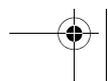
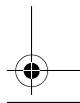
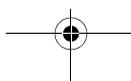
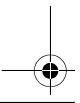


## Operating manual

# CETA 104

Heating circuit controller with burner control and DHW charging control

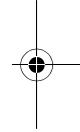
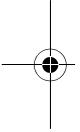
Version 0933-10  
Art. 0450021002





## Contents

|                                      |    |
|--------------------------------------|----|
| Scope of delivery .....              | 1  |
| General .....                        | 1  |
| Intended use .....                   | 1  |
| Safety .....                         | 1  |
| General key functions .....          | 2  |
| Version display (when starting)..... | 2  |
| Basic display .....                  | 3  |
| Functions with direct access .....   | 4  |
| Menu level .....                     | 5  |
| Parameter description .....          | 8  |
| Installation .....                   | 21 |
| Connection diagram .....             | 22 |
| Fault clearance .....                | 23 |
| Sensor resistance values .....       | 24 |
| Declaration of conformity .....      | 25 |
| Technical data .....                 | 26 |
| Liability .....                      | 26 |
| Disposal .....                       | 26 |

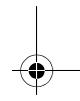
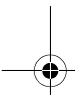


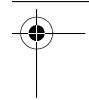
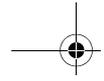
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D-57299 Burbach

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## Scope of delivery

1. 1x Central unit CETA 104
2. 1x Outside sensor AF200
3. 1x Boiler immersion sensor  
KVT 20/2/6
4. 1x Tank immersion sensor  
KVT 20/2/6
5. 8x Screw, plate 2.9x19 mm
6. 3x Screw assembly 4x35 mm
7. 3x Plug U6
8. 2 x Cable clamp

## General

Systems with unmixed heating circuit are controlled via the heating circuit controller. Required heating circuit temperature is determined in the flow, depending on outside temperature.

The burner control adjusts the heat generator temperature via a switching contact at the boiler immersion sensor.

The DHW control is accessing a DHW charging pump and controls the DHW requirement in a DHW tank at the tank immersion sensor.

## Intended use

The unit is manufactured in accordance with state of the art technology and approved safety regulations. Nevertheless, using the unit can cause danger to the user or third persons, or damage to the unit and other assets. The unit must be used exclusively as heating circuit controller with burner control and DHW charging control.

## Safety

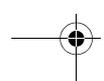
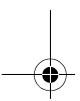
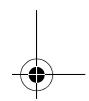
All electrical connections, safety measures and protections have to be carried out by an authorised professional electrician according to the valid standards and VDE-guidelines, as well as the local regulations. The electrical connection must be a fixed connection according to VDE 0100.

## Hazard symbols in this operating manual



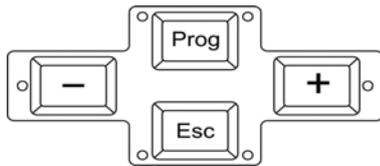
### **Hazard!**

***This symbol indicates information that warns of possible safety risks or severe and fatal injuries!***



## General key functions

### 1. General key functions



#### Prog

- Change selected submenus
- Change (parameter) setting
- Save value

#### + (Plus) or - (Minus)

- Change parameter
- Change menu item

#### Esc

- Exit setting
- Keep old value
- Select next higher menu level

#### Esc-Lang

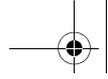
- Return to basic display

### 2. Version display (when starting)



c 104= Type designation Ceta 104

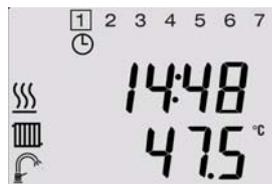
1.5= Version display (due to update it can differ from example shown)



Basic display



### 3. Basic display



Display weekday

14:48

Display time

47.5°C

Temperature F1 heat generator

#### Explanation of symbols



Display heat generator in operation



Display pump function heating circuit



Display pump function tank loading



Automatic mode heating circuit after timer program I or II



Heating mode heating circuit  
(Operating mode AUTOMATIC or HEATING)



Reduced mode heating circuit  
(Operating mode AUTOMATIC or RED. HEATING)



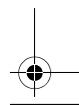
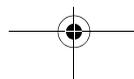
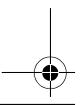
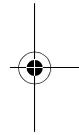
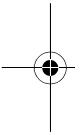
Standby heating circuit



Summer switch-off heating circuit



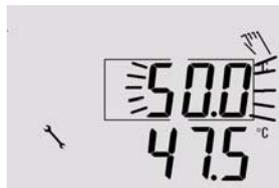
Frost protection heating circuit



## Functions with direct access

### 4. Functions with direct access

#### Manual operation



Controller is in manual mode

- Activate by pressing and holding button 
- Change heat generator setpoint via buttons  and 
- end function by pressing button 

Function: Manual operation allows manual start-up of the system, e.g. to perform emission measurement.

The heat generator adjusts the temperature to the set value

- The heating circuit pump runs continuously
- The DHW charging pump runs continuously



