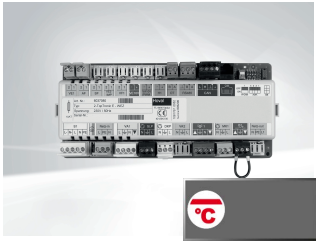
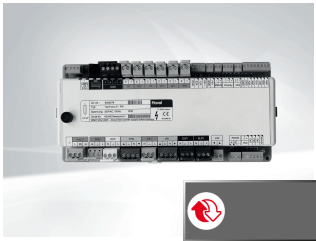

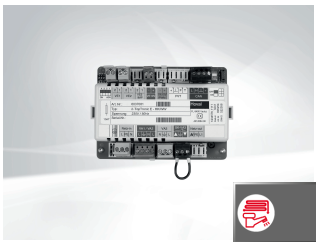



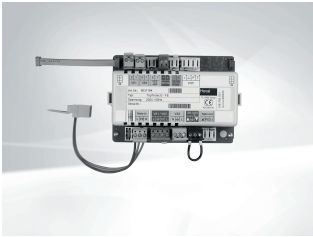














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TopTronic® E basic module heat generator

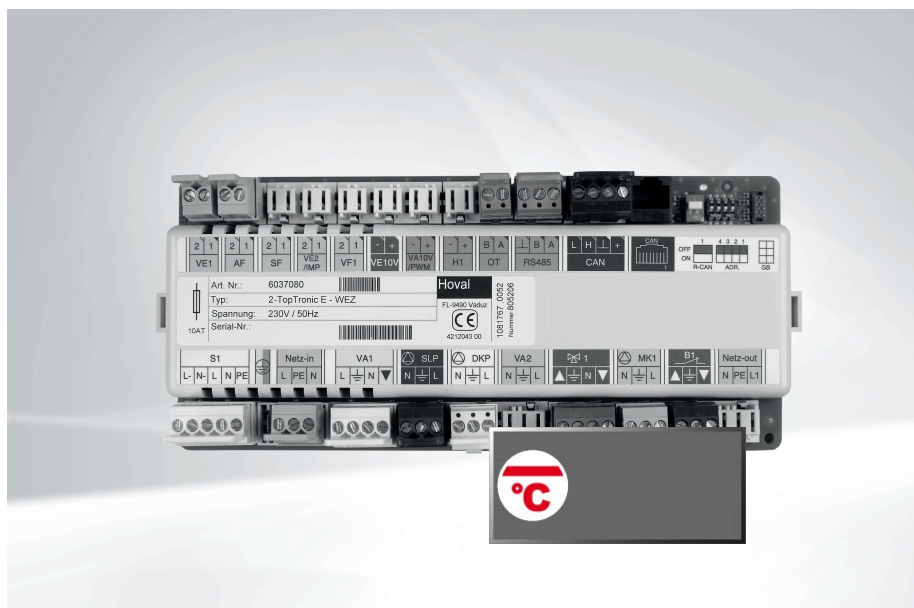
- Control unit for controlling heat generators and the associated consumers with integrated control functions for:
 - Heat generator management
 - Add. heat generator management
 - Cascade management
 - 1 heating/cooling circuit without mixer
 - 1 heating/cooling circuit with mixer
 - 1 DHW loading circuit
 - Various additional functions
- Connection technology executed as plug-in screw terminals in coded RAST-5 design
- Update capability of the controller software
- Time and date via integrated RTC, multi-year spring reserve
- Fine fuse 10 A
- Control unit suitable for cabinet installation thanks to ability to install on DIN rail 35 x 15 x 2.2 mm
- Expansion possibilities via Hoval CAN bus:
 - max. 16 controller modules in the bus system
 - Cascade connection of 8 different heat generators possible
 - can be extended to up to 48 heating circuits

Notice

Operation of the controller module is generally via the TopTronic® E control module installed in the heat generator!
In a standalone application, the control module for operating the basic module heat generator must be ordered separately!

Inputs and outputs

- Communication to an extremely wide range of automatic function units (oil, gas, HP, biomass) via RS485 interface
- OpenTherm interface for connecting an automatic gas firing unit
- 0-10 V input, e.g. for connecting to heat zone control systems
- 0-10 V or PWM output for controlling a variable-speed pump or for connecting an additional heat generator via 0-10V interface (e.g.: solid-fuel boiler, etc.)
- Connection of a flow rate sensor (pulse sensor), e.g. for heat metering at the heat generator, on the heating circuit or with hot water
- 230 V 3-point output, e.g. for controlling the mixer
- 230 V output, e.g. for controlling the recirculation pump
- 230 V optocoupler input connected in series to the variable 230 V output, e.g. for connecting a flow temperature guard for monitoring underfloor heating systems
- Variable inputs and outputs:
 - variable 230 V output plus continuous phase (e.g.: connection of a HW gate)
 - variable 230 V output (e.g.: connection of the direct circuit pump)
 - extra-low voltage output (12 V) (e.g. controlling a signal LED)
 - variable input for connection of a sensor
 - variable input for connection of a sensor or pulse sensor
- Connection plug for simple connection of a main switch



Notice

Max. 1 module expansion can be connected.



