



## 30256 (230V AC) 30456 (24V AC / DC)

## ⓓ Bedienungs- und Installationsanleitung Universeller Klimaregler


5 21 799 03  
Stand 10.2022 (22/028)

### Hinweise zur Anleitung

Lesen Sie diese Anleitung sorgfältig bevor Sie das Gerät installieren und in Betrieb nehmen. Folgende Symbole werden in dieser Anleitung verwendet:

-  Warnung vor elektrischer Spannung
-  Wichtige Information

#### 1. Sicherheitshinweis

 Das Gerät darf nur durch eine Elektrofachkraft und gemäß dem entsprechenden Schaltbild in der Bedienungsanleitung installiert werden. Dabei sind die bestehenden Sicherheitsvorschriften zu beachten.

 Nach der Installation ist der Betreiber durch die ausführende Installationsfirma in die Funktion und Bedienung der Regelung einzuweisen.

Die Bedienungsanleitung muss für Bedien- und Wartungspersonal an frei zugänglicher Stelle aufbewahrt werden.

### 2. Anwendung / Funktion

Dieser Unterputzregler wurde speziell zur zeitabhängigen Heiz-/Kühlregelung in 2- und 4-Rohr-Leitungssystemen für Hotel-, Wohn- und Geschäftsräume entwickelt. Er ist sowohl für stromlos geschlossene als auch stromlos offene Ventilstellantriebe geeignet. Dabei kann das Gerät als Klimaregler, als Heizungsregler oder als Kühlungsregler mit und ohne Lüfter eingesetzt werden. Ist der Ausgang O2 als Ausgang ECO konfiguriert (siehe 8.6), so schaltet während der ECO-Zeiten dieser Ausgang (Konfiguration Wirkweise siehe 8.7) und es werden angeschlossene Regler in den ECO Betrieb geschaltet (siehe 3.1. – Anschluss-Schaltbild 230V AC bzw. 3.2. – Anschluss-Schaltbild 24V AC / DC).

### 3. Technische Daten

Fühler: NTC intern, NTC 47kΩ extern, Taupunktsensor  
Schaltkontakt: 2 Relais / Schließer, Typ 1C  
Analoger Ausgang: 0-10V (SELV), max. 5mA zur Lüfteransteuerung  
Einstellbereiche: 5 ... 30°C Heizen / 18 ... 40°C Kühlen  
Schaltfrequenz: <1K  
Anzeige: beleuchtetes, grafisches Display  
Leistungsaufnahme: max. 1W, ca. 2,2 VA  
Schutzart: IP 30  
Gangreserve: ca. 3 Tage  
zul. Luftfeuchte: max. 95%, nicht kondensierend  
Lagertemperatur: – 20 ... + 70°C  
Umgebungstemperatur: 0 ... 40°C  
Farbe Gehäuse: reinweiß, perlweiß oder verkehrsweiß  
Material Gehäuse: PC, PMMA, ABS  
Montage / Befestigung: in Unterputzdose, in nahezu alle Flächenschalterprogramme adaptierbar

Verschmutzungsgrad: 2  
Energieeffizienzklasse: I oder IV (Beitrag zur jahreszeitbedingten Raumheizungs-Energieeffizienz 1% oder 2%), Je nach gewähltem Regelverfahren wird dieser Regler unterschiedlichen Klassen zugeordnet (2-Punkt / Wärmepumpe: Klasse I; PI-PWM: Klasse IV).

#### 230V AC Version 30256

Betriebsspannung: 230V~, 50Hz  
Schaltvermögen: je 3 (0,5) A / 230V~, max. 5 Ventilantriebe je Ausgang  
Elektrischer Anschluss: Schraub-Steckklemmen netzspannungsseitig 0,75 – 2,5 mm² kleinspannungsseitig 0,08 – 1,5 mm²

Schutzklasse: II, nach entsprechender Montage  
Bemessungsstoßspannung: 4000V

#### 24V AC / DC Version 30456

Betriebsspannung: 24V AC / DC, Schutzkleinspannung  
Schaltvermögen: je 3 (0,5) A / 24V AC/DC, max. 5 Ventilantriebe je Ausgang  
Elektrischer Anschluss: Schraub-Steckklemmen, Versorgungsspannung u. Schaltausgänge 0,75–2,5 mm², Fühler - / Kontakt-eingänge u. Lüfterausgang 0,08 – 1,5 mm²

Schutzklasse: III  
Bemessungsstoßspannung: 500V


### 3. Montage / Anschluss

Das Gerät mit dem 50 x 50 mm Gehäusedeckel ist mittels Zwischenrahmen der Schalterhersteller nach DIN 49075 in nahezu alle Schalterprogramme integrierbar. Das Gerät mit dem 55 x 55 mm Gehäusedeckel ist ebenfalls für diverse Schalterprogramme geeignet.

#### ⚠ Achtung, vor Installation Netzspannung allpolig abschalten!

Das Gerät darf nur durch eine Elektrofachkraft und gemäß dem entsprechenden Schaltbild in der Bedienungsanleitung installiert werden. Dabei sind die bestehenden Sicherheitsvorschriften zu beachten.

Eine Fehlersuche und Beseitigung ist nur durch eine Elektrofachkraft durchzuführen.

 Der elektrische Anschluss erfolgt gemäß Anschluss-Schaltbild Punkt 3.1. – 230V AC Version bzw. 3.2. – 24V AC / DC Version). Hierzu können die Steckklemmen komfortabel vorverdrahtet und bei der Montage in die Unterputzdose mit dem Regler verbunden werden. Zum Öffnen des Gerätes oben und unten am Gehäusedeckel greifen und ziehen, wie in Abb. 1 dargestellt.

Das Gerät ist mit einer unterbrechungsfreien Spannungsversorgung zu verbinden.

Der Betrieb in der Nähe von Geräten, welche nicht den EMV-Richtlinien entsprechen, kann zur Beeinflussung der Gerätefunktionen führen.

Der Regler ist zur Montage in die UP-Dose bestimmt und darf nicht direkt Wärme- oder Kältequellen ausgesetzt werden. Es ist darauf zu achten, dass der Regler auch rückseitig keiner Fremderwärmung oder -kühlung, z.B. bei Hohlwänden durch Zugluft oder Steigleitungen ausgesetzt wird.

Bei Mehrfachrahmen ist der Regler immer an unterster Stelle zu montieren.

Der Regler ist auf die Tapete / den Wandbelag zu montieren.

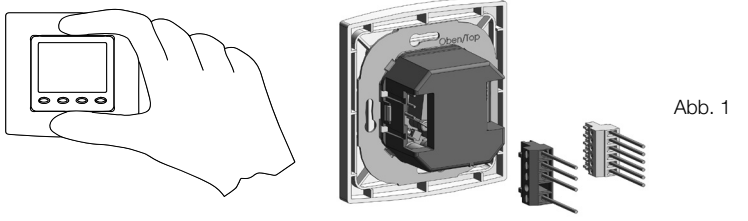


Abb. 1

Zum Öffnen des Gerätes oben und unten am Gehäusedeckel greifen und ziehen.