**Caution!**

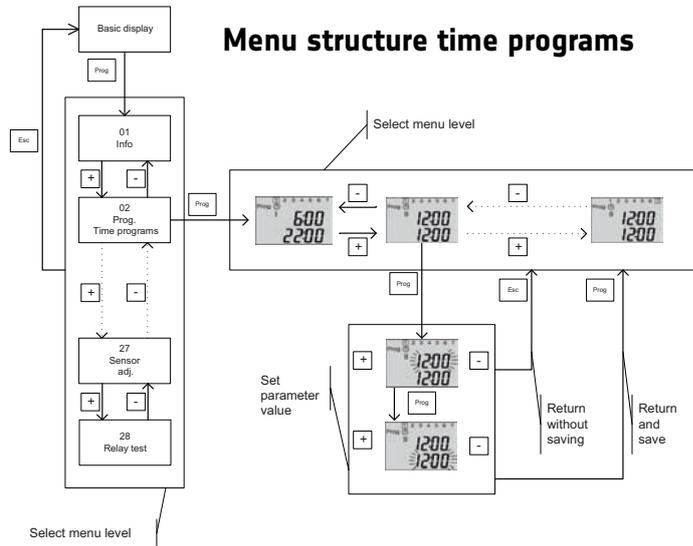
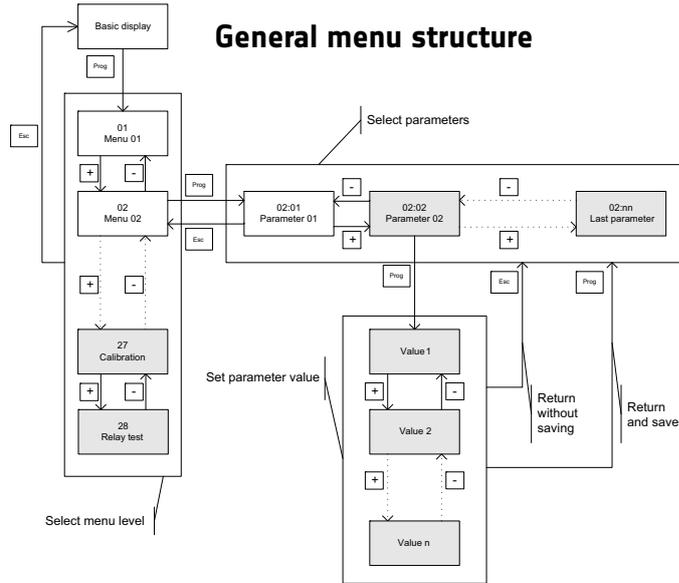
***This function shall only be used by an authorised professional. Heating circuit temperatures are not monitored during measurement of emission. Faulty operation or unsupervised operation of this function may result in damages to the heating system.***

#### Adjustment room setpoint

Press buttons  and  in the basic display to directly set room day temperature. Such a variation changes the parameter 06:02 [see parameter description].