TopTronic® E
module expansion
heating circuit



TopTronic® E
module expansion
heat balancing



TopTronic® E
module expansion
Universal

Option

- Can be expanded by max. 1 module expansion (expansion of the inputs/outputs):
 - Module expansion heating circuit (1 heating/cooling circuit with/without mixer) or
 - Module expansion heat balancing (heat balancing in the heating system) or
 - Module expansion Universal (various special functions)

Functions

- Simple configuration and parameter setting of the plant by predefined hydraulic and function applications
- Weather-supported flow temperature controller for cooling operation with or without room influence taking account of building characteristics and switch-on optimisation
- Optimisation of the heating circuit flow temperatures and improvement in the room climate taking account of the weather forecast (only possible in combination with HovalConnect)
- Different basic programs (week programs, economy mode, holiday until, etc.) can be defined for each heating/cooling circuit plus ability to activate manual operation (construction site mode)
- Separate switching time programs for each heating/cooling circuit as well as for hot water with
 - 2 individually preset week programs comprising
 - 5 different - individually preset - day programs with
 - 6 switching points per day

- Different temperatures can be set for each switching cycle
- Various functions for hot water:
 - Selection of different basic programs (week programs, economy mode, holiday until, etc.)
 - various operating modes (e.g. accumulator priority or parallel mode)
 - adjustable storage tank pump post-operation
 - Storage tank discharge protection
 - Limiting and protection functions
- Definable switching times for recirculation pump control
- Automatic changeover of summer/winter time
- Heating characteristic adaptation possible for each individual heating circuit
- Screed drying function for underfloor heating
- Requirement contact for constant requirements (ventilation, swimming pool, ...)
- Modem switching function
- Free timer switch channel
- Pump anti-blocking protection
- Frost protection function
- Heat balancing for heat generator, heat circuit or hot water
- Plant flow control (3-point mixer for controlling the plant reference temperature)
- Cleaning and maintenance function
- SmartGrid functions
- Optimum adaptation of the control characteristics for various heat generators
- Integration of an additional heat generator via 0-10 V or switching contact

- Cascade management that is activated following the combination with other basic modules (up to 8 heat generators)
- Definition of priorities for switching over between heating, cooling and hot water operation
- Operating hours and pulse counter
- Heat generator forced removal
- Constant return increase
- Minimum value override
- Emission measurement with adjustable duration
- Collective fault message output
- Output of the current temperature or current output via 0-10 V possible
- Thermostat function for bivalent plants
- Self-test with error diagnosis and error memory
- Relay test for each output can be activated separately
- Functions that can be implemented with module expansions:
 - Heating/cooling circuits without mixer
 - Heating/cooling circuits with mixer or
 - hot water loading circuits
 - Various additional functions

Notice

Depending on the complexity, module expansions are required for using the listed functions (max. 1 module expansion can be connected)!

Delivery

- TopTronic® E basic module heat generator
- 2 mounting clips for DIN rail attachment
- 1 outdoor sensor AF/2P/K
- 1 immersion sensor TF/2P/5/6T/S1, L = 5.0 m with plug
- 1 contact sensor ALF/2P/4/T/S1, L = 4.0 m with plug
- Basic plug set for basic module
 - Plug for buffer storage pump (SLP), direct circuit pump (DKP), mixer circuit pump (MK1), mixer (YK1), flow temperature guard (B1), variable output (VA1)
 - 2 plugs for sensor (AF/SF)
 - Various plugs for internal wiring (mains in, mains out, connection of automatic firing device, bus connector RS485, bus connector OpenTherm, CAN bus)

Notice

The supplementary plug set may have to be ordered to implement functions differing from the standard!

