en:key MD10(P)-FTL-HE, MD10P-FTL-HE-B-x Valve Controllers

Suitable for the lower sections of Heimeier, Honeywell-MNG, Junkers, Honeywell-Braukmann, Oventrop and Cazzaniga thermostatic valves with M30 x 1.5 connections



Application

For directly mounting the lower sections of thermostatic valves on standard radiator valves to control the supply of heat to a radiator.

A rotary knob is used to set the appropriate comfort temperature on a scale of 1..5. The MD10(P)-FTL-HE then controls the room temperature based on the comfort temperature set. If the room temperature increases or decreases, the supply of heat to the radiator is adjusted.

Using the integrated motorized unit, the en:key valve controller can control two temperature levels in normal operation.

The valve controller is supplied with power by the integrated thermoelectric generator that uses the heating medium's thermal energy to generate electrical energy, which it feeds into an internal energy storage unit.

Integrated frost protection function that opens the valve when the room temperature is too low.

The actuator is radio controlled based on the non-proprietary EnOcean radio protocol.

In combination with the en:key RPW301-FTL and PPW401-FTL room sensor, the en:key MD10(P)-FTL-HE valve controller constitutes a functional unit for easy self-learning room temperature control.

It is not suitable for floor heating units.

The following EnOcean Equipment Profile (EEP) is supported:

- EEP A5-20-01 or MSC

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Important Information about Product Safety

Safety instructions

This data sheet contains information on installing and commissioning the product “MD10(P)-FTL-HE, MD10P-FTL-HE-B-x”.

Read this product description prior to installation, commissioning or operation. No previous special knowledge is required to commission and operate this product.

If you have any questions that are not resolved by this data sheet, you can obtain further information from the supplier or manufacturer.

If the product is not used in accordance with this data sheet, intended use could be impaired.

Unauthorized conversion and modifications to the device are not permitted for safety reasons and will result in the loss of all claims against the manufacturer.

The applicable local regulations must be observed when installing and using the device.

Symbol Meanings



CAUTION

Indicates a hazard of medium risk which can result in material damage or malfunctions if it is not avoided.



NOTE

Indicates additional information that can simplify the work with the product for you.



Notes on disposal

In accordance with the applicable laws and directives of the European Union countries, the product should not be disposed of with household waste. This ensures environmental protection and sustainable recycling or raw materials.

Private users should contact their local retailer or their local authority for information regarding environmentally safe recycling of old appliances.

Commercial users should contact their supplier and observe the conditions of the purchase agreement. This device may not be disposed of together with other commercial waste.

en:key MD10(P)-FTL-HE, MD10P-FTL-HE-B-x Valve Controllers

MD10(P)-FTL-HE	en:key valve controller for the lower sections of thermostatic valves with M30 x 1.5 connections from manufacturers such as Heimeier, Honeywell-MNG, Junkers, Honeywell-Braukmann, Oventrop (1998 or later) and Cazzaniga. Rotary knob with a scale of * to 5 for setting the comfort setpoint
MD10P-FTL-HE-B-1	Like MD10(P)- FTL- HE Rotary knob with permanent factory settings of min. and max. limit of 2 to 4 for setting the comfort setpoint according to the scale.
MD10P-FTL-HE-B-2	Like MD10(P)- FTL- HE Rotary knob with permanent factory settings of min. and max. limit of 2 to 5 for setting the comfort setpoint according to the scale.
MD10P-FTL-HE-B-3	Like MD10(P)- FTL- HE Rotary knob with permanent factory settings of min. and max. limit of * to 4 for setting the comfort setpoint according to the scale.
MD10P-FTL-HE-B-4	Like MD10(P)- FTL- HE Rotary knob with a scale of 1 to 4 for setting the comfort setpoint

