Dimplex

Installation and operating instructions

ZWU 06E

Central control unit

with timer function

Central control unit for underfloor storage heating and electric storage heaters

Table of contents

Device description

The ZWU 06E central control unit controls the charging of an underfloor storage heating system and/or the charging of storage heaters according to outdoor temperature, adjusters and control signals.
The basic design of the control unit has the basic functions of a central control unit as set out in DIN EN 50350. It has the following features:

- Charging according to outdoor temperature,
- The ability to process charge release signals from the distribution network operator (with/without timer function),
- The ability to output the charge release and the set charge rate to the storage heaters and underfloor charge controllers,
- Timer function for forward, backward and spread control,
- Priority and secondary use of actual service release periods for low and high tariffs,
- For optional connection to older external sensors, too.

Depending on the unit type connected downstream, an AC and a DC output are available for the control signal.

Scope of supply

- ZWU 06E central control unit
- NTC external sensor with 3 m connection cable
- Installation and operating instructions
- Safety notes

Technical device information

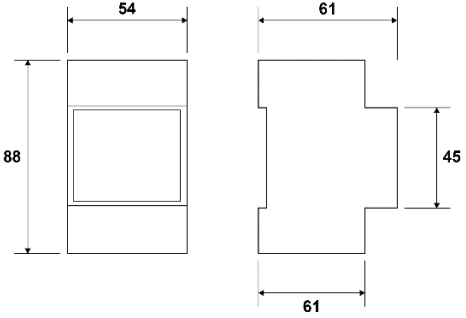
ZWU 06E central control unit

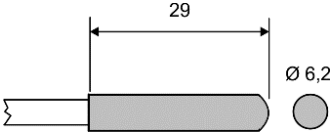
Connection voltage	AC 230V ~ 50/60 Hz
Permissible voltage range	AC 207 V to 253 V
Power consumption	Approx. 2 VA
Inputs	• External sensor • Charge release LF, additional release LZ, multi-function LX • Frost protection switching FS
Outputs	• DC control signal • AC control signal with duty cycle system • Charge release relay (SH)
Reference variable at terminals ZX, Z0 (storage heaters)	DC 0.91 V to 1.43 V, safety overlap to 1.68 / 1.95 V
Reference variable at terminals ZX, Z0 (underfloor heating)	DC -2.85 V to -3.60 V, safety overlap to -4.35 V
Reference variable at terminals Z2~, Z1~ (storage heaters)	230V~ clocked 30 - 100% duty cycle
Power reserve	Approx. 6 h (runtime and clock)
Communication	Mini-USB to laptop/PC
Supported types of external sensor	• DIN EN 50350 standard sensor: Dimplex standard sensor DIN, tekmar series 31, Schlüter/Deltadore NF, Birka/Sabi 983, Grässlin/Frensch RF-N-1, Dohrenbusch/DRT 25-2k, DEVI, Stiebel Eltron, AEG • tekmar series 30 • Dohrenbusch DRT 25-470 • Schlüter/Deltadore UNI • Schlüter/Deltadore RF • Grässlin/Frensch WF-R2/WF-E55 • Birka/Sabi 981 • DEVI 25-15k • Ritter (DRT) 20-500 • MALAG outdoor temperature sensor • Siemens outdoor temperature sensor • Siemens 2 outdoor temperature sensor • ACEC outdoor temperature sensor • Bauknecht PTC • Witte outdoor temperature sensor
Supported duty cycle systems	30 - 100%, thermo-mechanical and electronic charge controllers
Power rating of duty cycle signal	1 A = 230 W nominal @ AC 230 V (min. resistance 230 Ω)
Supported DC voltages (SELV)	• Dimplex / Bauknecht (0.91 to 1.43 V) • tekmar (-3.60 to -2.85 V) • tekmar up to year of manufacture 70 (-4.35 to -2.85 V) • Dohrenbusch DRT (2.65 to 3.00 V)
Power rating of DC signal	Connection of max. 20 charge controllers of type AR 06DCU 4
Nominal switching power of SH relay	1.1 kW

Operating/storage temperature	-15°C to +40°C / -20°C to +70°C, condensation not permitted
Protection class	II according to installation (see section “Installation”)
Degree of protection	IP 20 according to EN 60529, according to installation
Standard	DIN EN 50350 and DIN 44576 (draft)
Space requirements	Series mounting casing, 3 modular spaces according to DIN 43880
Fastening	TH-35 mounting rail according to DIN EN 60715
Connecting terminals	Cage clamp terminals for 2.5 mm², tightening torque ≤ 0.5 Nm
Dimensions	See dimension drawing
Weight	Approx. 250 g

External sensor

Sensor type	NTC sensor according to DIN EN 50350 in insulated casing
Connection cable	3 m long (extendable up to a maximum of 100 m)
Protection class	II according to DIN EN 60730-1
Degree of protection	IP54 according to DIN 40050
Dimensions	29 mm × 6.2 mm





Installation and operating instructions for technicians

Installing the central control unit

Installation must only be carried out by a technician authorised by the respective energy supplier/network operator (utility company). The regulations of the local utility company, as well as the relevant VDE (Association of German Engineers) regulations are to be observed.

The space required by the device is 3 modular spaces according to DIN 43880. Protection against accidental contact according to protection class II is ensured by installing the device in:

- Small installation distribution board according to DIN 57603/VDE 0603 (e.g. N system distribution board)
- Installation distribution board according to DIN 57659/VDE 0659.

The charge control unit should be installed in the coolest location, i.e. the lowest mounting row of the distribution board. Please ensure a minimum distance the length of one modular space on both sides.

Installing the external sensor

The NTC external sensor is to be installed at least 2 m above the floor, preferably in the outer brickwork of the zone of main use (with large systems) or in the room of main use (with single systems). The sensor should not be exposed to direct sunlight. Heat sources (e.g. ventilation shafts or tilted windows) must not influence the sensor and thus affect the ZWU 06E central control unit.

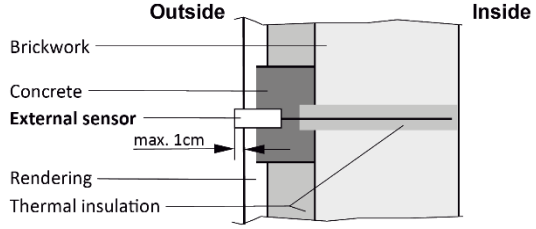
Please observe the following:

- The external sensor must be embedded in the mortar
- The cable feedthrough must be carefully protected with thermal insulation material.

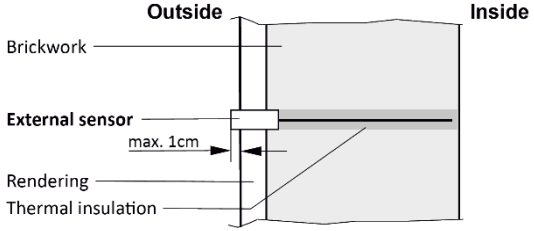
The NTC external sensor contains a 3 m long connection cable and can be extended to a maximum of 100 m using an installation cable (1.5 mm² minimum).