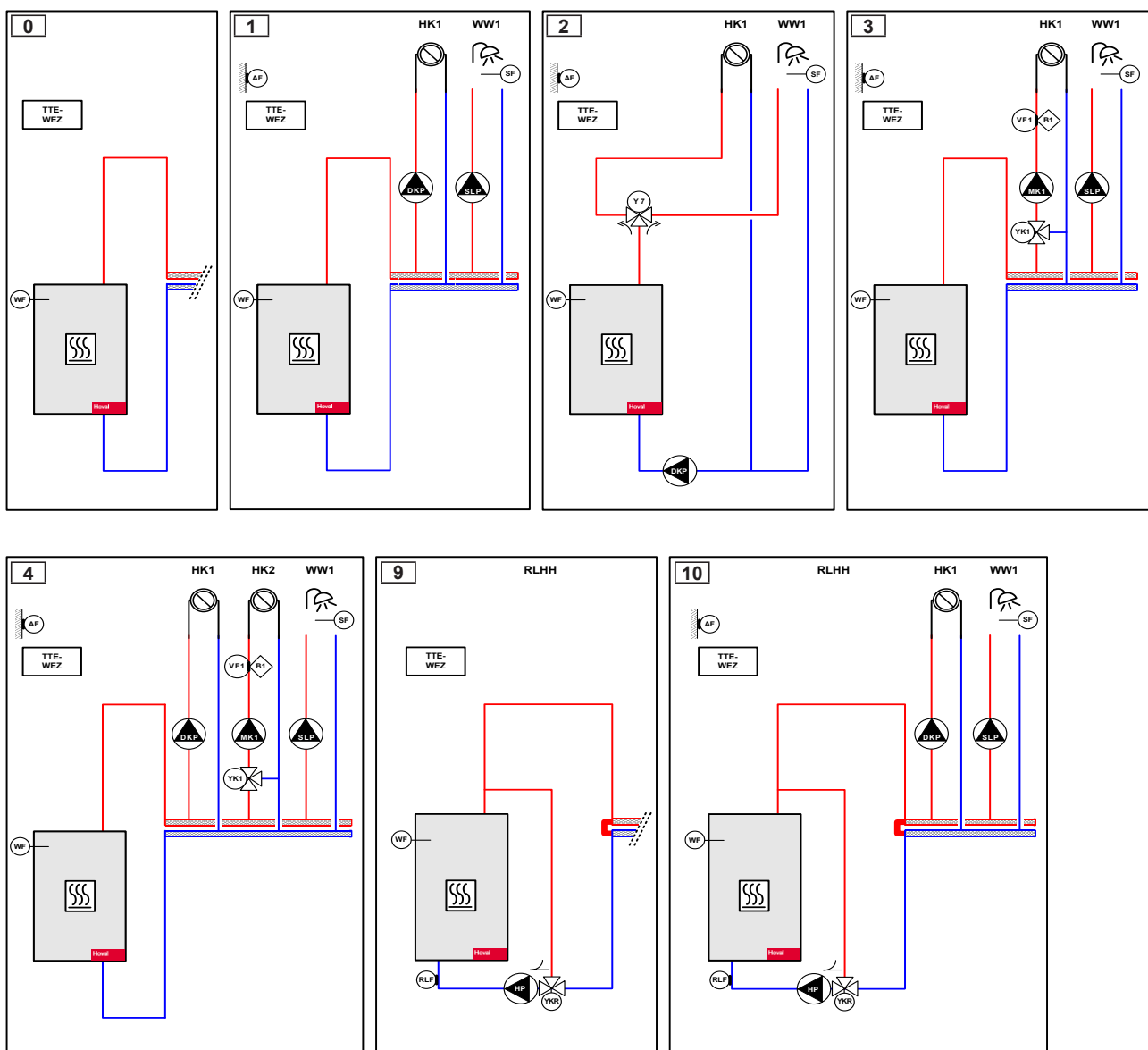
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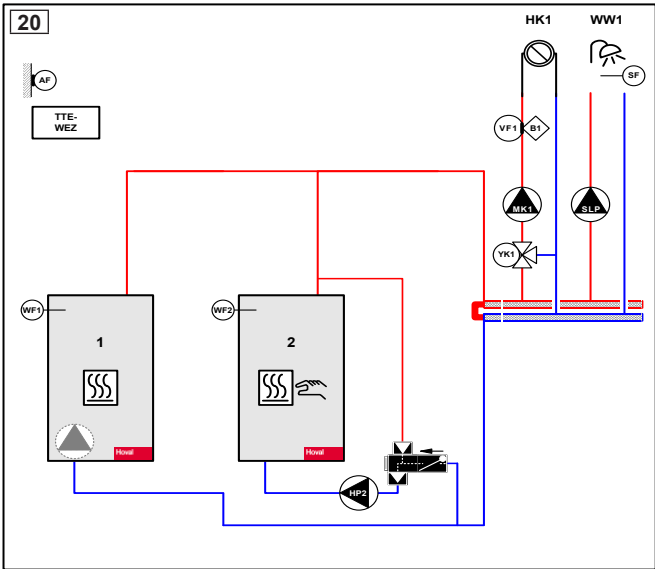
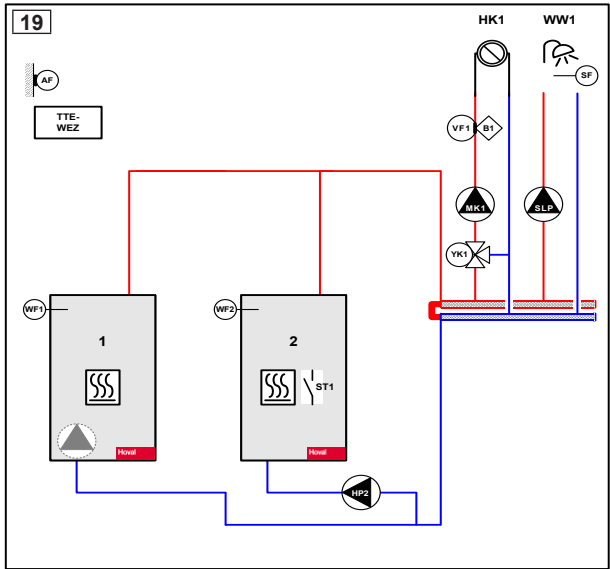
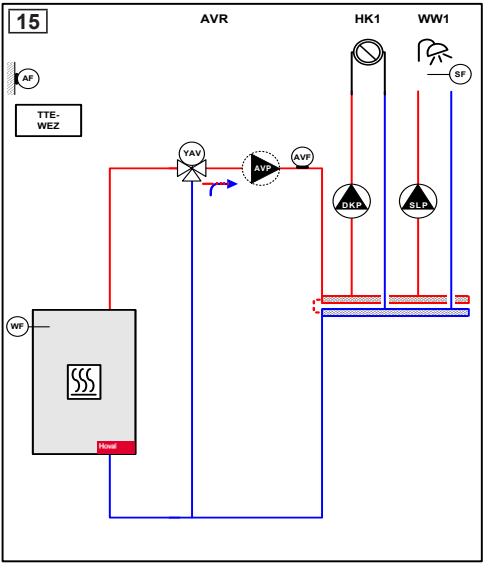
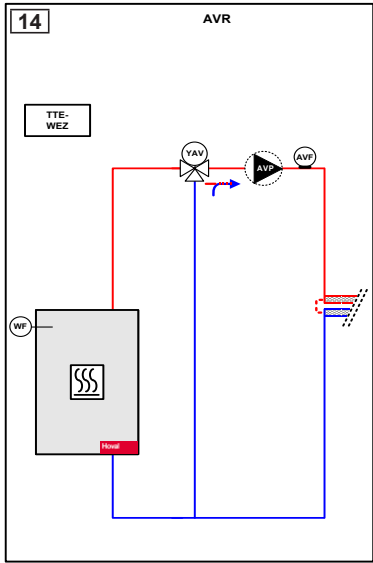
- Heat generator with automatic function device fitted
 - Connection either via the RS485, OpenTherm or 0-10 V interface
 - Automatic firing units can be configured with 1/2-stage or modulating
- Heat pump systems with active/passive cooling function
- Control for multiple heat generator systems by integrated cascade management
- Control of an additional heat generator by release contact (solid-fuel boiler), 0-10 V temperature request or 0-10 V output requirement
- For room heating/cooling and hot water charging circuit
- For optimisation of the room climate by control algorithm taking account of the weather forecast (only possible in combination with HovalConnect)
- Upstream control for technical systems such as ventilation, air conditioning systems, etc. or also for heating zone control systems
- For decentralised assembly - remote from the control module - directly at the sensors and actuators:
 - Installation in wall casing/control panel
 - Connection to the operating unit via Hoval CAN bus
- With significant expansion capability by controller modules via the Hoval CAN bus
- For flexible integration of heat generators in modern communication systems via different interfaces
- For remote connection of heat generators via HovalConnect