Steckbare Schraubklemmen

#### 3.1 Anschlussschaltbild 230V AC Version (30256)

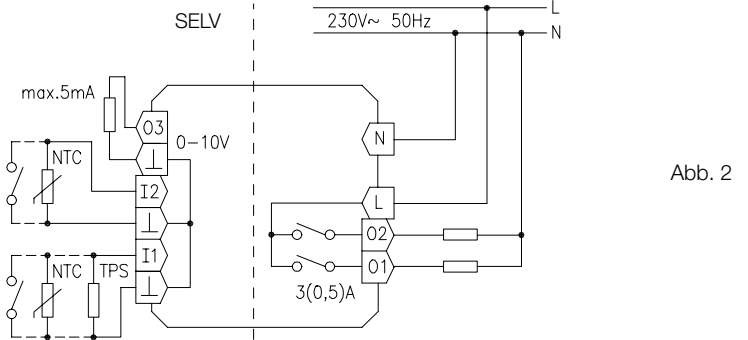



Abb. 2

 Die Einzeladern der Netzspannungsversorgung und der Fühler- bzw. Lüfterleitungen sind durch Setzen je eines Kabelbinders gegen Verlagerung zu sichern. Hierbei ist auf einen möglichst kurzen Abstand, maximal jedoch 15 mm, zwischen Kabelbinder und Netzanschluss bzw. Fühlerklemmen zu achten.

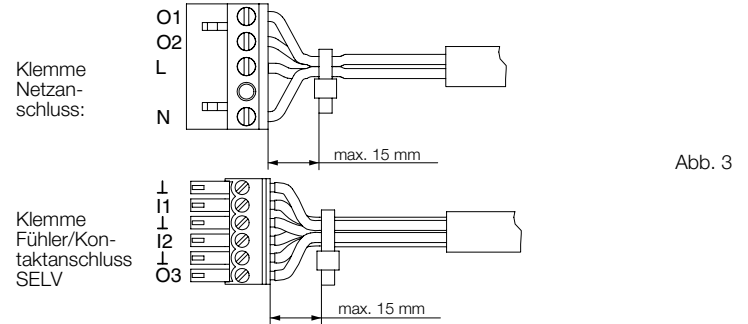


Abb. 3

#### 3.2 Anschlussschaltbild 24V AC / DC Version (30456)

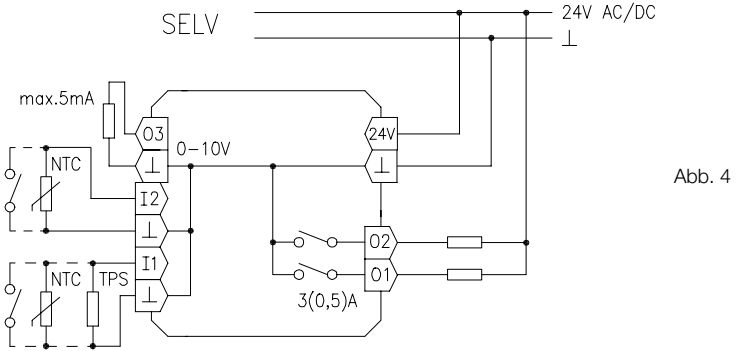


Abb. 4

### 4. Erstinbetriebnahme

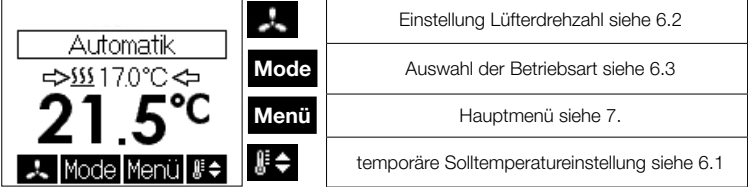
Bei der Erstinbetriebnahme werden automatisch die Expertenmenüpunkte 8.1 Sprache, 8.2 Reglertyp aufgerufen. Bei Auswahl des Reglertyps Heizen/ Kühlen-Regler muss das Rohrsystem (siehe 8.3) ausgewählt werden. Im Anschluss werden die Funktionen der Eingänge I1 und I2 sowie der Ausgänge O1 und O2 abgefragt. Erst nach korrekter Eingabe ist das Gerät funktionstfähig. Die Wirkweise der Aus- und Eingänge kann nun im Expertenmenü (siehe 8.7) konfiguriert werden.

### 5. Hinweise zur Bedienung

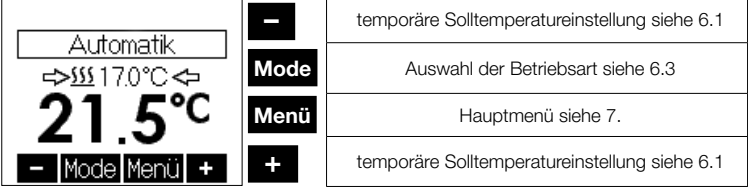
Das Gerät besitzt 4 Sensortastflächen, die durch die geprägten ovalen Symbole gekennzeichnet sind. Ihre Funktion kann sich abhängig von der Bedienung verändern und wird jeweils im Display oberhalb der ovalen Symbole angezeigt. Das Gerät verfügt über eine Schutzfunktion, die ein unbeabsichtigtes Betätigen der Tastflächen verhindert. Die Funktion wird 20 Sekunden nach der letzten Berührung einer Tastfläche aktiv und wird durch Berühren einer beliebigen Tastfläche für ca. 2 Sekunden wieder deaktiviert (siehe Hinweis im Display).

### 6. Regelbetrieb

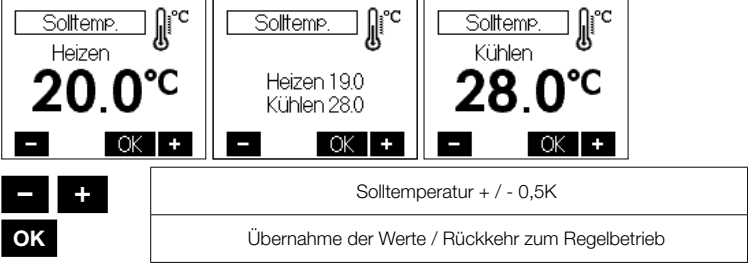
#### Mit manueller Lüfter-Drehzahleinstellung



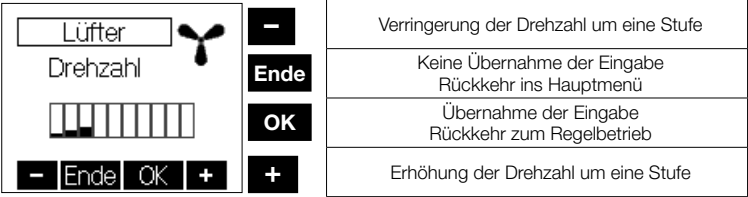
#### Ohne Lüfter- oder mit Lüfterautomatik-Funktion



### 6.1 Temporäre Solltemperatureinstellung



### 6.2 Manuelle Einstellung Lüfterdrehzahl



Die Einstellungen in diesem Menü sind abhängig von der eingestellten Lüfterbetriebsart (siehe 8.4), der eingestellten minimalen Lüfterdrehzahl (siehe 8.4) und des sich daraus ergebenden Drehzahlbereiches. Der verfügbare Drehzahlbereich ist in 10 Stufen unterteilt.