Installation options for external sensor

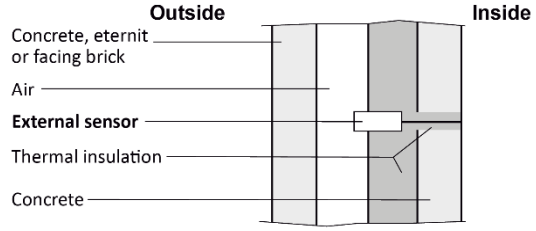
Wall with outside insulation



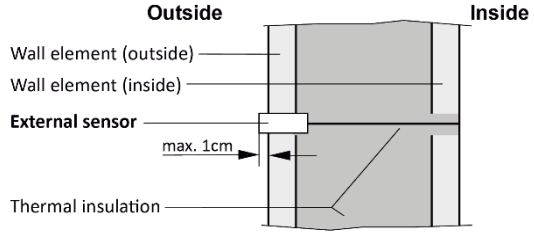
Wall with or without inside insulation



Curtain wall facade



Pre-fabricated house wall



Cable routing of SELV signals

If cables are routed in switch boxes or empty conduits, it is essential to note that the following connections constitute SELV signals (Safety Extra Low Voltage signals) that must be far enough away from cables carrying mains power:

- External sensor
- DC control signal

Electrical connection

The circuitry stipulated by the local energy supplier (utility company) or network operator may vary from these connection examples. The appropriate circuitry is normally listed in the utility company's technical connection requirements.

The LF (charge release), LX (multi-function) and LZ (additional release) terminals are to be wired in compliance with the utility company's requirements via floating contacts, e.g. a ripple control receiver or a tariff timer.

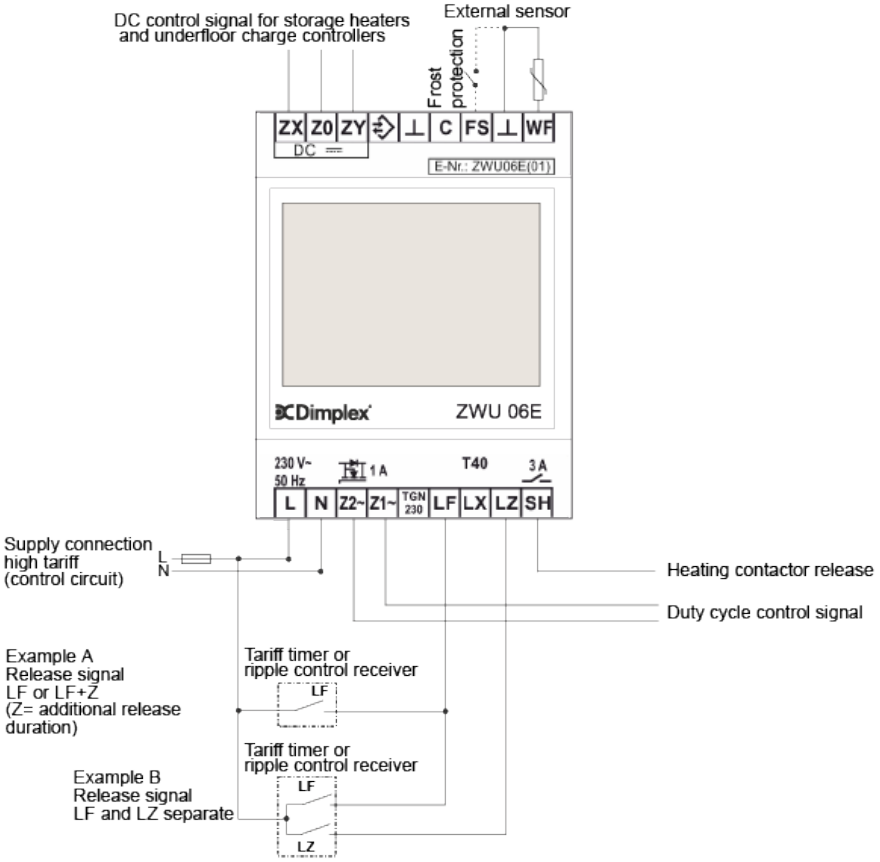
The central control unit permits connection of:

- 20 charge controllers maximum
- Any number of group control units, although the maximum total number of charge controllers or storage heaters in the system is limited to 20.

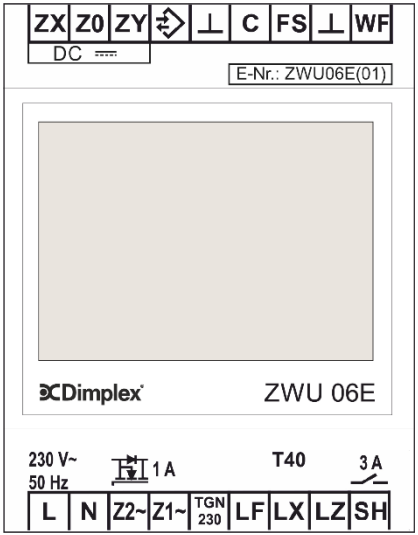
Control cables must be laid using two-core wires according to DIN 44573. According to the VDE directive 0100, these two wires may not be laid in one cable with network wires

Protect the power supply to the heating control independently of the heating current with a separate circuit breaker.

ZWU 06E circuitry



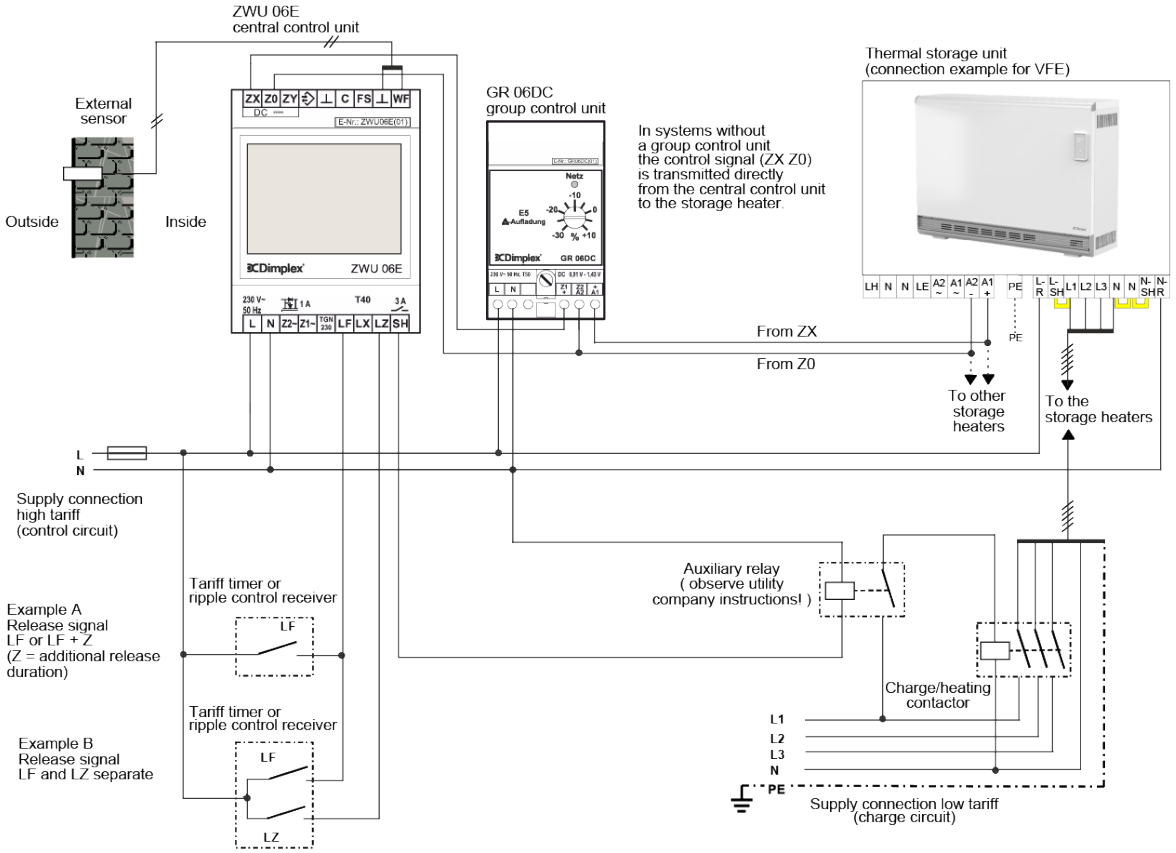
Terminal assignment for the ZWU 06E central control unit