Functions that can be implemented

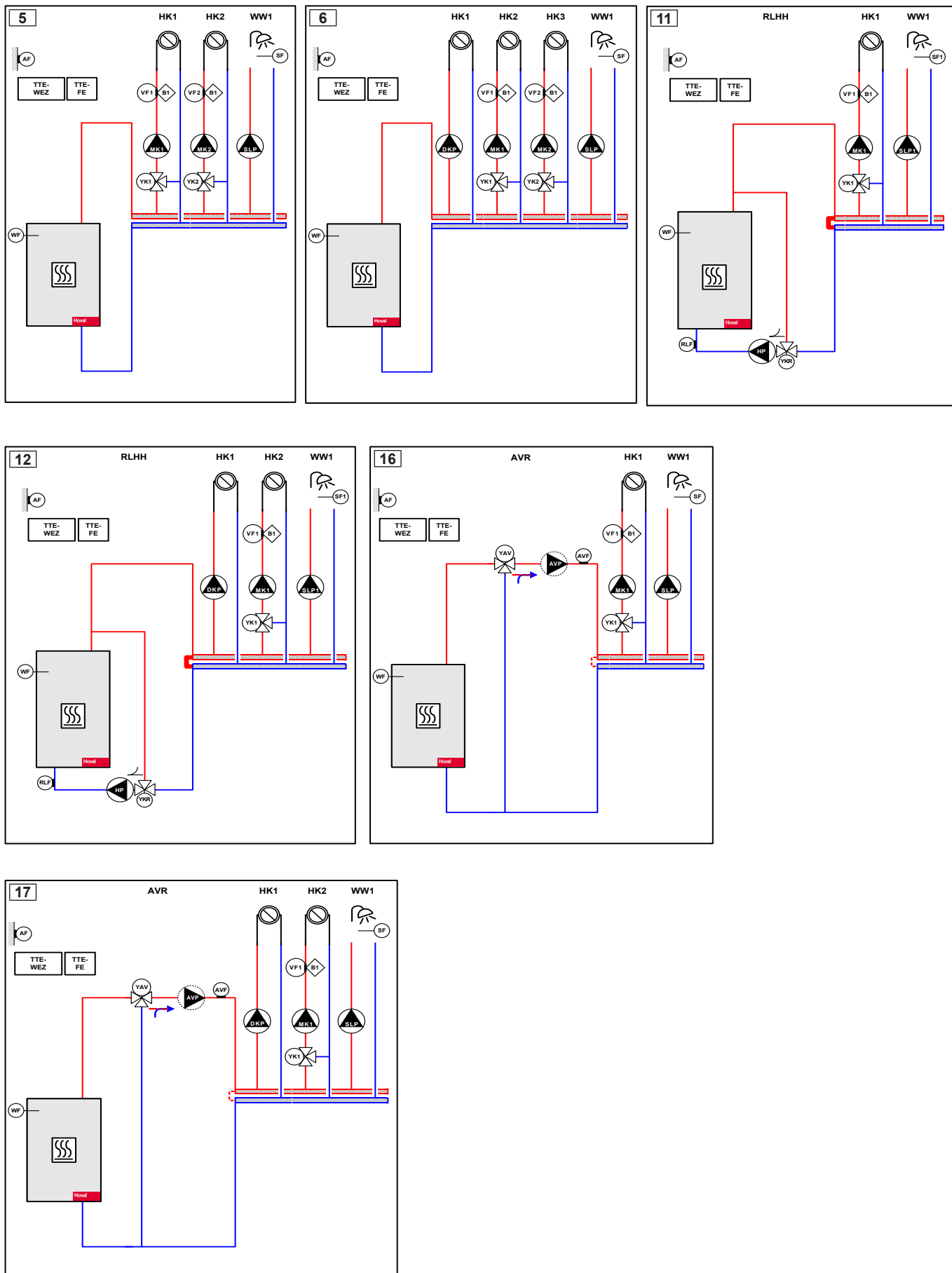
TopTronic® E basic module heat generator

TTE-WEZ	1 heat generator	1 heat generator with return temperature control	1 additional heat generator	Plant flow control	1 direct heating circuit	1 mixed heating circuit	2 mixed heating circuits	1 calorifier	1 calorifier with change-over unit
Hydr. 0	X								
Hydr. 1	X				X			X	
Hydr. 2	X				X				X
Hydr. 3	X					X		X	
Hydr. 4	X				X	X		X	
Hydr. 5	X						X	X	
Hydr. 6	X				X		X	X	
Hydr. 9		X							
Hydr. 10		X			X			X	
Hydr. 11		X				X		X	
Hydr. 12		X			X	X		X	
Hydr. 14	X			X					
Hydr. 15	X			X	X			X	
Hydr. 16	X			X		X		X	
Hydr. 17	X			X	X	X		X	
Hydr. 19	X		X						
Hydr. 20	X		X			X		X	

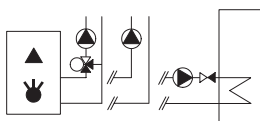
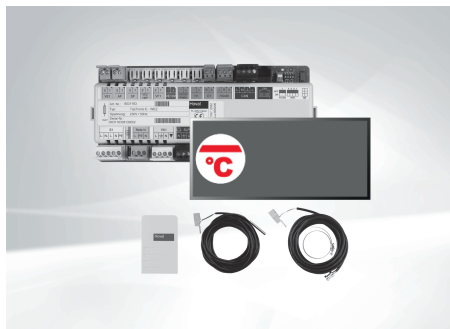




TopTronic® E basic module heat generator and 1 module expansion



TopTronic® E basic module



TopTronic® E basic module heat generator TTE-WEZ

Controller module for controlling heat generators and the corresponding consumers with integrated control functions for:

- heat generator management
- additional heat generator management
- cascade management
- 1 heating/cooling circuit w/o mixer
- 1 heating/cooling circuit with mixer
- 1 hot water loading circuit
- various additional functions

Consisting of:

TopTronic® E basic module heat generator
incl. 2 mounting clips
for top hat rail attachment

- 1 outdoor sensor AF/2P/K
- 1 immersion sensor TF/2P/5/6T/S1
L = 5.0 m with plug
- 1 contact sensor ALF/2P/4/T/S1
L = 4.0 m with plug
- basic plug set for basic module:
 - plug for buffer storage pump (SLP), direct circuit pump (DKP), mixer circuit pump (MK1), mixer (YK1), flow temperature monitor (B1), plug for variable output (VA1)
 - 2 plugs for sensors (AF/SF)
 - various plugs for inner wiring (mains in, mains out, connection automatic firing device, bus plug RS485, bus plug OpenTherm, CAN bus)

Notice

If the basic module is used without Hoval heat generator then a TopTronic® E control module must be ordered separately!

