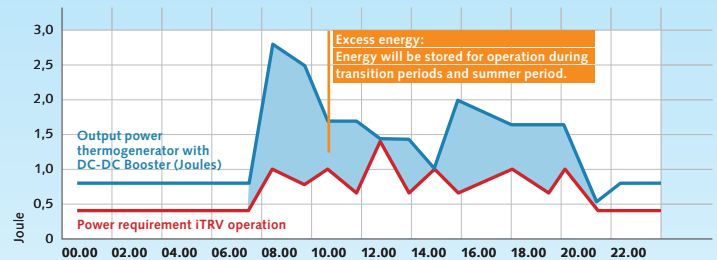
Functions

- The thermogenerator converts temperature difference between radiator intake and ambient air into electricity.
- Excess energy generated in winter enables continuous operation during transition periods and summer.
- Maintenance-free operation on 365 days per year.
- Exact valve position guarantees precise room temperature.
- Communicates bi-directional with EnOcean radio EEP A5-20-01.
- Configurable through remote management/commissioning (ReMan/ReCom).
- Feedback information to visualize valve status and internal energy-management.
- Small, compact and lightweight: 64 x 59 x 80mm (w xh xd), 260g.

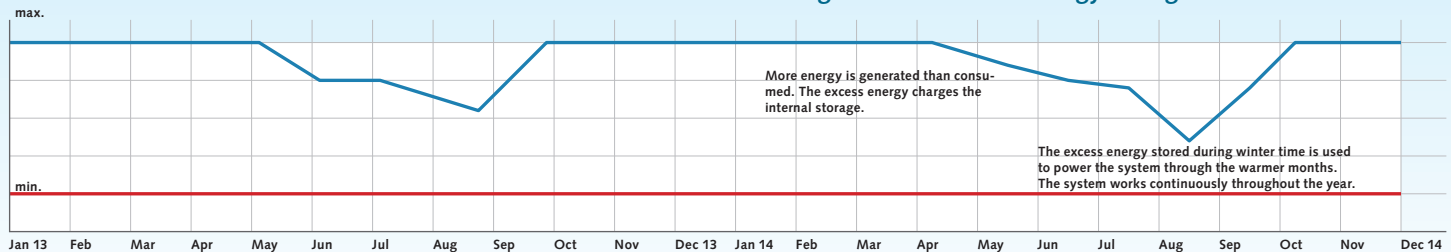
Temperature difference in buildings



Energy-budget



Charge level of internal energy storage



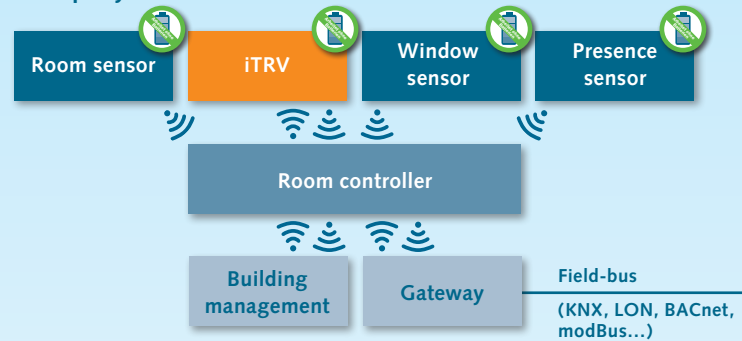
Individual room temperature control

by wireless and battery-free sensors and iTRV

Compliant with EN15232
Energy performance of buildings



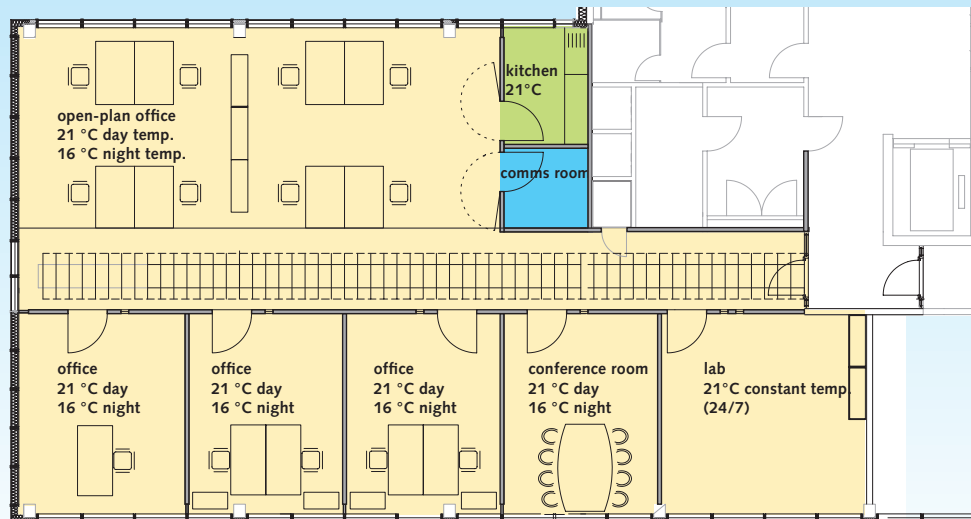
Exemplary installation



Benefits & Features

- 30 % energy-savings!
- Maintenance-free system, install and forget. The iTRV operates without batteries and wires!
- Retro-fit installation
- On demand, heating control for each room.
- Compatible with building automation systems through international EnOcean radio standard.

Individual room temperature control in office space:
each room is heated individually according to demand.



Energy Harvesting

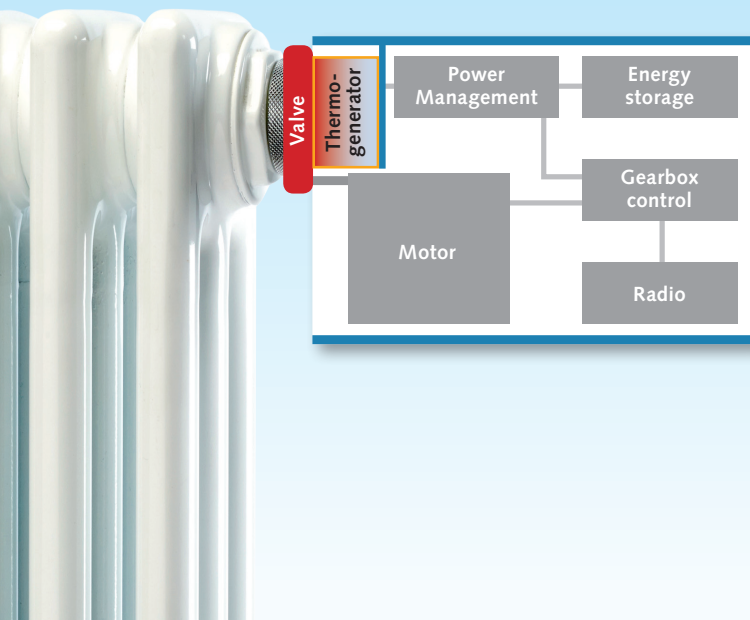
with Thermogenerator

Technical Details



Thermoelectric principle

- Thermogenerator converts temperature difference between radiator intake and ambient air into electricity.