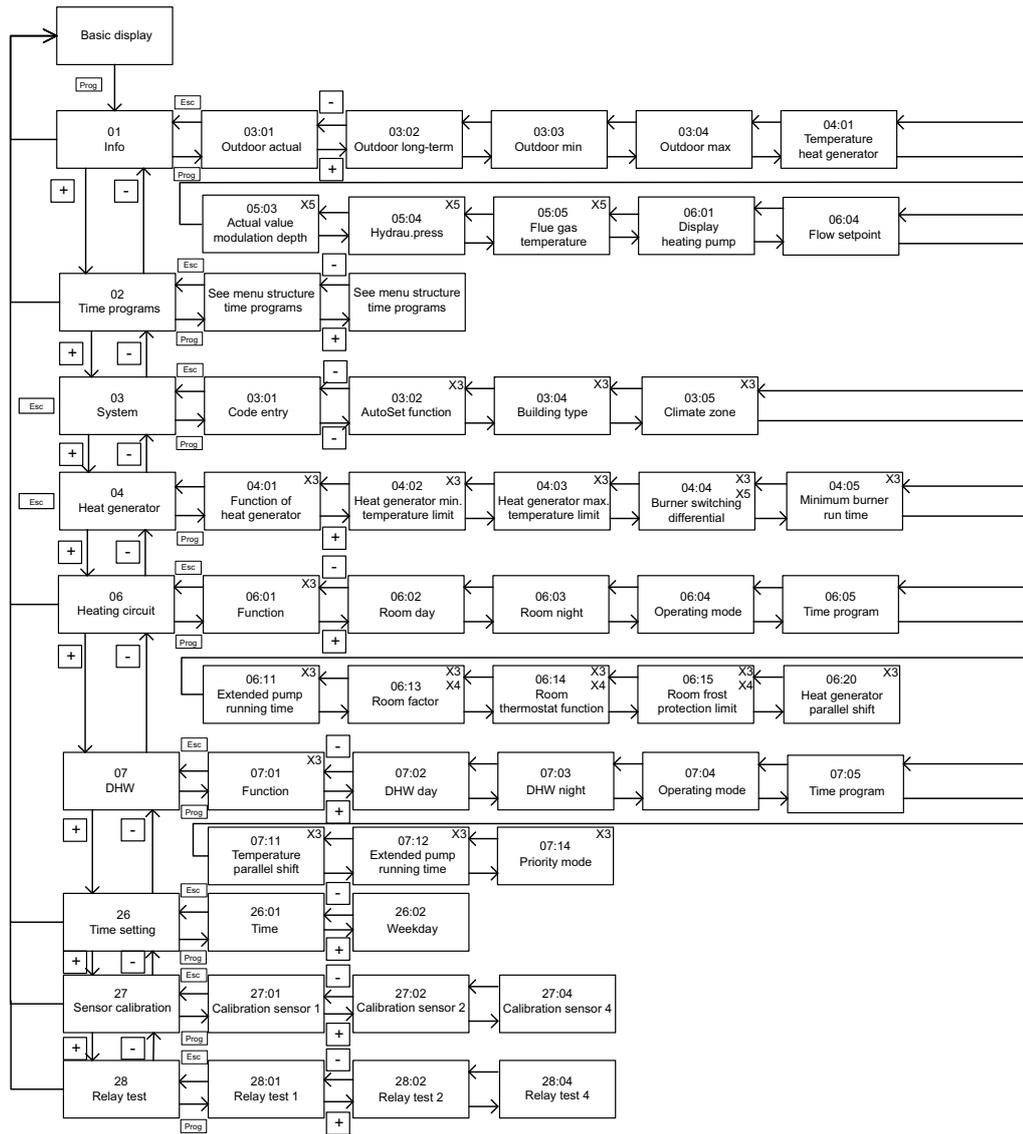
## Menu level

### 5. Menu level

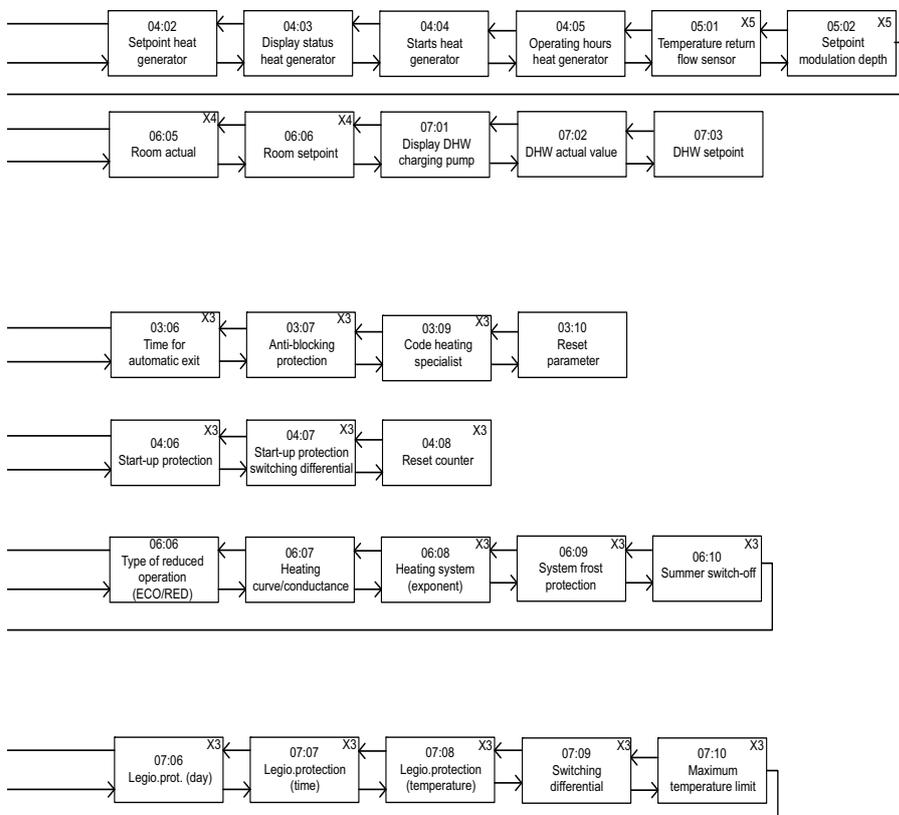


Menu level

Overview of menu level



Menu level



X2: Function only in bus connection

X3: Are hidden when activating code 03:09

X4: Only when connecting CETA RC

X5: Only in conjunction with heat generator connection via OpenTherm, and when supported by heat generator

## Parameter description

**6. Parameter description****01 Information level**

| Display | Designation                    | Description                                                                                                                      |    |
|---------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------|----|
| 03:01   | Outdoor actual                 | Current outside temperature                                                                                                      |    |
| 03:02   | Outdoor long-term              | Average long-term value of outside temperature. Depending on set building type (03:04), the value is averaged longer or shorter. |    |
| 03:03   | Outdoor min                    | Minimum outside temperature value (0.00 to 24.00 h)                                                                              |    |
| 03:04   | Outdoor max                    | Maximum outside temperature value (0.00 to 24.00 h)                                                                              |    |
| 04:01   | Temperature heat generator     | Actual temperature on heat generator sensor                                                                                      |    |
| 04:02   | Setpoint heat generator        | Setpoint temperature for heat generator                                                                                          |    |
| 04:03   | Display status heat generator  | 0: Heat generator outlet is switched off<br>1: Heat generator outlet is switched on                                              |    |
| 04:04   | Starts Heat generator          | Number of heat generator starts                                                                                                  |    |
| 04:05   | Operating hours Heat generator | Number of heat generator operating hours                                                                                         |    |
| 05:01   | Temperature Return flow sensor | Actual temperature heat generator return                                                                                         | X5 |
| 05:02   | Setpoint Modulation depth      | Setpoint heat generator-modulation depth (only if system contains information)                                                   | X5 |
| 05:03   | Actual value Modulation depth  | Actual value heat generator-modulation depth (only if system contains information)                                               | X5 |
| 05:04   | Hydrau.press                   | Water pressure in heating system in bar (only if system contains information)                                                    | X5 |
| 05:05   | Flue gas temperature           | Flue gas temperature of heat generator (only if system contains information)                                                     | X5 |
| 06:01   | Display heating circuit pump   | 0: Heating circuit pump is switched off<br>1: Heating circuit pump is switched on                                                |    |
| 06:04   | Flow heating circuit setpoint  | Flow setpoint temperature for heating circuit                                                                                    |    |
| 06:05   | Room actual                    | Actual temperature in room                                                                                                       | X4 |
| 06:06   | Room setpoint                  | Room setpoint temperature for heating circuit                                                                                    |    |
| 07:01   | Display DHW charging pump      | 0: Pump is switched off<br>1: Pump is switched on                                                                                |    |

## Parameter description

| Display | Designation      | Description                                                                                          |
|---------|------------------|------------------------------------------------------------------------------------------------------|
| 07:02   | DHW actual value | Sensor mode: Actual temperature on DHW sensor<br>Thermostat mode: 0 = Input open<br>1 = Input closed |
| 07:03   | DHW setpoint     | Setpoint temperature for DHW tank                                                                    |

## 02 Time programs

| Weekday | Cycle of operation | Switch-on time | Switch-off time |
|---------|--------------------|----------------|-----------------|
| 1       | I                  | 06:00          | 22:00           |
| 1       | II                 | 12:00          | 12:00           |
| 2       | I                  | 06:00          | 22:00           |
| 2       | II                 | 12:00          | 12:00           |
| 3       | I                  | 06:00          | 22:00           |
| 3       | II                 | 12:00          | 12:00           |
| 4       | I                  | 06:00          | 22:00           |
| 4       | II                 | 12:00          | 12:00           |
| 5       | I                  | 06:00          | 22:00           |
| 5       | II                 | 12:00          | 12:00           |
| 6       | I                  | 06:00          | 22:00           |
| 6       | II                 | 12:00          | 12:00           |
| 7       | I                  | 06:00          | 22:00           |
| 7       | II                 | 12:00          | 12:00           |

Note: When switch-on and switch-off time are the same, cycle of operation is switched off.