Notice

Depending on the complexity, module expansions are required for using the listed functions (max. 1 module expansion can be connected)!

Notice

To implement functions differing from the standard the supplementary plug set may have to be ordered!



Supplementary plug set

for TTE-WEZ

Consisting of Rast-5 mating plugs for connecting further sensors and actuators on the basic module heat generator. The controller module is already equipped with a basic plug set, the supplementary plug set is required for advanced functions.

Consisting of:

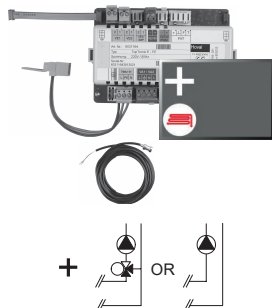
- plug for 230 V output (VA2)
(variable output)
- plug for sensor (variable input) (VE2)
- plug for 0-10 V input (VE10V)
- plug for 0-10 V/PWM output (VA10V)
- plug for low-voltage output (H1)

Part No.

6037 053

6034 499

TopTronic® E module expansions for TopTronic® E basic module heat generator



Max. 1 module expansion can be connected.

TopTronic® E module expansion heating circuit TTE-FE HK

Expansion to the inputs and outputs of the basic module heat generator or the heating circuit/domestic hot water module for implementing the following functions:

- 1 heating/cooling circuit w/o mixer or
- 1 heating/cooling circuit with mixer

Consisting of:

- TopTronic® E module expansion
- top hat rail with fitting accessories
- ribbon cable for connecting the device bus to the controller module
- connection set for connecting the controller module to the mains voltage
- 1 contact sensor ALF/2P/4/T, L = 4.0 m
- basic plug set for module expansions:
 - Plug for 230 V output (VA3) (direct circuit pump, mixer circuit pump)
 - Plug for 2 230 V outputs (mixer) (VA1/VA2)
 - Plug for optocoupler input (SK-VA3) (flow temperature monitor)
 - 2 plugs for sensors (VE1/VE2)
 - Plug for 0-10 V or PWM output (VA10V)

Notice

To implement functions differing from the standard the supplementary plug set may have to be ordered!



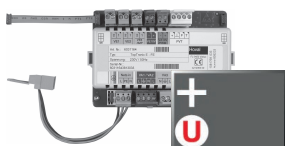
Supplementary plug set

for controller modules and module expansion TTE-FE HK

Consisting of Rast-5 mating plugs for connecting further sensors and actuators on the controller module or on the module expansion. The controller module is already equipped with a basic plug set, the supplementary plug set is required for advanced functions.

Consisting of:

- Plug for mains out
- Plug for sensor (variable input) (VE3)
- Plug for 0-10 V or PWM output (VA10V)
- Plug for flow rate sensor (FVT)



TopTronic® E module expansion Universal TTE-FE UNI

Expansion to the inputs and outputs of a controller module (basic module heat generator, heating circuit/domestic hot water module, solar module, buffer module) for implementing various functions

Consisting of:

- TopTronic® E module expansion
- top hat rail with fitting accessories
- ribbon cable for connecting the device bus to the controller module
- connection set for connecting the controller module to the mains voltage
- complete plug set for module expansions

Part No.

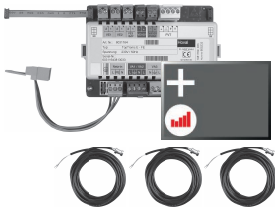
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6034 503

6034 575

Notice

Refer to the Hoval System Technology to find which functions and hydraulic arrangements can be implemented.



TopTronic® E module expansion heating circuit incl. energy balancing TTE-FE HK-EBZ

Expansion to the inputs and outputs of the basic module heat generator or the heating circuit/domestic hot water module for implementing the following functions:

- 1 heating/cooling circuit w/o mixer or
 - 1 heating/cooling circuit with mixer
- in each case incl. energy balancing

Consisting of:

- TopTronic® E module expansion
- 3 contact sensors ALF/2P/4/T with length 4.0 m
- complete plug set for module expansions
- top hat rail with fitting accessories
- ribbon cable for connecting the device bus to the controller module
- connection set for connecting the controller module to the mains voltage

Notice

The continuous flow sensor set must be ordered as well.

Sets flow rate sensor

- Used in combination with the module expansion heat accounting or var. controller modules for heat metering
- Flow sensor supplies the current flow rate as well as the current temperature to the measuring point

Consisting of:

- flow rate sensor
- connection cable
- Rast5 plug for connecting to TopTronic® E



Plastic housing

Unit of measure	Connection	Flow rate l/min
DN 8	G ¾"	0.9-15
DN 10	G ¾"	1.8-32
DN 15	G 1"	3.5-50
DN 20	G 1¼"	5-85
DN 25	G 1½"	9-150

6038 526
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6038 508
6038 509
6038 510



Brass housing

Unit of measure	Connection	Flow rate l/min
DN 10	G 1"	2-40
DN 32	G 1½"	14-240

6042 949
6042 950

Further information

See "Hoval TopTronic® E module expansions" chapter

TopTronic® E controller modules, control/room control modules, HovalConnect, wall casing, sensor
see separate chapter

Part No.