### 6.3 Auswahl der Betriebsart / Frostschutz

Eine Betätigung der "Mode" Tastfläche führt zu einem Wechsel der Betriebsart in der Reihenfolge:

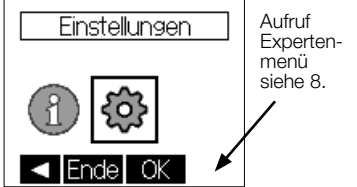
- Automatik (automatische Regelung nach eingestelltem Tagesprogramm – siehe 7.4 / 7.5)
- Komfort (dauerhafte Regelung auf Komfort-Temperatur – siehe 7.4)
- ECO (dauerhafte Regelung auf ECO-Temperatur – siehe 7.4)
- Standby (Frostschutz)

In der Betriebsart „Standby“ wird bei Unterschreitung einer Temperatur von ca. 5°C am internen Fühler bzw. am aktivierten externen Fühler die Frostschutzfunktion ausgelöst. Dabei wird im 2-Rohr-Betrieb der gemeinsame Heiz-/Kühlausgang (O1) aktiv. Es wird das Heizsymbol angezeigt und die Lampe leuchtet rot. Im 4-Rohr-Betrieb werden der Heizausgang (O1) und der Kühlausgang (O2) aktiv. Im Display wird abwechselnd das Heiz- bzw. Kühlsymbol angezeigt, und die rote bzw. blaue Lampe leuchtet. Bei Überschreitung von ca. 6°C wird der Regler wieder ausgeschaltet. Durch diese Frostschutzfunktion werden ein Auskühlen und dadurch verursachte Frostschäden im Raum vermieden.

### 7. Hauptmenü

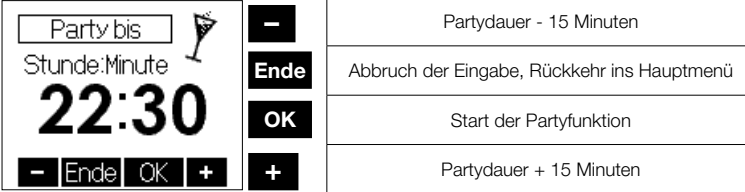
Mit Betätigung der Tastfläche "Menü" wird das Hauptmenü aufgerufen. Folgende Menüpunkte sind auswählbar:

- Party siehe 7.1
- Urlaub siehe 7.2
- Uhrzeit siehe 7.3
- Datum siehe 7.3
- Temperatur siehe 7.4
- Tagesprogramme siehe 7.5
- Infofunktion siehe 7.6
- Einstellungen siehe 7.7



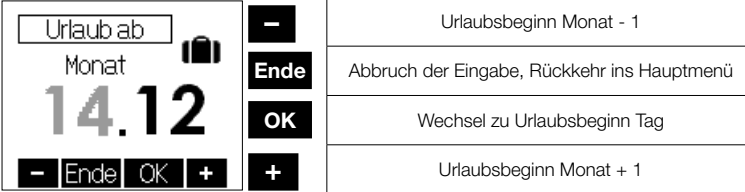
Das Hauptmenü wird mit der Taste "Ende" beendet. Ist der Regler als Heizen/Kühlen-Regler konfiguriert (siehe 8.2), können separate Tagesprogramme für den Heizbetrieb und Kühlbetrieb erstellt werden. Ist der Regler als Heizen-Regler oder Kühlen-Regler konfiguriert, steht nur die jeweilige Einstellfunktion zur Verfügung.

### 7.1 Party



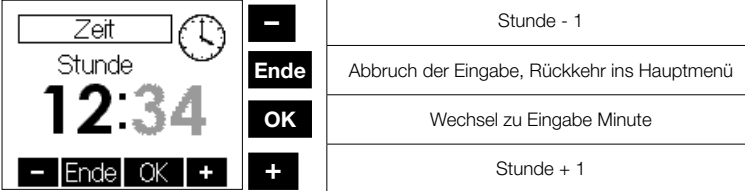
Mit Betätigung der Tastfläche "OK" wird die Partyfunktion gestartet. Bei Erreichen der eingegebenen Zeit erfolgt automatisch ein Wechsel in die vorherige Betriebsart. Die Partyfunktion kann durch Betätigung der Tastfläche "Ende" jederzeit beendet werden.

### 7.2 Urlaub



Die Eingaben „Tag Urlaubsbeginn“, „Monat Urlaubsende“ und „Tag Urlaubsende“ erfolgen analog zur Eingabe „Monat Urlaubsbeginn“. Anschließend erfolgt die Eingabe der Urlaubstemperatur (Werkseinstellung 17°C). Mit Betätigung der Taste "OK" werden die Werte übernommen. Eine Kühlung erfolgt während der Urlaubsdauer nicht. Bereits eingestellte Urlaubsdaten können verworfen werden, indem das Menü „Urlaub“ erneut aufgerufen und die Eingabe mit "Ende" abgebrochen wird.

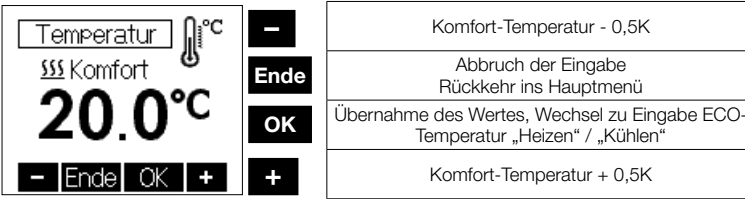
### 7.3 Einstellen der Uhrzeit / des Datums



Die Eingabe der Minuten erfolgt analog zur Eingabe der Stunden. Wurde die Einstellung der Minuten geändert, erfolgt mit Betätigung der Taste "OK" die Übernahme der Werte sowie die Rückkehr ins Hauptmenü. Gleichzeitig werden die Sekunden auf 0 gesetzt. Die Einstellung des Datums (Jahr, Monat, Tag) erfolgt analog zur Eingabe der Uhrzeit.