Technical Data

Nominal voltage	Integrated thermoelectric generator for generating electrical energy from the heating medium's thermal energy Energy storage unit: DC 3 V; 0.3 W
Measuring system	Integrated digital temperature sensor; 0..40 °C
Interfaces	EnOcean® wireless interface: ■ Radio telegram: EnOcean radio telegram, bidirectional ■ EEP A5-20-01 ■ Frequency: 868.3 MHz ■ Range: approx. 30 m in buildings (depending on building structure) ■ Duty cycle: < 1 % ■ Transmission/reception interval: every 10 min
Transmission power	< 10 mW
Actuating noise	30 dB (A)
Travel time	8 s/mm
Positioning force	Approx. 90 N
Housing	RAL 9010 (pure white), RAL 7035
Medium temperature	Max. 90 °C
Ambient temp.	0..50 °C
Ambient humidity	During operation: 20%..85% r.F. Out of operation: 5% to 90% r.h., non-condensing
Degree of protection	IP30
Protection class	III
Installation position	Anywhere from vertical to horizontal above the radiator valve
Maintenance	Maintenance-free
Weight	0.39 kg

NOTE

We recommend installing the device at the site of operation and adapting it with the radio partner within three months of the delivery. Although the MD10(P)-FTL-HE-xx is in energy-saving storage mode, there is always a marginal self-discharge on the energy storage unit.

If the valve controller's power has been discharged, the initial adaption can be performed again only when the integrated thermal generator is sufficiently charged.

Accessories (not included in delivery)

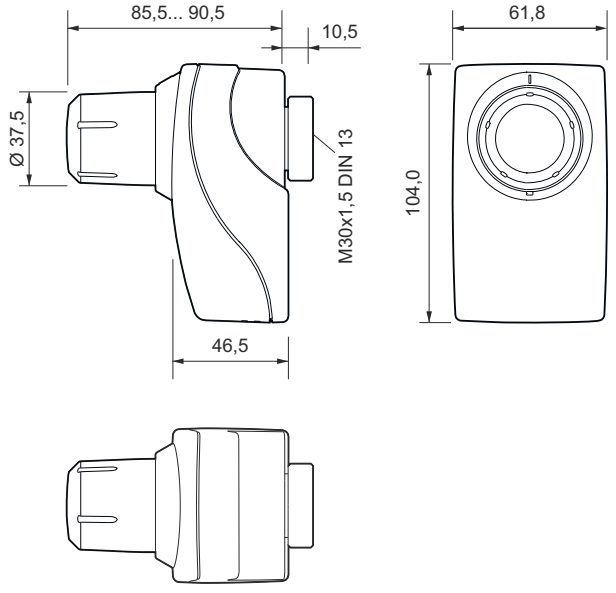
Adapter for the radiator valve:

Item no.	ID	Type
Z800-HW	9703-24	Danfoss series 2 - 20 x 1
Z801-HW	9704-24	Danfoss series 3 - 23.5 x 1.5
Z802-HW	-	Danfoss RA2000
Z803-HW	9800-24	Danfoss RAV
Z804-HW	9700-24	Danfoss RAV-L
Z805-HW	9700-27	Vaillant Ø 30 mm
Z806-HW	9701-28	TA (M28 x 1.5)
Z807-HW	9700-30	Herz (M28 x 1.5)
Z808-HW	9700-55	Comap (M28 x 1.5)
Z809-HW	9700-10	Oventrop (M30 x 1)
Z810-HW	9700-33	Giacomini
Z811-HW	9700-36	ISTA (M32 x 1)
Z816-HW	9700-41	Markaryd

Other accessories:

Z850	Teach-in pin

Dimensions



Radio Interface

Radio communication with the radio partner, e.g. the en:key room sensor, is cyclical, bidirectional and includes an intelligent synchronization process.

Depending on the radio partner, the EEP A5-20-01 or MSC process is used.

Once it receives the first radiogram from its radio partner, the en:key valve controller automatically adjusts its communication process based on the type of control by the radio partner.

CAUTION

This product uses only EnOcean wireless telegrams.

Only devices that support the EncOcean radio standard can be used as radio partners.