## Parameter description

**03 Parameter system**

| Display | Designation              | Description                                                                                                                                                                                                                                                                                                                                             |
|---------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 03:01   | Code entry               | Setting range: 0 ... 999<br>Factory setting: 0<br>Function:<br>Show parameters marked with X3.                                                                                                                                                                                                                                                          |
| 03:02   | Automatic set function   | 0=OFF, no automatic sensor detection X3<br>1=ON, automatic sensor detection                                                                                                                                                                                                                                                                             |
| 03:04   | Building type            | Setting range: 1: Light construction (mean value over 6 X3 hours)<br>2: Medium construction (mean value over 24 hours)<br>3: Heavy construction (mean value over 72 hours)<br>Factory setting: 2<br>Function:<br>This parameter considers the building type by adapting the calculation of the outside temperature mean value according to its setting. |
| 03:05   | Climate zone             | Setting range: -50 °C ... 0 °C X3<br>Factory setting: -12 °C<br>Function:<br>The climate zone is the coldest outside temperature value to be expected.                                                                                                                                                                                                  |
| 03:06   | Automatic exit time      | Setting range: 0.5 ... 10 Min X3<br>Factory setting: 2 min<br>Function:<br>When unit is not operated during the set time, the display returns to basic display.                                                                                                                                                                                         |
| 03:07   | Anti-blocking protection | Setting range: 0 = OFF X3<br>1 = ON<br>Factory setting: OFF<br>Function:<br>With this function activated, pump is switched on daily for ca. 20 seconds as protection against blocking during extended switch-off phases (> 24h).                                                                                                                        |
| 03:09   | Code heating specialist  | Setting range: 0 ... 999<br>Factory setting: 0<br>Function when setting is greater than 0:<br>Hide parameters marked with X3.                                                                                                                                                                                                                           |
| 03:10   | Total reset              | Reset to factory settings                                                                                                                                                                                                                                                                                                                               |

Parameter description

**04 Parameters heat generator**

| Display | Designation                          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 04:01   | Function of heat generator           | Setting range: 0 = OFF X3<br>1 = H-GEN single stage<br>2 = H-GEN OpenTherm<br>Factory setting: 1<br>Function:<br>0: Control of a single-stage heat generator via a relay output<br>1: Control of a heat generator with standardised OpenTherm interface via setpoint transfer<br>Note: only possible if OpenTherm logo is available on CETA 104                                                                                                                                                                                                                                                                                                                                                                       |
| 04:02   | Minimum temperature limit H-GEN*     | Setting range: 5 °C ... 95 °C X3<br>Factory setting: 38 °C<br>Function:<br>To protect the heat generator against aggressive condensate, the minimum temperature limit specified by the manufacturer of the heat generator must be set. <ul style="list-style-type: none"> <li>Forced switch-on of DHW when value drops below limit</li> <li>Switch-off DHW at set value + burner switching differential</li> </ul> If there is no demand from heating system or DHW, the boiler will be switched off. If the temperature in the heat generator drops below the heat generator frost protection temperature of +5°C, the burner will be switched on and the heat generator is heated to the minimum temperature limit. |
| 04:03   | Maximum temperature limit H-GEN*     | Setting range: 5 °C ... 100 °C X3<br>Factory setting: 95 °C<br>Function: <ul style="list-style-type: none"> <li>Forced switch-off of DHW when value is exceeded</li> <li>H-GEN is switched on again at set value - 1/2SD - 2K</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 04:04   | Burner switching differential (SD) * | Setting range: 2...30K X3, X5<br>Factory setting: 6K<br>Function:<br>On multiple stage heat generators, the setpoint on heat generator sensor is controlled by the burner switching differential. <ul style="list-style-type: none"> <li>Switch-on of heat generator at setpoint temperature - 1/2 SD</li> <li>Switch-off of heat generator at setpoint temperature + 1/2 SD</li> </ul>                                                                                                                                                                                                                                                                                                                               |

\*  ***This function shall only be used by an authorised professional. Incorrect settings can result in system damages.***

## Parameter description

| Display | Designation                                | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 04:05   | Minimum burner run time                    | Setting range: 0...20 Min X3<br>Factory setting: 2 min<br>Function:<br>After starting the heat generator, at least the set time must lapse before the heat generator is deactivated again.<br>Note: The maximum temperature limit takes priority over this function.                                                                                                                                                                                                                                             |
| 04:06   | Start-up protection                        | Setting range: 5...95 °C X3<br>Factory setting: 36 °C<br>Function:<br>Start-up protection of heating circuits helps in preventing condensate discharge when heating up in cold condition. <ul style="list-style-type: none"> <li>Switch-off of heating circuits (unmixed circuits, mixed circuits, DHW loading) when heat generator temperature drops below the value</li> <li>Heating circuits are enabled when heat generator temperature exceeds the value + start-up prot.switching differential.</li> </ul> |
| 04:07   | Start-up protection switching differential | Setting range: 2...20K X3<br>Factory setting: 4K<br>Function:<br>See description of parameter 04:06.                                                                                                                                                                                                                                                                                                                                                                                                             |
| 04:08   | Reset counter                              | Reset counter of heat generator starts and operating hours                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