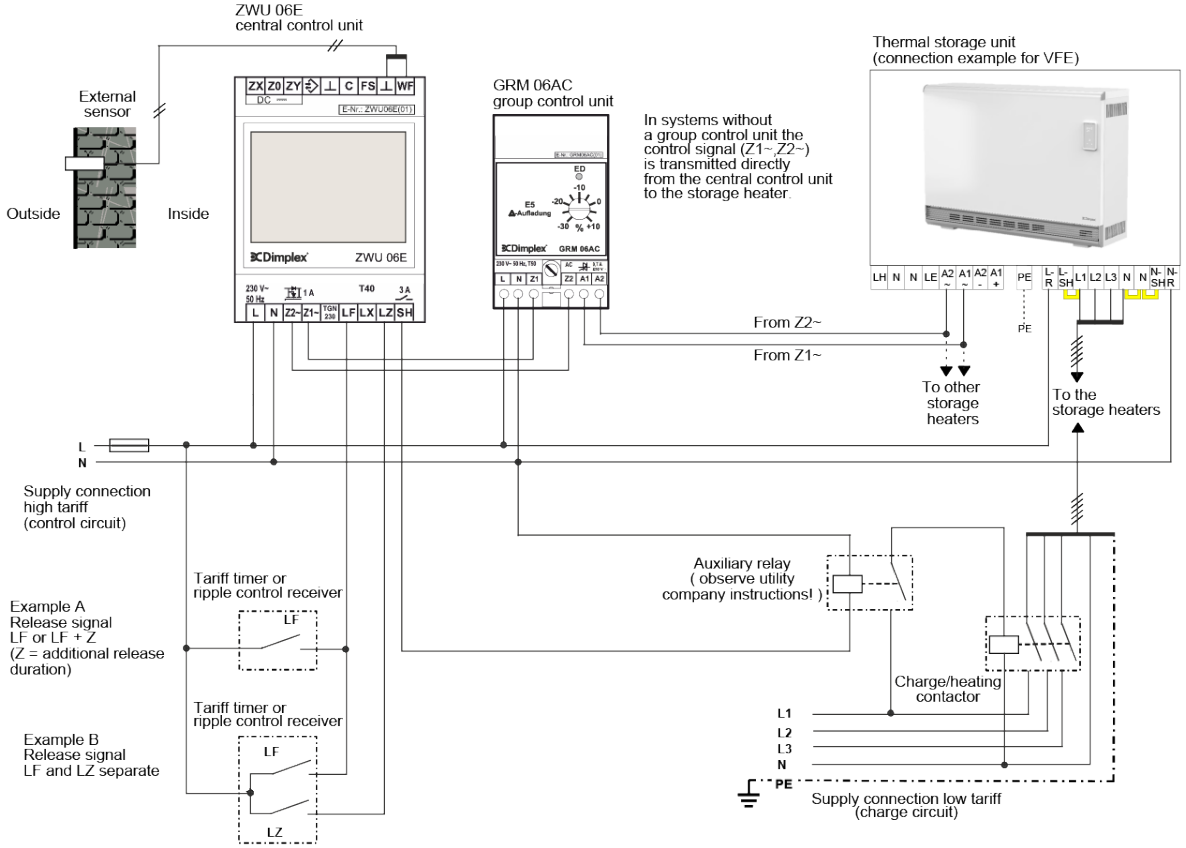
Terminal	Function
ZX	DC control signal output (+)
Z0	DC control signal output (-)
ZY	DC control signal output (day/night) for underfloor charge controller
⇨	(reserved*)
⊥	Ground
C	(reserved*)
FS	Frost protection
WF	External sensor input**
L	Supply voltage
N	Supply voltage
Z2~	Control signal output to the storage heaters; internally connected with N
Z1~	Control signal output to the storage heaters; clocked control cable (230V~) with duty cycle signal
TGN230	(reserved*)
LF	Signal input: charge release from network operator
LX	Multi-function input; can be assigned various functions via the software (see start signal for drive (LL) and blocking signal for high tariff (HT))
LZ	Signal input: additional release from network operator
SH	Switching output for controlling the heating contactor
L	Supply voltage
N	Supply voltage

* Reserved terminals must not be used as supporting terminals.
** Caution: when commissioning the device, it is essential to set the correct type for the connected sensor!