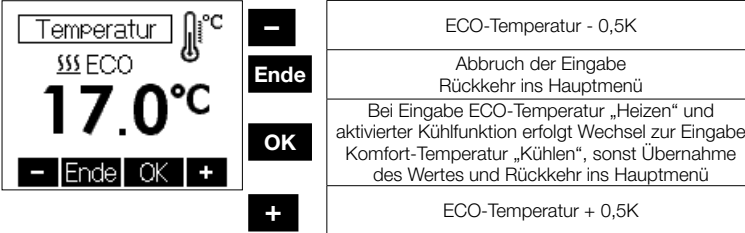
### 7.4 Eingabe der Solltemperaturen „Heizen“, „Kühlen“ (nur wenn die jeweilige Funktion aktiviert ist)

#### Eingabe Komfort-Temperaturen



Werkseinstellung: „Heizen“ 20°C, „Kühlen“ 25°C  
Auf diese Temperatur wird während der Komfort-Zeiten geregelt.

#### Eingabe ECO-Temperaturen



Der maximal einstellbare ECO-Temperaturwert „Heizen“ beträgt Komfort-Temperaturwert „Heizen“ – 1K. Der minimal einstellbare ECO- Temperaturwert „Kühlen“ beträgt Komfort-Temperaturwert „Kühlen“ + 1K. Auf diese Temperatur wird während der ECO-Zeiten geregelt.

### 7.5 Eingabe der Tagesprogramme „Heizen“, „Kühlen“ (nur wenn die jeweilige Funktion aktiviert ist)

#### Auswahl des Wochentages







## 30256 (230V AC) 30456 (24V AC / DC)

### Operating and installation instructions Universal climate controller

#### Notes relating to instructions

Read these instructions carefully before installing and starting up the device. The following symbols are used in these instructions:

- Warning of electric voltage
- Important information

#### 1. Safety notice

- The device may only be installed by an electrician in accordance with the corresponding circuit diagram in the operating instructions. The applicable safety regulations should be observed.
- After installation, the installation company should instruct the operator in how the control system works and how to operate it.
- The operating instructions must be stored somewhere freely accessible to operating and maintenance staff.

#### 2. Application / function

This flush-mounted controller was developed especially for controlling time-based heating/cooling in 2- and 4-pipe systems for hotels, residential properties and business premises. It is suitable for valve actuators both closed when de-energised and open when de-energised. The device can be used as a climate controller, heating controller or cooling controller with and without a fan. If output O2 is configured as an ECO output (see 8.6), then this output switches during ECO times (for configuring how this behaves, see 8.7) and connected controllers are switched into ECO mode (see 3.1. – 230V AC connection diagram or 3.2. – 24V AC / DC connection diagram).

#### 3. Technical data

Sensors:	NTC internal, NTC 47kΩ external, dew point sensor
Switching contact:	2 relays / normally open contacts, type 1C
Analogue output:	0-10V (SELV), max. 5mA for fan activation
Setting ranges:	5... 30°C heating / 18 ... 40°C cooling
Switching difference:	<1K
Display:	illuminated, graphic display
Power consumption:	max. 1W, approx. 2.2 VA
Type of protection:	IP 30
Power reserve:	approx. 3 days
Permissible air humidity:	max. 95%, non-condensing
Storage temperature:	– 20 ... + 70°C
Ambient temperature:	0 ... 40 °C
Housing colour:	pure white, pearl white or traffic white
Housing material:	PC, PMMA, ABS
Mounting / attachment:	in flush-mounted socket, can be adapted in virtually all wide rocker switch ranges
Degree of contamination:	2
Energy efficiency class:	I or IV (contribution to seasonal room heating energy efficiency 1% or 2%), depending on the control method selected, this controller is assigned to different classes (2-point / heat pump: class I; PI-PWM: class IV).

#### 230V AC version 30256

Operating voltage:	230 V~, 50 Hz
Switching capability:	per 3 (0.5) A / 230V~, max. 5 valve actuators per output
Electric connection:	screwed plug-in terminals at mains voltage end 0.75 – 2.5 mm <sup>2</sup> at low voltage end 0.08 – 1.5 mm <sup>2</sup> II, following appropriate mounting

Protection class:	II
Rated impulse voltage:	4000 V

#### 24V AC / DC version 30456

Operating voltage:	24V AC / DC, protective extra low voltage
Switching capability:	per 3 (0.5) A / 24V AC/ DC, max. 5 valve actuators output
Electric connection:	screwed plug-in terminals, supply voltage & switching outputs 0.75–2.5 mm <sup>2</sup> , sensor / contact inputs & fan output 0.08 – 1.5 mm <sup>2</sup>

Protection class:	III
Rated impulse voltage:	500V

#### 3. Mounting / connection

The device with the 50 x 50 mm housing cover can be integrated into virtually all switch ranges using intermediate frames from switch manufacturers in accordance with DIN 49075. The device with the 55 x 55 mm housing cover is also suitable for various switch ranges.

**Attention! All poles of the mains voltage must be switched off prior to installation!**

The device may only be installed by an electrician in accordance with the corresponding circuit diagram in the operating instructions. The applicable safety regulations should be observed.

Troubleshooting and fault rectification should only be carried out by an electrician.

It is connected to the electricity supply in accordance with the connection diagram in Item 3.1. – 230V AC version or 3.2. – 24V AC / DC version). The plug socket terminals can easily be pre-wired for this purpose and connected to the controller when installing in the flush-mounted socket. To open the device, grip the housing cover at the top and bottom and pull as shown in Fig. 1.

The device should be connected to an uninterruptible power supply. Operating in the vicinity of devices which do not comply with the EMC guidelines may affect the device functions.

The controller is intended for mounting in the flush-mounted socket and must not be exposed to direct sources of heat or cold. Ensure that the controller is not exposed to external heating or cooling at the rear, e.g. with wooden walls from draughts or rising mains.

With multiple frames, the controller should always be fitted in the bottom position.

The controller must be installed on the wall covering / lining.

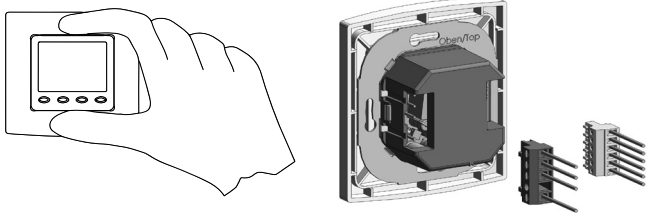


Fig. 1

To open the device, grip the housing cover at the top and bottom and pull.

Plug-in screw terminals

#### 3.1 Connection diagram for 230V AC version (30256)

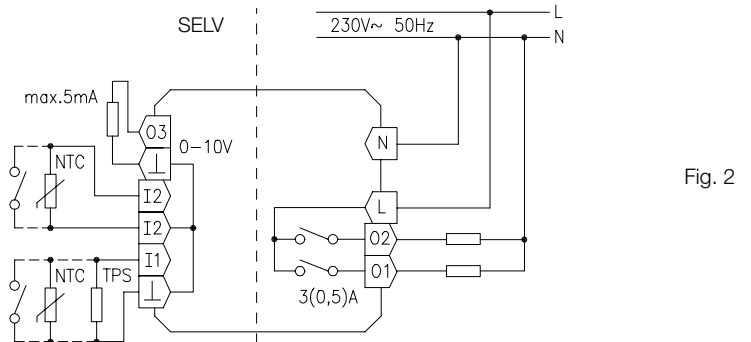


Fig. 2

A cable tie should be placed on each of the single conductors of the mains voltage supply and sensor or fan cables to protect them from being moved. Ensure they have the smallest spacing possible but that there is no more than 15 mm between the cable tie and mains connection and/or sensor terminals.