EnOcean Equipment Profiles EEP A5-20-01

DATA BYTES	
Transmit mode:	Message from the actuator to the controller
DB_3	Current Value value 0...100 %, linear n=0...100
DB_2.BIT_7	Service on
DB_2.BIT_6	Energy input enabled (not applicable)
DB_2.BIT_5	Energy Storage > xx% charged (not applicable)
DB_2.BIT_4	Battery capacity > 10%
DB_2.BIT_3	Contact, cover open
DB_2.BIT_2	Failure temperature sensor, out of range
DB_2.BIT_1	Detection, window open
DB_2.BIT_0	Actuator obstructed
DB_1	Temperature 0...40°C, linear n=0...255
DB_0.BIT_7	Not used
DB_0.BIT_6	Not used
DB_0.BIT_5	Not used
DB_0.BIT_4	Not used
DB_0.BIT_3	LRN Bit 0b0 Teach-in telegram 0b1 Data telegram
DB_0.BIT_2	Self-controlled mode 0b0 off 0b1 on
DB_0.BIT_1	Not used
DB_0.BIT_0	Not used
Receive mode:	Commands from the controller to the actuator
rx time = max. 1s	Note: The data transfer from the radio partner to the radio small actuator must be completely finished within a maximum time window of 1 s.
DB_3	Valve set point 0...100 %, linear n=0...100 Temperature set point 0...40°C, linear n= 0...255
DB_2	Temperature actual from RCU = 0b0, Room controller-unit …
DB_1.BIT_7	Run init sequence, only active in service mode
DB_1.BIT_6	Lift set, only active in service mode
DB_1.BIT_5	Valve open, only active in service mode
DB_1.BIT_4	Valve closed, only active in service mode
DB_1.BIT_3	Summer bit, reduction of energy consumption
DB_1.BIT_2	Set point selection DB_3 0b0 set point 0...100 %, 0b1 temperature set point 0...40°C
DB_1.BIT_1	Set point inverse
DB_1.BIT_0	Select function 0b0 RCU 0b1 service on

Installation

General installation instructions

It is not always possible to freely select the installation location of devices which communicate wirelessly, as radio data transmission is influenced to a greater or lesser extent by structural or spatial factors.

Before installation and assembly, the building structure must be analyzed and a series of measurements must be made to determine the specific ranges within the building.

In order to establish operational and reliable communication paths, the following aspects must be considered before and during planning:

- Structural factors restrict the transmission ranges which can be reached. Building materials and screening elements (e.g. suspended ceiling elements, installation shafts, fire doors, etc.) must be taken into consideration during planning.

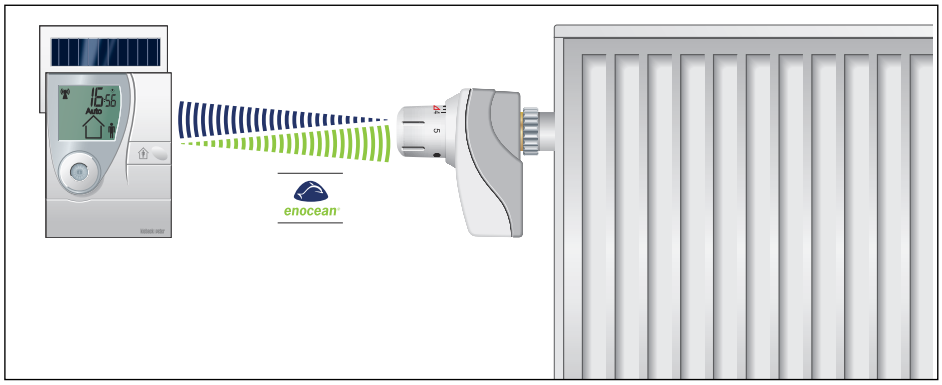
CAUTION

Elevated humidity increases natural signal damping.

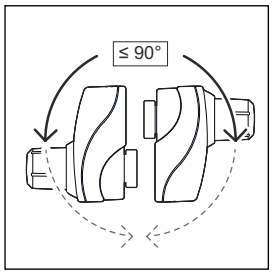
NOTE

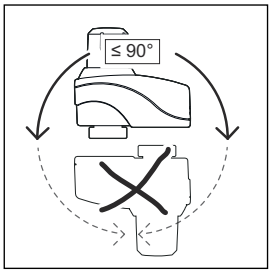
Recommendation: Plan radio paths **horizontally on a single level** with max. 30 m between the trasmitting and receiving modules.