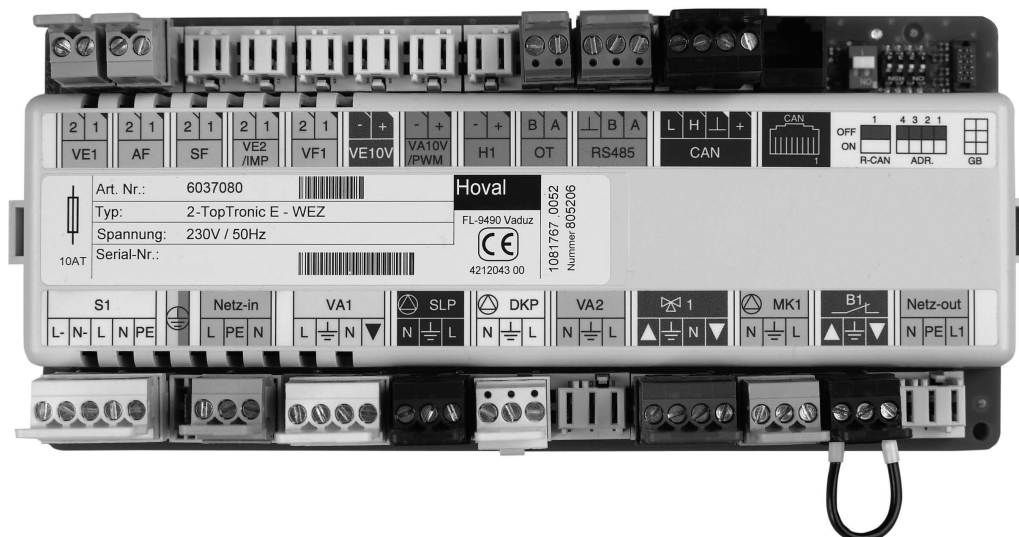
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TopTronic® E basic module heat generator

Type	TTE-WEZ
• Power supply max.	230 V AC +6/-10%
• Frequency	50-60 Hz
• Min. power consumption	0.8 W
• Max. power consumption	7.8 W
• Fuse	10 A slow-blow
Output (low voltage)	
• Electromechanical relays	7
Output (extra-low voltage)	
• Signal output PWM or 0-10 V	1
Switching capacity	
• Electromechanical relays	3 A
Input (low voltage)	
• Optocoupler input	1
Inputs (extra-low voltage)	
• Input 0-10 V	1
• Inputs sensors	4
• Inputs flow rate sensor	0
• Pulse input	1 (can be switched over to sensor)
Expansion (module expansion)	
• Max. number	1
Casing	
• Installation	Top hat rail mounting
• Dimensions (W x H x D) incl. plug	230 x 100 x 75 mm
• Ambient temperature (during operation)	0...50 °C
• Humidity (in operation)	20...80% RH, non-condensing
• Storage temperature	-20...60 °C
Bus system (Hoval CAN bus)	
• Capacity	max. 4 control modules / 3 control modules + 1 gateway
• Bus supply	yes
• Bus line	4-wire bus
• Bus length	twisted, shielded, max. 100 m
• Line cross-section	min. 0.5 mm²
• Cable type (recommended)	JY-(ST) 2 x 2 x 0.6
Other bus interfaces	Internal unit bus (master) RS485 OpenTherm (< 30 m)
Miscellaneous	
• Spring reserve	approx. 10 years, battery buffered
• Type of protection	IP 20
• Protection class	I – EN 60730
• Plug types	Rast 5 (coloured, coded)

Electrical connection

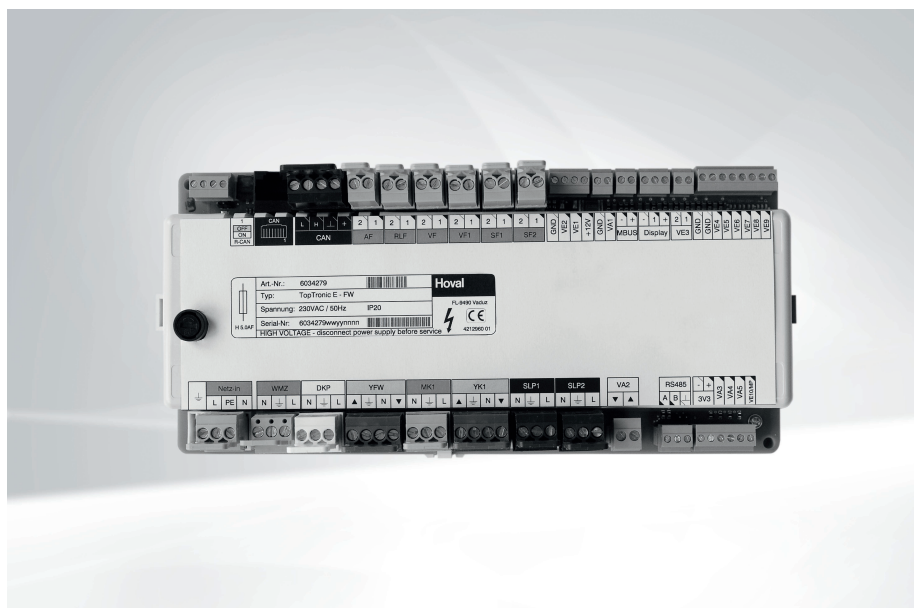
TopTronic® E basic module heat generator



- Control unit for controlling district heating systems in non-communicative networks and the corresponding consumers with integrated control functions for:
 - Primary valve control
 - Cascade management
 - 1 heating circuit with mixer
 - 1 Heater circuit without mixer
 - 1 DHW loading circuit
 - Various additional functions
- Connection technology partially executed as plug-in screw terminals in coded Rast-5 design as well as conventional plug-in screw terminal technology
- Update capability of the controller software
- Time and date via integrated RTC, multi-day spring reserve via capacitor
- Fine fuse 5 A
- Controller module suitable for cabinet installation thanks to ability to install on DIN rail 35 x 15 x 2.2 mm or 35 x 7.5 x 2.2 mm
- Multiple expansion possibilities via Hoval CAN bus:
 - max. 16 controller modules in the bus system
 - Cascade connection with up to 8 different heat generators possible
 - Cascade connection with up to 10 different transfer stations possible
 - can be extended to up to 48 heating circuits

Operation of the controller module is generally via the TopTronic® E control module installed in the heat generator or in the station! If the control module is used without Hoval heat generator, the control module for operating the basic module district heating/fresh water and a wall casing must be ordered separately!