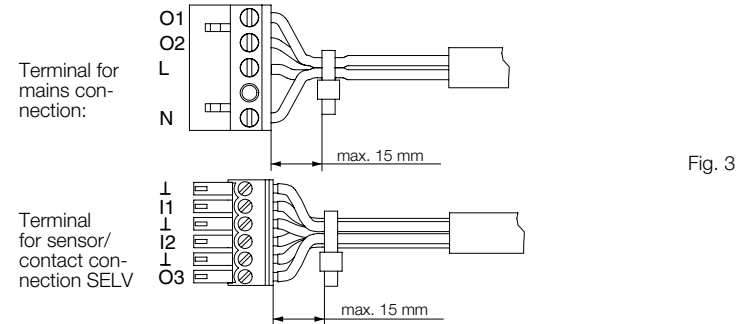


Fig. 3

#### 3.2 Connection diagram for 24V AC / DC version (30456)

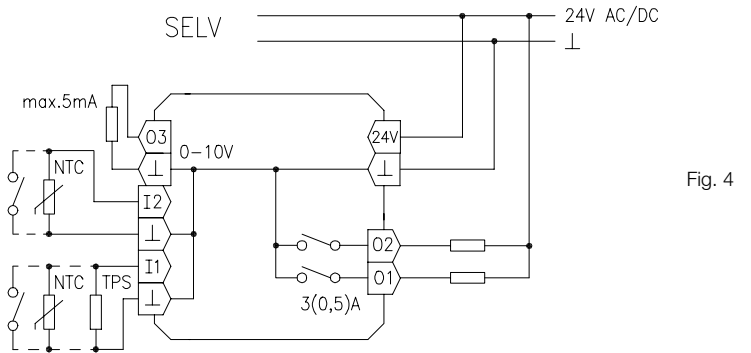


Fig. 4

#### 4. Initial commissioning

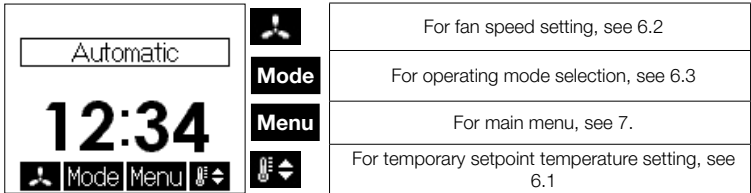
During initial commissioning, the expert menu items 8.1 Language and 8.2 Controller type are called up automatically. If heating/cooling controller is selected for controller type, the pipe system (see 8.3) must be selected. The functions of inputs I1 and I2 as well as outputs O1 and O2 are then queried. Only once the correct details have been entered is the device fully functional. The way in which the outputs and inputs behave can now be configured in the expert menu (see 8.7).

#### 5. Notes relating to operation

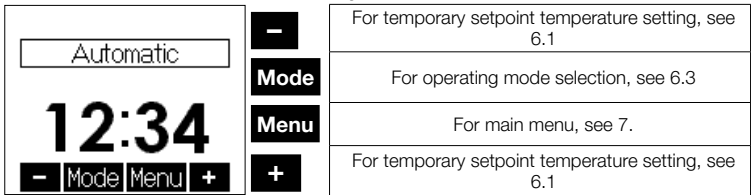
The device has 4 sensor buttons, which are distinguished by embossed oval symbols. Their function may vary depending on operation and is indicated in the display above the oval symbol in each case. The device has a protective function, which prevents the buttons being pressed by mistake. The function is activated 20 seconds after a button is last pressed and is deactivated again by pressing any button for around 2 seconds (see note in display).

#### 6. Normal operation

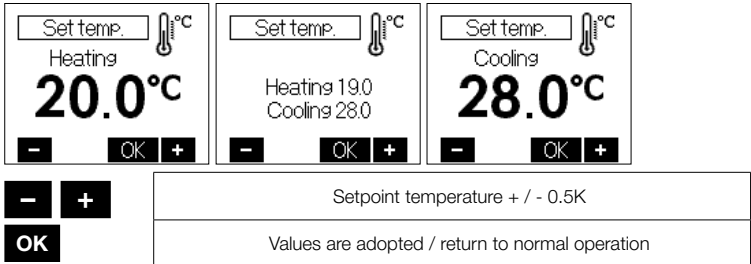
##### With manual fan speed setting



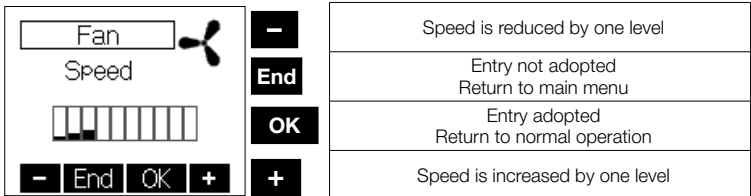
##### Without fan or with automatic fan system function



#### 6.1 Temporary setpoint temperature setting



#### 6.2 Manual fan speed setting



The settings in this menu depend on the type of fan mode set (see 8.4), the minimum fan speed set (see 8.4) and the resultant speed range. The speed range available is split into 10 levels.

#### 6.3 Selection of operating mode / frost protection

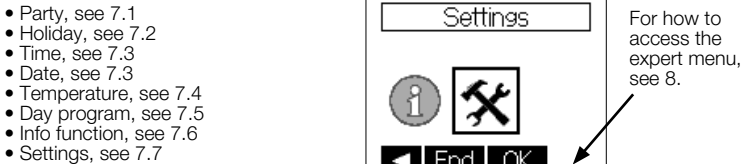
Pressing the "Mode" button results in the operating mode being changed in the following order:

- Automatic (automatic control following set day program – see 7.4 / 7.5)
- Comfort (permanent control to comfort temperature – see 7.4)
- ECO (permanent control to ECO temperature – see 7.4)
- Standby (frost protection)

In "Standby" operating mode, if the temperature at an internal sensor and/or at an activated external sensor falls below approx. 5°C, the frost protection function is triggered. The joint heating/cooling output (O1) is then activated in 2-pipe operation. The heating symbol appears and the lamp lights up red. Heating output (O1) and cooling output (O2) are then activated in 4-pipe operation. The display alternates between showing the heating and cooling symbol, and the red or blue lamp lights up accordingly. When the temperature exceeds approx. 6°C, the controller is switched off again. The frost protection function prevents cooling down and any resulting frost damage in the room.