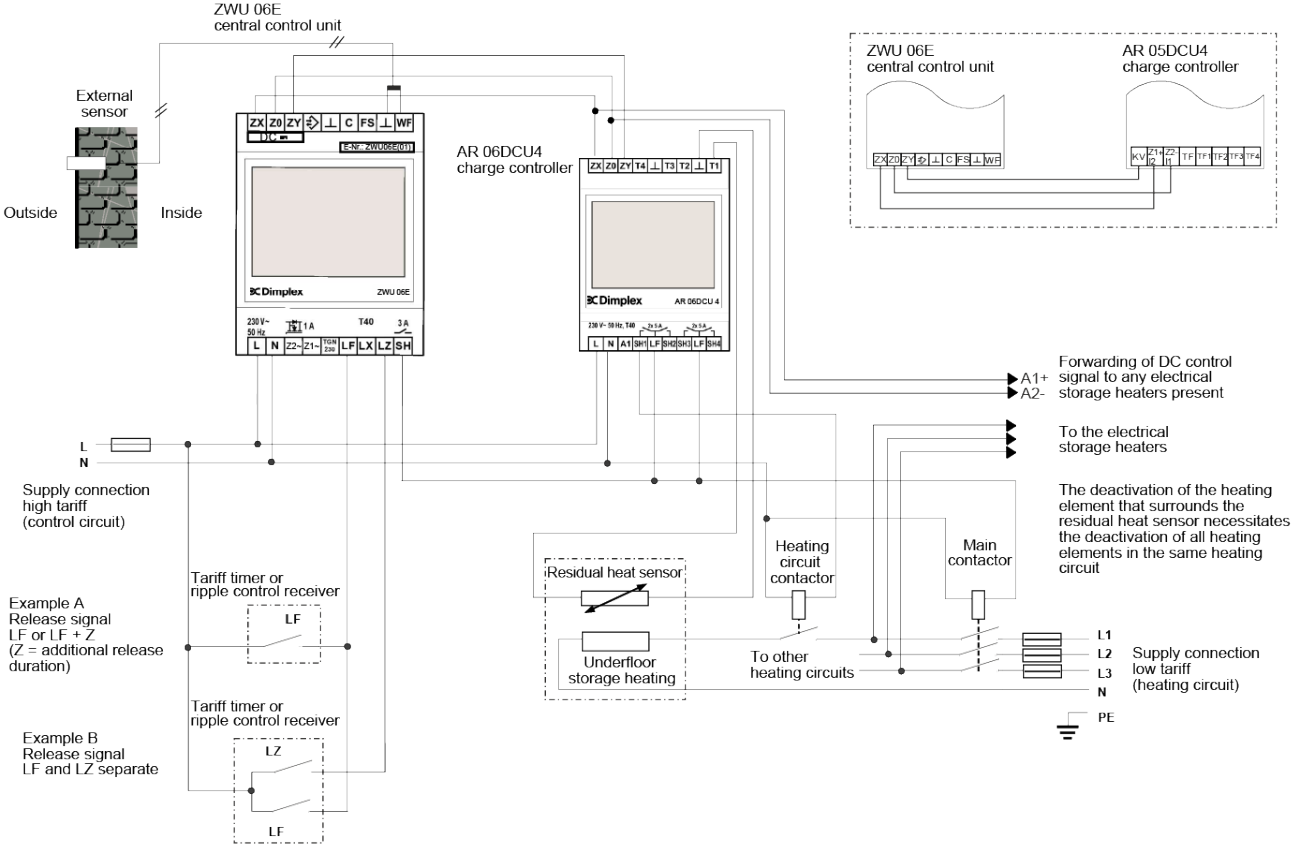
Circuit diagram for ZWU 06E to thermal storage unit with DC control signal



Circuit diagram for ZWU 06E to thermal storage unit with AC control signal



Circuit diagram for ZWU 06E to underfloor storage heating system



Commissioning

Overview of factory settings

	Level 2	Level 3	Level 4	Domestic control unit (ACU)	Classic central charge unit (CCU)
Menu – Operation	Operating mode			Automatic	Manual
	Heat level manual			3.0	3.0
	Active week program			1	Not present
	Week program			"-"	Not present
	Holiday program			"-"	Not present
Menu – Information	System state	Target charge rate acc. heat demand		%	0%
		Runtime		Not present	h
		Total release duration per day		0h	Not present
	Device data	Serial number		xxxxxx	xxxxxx
		Version		V x.xx Bxxxx	V x.xx Bxxxx
	Set passwords	Set level 1		0000	0000
		Set level 2		0000	0000
		Set level 3		0000	0000
Menu – Setup	Living comfort	Substitute temperature		5°C	5°C
		Runtime		Not present	22h
		Intensity daytime charge		Not present	90%
		Use of fan		As required	Not present
	Date/Time	Date/Time			Not present
		Type of summer time		Europe	Not present
	Language	Language		English	English
	Display	Contrast		0	0
		Brightness menu		70%	70%
		Brightness idle		0%	0%
Menu – Installer	Startup	Application range and charging		ACU intelligent	CCU classic
		Full charging (E1)		-12°C	-12°C
		Heat demand factor		100%	100%
		Sensor type		Dimplex standard sensor DIN	Dimplex standard sensor DIN
		Control model charge		Not present	Backward
		Runtime		Not present	22h
		System type		Preset with *Chng* and [**+/-**]	Preset with *Chng* and [**+/-**]
		Internet Gateway		No	Not present
		Date/Time		01.01.2001	Not present

Overview of factory settings

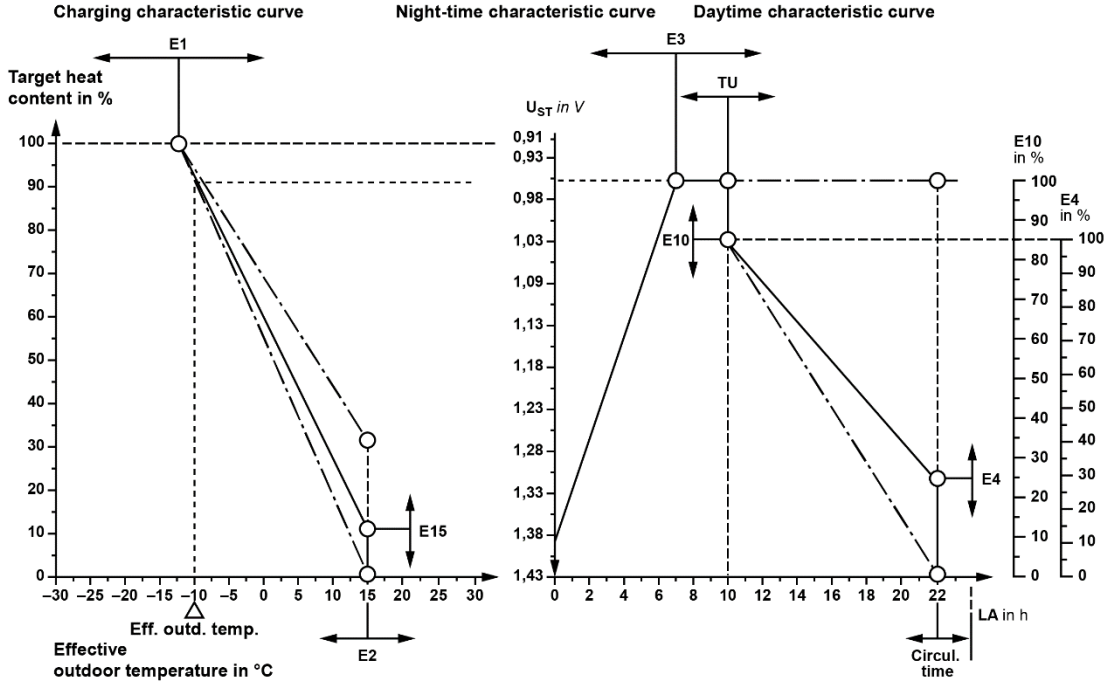
	Level 2	Level 3	Level 4	Domestic control unit (ACU)	Classic central charge unit (CCU)
Menu – Installer	Information	System	State calculation	Temp. Prognosis	Backward
			State output	Off as standard	Off as standard
			State signal output	Off	Off
			State SH output	Off	Off
			Heat demand reference (heat level 3.0)	43%	%
			Target charge rate acc. heat demand	46%	%
			Target charge rate output	0%	%
		Heat demand	State	Substitute value	Substitute value
			Outdoor temperature measured	…°C	…°C
			Outdoor temperature effective	5°C	5°C
		Charge release	State	Storage learning	L* signals
			Total release duration per day	0h	Not present
			State inputs	LF:0 LZ:0 LX:0 FS:0	LF:0 LZ:0 LX:0 FS:0
		Charging model	State throughout the day	Not present	Daytime/Nighttime charge
			Runtime	Not present	h
		Control system	Target charge rate output	%	%
			Supply voltage	230V	230V
			Duty cycle output (ED output)	100%	100%
			DC output	1.950 V	1.950 V
		Device data	Serial number	xxxxxx	xxxxxx
			Version	V x.xx Bxxxx	V x.xx Bxxxx
	Service	Restart	Restart device		
		Factory settings	Reset device		
	Detail settings	Application	Application range and charging	ACU intelligent	CCU classic
		System	Installation type	Storage device	Not present
			Charge time for 100% charge	8h	Not present
			Use of fan	As required	Not present
			Control model charge	Not present	Backward
			RT (temperature) reference frost protection	10°C	10°C
			RT (temperature) range for heat level 1.0 - 5.0	10K	10K
			Control model for SH contactor	SH charge	SH release