- 230 V 3-point output for activating the primary valve or pilot control of a buffer storage solution
- 230 V 3-point output, e.g. for controlling the mixer
- 230 V output, e.g. for controlling the recirculation pump
- 230 V continuous phase, e.g. for supplying the heat meter
- Volt-free contact for outputting an alarm message
- 0-10 V input, e.g. for connecting to heating zone control systems or for integrating and additional heat generator via 0-10 V interface or switching contact (e.g.: solid-fuel boiler, etc.)
- 0-10 V or PWM output for controlling a variable-speed pump
- 0-10 V outputs for controlling continuous valves (e.g. for a primary valve and a mixing circuit valve)
- Variable inputs and outputs:
 - 230 V output, e.g. for controlling the direct circuit pump, feed pump
 - 230 V output, e.g. for controlling the buffer storage pump
 - 230 V output, e.g. for controlling the recirculation pump
 - 2 analogue inputs 4-20 mA/0-10 V for reference value specification
 - 1 analogue output 4-20 mA






Max. 5 module expansions can be connected, of these, max. 3 module expansions heating circuit district heating

- MBus interface for reading out heat meters (max. 16 MBus participants)

- Can be expanded by max. 5 module expansions (expansion of the inputs/outputs), of these, max. 3 module expansions heating circuit district heating:
 - Module expansion heating circuit district heating (1 heating circuit with/without mixer) or
 - Module expansion hot water district heating (1 hot water loading circuit) or
 - Module expansion Universal district heating (various special functions)

- Weather-supported flow temperature controller for heating operation with or without room influence taking account of building characteristics and switch-on optimisation
- Optimisation of the heating circuit flow temperatures and improvement in the room climate taking account of the weather forecast (only possible in combination with HovalConnect)
- Different basic programs (week programs, economy mode, holiday until, etc.) can be defined for each heating circuit plus ability to activate manual operation (construction site mode)
- Separate switching time programs for each heating circuit as well as for hot water with
 - 2 individually preset week programs comprising
 - 5 different - individually preset - day programs with
 - 6 switching points per day

- | | |
|---|---|
|  | <p>TopTronic® E
module expansion heating
circuit district heating</p> |
|  | <p>TopTronic® E
module expansion
hot water district heating</p> |
|  | <p>TopTronic® E
module expansion
Universal district heating</p> |

- Different temperatures can be set for each switching cycle
- Various functions for hot water:
 - Selection of different basic programs (week programs, economy mode, holiday until, etc.)
 - various operating modes (e.g. accumulator priority or parallel mode)
 - Buffer storage circuit on the primary or secondary side
 - adjustable loading criteria (e.g.: adjustable loading times, under-shooting the minimum nominal value, etc.)
 - adjustable switch-off criteria (e.g. achieving the setpoint valve, achieving the lower sensor setpoint value, etc.)
 - adjustable loading block (if the loading flow temperature is too low, the setpoint temperature is not reached, differential temperature-dependent solar circuit control)
- Definable switching times for recirculation pump control
- Automatic changeover of summer/winter time
- Heating characteristic adaptation possible for each individual heating circuit
- Screed drying function for underfloor heating
- Requirement contact for constant requirements (ventilation, swimming pool, etc.)
- Modern switching function
- Pump anti-blocking protection
- Frost protection function
- Cascade management that is activated following the combination with other basic modules (up to 8 heat generators)
- Cascade connection of 10 district heating stations in master/slave combination possible

- Definition of priorities for switching over between heating and hot water operation
- Operating hours and pulse counter
- Electronic output power limit by heat meter
- Outside temperature-dependent return limitation
- Reduction characteristic curve for network protection
- Integrated event memory
- Buffer storage circuit can be connected on the primary or secondary side of the heat exchanger
- Warm water input circuit
- Self-test with error diagnosis and error memory
- Relay test for each output can be activated separately
- Zero passage circuit

The TopTronic® E basic module district heating/fresh water has a special zero passage circuit of the fitted relays. This is used for reducing the load on the switching contacts, and thus increases the service life of the relays

- Functions that can be implemented with module expansions:
 - Heating circuit without mixer
 - Heating circuit with mixer or
 - hot water loading circuits
 - Various additional functions

Notice

Depending on the complexity, module expansions are required for using the listed functions (max. 5 module expansions can be connected)!

Delivery

- TopTronic® E basic module district heating/fresh water
- 2 mounting clips for DIN rail attachment
- 1 outdoor sensor AF/1.1P/K
- 1 immersion sensor TF/1.1P/2.5/6T, L = 2.5 m
- 1 contact sensor ALF/1.1P/2.5/T, L = 2.5 m
- Complete plug set for district heating module

Notice

The supplementary plug set may have to be ordered to implement functions differing from the standard!

