



The fully automatic hydraulic compensator

An intelligent automatic actuator for live balancing of heating and cooling circuits.

Product overview

The AmbiEgo control drive completely redefines heating circuit control. With the AmbiEgo-AI (artificial intelligence), a perfect hydraulic balance becomes child's play. Convenient, simple and reliable.

AmbiEgo variable speed drives can be used as a 'plug-and-play' solution on all common distribution systems. You do not need any special commissioning or parameterization, nor additional components such as routers, gateways or app control. As a result, they differ significantly from the expensive "home automation systems".

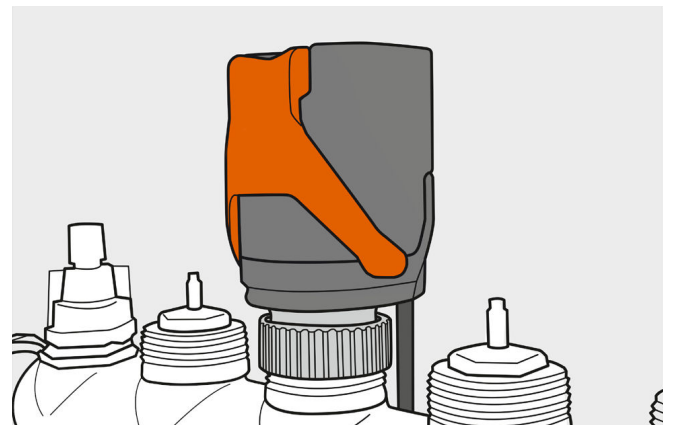
Immediately after installing the system on the construction site, the AmbiEgo's carry out a technically perfect hydraulic balance. The innovative control drives completely eliminate the "human factor" in heating circuit regulation. Sensors on the pipes measure temperature differences - AI and microchip do the rest by continuously calculating the correct temperature spread and the corresponding valve position.

The additional costs compared to conventional actuators are amortised directly with the installation due to the time savings, since calculation and manual implementation of the hydraulic balance are no longer necessary.

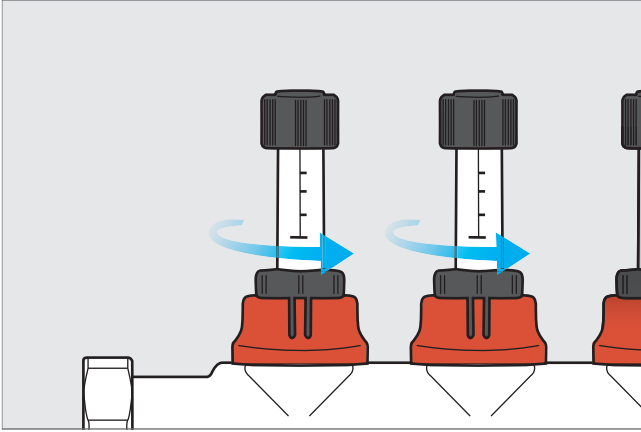
Max number of AmbiEgo's to be connected to 1 actuator output on the UB10 wiring centre is 4 pieces.

Benefits

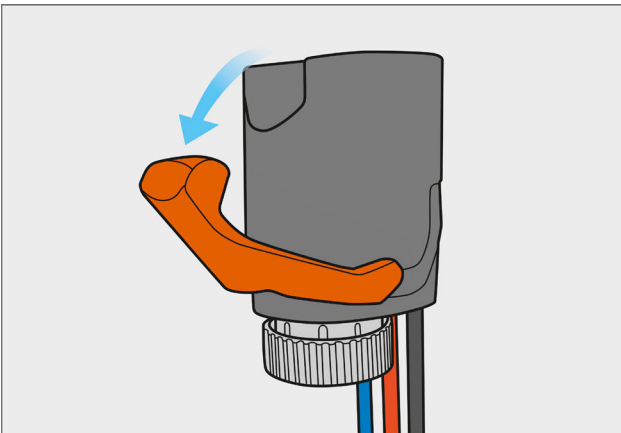
- Time-saving calculations
- Technically perfect hydraulic balance
- Completely eliminates the factor of using a human
- Maintains balance through the years
- Adapts to the built environment
- 'Plug-and-play' system
- Simple and reliable to use