Overview of factory settings

	Level 2	Level 3	Level 4	Domestic control unit (ACU)	Classic central charge unit (CCU)
Menu – Installer	Detail settings	Heat demand	Sensor type	Dimplex standard sensor DIN	Dimplex standard sensor DIN
			Full charging (E1)	-12°C	-12°C
			Start of charging (E2)	18°C	18°C
			Base charge at start of charging (E15)	5%	5%
			Heat demand factor	100%	100%
			Building type: Structure and insulation	normal + normal	normal + normal
			Outside-temp. (OT) lower limit for blocking high tariff	Off	Off
			Substitute temperature	5°C	5°C
			Correction value for sensor	+0K	+0K
		Charge release	Start signal of clockwork (LL)	Not present	LF → LL
			Inhibit signal high tariff (HT)	Off	Off
		Charging model	Main charging time (E3)	Not present	7h
			Timer lock-in time (E11)	Not present	6h
			Cycle time (E13)	Not present	22h
			Daytime changeover (E12)	Not present	10h
			Daytime additional charge factor (E10)	Not present	90%
			Base charge at end of cycle time (E4)	Not present	25%
			Charge release monitoring (E14)	Not present	15h
			Forward control LF+LZ at daytime (VRT)	Not present	No
		Control system	Duty cycle (ED) system	80%	80%
			Controller type at duty cycle (ED) system	electronic	electronic
			Duty cycle (ED) system with 2% base signal	On	On
			DC system	ZX = Z1 (+); Z0 = Z2 (-); ZY = KV	ZX = Z1 (+); Z0 = Z2 (-); ZY = KV
			Invert DC-KU signal	Off	Off
		Options	Internet Gateway	No	Not present
			Sequencer	Off	Not present

Setting the charge control (with the system set to *CCU classic*)

The charge control must only be set by an experienced technician.



Temperature at external sensor	°C	20	16	12	8	4	0	-4	-8	-12	-16	-20
NTC external sensor (series)	kΩ	2.43	2.85	3.36	3.98	4.73	5.64	6.76	8.14	9.84	11.96	14.62
PTC external sensor (Bauknecht sensor)	Ω	700	692	684	676	668	660	652	644	636	628	620

During initial commissioning, the menu items under *Menu → Installer → Startup* will need to be set/confirmed in full as a one-off task. The following settings are generally sufficient to ensure the system runs correctly in accordance with the standard procedure. If special system functions are required, additional settings can be made in the menu branch *Installer → Detail settings*.

An individual password system with up to 3 levels can be set up in the menu branch *Information → Set passwords*.

For information about the user interface, see *User interface*.

Installer menu branch

Not all menu items will be relevant to and visible for each application. A (●) in the columns for the application indicates that they are visible:

- ACU intell Domestic control unit intelligent
- CCU class Charge control (central control unit) classic
- ACU class Domestic control unit classic
- ACU reduc Domestic control unit reduced

The individual menu items are explained in detail after the menu branch. Please see the references in the *Page* column in the table below.

Level 2	Level 3	Level 4	ACU intell (recommended)	CCU class (recommended)	ACU class	ACU reduc	Page
Startup	Application range and charging		●	●	●	●	19
	Full charging (E1)		●	●	●	●	19
	Heat demand factor		●	●	●	●	20
	Sensor type		●	●	●	●	20
	Control model charge		-	●	●	-	20
	Runtime		-	●	●	-	20
	System type		●	●	●	●	21
	Date/Time	Date/Time	●	-	●	●	21
		Type of summer time					21

Necessary commissioning steps

Menu – Installer	Startup	Application range and charging		ACU Intelligent	CCU Classic
		Full charging (E1)		-12°C	-12°C
		Heat demand factor		100%	100%
		Sensor type		Dimplex standard sensor DIN	Dimplex standard sensor DIN
		Control model charge		Not present	Backward
		Runtime		Not present	22h
		System type		Preset with *Chng* and [**+**/**-**]	Preset with *Chng* and [**+**/**-**]
		Internet Gateway		No	Not present
		Date/Time		01.01.2001	Not present

Menu → Installer → Startup

Setting for selecting the application = application range and charging model.

Application ranges:

- Central control unit CCU (without clock function)
- Domestic control unit ACU (with clock function)

Charging model:

- Classic: Charging model according to DIN EN 50350 as forward or backward control
- Intelligent: Self-learning charging model which can be used for almost all release models and adjusts the charge based on a forecast

Factory setting: ACU intelligent, adjustment range: CCU classic

Full charging (E1)

Menu → Installer → Startup

Outdoor temperature at which the heating system must operate at full power to reach the standard room temperature of 20°C (heat demand and set charge rate = 100%).

Factory setting: -12°C, adjustment range: -25°C to +15°C

Heat demand factor

Menu → Installer → Startup

Setting for selecting the heat demand, which the installer can use to adjust the charge intensity and general domestic heating performance to suit the structural features on site and the user's individual heat demand. The parameter should be set so that it reflects the user's desired living comfort at heat level **3.0**. The use of insulation will reduce the heat demand factor; if a higher room set temperature is always desired then the heat demand factor increases.

Factory setting: 100% (normal demand according to characteristic curve E1/E2), adjustment range: 30% to 200%

Sensor type

Menu → Installer → Startup

Setting for selecting the type of sensor for the outdoor temperature sensor. As a rough guide, three temperatures are additionally shown (20°C, 0°C and -15°C), as well as the corresponding resistance values for the temperatures (for example, 2k4 for short denoting 2.4 kΩ for a temperature of 20°C with the Dimplex standard sensor DIN).

Factory setting: Dimplex standard sensor DIN, adjustment range: for the available sensor types please see *Technical device information*, p. 4.

Control model for charging (only shown with the classic charging model)

Menu → Installer → Startup

Setting for selecting the charging model for the classic method according to DIN EN 50350, forward control (with and without timing) and backward control.

Factory setting: backward, adjustment range: forward without timing | forward with timing | backward

Runtime (only shown with the classic charging model)

Menu → Installer → Startup (only for classic applications)

Setting for selecting the runtime in hours once the main release starts, for starting up the classic charging models faster after a prolonged power cut. Enter the number of hours that have passed since the night-time release was last started here. Example: setting in the morning at 11:00 upon startup, night-time release at 22:00 → 13 hours).