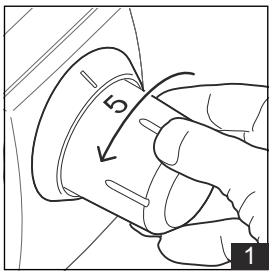
- Designed only for use in rooms.
- Observe minimum distances to potential sources of interference.
  - Min. 0.5 m to high-frequency sources of interference (such as microwaves, transformers or computers)
  - Min. 0.5 m to transmitters of other radio systems (such as a cordless telephone or headphones)
  - Min. 0.1 m to metal and door frames
- Minimize the effect of wall thickness (for example partition walls or room dividers) by ensuring that the radio signal passes through the walls at as close to a right angle as possible.
- Do not select installation locations in the radio shadow of screening building parts/structures → No direct reception possible.
- Where the device is installed at the limits of reliability, change the position of the transmitter/receiver slightly if possible (reduce overlapping effects of radio waves).

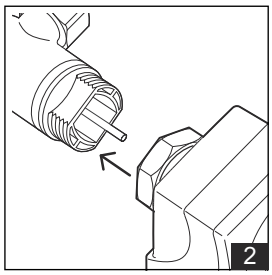


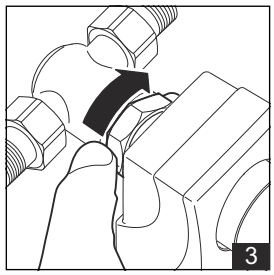
Mounting

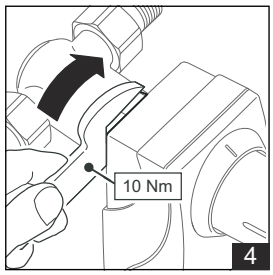


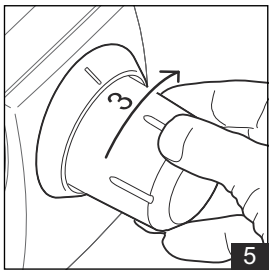


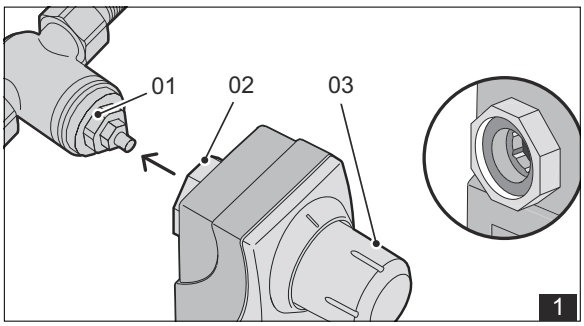


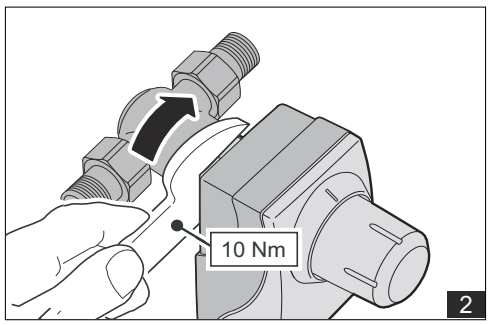












- Use the rotary knob (03) to set the scale value to 5.
- If necessary, install the appropriate adapter (see p. 10) on the radiator valve.
- Place the valve controller on the threaded connection of the radiator valve (01) or adapter and tighten the octagon nut (02) with a wrench.
- Check that the radiator valve (01) is positioned properly. It must not be tilted.
- Then turn the rotary knob to the appropriate comfort temperature (scale value).