#### 7. Main menu

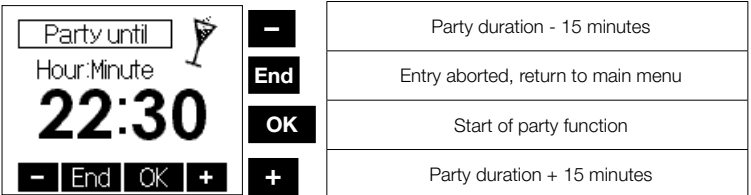
Pressing the "Menu" button calls up the main menu. The following menu items are available for selection:



The main menu is exited using the "End" button. If the controller is configured as a

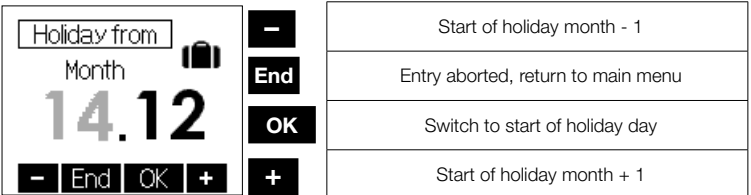
heating/cooling controller (see 8.2), separate day programs can be set for heating mode and cooling mode. If the controller is configured as a heating or cooling controller, only the respective set function is available.

#### 7.1 Party



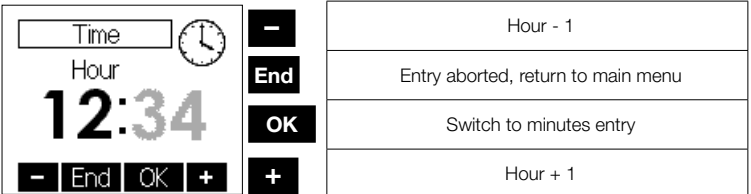
Pressing the "OK" button starts the party function. When the entered time is reached, the system automatically switches to the previous operating mode. The party function can be exited at any time by pressing the "End" button.

#### 7.2 Holiday



The "Start of holiday day", "End of holiday month" and "End of holiday day" are entered in the same way as "Start of holiday month". The holiday temperature is then entered (factory setting 17°C). Pressing the "OK" button adopts the values. There is no cooling during the holiday period. Holiday dates already set can be discarded by again calling up the "Holiday" menu and aborting the entry with "End".

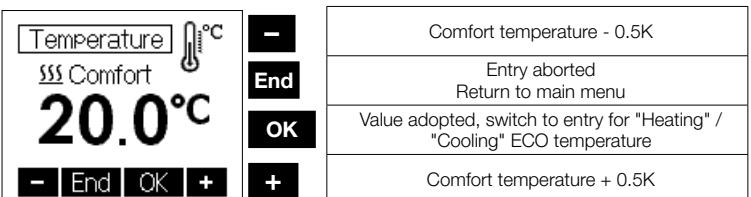
#### 7.3 Setting the time / date



The minutes are entered in the same way as the hours. Once the minutes setting has been changed, this is confirmed with the "OK" button, the values are adopted and you are taken back to the main menu. The seconds are set to 0 at the same time. The date (year, month, day) is entered in the same way as the time.

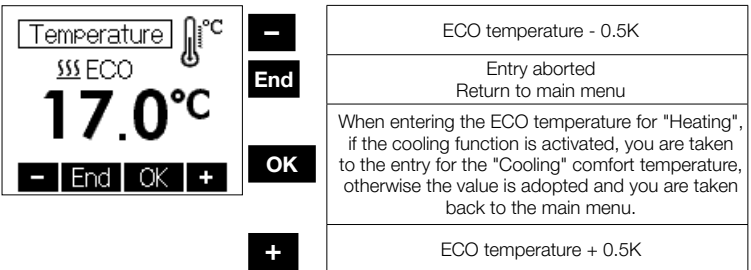
#### 7.4 Entering setpoint temperatures for "Heating" and "Cooling" (only if the respective function is activated)

##### Entering comfort temperatures



Factory setting: "Heating" 20°C, "Cooling" 25°C  
The system controls the temperature to these values during the comfort times.

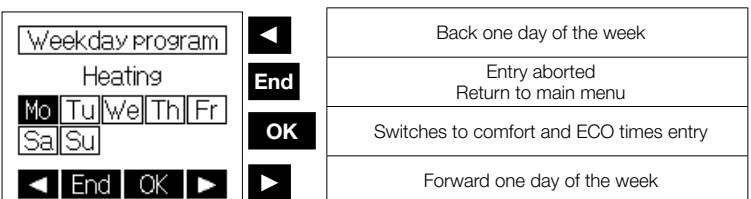
##### Entering ECO temperatures



The maximum ECO temperature value which can be set for "Heating" is the comfort temperature value for "Heating" – 1K. The minimum ECO temperature value which can be set for "Cooling" is the comfort temperature value for "Cooling" + 1K. The system controls the temperature to these values during the ECO times.

#### 7.5 Entering the "Heating" and "Cooling" day programs (only if the respective function is activated)

##### Day of the week selection



Selection of comfort and ECO times

Weekday program

0 1 2 24

Mo 00:30 - 00:45

0 1 2

End

Position +/- 15 minutes

End

Entry exited. If no changes were made, you are taken back to the day of the week selection, otherwise you are taken to confirmation of entries

Switches to comfort and ECO times entry

ECO

Factory setting comfort times

"Heating":  
Monday to Friday: 05:00 ... 9:00 / 16:00 ... 22:00  
Saturday and Sunday: 06:00 ... 22:00  
"Cooling":  
Monday to Friday: 00:00 ... 9:00 / 16:00 ... 00:00  
Saturday and Sunday: 00:00 ... 24:00

Confirmation of entry

Weekday program

Settings save?

End

Entry saved, you are taken to the menu for copying your entry for other days of the week

Entry aborted, you are taken back to day of the week selection

Entry adopted for other days of the week

Import for

Mo-Fr Sa-Su

Mo Tu We Th Fr Sa Su

End OK

Back one day of the week

Entry not adopted / you are taken back to day of the week selection

Entry adopted for the selected day(s) of the week.

Forward one day of the week

7.6 Information

KAMPMANN

Klimaregler

Version xxx

www.kampmann.de

QR OK

QR code display:

If this function is present, you can access the website encoded in the QR code for more information about this controller.