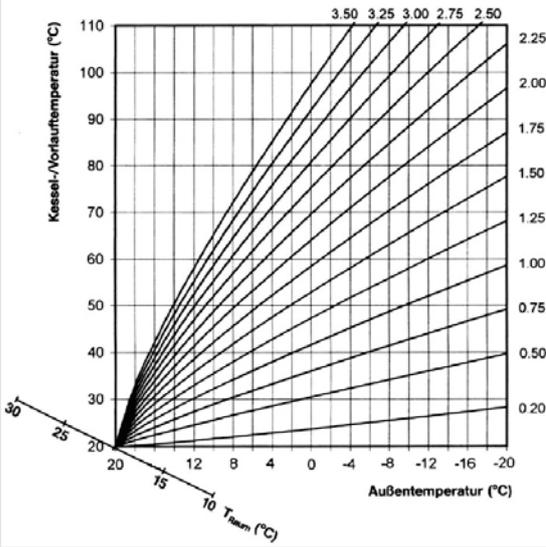
## 06 Parameter heating circuit

| Display | Designation | Description                                                                                                                                                                                   |
|---------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 06:01   | Function    | Setting range: 0=OFF<br>1=Unmixed circuit<br>Factory setting: 1                                                                                                                               |
| 06:02   | Room day    | Setting range: 5 ... 30 °C<br>Factory setting: 20 °C<br>Function:<br>The set temperature is the room setpoint during active cycles of operation in AUTOMATIC mode and during HEATING mode.    |
| 06:03   | Room night  | Setting range: 5 ... 30 °C<br>Factory setting: 16 °C<br>Function:<br>The set temperature is the room setpoint between the cycles of operation in AUTOMATIC mode and during RED. HEATING mode. |

Parameter description

| Display | Designation                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 06:04   | Operating mode                      | <p>Setting range: 1: Automatic<br/>2: Heating<br/>3: Red. heating<br/>4: Standby</p> <p>Factory setting: 1</p> <p>Function:</p> <p>Automatic: Heating circuit operates in Heating or Red. heating mode according to the time program assigned under 06:05</p> <p>Heating: Heating circuit operates continuously according to set room day temp. (06:02)</p> <p>Red. heating: Heating circuit operates continuously according to set room night temperature (06:03) under consideration of 06:06</p> <p>Standby: Frost-protected switch-off of heating circuit</p> |
| 06:05   | Time program                        | <p>Setting range: 1: Time program 1<br/>2: Time program 2<br/>3: Time program 1 and 2</p> <p>Factory setting: 1</p> <p>Function:</p> <p>Depending on the setting, the heating circuit operates according to time program 1, 2 or both, as set in menutree 02 (time programs).</p>                                                                                                                                                                                                                                                                                 |
| 06:06   | Type of reduced operation (ECO/RED) | <p>Setting range: 0: ECO<br/>1: RED</p> <p>Factory setting: 0</p> <p>Function:</p> <p>The settings are effective in Reduced operating mode.</p> <p>ECO: Frost-protected switch-off mode</p> <p>RED: Reduced mode</p>                                                                                                                                                                                                                                                                                                                                              |

Parameter description

| Display | Designation                   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 06:07   | Heating curve/<br>conductance | <p>Setting range: 0.05 ... 3.50<br/>                     Factory setting: 1.50<br/>                     Function:<br/>                     Determines the heating curve for the heating circuit.</p>                                                                                                                                                                                                                                                             |
| 06:08   | Heating system<br>(exponent)  | <p>Setting range: 1.00...10.00 X3<br/>                     Factory setting: 1.30<br/>                     Function:<br/>                     Curvature of heating circuit's heating curve.<br/>                     Recommendation: 1.10: Floor or other<br/>                     panel heating systems<br/>                     1.30: Radiator heating<br/>                     2.00: Convector and baseboard heating<br/>                     &gt;3.00: General ventilator applications with<br/>                     high start temperatures</p> |
| 06:09   | Frost protection              | <p>Setting range: OFF [----] X3<br/>                     -50 °C ... +10 °C<br/>                     Factory setting: 3 °C<br/>                     Function:<br/>                     To keep the heating system from freezing in switch-off mode, the<br/>                     controller is equipped with electronic frost protection.<br/>                     Caution: Faulty operation can result in damages to building!</p>                                                                                                                  |

## Parameter description

| Display | Designation                   | Description                                                                                                                                                                                                                                                                                            |
|---------|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 06:10   | Summer switch-off             | Setting range: OFF [---] X3<br>10 °C ... 30 °C<br>Factory setting: 20 °C<br>Function:<br>Switch-off of heating operation at outside temperatures above the desired outside temperature.                                                                                                                |
| 06:11   | Extended pump running time    | Setting range: 0.0...60.0 Min X3<br>Factory setting: 5 min<br>Function:<br>This function determines extended run time of heating circuit pump after heating circuit is switched off by time programs.                                                                                                  |
| 06:13   | Room factor                   | Setting range: 0...500% X3, X4<br>Factory setting: 100%<br>Function:<br>This function determines to what extent a deviation of the room temperature from the setpoint affects the control of boiler flow temperature.<br>Corrected room setpoint = set room setpoint - (deviation x room factor) / 100 |
| 06:14   | Room thermostat function      | Setting range: Off [---] X3, X4<br>0.5 ... 5K<br>Factory setting: Off [---]<br>Function:<br>This function determines a room temperature limit; if limit is exceeded, heating is turned off.                                                                                                            |
| 06:15   | Room frost protection limit   | Setting range: 5...30 °C X3, X4<br>Factory setting: 10 °C<br>Function:<br>This function determines the room setpoint of the corresponding heating circuit during switch-off mode with frost protection activated.                                                                                      |
| 06:20   | Heat generator parallel shift | Setting range: 0...20K X3<br>Factory setting: 0K<br>Function:<br>The demand value of the heating circuit, plus the shift value, is transmitted to the heat generator.                                                                                                                                  |