Factory setting: 0 h, adjustment range: 0 h to 23 h

System type

Menu → Installer → Startup

This menu item can be used to set multiple parameters simultaneously to configure one of the typical system configurations for electric storage heating systems. The setting covers the system type (storage heaters, underfloor heating), if applicable the controller type in the storage heater (thermo-mechanical, electronic), and the type of control signal (duty cycle, DC) and its features.
All settings can also be made and changed individually in the menu item *Installer → Detail settings*.

Factory setting: preset with *Chng* and **[+/-]** (display of placeholder only), setting options (available types depending on the unit type):

- Thermo-mech. storage heaters duty cycle system 80%
- Thermo-mech. storage heaters duty cycle system 72%
- Thermo-mech. storage heaters duty cycle system 37%
- Electronic storage heaters duty cycle system 80%
- Electronic storage heaters duty cycle system 72%
- Electronic storage heaters duty cycle system 37%
- Electronic storage heaters DC Dimplex
- Underfloor heating DC Dimplex
- Underfloor heating DC tekmar
- Underfloor heating DC tekmar old
- Underfloor heating DC Dohrenbusch

Date/Time (only shown with the intelligent charging model)

Menu → Installer → Startup

Setting for selecting the current date and the time.

Type of summer time (only shown with the intelligent charging model)

Menu → Installer → Startup

Setting for selecting the automatic switching of summer time.

Factory setting: Europe, setting options: Off | Europe

Commissioning certificate

	Level 2	Level 3	Level 4	Domestic control unit (ACU) (factory setting)	Classic central charge unit (CCU)	Settings
Menu – Installer	Startup	Application range and charging		ACU intelligent	CCU classic	
		Full charging (E1)		-12°C	-12°C	
		Heat demand factor		100%	100%	
		Sensor type		Dimplex standard sensor DIN	Dimplex standard sensor DIN	
		Control model charge		Not present	Backward	
		Runtime		Not present	22h	
		System type		Preset with *Chng* and [**+/-**]	Preset with *Chng* and [**+/-**]	
		Internet Gateway		No	Not present	
		Date/Time		01.01.2001	Not present	
	Detail settings	Application	Application range and charging	ACU intelligent	CCU classic	
		System	Installation type	Storage device	Not present	
			Charge time for 100% charge	8h	Not present	
			Use of fan	As required	Not present	
			Control model charge	Not present	Backward	
			RT (temperature) reference frost protection	10°C	10°C	
			RT (temperature) range for heat level 1.0 - 5.0	10K	10K	
			Control model for SH contactor	SH charge	SH release	
		Heat demand	Sensor type	Dimplex standard sensor DIN	Dimplex standard sensor DIN	
			Full charging (E1)	-12°C	-12°C	
			Start of charging (E2)	18°C	18°C	
			Base charge at start of charging (E15)	5%	5%	
			Heat demand factor	100%	100%	
			Building type: Structure and insulation	normal + normal	normal + normal	
			Outside-temp. (OT) lower limit for blocking high tariff	Off	Off	
			Substitute temperature	5°C	5°C	
			Correction value for sensor	+0K	+0K	

Commissioning certificate

	Level 2	Level 3	Level 4	Domestic control unit (ACU) (factory setting)	Classic central charge unit (CCU)	Settings
Menu – Installer	Detail settings	Charge release	Start signal of clockwork (LL)	Not present	LF → LL	
			Inhibit signal high tariff (HT)	Off	Off	
		Charging model	Main charging time (E3)	Not present	7h	
			Timer lock-in time (E11)	Not present	6h	
			Cycle time (E13)	Not present	22h	
			Daytime changeover (E12)	Not present	10h	
			Daytime additional charge factor (E10)	Not present	90%	
			Base charge at end of cycle time (E4)	Not present	25%	
			Charge release monitoring (E14)	Not present	15h	
			Forward control LF+LZ at daytime (VRT)	Not present	No	
		Control system	Duty cycle (ED) system	80%	80%	
			Controller type at duty cycle (ED) system	electronic	electronic	
			Duty cycle (ED) system with 2% base signal	On	On	
			DC system	ZX = Z1 (+); Z0 = Z2 (-); ZY = KV	ZX = Z1 (+); Z0 = Z2 (-); ZY = KV	
			Invert DC-KU signal	Off	Off	
		Options	Internet Gateway	No	Not present	
			Sequencer	Off	Not present	

Operating instructions for users

General notes

For installation, operation and maintenance, please observe these installation and operating instructions. This unit should only be installed and repaired by a qualified technician. Repairs which are improperly carried out can significantly endanger the safety of the user. In compliance with the regulations of the VDE (German electrical engineering association), the installation and operating instructions must always be available and should be given to the technician working on the device for their information. We therefore request that these installation and usage instructions be passed on to the new tenant or owner should there be a change in occupancy.

This is how your heating system works

The local utility company makes electricity available for electrical heating purposes during periods in which other customers require little or no electricity – the so-called off-peak periods.

Utility companies offer electricity at discounted tariffs, with priority given to the night-time release period. In certain service areas, electricity for heating purposes is additionally available during the daytime – the so-called additional release period. For release and additional release periods, the tariff requirements can vary. Information can be obtained from your authorised electrician or local utility company.

The specified charging periods are generally released via a control device (ripple control receiver or timer) by the utility company. The ZWU 06E central control unit ensures the consumption-based charging of your storage heating system.

To ensure the utility company's technical connection requirements are met, your electrician will carry out the precise setting of all required values on the central control unit and if necessary on the charge controllers.

Central control and charge controller

The ZWU 06E central control unit measures the weather conditions, together with the building's inertia, via the external sensor located in the brickwork.

This reference variable is connected, with the various settings and the runtime, and depending on the signals of the control terminals, to the central control unit's output variable (set charge rate = control voltage). The control voltage is transferred to the electronic charge controller, which functions as the ON/OFF controller.

For underfloor storage heating systems, the controller set point is determined by the amount of applied control voltage and position of the intensity actuator "daytime" or "night-time" on the charge controller. The actual value of charging for any heating circuit is reported to the charge controller via the residual heat sensor in the insulating screed.

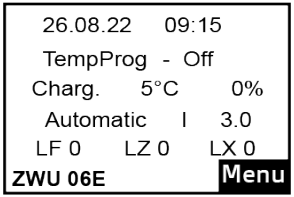
For storage heaters, the control set point depends on the applied control voltage and the configured charge intensity.

The actual value of charging is determined via the residual heat sensor by measuring the core temperature. The charge controller compares the set point with the actual value and, if necessary, switches on the charging until the required heat content is reached.

Setting the charge controller of an underfloor heater

Night-time charging and daytime charging can be corrected for each heating circuit via the charge controller. Night-time charging affects the room temperature during the early morning and late morning, whereas the daytime charging affects the room temperature in the afternoon. Setting information can be found in the corresponding operating manual.

User interface



After pressing the menu key, the user can operate the touchscreen with his finger by pressing the four function keys shown at the bottom of the screen. The rest of the screen does not have touch functionality. The list shows the possible functions assigned to the four keys.