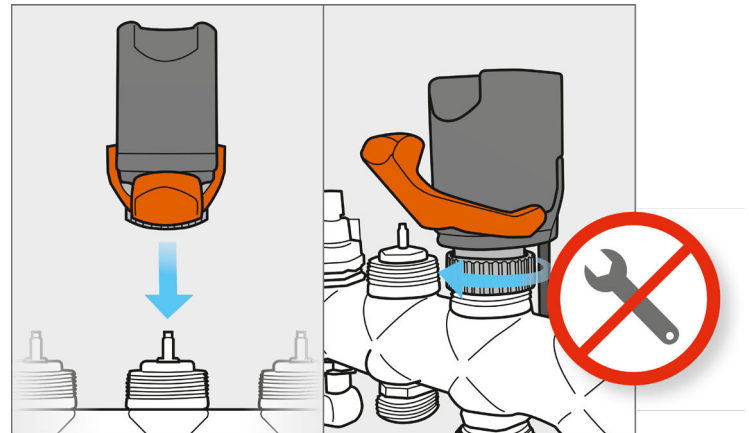
1 Fully open all existing balancing valves



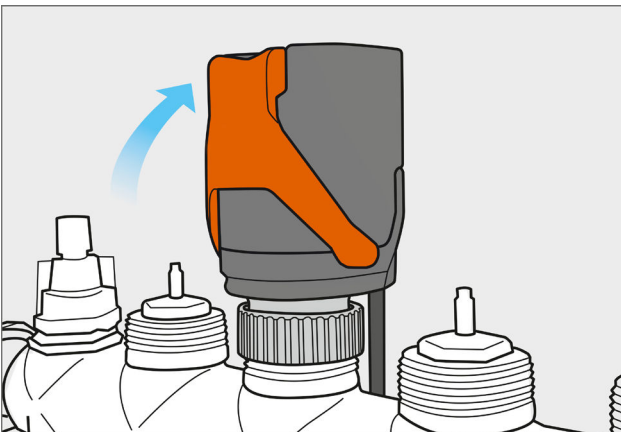
2 Open lever



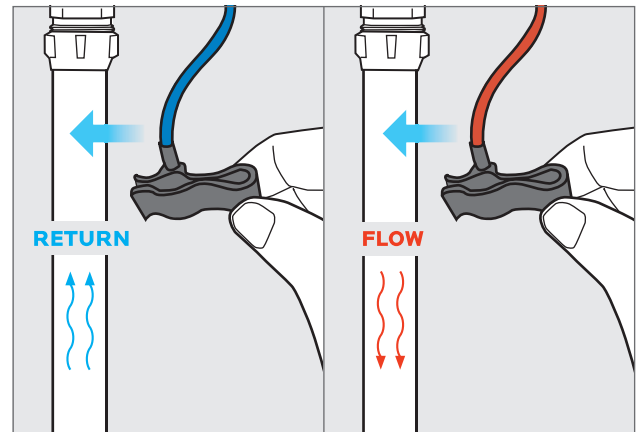
3 Install adaptive flow controller



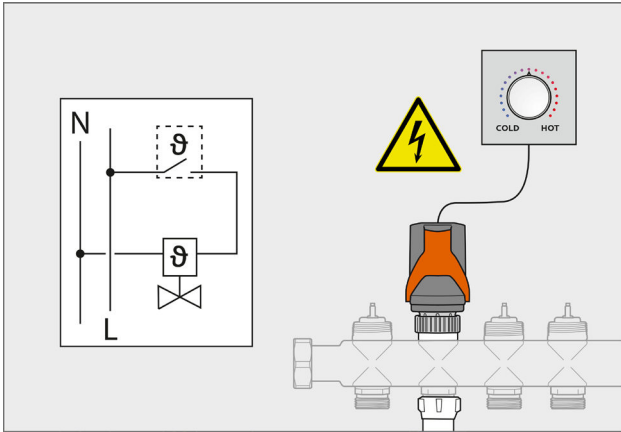
4 Close lever



5 Mount sensor clips



6 Connect thermostat / voltage source



WARNING: Installation must be carried out by a qualified electrician and follow local regulations.