- Energy Harvesting enables battery-free, maintenance-free and wireless operation by using radiator heat.
- Space saving, lightweight and retro-fit installation.
- Perfect for wireless sensor and actuator equipment for building automation applications.



Technical details MVA 003:

Valve type:	M30 x 1.5
Adapters:	for standard valve bodies
Calibration range:	> 5.0 mm
Operating range (0–100%):	2.5 mm
Step width min.:	1%-steps (0.025 mm)
Travel speed:	0.95 mm/sec
Force in normal operation:	100N typical
Self-calibration:	automatically
Frequency:	868 MHz
Radio range:	approx. 30 m, depending on room situation
Radio protocol EnOcean (EEP):	A5-20-01 valve position %, target temperature °C
Feedback (EEP):	Charging condition, harvesting activity, valve position
Radio interval, normal operation:	every 10 mins
Radio interval after start-up:	every 10 sec during 10 mins
Radio failure interval:	1 h and protective position after 6 attempts at communication
Teach-in through remote management/commissioning (ReMan/ReCom):	up to 3 gateways
Parametrization through ReCom:	Duty cycle (2/5/10 min) Offset ambient to target temperature internal temp. control loop
Feedback through ReCom:	Flow temperature (°C), storage voltage (V), harvesting voltage (V), RSSI
Control and temperature measurement:	yes
Temperature sensor accuracy:	+/- 0,5 K
Energy production min.:	90 standard heating days flow > 40°C
Freeze protection:	<6 °C valve on 50 %
Safety position:	>50 % valve opening
IP protection class:	IP4X
Ambient temperature during operation:	0 °C – 50 °C
Inlet temperature max.:	75 °C
Dimensions incl. valve adapter:	64 x 59 x 80 mm (l x h x d)
Weight:	260 g

Micropelt – a brand of EH4 GmbH

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