Some input values can be entered using a keyboard. In this case, the touch functionality of the display is extended to all keys on the numeric keyboard.

Menu	Continue to menu
>>	Move one menu level further
<<	Move one menu level back
>	Continue (for selecting parameters that have several options)
<	Back (for selecting parameters that have several options)
🡻	Move down a row
🡹	Move up a row
+	Increase the value
-	Decrease the value
Chng	Change the entry
Save	Save the entry
Add	Add the entry
Del	Delete the entry
Edit	Edit the entry
Act	Activate the entry
Deact	Deactivate the entry
Esc	Cancel

If the menu does not receive a response to a data query, the string "~~~", rather than the parameter value, will be shown on the display.

User menu

The menu branches *Operation*, *Information* and *Setup* are intended for users. The *Operation* branch contains menu items for changes which affect the user's living comfort and may be used frequently. The *Information* branch provides information on the state of the heating system. The settings contain parameters which are required only rarely.

User menu branches

Not all menu items will be relevant to and visible for each unit type and setting. A (●) in the columns for the unit type indicates that they are visible. A (●) indicates that other settings influence whether the menu item is shown. The individual menu items are explained in detail after the overview. Please see the references in the *Page* column in the table below.

Level 1	Level 2	Level 3	CCU	ACU	Page
Operation	Operating mode		●	●	27
	Heat level manual		●	●	28
	Active week program		-	●	28
	Week program	Week progr. 1	-	●	29
		Week progr. 2			
		Week progr. 3			
		Week progr. 4			
	Holiday program	Start of holiday	-	●	31
		End of holiday			
		Heat level holiday			
Information	System state	Target charge rate acc. heat demand	●	●	32
		Runtime	●	(●)	32
		Total release duration per day	-	(●)	32
	Device data	Serial number	●	●	32
		Version	●	●	32
	Set passwords	Set level 1	●	●	32
		Set level 2	●	●	
		Set level 3	●	●	

Level 1	Level 2	Level 3	CCU	ACU	Page
Setup	Living comfort	Substitute temperature	●	●	33
		Runtime	●	(●)	33
		Intensity daytime charge	●	(●)	33
	Date/Time	Date/Time	-	●	33
		Type of summer time			34
	Language	Language	●	●	34
	Display	Contrast	●	●	34
		Brightness menu	●	●	34
		Brightness idle	●	●	34
Installer	Only for installers		●	●	-

Idle mode screen

Depending on how the control unit has been configured, the idle mode screen can show the following information:

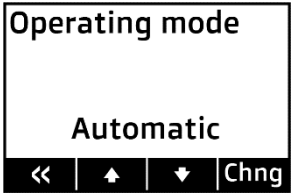
- Date and time*
- Current system state
- Charging: effective outdoor temperature, set charge rate
- Configured operating mode, effective heat level
- State of inputs LF (charge release), LZ (additional release) and LX (multi-function), if applicable with runtime in hours for forward control with timer function or backward control
- LG: charge rate, Fx: signal LF [0|1]
- Alternatively in the last row with an activated gateway:

* not when using ACU

Operation

Operating mode

The operating mode determines how the system works and can be set as desired by the user.



Setting the operating mode on the control unit:

1. Select *Menu* → *Operation* → *Operating mode*.
2. Press *Chng*.
3. Select the desired operating mode with the plus or minus key [**+**/**-**].
4. Press *Save*.
   → The new operating mode will be set.

The following operating modes are available:

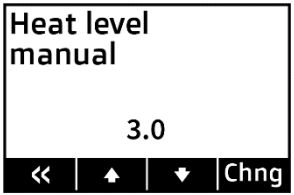
Standby: Frost protection function only
Manual: Heat level can be manually set on the control unit from **1.0** to **5.0** and frost protection
Automatic: The system automatically controls the heat level with a timer based on the active week program or holiday program (only for type ACU).

In the factory setting (operating mode "Automatic"), the system is charged with an intelligent charging model and a corresponding week program (factory setting is program **1** from 22:00 – 06:00 with heat level **1** and from 06:00 – 22:00 with heat level **3**). This ensures the heating performance is intelligently optimised with 8+0 or 8+2 hours, even in release periods, and that performance is reduced accordingly during the night.

Manual heat level

The heat level can be set between **1.0** and **5.0** or to frost protection. A regular, correctly tuned system set to a heat level of **3.0** will produce a set room temperature of 20°C.

Unless the parameters for the set room temperature are set differently by the installer, an integer difference (e.g. between **3.0** and **4.0**) in the heat level will correspond to a temperature difference of 2 K. A set room temperature of 10°C has been defined in the factory settings for the frost protection function.



Setting the heat level on the control unit:

1. Select *Menu* → *Operation* → *Heat level manual*.
2. Press *Chng*.
3. Select the desired heat level with the plus or minus key [**+**/**-**].
4. Press *Save*.
   → The new heat level will be set.

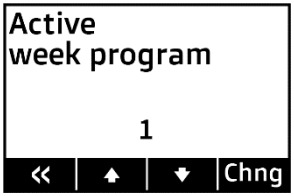
Active week program

For selecting the active week program to automatically set the heat level based on the time and the day of the week.

A week program (see table below) can be used to set which heat level should apply at which time during the week. Week program **1** has been defined as the factory setting. The four available week programs can be adjusted if required. The times can be changed in 15-minute increments.

A fully programmed entry consists of the following:

- Switching time: time at which the system should switch to the new operating mode (e.g. 06:00)
- Switching action: states the new heat level
- For day: states the days on which the entry should take effect (e.g. Mo, Tu, Th, Fr)



Selecting the active week program:

1. Select *Menu* → *Operation* → *Active week program*.
2. Press *Chng*.
3. Select the desired week program with the plus or minus key [**+**/**-**].
4. Press *Save*.
   → The new weekly program will be set.

Factory setting for the week programs:

Week program 1:	**Entry**	**Switching time**	**Heat level**	**For day**						
Family (heat level 3.0 during the day, heat level 1.0 at night, regardless of the day of the week)	1	06:00	3.0	Mo	Tu	We	Th	Fr	Sa	Su
	2	22:00	1.0	Mo	Tu	We	Th	Fr	Sa	Su
Week program 2:	**Entry**	**Switching time**	**Heat level**	**For day**						
Professionals (heat level 3.0 in the mornings and evenings, otherwise heat level 1.0, regardless of the day of the week)	1	06:00	3.0	Mo	Tu	We	Th	Fr	Sa	Su
	2	09:00	1.0	Mo	Tu	We	Th	Fr	Sa	Su
	3	15:00	3.0	Mo	Tu	We	Th	Fr	Sa	Su
	4	22:00	1.0	Mo	Tu	We	Th	Fr	Sa	Su
Week program 3:	**Entry**	**Switching time**	**Heat level**	**For day**						
Late risers (heat level 3.0 during the day, heat level 1.0 late in the evening, frost protection at night, at the weekend heat level 3.0 but not until 9:00)	1	05:00	1.0	Mo	Tu	We	Th	Fr	Sa	Su
	2	07:00	3.0	Mo	Tu	We	Th	Fr		
	3	09:00	3.0						Sa	Su
	4	22:00	1.0	Mo	Tu	We	Th	Fr		Su
	5	23:30	Frost protection	Mo	Tu	We	Th	Fr	Sa	Su
Week program 4:	**Entry**	**Switching time**	**Heat level**	**For day**						
Office (heat level 3.0 during the day during the week, heat level 1.0 at night and at the weekend)	1	07:00	3.0	Mo	Tu	We	Th	Fr		
	2	22:00	1.0	Mo	Tu	We	Th	Fr		

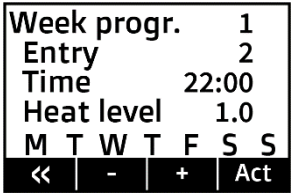
Week program

For individually changing the times for the heat level during the week.