7.7 Settings

Settings

Keylock DST Valve protection

End

Selection up / down

Entry aborted, return to main menu

Activates or deactivates the selected function

**7.7.1. Button inhibit**  
The button inhibit is activated approx. 2 minutes after a button is last pressed and is indicated by a key symbol in the display. In order to reactivate the buttons, any button must be pressed for approx. 10 seconds. Factory setting: Off

**7.7.2. Automatic changeover between summer and winter time**  
Standard summer time in the European Union runs from 2 am CET on the last Sunday of March until 3 am CEST on the last Sunday of October (Directive 2000/84/EC of the European Parliament and Council). The temperature controller automatically changes the time at these times. The automatic changeover between summer and winter time can be deactivated for time changes on other dates or in regions without daylight saving time. Factory setting: On

**7.7.3. Valve protection function**  
The valve and pump protection function serves to prevent the valve seat and / or pumps from seizing up if stationary for long periods. We would recommend activating the valve protection for hot water heating systems. Once the valve and pump protection function is activated, the controller activates the valve and/or a circulating pump once for 5 minutes on Mondays at 11 am. Factory setting: Off

**7.7.4. Training function**  
The training function is used for independently reaching the "Heating" comfort temperature value at the set time. The advance time for changing from ECO to comfort temperature is set automatically. The heating-up time varies depending on heating output and external temperature. The training function is only available in heating mode. Factory setting: Off

**7.7.5. "Window open" detection**  
This function serves to detect an open window by means of a rapid change in temperature at the room temperature sensor. If an open window is detected, the controller switches the heating or cooling off for 30 minutes (5°C frost protection active) and indicates this in the display. The active function can be deactivated at any time on the controller. In the event of a rapid change in temperature in the opposite direction (window closed again), the function is automatically deactivated even before 30 minutes have lapsed. Factory setting: Off

**7.7.6. Display illumination**  
The length of time for which the display is illuminated can be set as follows:  
1. during operation and approx. 10 sec. after a button is last pressed  
2. in addition to 1. during the "Heating" comfort time periods and the party function  
3. in addition to 1. during the "Heating" and "Cooling" comfort time periods and the party function  
4. in addition to 1. during the "Cooling" comfort time periods and the party function  
5. illuminated permanently  
Factory setting: during operation and approx. 10 sec. after a button is last pressed

**7.7.7 Display content**  
Users can choose between the following display content:  
1. Time  
2. Temperatures  
3. Time & temperatures in turn  
Factory setting: Time & temperatures in turn

**7.7.8 Manual heating/cooling changeover**  
When the heating / cooling controller type (see 8.2) is selected in a 2-pipe system (see 8.3), if no supply sensor or cooling contact (see 8.5) has been connected, a manual heating / cooling changeover can be undertaken here.

**7.7.9 Factory settings**  
The following content is reset to the factory settings here:  
• the day programs,  
• the comfort temperature setpoints ("Heating" / "Cooling"),  
• the ECO temperature setpoints ("Heating" / "Cooling"),  
• entered holiday dates as well as the holiday temperature setpoint,  
• the operating mode to "Automatic following day program",  
• the display content,  
• the length of illumination,  
• the trained temperature gradient (see 7.7.4. training function),  
• window open detection (see 7.7.5).

8. Expert menu

The expert menu is accessed in the main menu under "Settings" (see 7.) by pressing the right-hand button for approx. 10 seconds. **Attention!** Control settings, which may only be carried out by a qualified heating engineer or electrician, are configured in this menu. Settings in the expert menu cannot be reset to the factory settings, instead they must be set deliberately.

The following settings can be configured:

**8.1 Language**  
Users can choose between German, English, French, Dutch, Polish, Spanish, Czech, Hungarian or Russian.

**8.2 Controller type**  
Users can choose between heating controller, heating / cooling controller or cooling controller. After the controller type has been changed, the functions of inputs I1 and I2 are queried (see 8.5).

**8.3 Pipe system**  
When the heating / cooling controller type is selected, users can choose between a 2-pipe system (common H / C output at terminal O1) and a 4-pipe system (heating output at terminal O1 and cooling output at terminal O2).

**8.4 Fan**  
**Fan function:**  
Users can choose between the following functions:  
• Off (fan deactivated - function not available if minimum fan speed > 0 )  
• 10-minute overrun (after switching off the heating and/or cooling output, the fan is run for an extra 10 minutes at the set speed. The output voltage is then reduced by 0.1 V per second until the minimum speed or standstill is reached)  
• Permanent (fan activated permanently at the manually set speed)  
• Automatic (fan voltage changes depending on the setpoint/actual difference in temperature between the minimum and maximum output voltage)  
Factory setting: automatic

**Min. / max. speed:**  
The minimum and maximum fan speeds can be set here. During the setting, the fan is run at the value currently set. Once the setting function has been called up, the minimum speed can be set. Pressing the .max. button takes you to the setting for maximum speed and the .min. button takes you to the setting for minimum speed. The setting range for the minimum output voltage starts at 0V and ends 1 V below the set maximum fan voltage. The setting range for the maximum output voltage starts at minimum fan voltage + 1V and ends at 10V. The min./max. output voltage can be set in steps of 0.1 V. If the current fan function is "Off" and the minimum fan voltage is set to a value > 0V, the "Automatic" fan function is activated. In Standby operating mode, the minimum voltage is reduced to 0V. Factory setting: minimum output voltage 0V / maximum output voltage 10V

**Proportional zone**  
The range of the difference in temperature between the setpoint and actual value is known as the proportional range. In the "Automatic" fan function, this is the range in which the fan voltage (speed) varies between minimum and maximum speed depending on the difference in temperature. The range can be set to between 0.5K and 3K in 0.1K steps. Factory setting: 1.5K

**8.5 Functions of inputs I1 and I2**  
The functions of inputs I1 and I2 depending on the selected controller type and pipe system are shown in the following table.

	Heating		Heating/cooling				Cooling	
	I1	I2	2 pipes		4 pipes		I1	I2
No function	x	x	x	x	x	x	x	x
Temp. sensor 47kΩ	x	-	x	-	x	-	x	-
ECO input	x	x	x	-	x	x	x	x
Standby input	x	x	x	-	x	x	x	x
Dew point sensor	-	-	x	-	x	-	x	-
Supply sensor 47kΩ	-	-	-	x	-	-	-	-
Cooling input	-	-	-	x	-	-	-	-

**Temperature sensor 47kΩ:**  
When this function is selected, an external temperature sensor with a resistance value of 47kΩ at 25°C must be connected to input I1. The weighting between external (max. 100%) and internal sensor (max. 90%) must be defined.

Sensor weighting

intern. extern.

50% 50%

End OK

Weighting internal +10%

Entry aborted

Values are adopted, return to expert menu

Weighting external +10%

For an appropriate sensor, see 13. Accessories.

**ECO input:**  
If a potential-free contact (see 3.1 - 230V AC connection diagram or 3.2 - 24V AC / DC connection diagram) is switched between the input terminals to match the set behaviour, the device switches to ECO operating mode. This is indicated by the "External ECO" title line. There is no indication via the ECO output. An active party function is not affected. The Mode button can then only be used to switch between "External ECO" and "Standby". The ECO temperature can be set as is described in Item 7.4. The way in which the input behaves can be adapted to the contact (see 8.7).

**Standby input:**  
If a potential-free contact (see 3.1 - 230V AC connection diagram or 3.2 - 24V AC / DC connection diagram) is switched between the input terminals to match the set behaviour, the device switches to Standby operating mode. This is indicated by the "External" title line and the standby symbol. If the device is in a menu function when "Remote standby" is triggered, the controller only goes into the standby state once the menu functions have been exited. The way in which the input behaves can be adapted to the contact (see 8.7).