## Parameter description

**07 DHW parameters**

| Display | Designation | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 07:01   | Function    | <p>Setting range: 0 = OFF<br/>1 = Sensor mode<br/>2 = Thermostat mode<br/>3 = Automatic mode DHW</p> <p>Factory setting: 1</p> <p>Function:</p> <p>Sensor mode: Control via temperature sensor in domestic hot water tank</p> <p>Thermostat mode: Alternatively, DHW heating can also be controlled via a mechanical temperature controller (thermostat switching contact) In this case a DHW thermostat is connected instead of a DHW sensor and set to the desired DHW setpoint. If the contact is closed, DHW loading takes place at the set DHW maximum temperature until the contact is opened again.</p> |
| 07:02   | DHW day     | <p>Setting range: 5 ... 65 °C</p> <p>Factory setting: 50 °C</p> <p>Function:</p> <p>The set temperature is the DHW setpoint during active cycles of operation in AUTOMATIC mode and during HEATING mode.</p>                                                                                                                                                                                                                                                                                                                                                                                                   |
| 07:03   | DHW night   | <p>Setting range: 5 ... 65 °C</p> <p>Factory setting: 20 °C</p> <p>Function:</p> <p>The set temperature is the DHW setpoint between the cycles of operation in AUTOMATIC mode and during RED. HEATING mode.</p>                                                                                                                                                                                                                                                                                                                                                                                                |

Parameter description

| Display | Designation                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 07:04   | Operating mode              | <p>Setting range: 1: Automatic<br/>2: Heating<br/>3: Red. heating<br/>4: Standby</p> <p>Factory setting: 1</p> <p>Function:</p> <p>Automatic: DHW operates in Heating or Red. heating mode according to the time program assigned under 07:05</p> <p>Heating: DHW operates continuously according to set DHW day temperature (07:02)</p> <p>Red. heating: DHW operates continuously according to set room night temp. (07:03)</p> <p>Standby: Frost-protected switch-off of DHW</p>                                                                              |
| 07:05   | Time program                | <p>Setting range: 1: Time program 1<br/>2: Time program 2<br/>3: Time program 1 and 2</p> <p>Factory setting: 1</p> <p>Function:</p> <p>Depending on the setting, DHW operates according to time program 1, 2 or both, as set in menu tree 02 (time programs).</p>                                                                                                                                                                                                                                                                                               |
| 07:06   | Legionella protection (day) | <p>Setting range: 0: OFF X3<br/>1 ... 7: Monday ... Sunday<br/>8: All</p> <p>Factory setting: 1</p> <p>Function:</p> <p>A legionella protection function can be activated to eliminate the legionella germs in the tank. In order to completely kill all germs, the Legionella protection temperature should be set at least at 60-65 °C. The legionella protection function is activated for 1 hour.</p> <p>OFF: Function is not active</p> <p>1 ... 7: Function is performed once a week on the set weekday</p> <p>All: Function is performed each weekday</p> |

## Parameter description

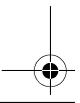
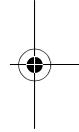
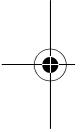
| Display | Designation                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 07:07   | Legionella protection (time)        | Setting range: 00:00 ... 23:00 o'clock X3<br>Factory setting: 02:00 o'clock<br>Function:<br>This value is used to set the time at which the legionella protection function is to be started on the set weekday (see 07:06).                                                                                                                                                                                                                                 |
| 07:08   | Legionella Protection (temperature) | Setting range: 10...65 °C X3<br>Factory setting: 60 °C<br>Function:<br>This value is used to specify setpoint temperature for legionella protection function (see 07:06).                                                                                                                                                                                                                                                                                   |
| 07:09   | Switching differential              | Setting range: 2 ... 20K X3<br>Factory setting: 5K<br>Function:<br>To prevent frequent loading of the DHW tank, the DHW setpoint temperature is adjusted under consideration of a switching differential. <ul style="list-style-type: none"> <li>• Activation of DHW loading at setpoint temperature – 1/2 switching differential</li> <li>• Termination of DHW loading at setpoint temperature + 1/2 switching differential</li> </ul>                     |
| 07:10   | Maximum temperature limit           | Setting range: 20 ... 80 °C X3<br>Factory setting: 65 °C<br>Function:<br>This function serves as protection of the DHW tank. Irrespective of parameter settings 07:02, 07:03 and 07:08, at most the set value will be adjusted.<br>If exceeded, the charging pump is switched off immediately.<br><b>ATTENTION:</b> Observe operating instructions of DHW tank before making any changes. Excessive maximum temperatures can result in damages on DHW tank. |
| 07:11   | Exceeded load temperature           | Setting range: 0 ... 20K X3<br>Factory setting: 10K<br>Function:<br>This function determines the lead value for the tank load temperature through the heat generator, compared to the set DHW setpoint.<br>Heat generator setpoint = DHW setpoint + Exceeded load temperature                                                                                                                                                                               |



## Parameter description



| Display | Designation                | Description                                                                                                                                                                                                                                                                                                             |
|---------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 07:12   | Extended pump running time | Setting range: 0...60 Min X3<br>Factory setting: 5 min<br>Function:<br>After switching off the heat generator, the tank loading pump is stopped after a time delay to prevent a safety switch-off in case of high temperatures.                                                                                         |
| 07:14   | Priority mode DHW          | Setting range: 0: Parallel mode X3<br>1: Priority mode<br>Factory setting: 1<br>Function:<br>Parallel mode: During tank loading the heating circuits remain operative<br>Priority mode: During tank loading the heating circuits are shut down. They are restarted after the extended running time of the pump [07:12]. |