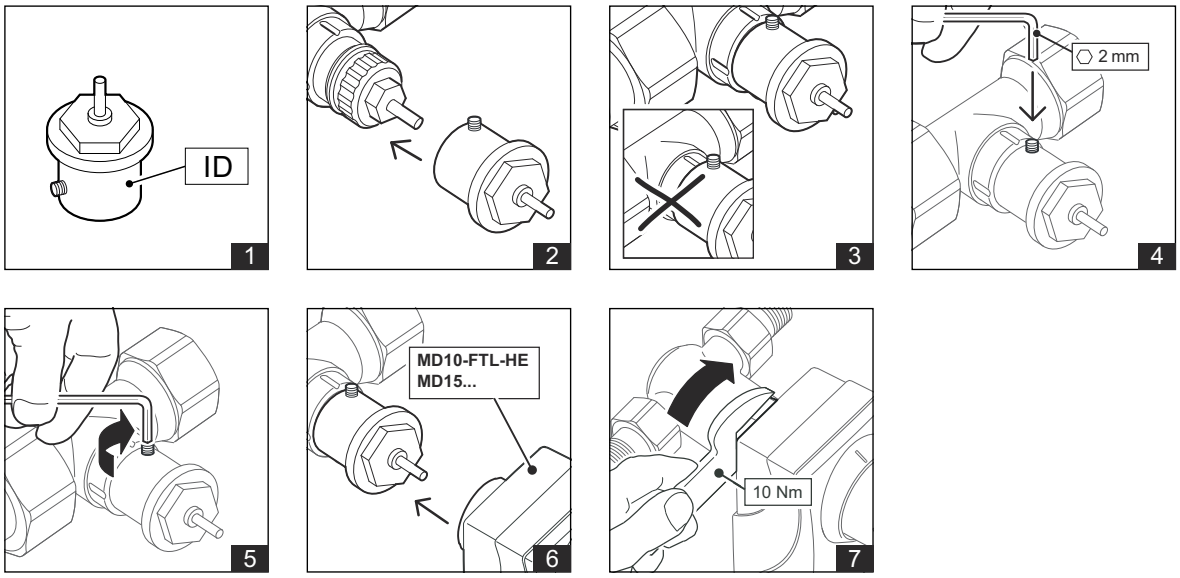
CAUTION

Do not attach the flange and the octagon nut to the radiator valve or the adapter in a tilted position.

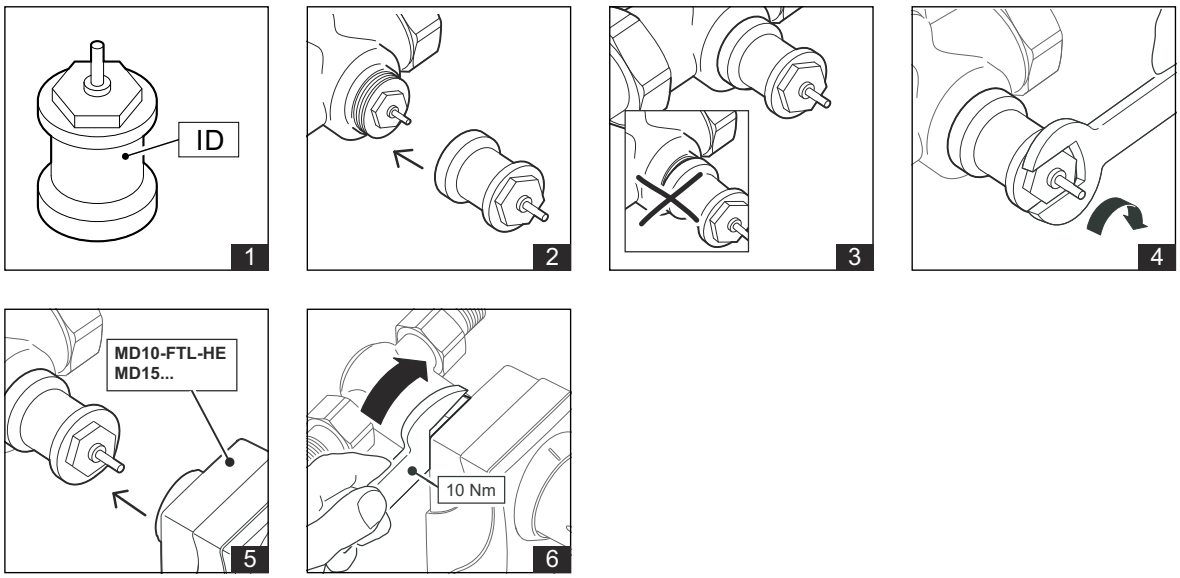
If they are attached in a tilted position, the power supply from the thermoelectric generator cannot be guaranteed.