**Dew point sensor:**  
The active cooling function can be interrupted using an optional external sensor if condensation forms. The dew point sensor must be mounted in the place where the dew point is most likely to occur on the cooling circuit. If this location cannot be clearly identified, up to 5 dew point sensors can be connected to the controller in parallel. Ideally, the dew point sensors should be mounted on the intake running into the room and/or in the window area. If present, the fan remains switched on for the entire period during which dew is present.

**Supply sensor 47kΩ:**  
Using a supply sensor (47kΩ at 25°C) to determine the supply temperature means that the system automatically changes over between heating and cooling mode.

Changeover points: temperature > 25°C heating (<47kΩ),  
temperature < 18°C cooling (>65kΩ)

For an appropriate sensor, see 13. Accessories.

**Cooling input:**  
If a contact (see 3.1 - 230V AC connection diagram or 3.2 - 24V AC / DC connection diagram version) is switched between the input terminals to match the set behaviour, the device switches to cooling/heating operating mode. The way in which the input behaves can be adapted to the contact (see 8.7)

**8.6 Functions of outputs O1 and O2**  
The functions of outputs O1 and O2 depending on the selected controller type and pipe system are shown in the following table.

	Heating		Heating/cooling				Cooling	
	O1	O2	2 pipes		4 pipes		O1	O2
Heating	x	-	-	-	x	-	-	-
Heating/cooling	-	-	x	-	-	-	-	-
Cooling	-	-	-	-	-	x	x	-
ECO output	-	x	-	x	-	-	-	x
Standby output	-	x	-	x	-	-	-	x

Both outputs can be adapted to the desired valve or actuator type.  
NO = Normally Open (factory setting)  
NC = Normally Closed

**ECO output:**  
On thermostats with the corresponding ECO input, the ECO output can be used to reduce the temperatures in a time-controlled manner (master\_slave control). The ECO output is activated when ECO operating mode has been selected or if the controller is in the respective ECO (heating / cooling) mode as a result of the timer program. The controllers connected to this output (see 3.1 – 230V AC version connection diagram or 3.2 – 24V AC / DC connection diagram version) are thereby shifted into ECO mode (see 2.). In Standby operating mode, the ECO output is also activated. The way in which it behaves can be configured (see 8.7). An ECO operating mode triggered by the ECO input does not affect the output.

**STANDBY output:**  
The Standby output is activated when Standby operating mode has been selected. A Standby mode triggered by the Standby input on the device is also indicated. The way in which it behaves can be configured (see 8.7).

**8.7 Configuring how the inputs and outputs behave**  
The way in which inputs I1 and I2 as well as output O2 behave can be adapted to the contact.

**8.8 Measurement correction**  
The measured temperature value can be individually adapted at inputs I1 and I2 in steps of 0.1K between -5K and +5K for the internal and external temperature sensor(s) (depending on configuration). The current, uncorrected measurement for the relevant sensor is then displayed. The factory setting is 0.0.

**8.9 Control method**  
• 2-point method (hysteresis control): suitable for all temperature control systems.  
• PI PWM method (proportional–integral): with sluggish temperature control systems, such as underfloor heating, the PI PWM method of control may produce better control results.  
• Heat pump: control is optimised especially for operating a heat pump. The temperature is controlled using adjustable hysteresis (see 8.10). A 10-minute reactivation inhibit is activated at the same time. The factory setting is the 2-point method

**8.10 Hysteresis (only with "Heat pump" control method)**  
The switching difference setting serves to usefully adjust temperature control to the building structure. The switching difference setting is needed in instances where the building design requires the heat pump to be activated too often. The switching difference then has to be increased. If the hysteresis seems to be too great, it can be reduced by means of the switching difference setting until the heat pump again has an acceptable minimum downtime. The factory setting is 0.6 K

9. Dimensional drawing

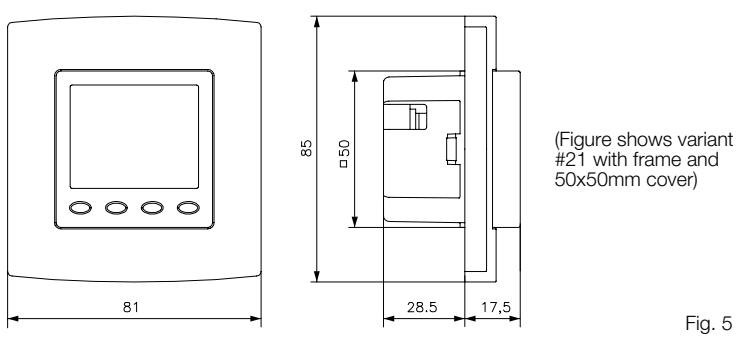


Fig. 5

10. Sensor errors / emergency operation

A sensor error is indicated in the display by means of an error message and a lamp flashing red.  
**Internal sensor defective:**  
Without external sensor, emergency operation  
With external sensor / weighting, max 60% internal control following external sensor  
**External sensor defective:**  
Weighting 0 ... 60%, external control following internal sensor  
Weighting 70... 100%, external emergency operation  
**Supply sensor defective:** Heating operation, no cooling  
During emergency operation, provided it is permitted by the set operating mode, a relative duty cycle of 30% is maintained to avoid cooling or damage from frost in the room. The duty cycle is split into in 3 (20) minutes On and 7 (40) minutes Off. (Values in brackets apply to the "Heat pump" control method)

11. Cleaning

The device must not be cleaned when open.  
Carefully remove dust and dirt from the housing surface using a dry, solvent-free and soft cloth.

12. Removal / disposal

**Attention! All poles of the mains voltage must be switched off prior to removal!**  
The device may only be removed by an electrician. The applicable safety regulations should be observed.  
Before opening, de-energise the controller and all connected devices and lock so they cannot be switched on again (for opening, see Item 3. / Fig. 1).  
Disconnect the wiring to the supply voltage, valve actuators, fan and external sensors / contacts.  
Dispose of device correctly.

13. Accessories

- TPS 1, TPS 2 and TPS 3 dew point sensors.
- PFC47 external temperature sensor (radiation sensor as swing sensor), STF-2 (radiation sensor in room sensor casing), BTF2-C47-0000 (room sensor), ALF-2 (contact sensor), KF-2 (cable sensor).

Sensor values, external temperature sensors		
0°C	155.480 kΩ	25°C
5°C	120.696 kΩ	30°C
10°C	94.377 kΩ	35°C
15°C	74.314 kΩ	40°C
20°C	58.910 kΩ	45°C

14. Liability

We determined the technical data provided in an inspection and test environment suited to this task (we are happy to provide details on request) and this data only presents the agreed properties on this basis. The purchaser / customer is responsible for checking the suitability of the use or usage intended by the purchaser / customer under the specific conditions of use; we do not accept any liability for this. We reserve the right to amendments.