## Parameter description

**26 Time setting**

| Display | Designation | Description                                                                                              |
|---------|-------------|----------------------------------------------------------------------------------------------------------|
| 26:01   | Time        | Setting range: 00:00 ... 23:59<br>Factory setting: Current time<br>Function:<br>Setting of current time. |
| 26:02   | Weekday     | Setting range: 1 ... 7<br>Factory setting: Current weekday<br>Function:<br>Setting of current weekday.   |

**27 Sensor calibration**

| Display | Designation    | Description                                                                                                                         |
|---------|----------------|-------------------------------------------------------------------------------------------------------------------------------------|
| 27:01   | Calibration F1 | Setting range: -5K ... +5K<br>Factory setting: 0K<br>Function:<br>Correction of measured sensor value at input of heat generator F1 |
| 27:02   | Calibration F2 | See 27:01 on input DHW sensor F2                                                                                                    |
| 27:04   | Calibration F4 | See 27:01 on input outside sensor F4                                                                                                |

**28 Relay test**

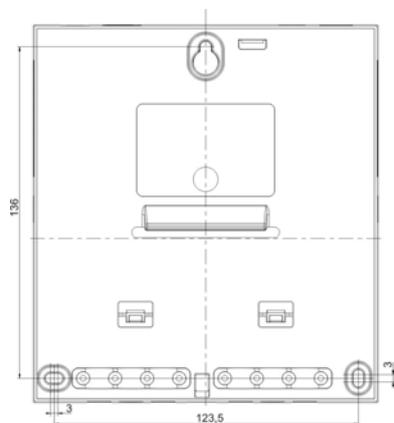
| Display | Designation   | Description                                                                                                                                                                               |
|---------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 28:01   | Test output 1 | Setting range: -0 = OFF<br>1 = ON<br>Factory setting: 0<br>Function:<br>By changing the value, the output switches heat circuit pump on and off (test function), independent of function. |
| 28:02   | Test output 2 | See 28:01 for output DHW charging pump                                                                                                                                                    |
| 28:04   | Test output 4 | See 28:01 for output DHW charging pump                                                                                                                                                    |

## Mounting

### 7. Mounting



**Hazard!**  
**Mounting must be performed by an authorised professional electrician!**  
**Ensure that unit is de-energised before opening it!**

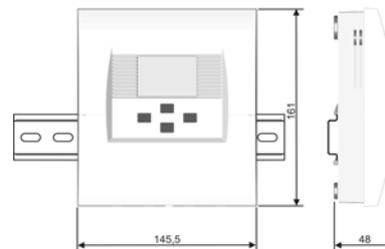


#### Drilling pattern for wall fastening

1. Remove terminal area cover from casing.
2. For mounting, first put a screw into the wall.
3. Hang controller into the opening.
4. Use controller as template for the other screw holes.

#### Rail mount

1. Insert mounting feet into rail mount opening.
2. Lock hook in place by pushing down.



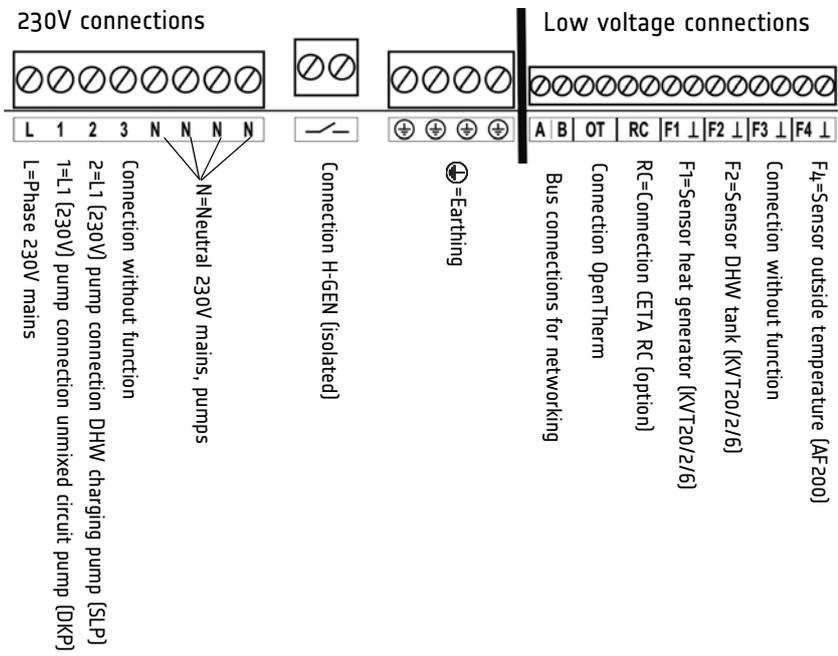
Connection diagram

## 8. Connection diagram



**Hazard!**

**Connection must be performed by an authorised professional electrician! Ensure that unit is de-energised before opening it!**



## Fault clearance

### 9. Fault clearance

To allow an accurate diagnosis in case of malfunction, the unit is equipped with a fault display system. The faults are shown on the basic display of the unit in form of an error code.