- Voltage:** 230 V AC, 50 Hz
- Inrush current:** 130 mA for max. 200 ms
- Power Consumption:** 1.7 W
- Power factor λ :** 0.1 to 0.99 (capacitive acting)
- Protection class:** II
- Protection type:** IP 54
- Ambient temperature:** 0 – 50 °C
- Mounting Position:** any position

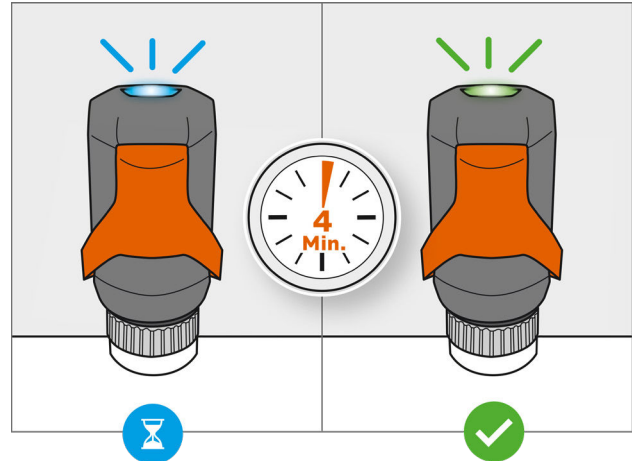
LED Code	Information
Flashing Green	Normal operation
Flashing Blue	Initialisation
Flashing Yellow	Valve pin not reaching AmbiEgo. Check dims/valve mounting.
Flashing Red (twice)	Flow temperature > 60 °C
Flashing Red	Malfunction / limited function

Manufacturer:

Ambiente Systems Limited
 Heritage House
 Woodside Lane
 Bell Bar
 Hertfordshire
 AL9 6DE

ambienteufh.co.uk

7 Start



General purpose

The AmbiEgo is an automatic intelligent actuator incorporating self balancing and system protection software.

Using the AmbiEgo removes the need for manual balancing of the underfloor heating, and for this reason, all balancing and lockshield valves on the underfloor heating manifold should be left fully open. The perfect fit and forget solution.

The AmbiEgo actuator consists of a 230v powered, Normally Closed actuator with manual lever for easy installation and flow and return temperature sensors for the respective loop being controlled.

The temperature sensors are compatible with OD pipe diameters from 12 up to 20mm and work to maintain a dynamic balance of each underfloor heating loop, regardless of external factors such as varying demand systems and pump pressure curves. Also included is a high water temperature limit feature for further system protection.

Due to its capacitor power supply, the AmbiEgo represents a capacitive load. All upstream actuators (e.g. room controllers or terminal strips) must be suitable for this.

Max number of AmbiEgo's to be connected to 1 actuator output on the UB10 wiring centre is 4 pieces.

Do not dispose with domestic waste. Local regulations for electrical scrap recycling applies.



1. General purpose

Autonomous intelligent electrothermal Adaptive Flow Controller 230 V NC used for an adaptive hydraulic balance for each circuit of a manifold for radiant heating systems. The folding lever of the normally closed actuator is used to ease mounting or to open the thermostatic valve manually. With integrated flow temperature limiter.

For installation on UFH manifolds with at least 50 mm manifold port spacing. Suitable for thermostatic valves M30x1.5 external thread (11.8 mm closing dimension). Temperature sensors are suitable for panel heating pipes made of plastic, metal or a combination thereof, with outside diameter from 12 to 20 mm.

Due to its capacitor power supply, the AmbiEgo represents a capacitive load. All upstream actuators (e.g. room controllers or terminal strips) must be suitable for this.