A week program can be used to set which heat level should apply at which time during the week. Week program **1** has been defined as the factory setting. The four available week programs can be adjusted if required. The times can be changed in 15-minute increments.

A fully programmed entry consists of the following:

- Switching time: time at which the system should switch to the new operating mode (e.g. 06:00)
- Switching action: states the new heat level
- For day: states the days on which the entry should take effect (e.g. Mo, Tu, Th, Fr)



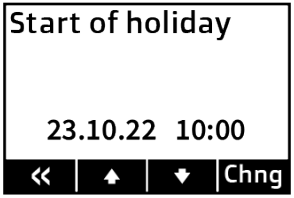
Selecting the week program:

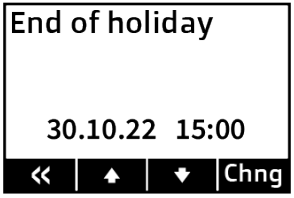
1. Select *Menu* → *Operation* → *Week program* → press >>.
2. Using the plus or minus key [**+**/**-**], select the week program that you wish to change.
3. Press >>.
4. Using the plus or minus key [**+**/**-**], select the entry that you wish to change, e.g. *Entry 2*.
5. Press *Act* to update the week program.
6. Press *Edit*.
7. Using the plus or minus key [**+**/**-**] and the arrow key [>], make your desired changes to the time and heat level → press >.
8. Using the plus or minus key [**+**/**-**] and the arrow key [>], make your desired changes to the days of the week. The plus key [**+**] activates the switching point on the day in question (the starting letter of the day of the week is displayed). The minus key [**-**] deactivates the switching point on the day in question ("–" is shown instead of the letter)
9. After setting the seventh day (Sunday), press *Save*.
   → The changes to the week program will be set.

To add a new entry to a week program, select *Add* at point 6 in the list above.
To delete an entry from a week program, select *Del* here.
Points 7 and 8 from the list above are carried out in the same way.

Holiday program

The holiday program can be used to adjust the heat level for periods when the user will be absent. The start and end of the holiday period and the desired heat level need to be set.





Setting the holiday program on the control unit:

1. Select *Menu* → *Operation* → *Holiday program*.
2. The *Start of holiday* screen appears.
3. Press *Chng*.
4. Using the plus or minus key [**+**/**-**] and the arrow key [>], set the desired start point.
5. Press *Save*.
6. Press the down arrow 🡻.
   → The *End of holiday* screen appears.
7. Press *Chng*.
8. Using the plus or minus key [**+**/**-**] and the arrow key [>], set the desired end point.
9. Press *Save*.
10. Press the down arrow 🡻.
    → The *Heat level holiday* screen appears.
11. Press *Chng*.
12. Using the plus or minus key [**+**/**-**], set the desired control mode during the holiday period.
13. Press *Save*.
    → The holiday program has now been activated automatically. The desired operating mode will be switched on at the set start time, and switched back off at the set end time.

If you wish to delete a configured holiday program or end it early, set the end time to a time in the past.

The holiday program takes priority over the active week program, i.e. it overrides the current week program.
Once the holiday period has elapsed, the week program that was being used before is reactivated.

Information

Target charge rate acc. heat demand

Menu → Information → System state

Displays the internally calculated target charge rate based on the heating characteristic curve, heat demand factor, heat level that is currently set, and any control value that may have been stipulated by the energy supplier in the schedule. (For the output target charge rate, please see the display on the idle mode screen)

Runtime (only shown with the classic charging model)

Menu → Information → System state

Displays the hours that have passed in the classic charging models of forward/backward control since the start of the night-time charge release.

Total release duration per day (only shown with the intelligent charging model)

Menu → Information → System state

Displays the total number of hours that the release memory of the intelligent charge model has recorded as the release period over the past 24 hours.

Serial number

Menu → Information → Device data

Displays the ten-digit serial number of the control unit.

Version

Menu → Information → Device data

Displays the software version and build number (four digits) of the software.

Set passwords

Menu → Information → Set passwords

For setting passwords for individual menu areas.

Setup

Substitute temperature

Menu → Setup → Living comfort

Setting for selecting the outdoor temperature for the target charge rate in the event of a faulty external sensor. This setting enables the system's heat demand to be controlled manually if the external sensor fails.

Factory setting: automatic if the outdoor temperature is available, adjustment range: -25°C to +25°C

Runtime (only shown with the classic charging model)

Menu → Setup → Living comfort

Setting for selecting the runtime in hours once the main release starts, for starting up the classic charging models faster after a prolonged power cut. Enter the number of hours that have passed since the night-time release was last started here.
Example: setting in the morning at 11:00 upon startup, night-time release at 22:00 → 13 hours.

Factory setting: automatic, adjustment range: 0 h to 23 h

Intensity daytime charge (only shown with the classic charging model)

Menu → Setup → Living comfort

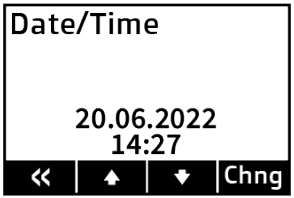
Setting for selecting the intensity of the daytime post-charging with the classic charging models; forward control with timer function and backward control.

Factory setting: 90%, adjustment range: 0 % to 100 %

Date/Time (only shown with the intelligent charging model)

Menu → Setup → Date/Time

The time is used to control the operating modes and week programs based on a schedule.



Setting the date/time on the control unit:

1. Select *Menu → Setup → Date/Time*.
2. Press *Chng*.
3. Using the arrow keys [</>], select the desired parameters one after the other until they flash, meaning they are active. Then change them using the plus or minus key [**+**/**-**].
4. Press *Save*.
   → The time and the date will be set.

If the device is being put into operation for the first time, or if it has been disconnected from the power supply for a relatively long time, it is **essential** to check that the date and time have been set correctly. (Brief power cuts lasting up to one day are covered by the power reserve)

Type of summer time (only shown with the intelligent charging model)

Menu → Setup → Date/Time

Setting for selecting the automatic switching of summer time.

Factory setting: Europe, setting options: Off | Europe

Language

Menu → Setup → Language

Setting for selecting the menu language.

Factory setting: German, setting options: German | English

Contrast

Menu → Setup → Display

Setting for selecting the display contrast.

Brightness menu

Menu → Setup → Display

Setting for selecting the display brightness when the menu is shown.

Brightness idle

Menu → Setup → Display

Setting for selecting the display brightness in idle mode.

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