Fault overview:

| Fault code         | Cause                                                 | Repair                                                                     |
|--------------------|-------------------------------------------------------|----------------------------------------------------------------------------|
| 11-0               | Interruption sensor F1                                | Check cable and plug connection, replace if necessary                      |
| 11-1               | Short circuit sensor F1                               | Replace tank sensor                                                        |
| 12-0               | Interruption sensor F2                                | See 11-0                                                                   |
| 12-1               | Short circuit sensor F2                               | See 11-1                                                                   |
| 13-0               | Interruption sensor F3                                | See 11-0                                                                   |
| 13-1               | Short circuit sensor F3                               | See 11-1                                                                   |
| 14-0               | Interruption sensor F4                                | See 11-0                                                                   |
| 14-1               | Short circuit sensor F4                               | See 11-1                                                                   |
| 71-6               | Data bus OpenTherm no signal (terminal OT)            | Repair malfunction on data bus to heat generator                           |
| 72-6               | Data bus CETA RC no signal (terminal RC)              | Repair malfunction on data bus to room unit CETA RC                        |
| 73-2               | Unit bus address collision (Terminal AB)              | Set controls of the same type to different bus addresses (parameter 03:03) |
| 73-6, 74-0 to 74-9 | Unit bus error communication (Terminal AB)            | Check bus connection between the units                                     |
| 5-00               | General errors on heat generator (only for OpenTherm) | Purely display function in CETA system, troubleshooting on heat generator  |
| 5-00               | Locking error on heat generator (only for OpenTherm)  | Only display function in CETA system, troubleshooting on heat generator    |
| 6-00               | Blocking error on heat generator (only for OpenTherm) | Purely display function in CETA system, troubleshooting on heat generator  |



## Sensor resistance values



### 10. Sensor resistance values

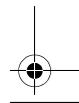
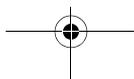
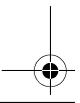
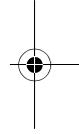
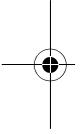
Depending on temperature:

**PT1000**

| T (°C) | R (kOhm) |
|--------|----------|
| 40     | 1.155    |
| 50     | 1.194    |
| 60     | 1.232    |
| 70     | 1.271    |
| 80     | 1.309    |
| 90     | 1.347    |
| 100    | 1.385    |
| 110    | 1.423    |
| 120    | 1.461    |
| 130    | 1.498    |
| 140    | 1.536    |
| 150    | 1.573    |
| 160    | 1.611    |
| 170    | 1.648    |
| 180    | 1.685    |
| 190    | 1.722    |
| 200    | 1.758    |
| 210    | 1.795    |
| 220    | 1.832    |
| 230    | 1.868    |
| 240    | 1.905    |
| 250    | 1.941    |

**KVT20/2/6, AF200**

| T (°C) | R (kOhm) |
|--------|----------|
| 10     | 1.783    |
| 12     | 1.812    |
| 14     | 1.840    |
| 16     | 1.869    |
| 18     | 1.898    |
| 20     | 1.928    |
| 25     | 2.002    |
| 30     | 2.078    |
| 35     | 2.155    |
| 40     | 2.234    |
| 45     | 2.314    |
| 50     | 2.395    |
| 55     | 2.478    |
| 60     | 2.563    |
| 65     | 2.648    |
| 70     | 2.735    |
| 75     | 2.824    |
| 80     | 2.914    |
| 85     | 3.005    |
| 90     | 3.098    |
| 95     | 3.192    |
| 100    | 3.287    |



## Declaration of conformity

### 11. Declaration of conformity



Elektronikbau- und Vertriebs- GmbH  
Heisternerweg 8-12, 57299 Burbach

#### EC Declaration of Conformity



**Product identification:** Heating controller

**Type designation:** CETA 104

**Manufacturer:** EbV Elektronikbau- und Vertriebs-GmbH  
Heisternerweg 8-12  
57299 Burbach

The product described is in full compliance with the following European directives:

**89/336/EEC** „Council directive on the approximation of the laws of the member states relating to Electromagnetic Compatibility“

**73/23/EEC** „Council directive on the approximation of the laws of the member states relating to electrical equipment designed for use within certain voltage limits“ (low voltage directive)

Compliance of the designated product with the rules of the directive is proven by complete adherence to the following standards:

EMV: Requirements for household appliances, electric tools and similar devices  
**DIN EN 55014-1:2003** Part1: Transient emission  
**DIN EN 55014-2:2002** Part 2: Immunity

EMV: Limit values  
**DIN EN 61000-3-2:2002** Part 3-2: Limit values for harmonic current emissions  
**DIN EN 61000-3-3:2002** Part 3-3: Limitation of voltage fluctuations and flicker

Automatic electrical controls for household use and similar applications  
**DIN EN 60730-1:2002** Part 1: General requirements  
**DIN EN 60730-2-9:2004** Part 2: Particular requirements for temperature sensing controls

We declare that the described product - as independent device - is in conformity with the standards, directives and/or technical specifications listed above.

EbV Elektronikbau- und  
Vertriebs-GmbH

Burbach, 20.02.2009

Wolfgang Höse  
Managing Director

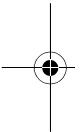


## Technical Data



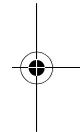
### 12. Technical Data

|                                         |                                     |
|-----------------------------------------|-------------------------------------|
| Mains voltage:                          | 230V +6%/ -10%                      |
| Rated frequency:                        | 50...60Hz                           |
| Power input:                            | max. 2.1VA                          |
| Fuse:                                   | 6,3A                                |
| Output relay contact load:              | 2 (2)A                              |
| Ambient temperature:                    | -10...+50 °C                        |
| Storage temperature:                    | -25...+80 °C                        |
| Degree of protection:                   | IP 30                               |
| Protection class according to EN 60730: | II                                  |
| CE compliance:                          | 89/336/EEC                          |
| Casing dimensions:                      | 145.5 x 161 x 48 mm (W x H x D)     |
| Casing material:                        | ABS V0                              |
| Weight:                                 | 420g                                |
| Mains connection technology:            | Screw terminals 1.5 mm <sup>2</sup> |
| Sensor connection technology:           | Screw terminals 1.0 mm <sup>2</sup> |



### 13. Liability

Our general terms and conditions of business are generally applicable. Any liability claims based on failure to observe operating manual as well as safety instructions contained therein, are excluded. Subject to technical modifications.



### 14. Disposal

Dispose of all replaced parts, and eventually the controller itself, in an environmentally sound manner in compliance with applicable statutory regulations of the corresponding country.

|                |
|----------------|
| Company stamp: |
|----------------|