Mounting Z800-HW to Z816-HW Accessories

Z802-HW to Z805-HW



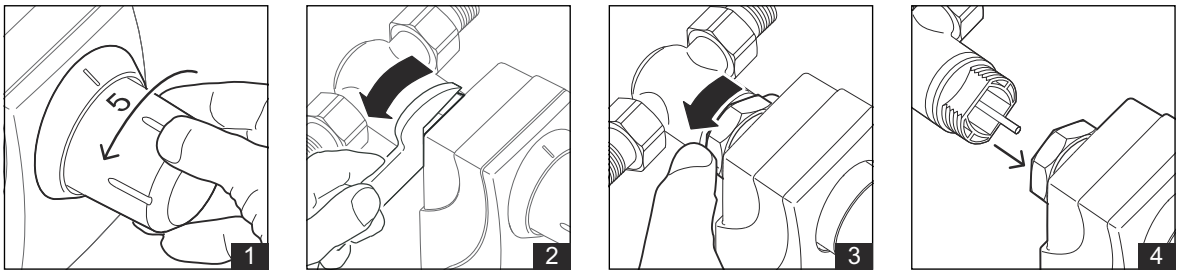
Z800-HW to Z801-HW, Z806-HW to Z811-HW and Z816-HW



NOTE

If you are using an adapter for the radiator valves, the minimum supply temperature of the heating circuit increases by 5 K (see page 12).

Removal



- Use the rotary knob to set the scale value to 5.
- Loosen the octagon nut.
- Remove the valve controller from the valve.

Commissioning

CAUTION

This product description contains the specific settings and functions of the en:key MD10(P)-FTL-HE-xx valve controller. In addition to these instructions, the product descriptions of other system components, such as radio partners, must be observed.

NOTE

We recommend installing the device at the site of operation and adapting it with the radio partner within three months of the delivery. Although the MD10(P)-FTL-HE-xx is in energy-saving storage mode, there is always a marginal self-discharge on the energy storage unit.

If the valve controller's power has been discharged, the initial adaption can be performed again only when the integrated thermal generator is sufficiently charged.

Switching the device on/off

The device is delivered in storage mode (switched off).

- Switching on

► Briefly press the registration button (03; see p. 13). The en:key valve controller is now ready for operation.

The en:key valve controller will confirm this with an acoustic signal and then a downward sequence of tones (two long tones).

The en:key valve controller must be decommissioned (switched off) before transportation or storage. In this state, the device consumes significantly less power and is sufficiently charged when recommissioned within a month.

- Switching off

► Press the registration button (03; see p.13) for 5 s.

The en:key valve controller acknowledges that it has been switched off with a downward sequence of tones (two long tones).

NOTE

If pressing the adaption button (03) does not trigger an acoustic signal, the valve controller's energy has been discharged.

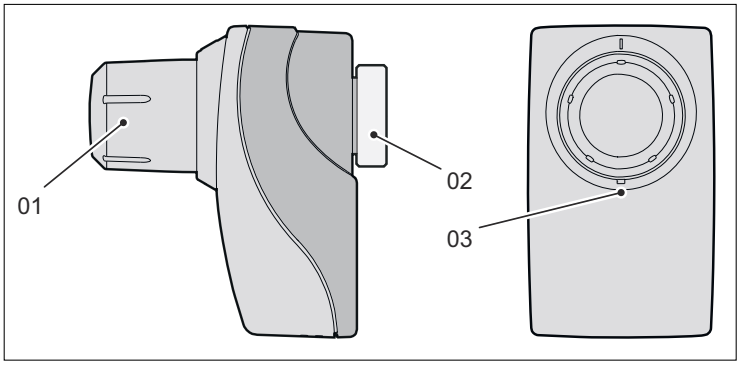
For the integrated thermal generator to recharge the valve controller and supply it with power:
- The valve controller must be installed correctly
- There must be sufficient thermal energy available from the heating medium (heating mode)
- The supply temperature must be at least 20 to 25 K above the usual room temperature
- The heating medium must flow through the valve body (valve controller on rotary knob is not switched off)

NOTE

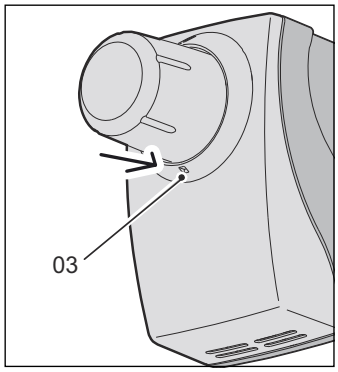
Until the valve controller power is recharged, the room temperature is controlled only via the expanding element in the valve controller.