2. Assembly

- Fully open the balancing valves of all heating circuits.
- Open the orange folding lever (manually open).
- Screw on the AmbiEgo M30 x 1.5 nut onto the thermostatic valve by hand, with the logo oriented to the front.

i Notice: Mounting position: Any (up, down, horizontal)

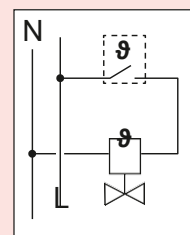
- Close the folding lever (Automatic position = normally closed, regulating on current).
- Attach temperature sensor clips to the heating pipes on the corresponding heating circuit (black-red: inlet flow, black-blue: return flow).
- Connect the electrical connection cable to the corresponding room temperature controller / voltage source (brown on switched outer conductor, blue on neutral conductor).



Caution: Must be carried out by an electrician. Valid safety regulations apply.

i Notice: As with all surface heating systems, the electronically controlled heating circuit pump must be operated under constant pressure mode $\Delta p-c$.

i Notice: Several Flow Controllers can also be connected to one room temperature controller.



3. Self-Commissioning

The AmbiEgo starts operating automatically when an electrical current is applied (e.g. by heat demand of the room temperature controller). Then initialisation starts (determination of the functional parameters) and the LED flashes blue. The initialisation is complete after about four minutes. The AmbiEgo starts the hydraulic balancing and the LED flashes.

i Notice: The AmbiEgo detects when voltage is applied to an unmounted AmbiEgo. Initialisation is not started. The AmbiEgo flashes yellow. In this case, disconnect the AmbiEgo from the power supply, mount it on a thermo-static valve and apply voltage again. The initialisation then starts automatically.

4. Status and operating conditions

LED-Code	Information
Flashing Green	Normal operation
Flashing Blue	Initialisation (see 3. and 5.) or valve flushing (see 6.)
Flashing Yellow	Valve pin not reaching AmbiEgo. Check dims/valve mounting.
Flashing Red (twice)	Flow temperature > 60 °C (see 7.)
Flashing Red	Malfunction/ limited function (see 10.)

5. Manual initialisation

If the AmbiEgo has been mounted on another valve, it must be re-initialised. This can be triggered manually at any time. The start of a single AmbiEgo can, for example, take place from the room temperature controller (switching between min. and max. temperature). Several AmbiEgos can be started simultaneously, for example, from the terminal strip.

- Start: ON (<10s) √ OFF √ ON (<10s) √ OFF √ ON and leave √ LED flashes blue

i Notice: During initialisation, all previously taught-in heating circuit-specific data will be deleted.

i Notice: The initialisation is also triggered if the AmbiEgo is supplied with voltage when it is cold and not mounted. It then flashes yellow (cf. 3.).

6. Flushing the valve

At fixed intervals, the thermostatic valve will be fully opened and closed once, and the flow area cleaned of possible dirt particles.

7. Flow temperature limit

When the inlet flow temperature sensor measures a temperature above 60 °C, the AmbiEgo will close the thermostatic valve in order to prevent damage to the heating system. The LED will flash red twice slowly. If the flow temperature drops below this maximum value, the AmbiEgo will automatically resume its normal operation after a short time.

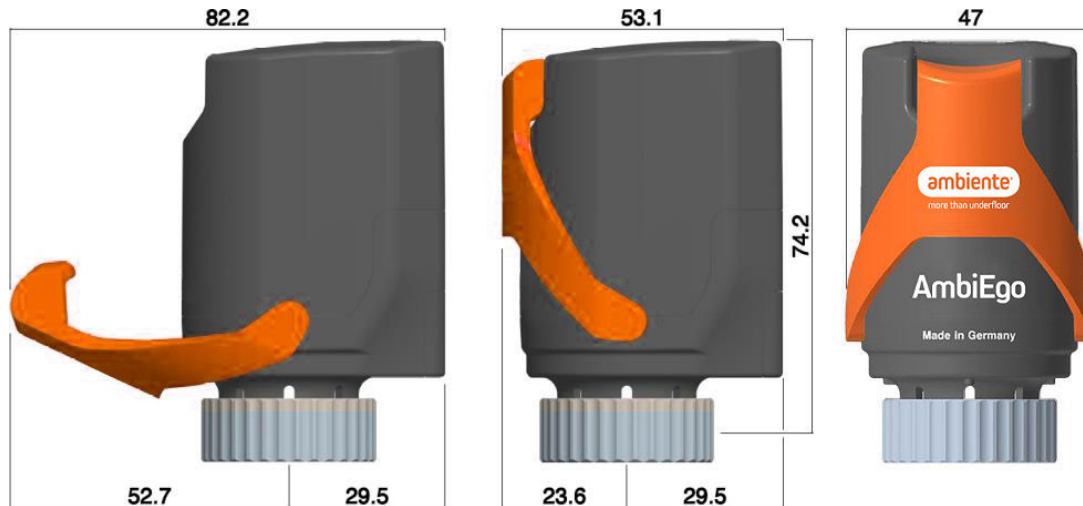
i Notice: The flow temperature limit works only when the orange folding lever is moved upward to the automatic position. This function does not replace a maximum temperature limiter, which safely prevents excess of temperature in the heating system (e.g. according to standard DIN 18560-2).

8. Technical

Type	AmbiEgo 230 V, NC (normally closed), M 30 x 1.5
Version	Normally closed
Valve connection	Union nut M 30 x 1.5
Voltage	230 V AC, 50 Hz
Inrush current	130 mA for max. 200 ms
Power consumption	1.7 W
Power factor λ	0.1 to 0.99 (capacitive)
Closing/ opening time	~ 3 min
Travel range	≥ 3.5 mm
Actuating force	110
AmbiEgo closing dimension	10.8 mm
Valve closing dimension	11.8 mm
Fluid temperature	10 to 60 °C (flow temperature limitation when lever is active)
Storage temperature	-25 to 60 °C
Ambient temperature	0 to 50 °C
Air humidity	10 to 100 % non-
Protection type / class	IP 54 / II
Mounting position	Any position
Housing / Housing colour	Polyamide / grey – orange colour
Weight	180 g (including cables and sensors)
Connection cable	Flexible, black, 1 m with ferrules, 2 x 0.34 mm ²
Inlet flow sensor cable	Flexible, black with red stripes, 0.4 m, 2 x 0.22 mm ² hard-wired
Return flow sensor cable	Flexible, black with blue stripes, 0.4 m, 2 x 0.22 mm ² hard-wired
Temperature sensors	NTC 10k (at 25 °C), Clip for pipe outer diameter from 12 to 20

Max number of AmbiEgo's to be connected to 1 actuator output on the UB10 wiring centre is 4 pieces.

9. Dimensions (mm)



10. Malfunctions and troubleshooting

If the regulatory capability is substantially disrupted by an error, the LED will flash red. When AmbiEgo goes into maintenance mode, it will try to keep the thermostatic valve open to allow further heating. Manual initialisation (see 5.) may be able to correct the cause.

i Notice: Once the cause of malfunction has been rectified, the AmbiEgo will automatically switch to its regular operation. The LED will flash green again.

If the malfunction cannot be rectified, the AmbiEgo must be replaced.

Manufacturer:

Ambiente Systems Limited
Heritage House
Woodside Lane
Bell Bar
Hertfordshire
AL9 6DE

ambienteufh.co.uk

General problems with panel heating systems:

- **Flow noise**
 - reduce pump capacity, if it is not working, adjust the throttle valve until the noise disappears
- **Knocking, tapping or vibrating at the thermostatic valve**
 - place the valve in the return flow
- **Rooms are not heated sufficiently**
 - adjust the supply temperature according to the heat requirement
 - check AmbiEgo power supply
 - switch the operating mode of the pump to constant pressure Δp -c and adjust the flow pressure
 - check the room temperature controller or set a higher room temperature
 - check the flow and vent the air from the heating system if necessary



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