If the valve controller was already adapted on a radio partner and sufficient power is available again, an automatic synchronization process is started for the radio partners to find themselves again automatically.

Adapting the MD10(P)-FTL-HE-xx on a Radio Partner



(01) Rotary knob
(02) Octagon nut
(03) Registration button



(03) Registration button

- Set the radio partner to teach-in standby mode. Details are described in the documentation of the radio partner.
- Trigger a teach-in telegram on the MD10(P)-FTL-HE-xx by pressing the concealed registration button (03) on the MD10(P)-FTL-HE-xx.

  Use a suitable tool (e.g. the Z850 teach-in pin).
- Release the registration button (03).

  After releasing the button, a signal tone sounds and the teach-in procedure starts.

  The en:key valve controller acoustically confirms (2 x 1 signal tone) that the teach-in process was successful.

  The radio partner confirms that the teach-in process was successful. Details are described in the documentation of the radio partner.

NOTE

Pressing the “registration button” for longer, until acknowledged with a downward sequence of tones (two long tones), switches the valve controller off. See chapter “Switching the device on/off”, page 12.

Registration was not successful and must be repeated.

NOTE

After a successful teach-in process, the device ID of the radio partner is permanently stored in the en:key valve controller.

CAUTION

An error has occurred and registration has failed if the en:key MD10(P)-FTL-HE valve controller acknowledges registration with a downward sequence of tones (two long tones). Start the teach-in process again.

Deleting the Radio Partner

It is not possible to delete the device ID of the radio partner, which is saved internally on the MD10(P)-FTL-HE. This ID is overwritten by the radio ID of the new radio partner when a new teach-in process is performed.

Setting the comfort temperature

The appropriate comfort temperature is set manually using the rotary knob on the en:key valve controller. The room temperature is then controlled based on the manually set comfort temperature.

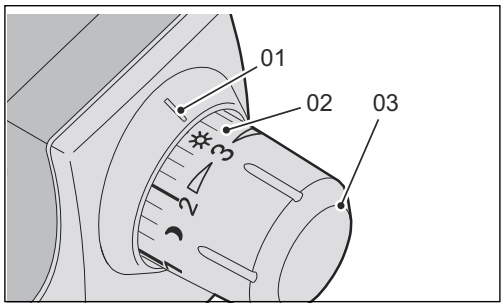
When it receives the corresponding command from a radio partner, the valve controller automatically lowers the room temperature being controlled by 4 K as compared to the comfort temperature.

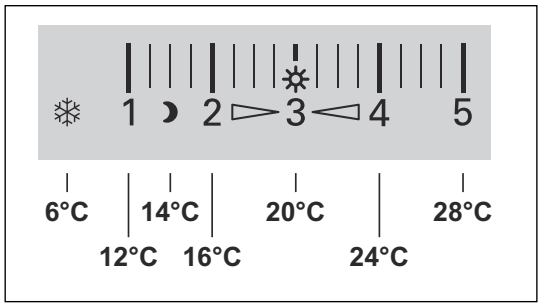
In this configuration, the en:key valve controller differentiates between two temperature levels:

- The room temperature the user wants and has set (the comfort temperature)
- The economy temperature, which is 4 K lower

NOTE

The heating time required from the economy temperature to the selected room temperature depends on the size and properties of the room, as well as the dimensioning of the heating system.





(01)	Setting mark	Marks the value set
(02)	Scale	Values/icons for the comfort temperature
(03)	Rotary knob	For setting the comfort temperature

NOTE

The MD15P-FTL-HE-B-4 has a rotary knob with a scale from 1 to 4.