Use

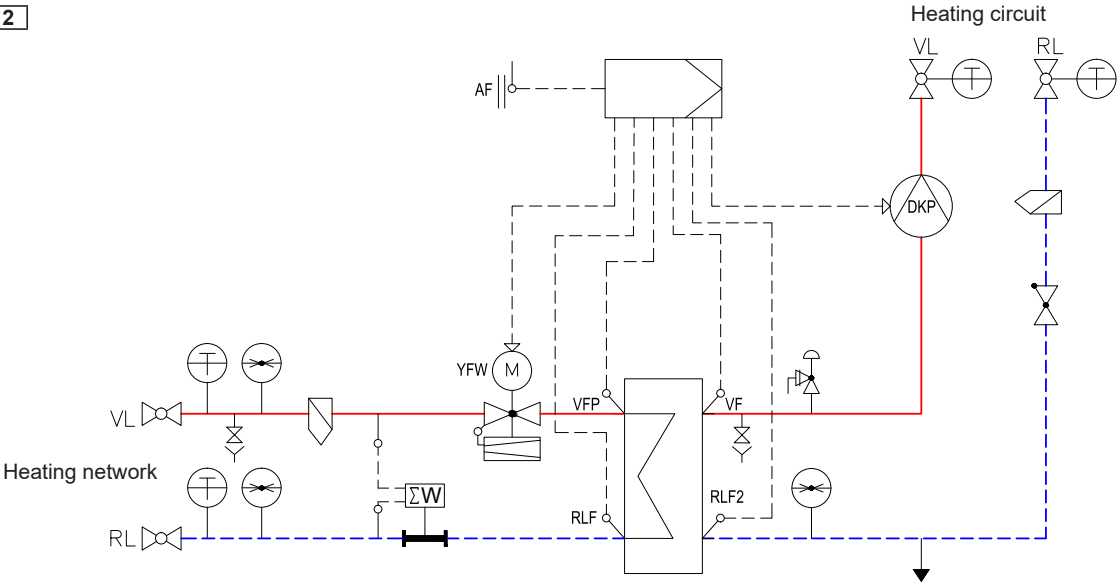
- Control of district heating stations or other transfer stations (buffer storage solutions) in a very wide power range
- Control for multiple heat generator/district heating systems by integrated cascade management:
 - 10 district heating stations by master/slave connection or
 - 8 different heat generators
- For room heating and hot water charging circuit
- For optimisation of the room climate by control algorithm taking account of the weather forecast (only possible in combination with HovalConnect)
- Upstream control for technical systems such as ventilation, air conditioning systems, etc. or also for heating zone control systems
- For decentralised assembly - remote from the control module - directly at the sensors and actuators:
 - Installation in wall casing/control panel
 - Connection to the operating unit via Hoval CAN bus
- With significant expansion capability by controller modules via the Hoval CAN bus
- For flexible integration of heat generators in modern communication systems via different interfaces
- For remote connection of heat generators via HovalConnect

Functions that can be implemented

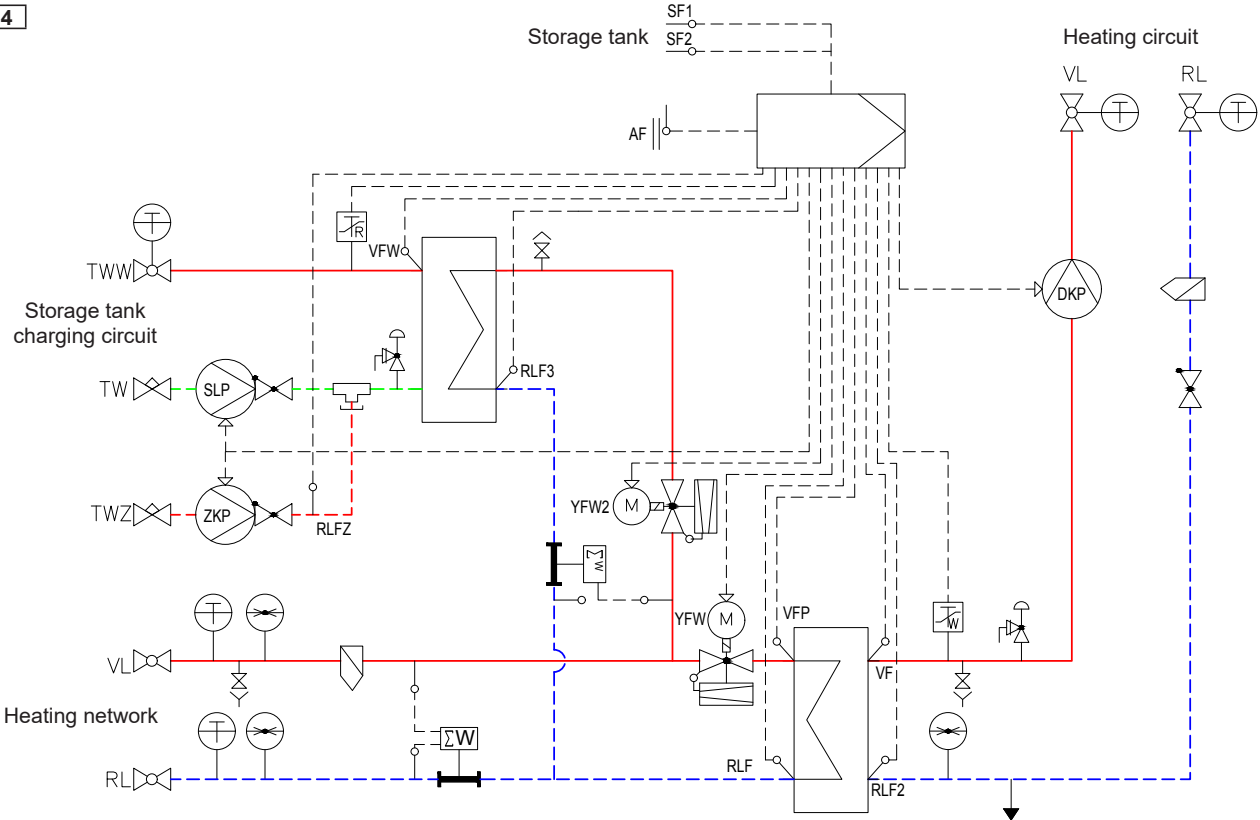
TopTronic® E basic module district heating/fresh water and district heating com

TTE-FW/ FW com	1 heat exchanger	1 direct heating circuit	1 mixed heating circuit	2 mixed heating circuit	1 DHW charging circuit direct primary	1 DHW charging circuit direct sec- ondary	1 DHW mixing charging circuit secondary
Hydr. 2	X	X					
Hydr. 4	X	X			X		
Hydr. 5	X		X		X		
Hydr. 9	X	X					X
Hydr. 11	X		X				X
Hydr. 12	X	X				X	
Hydr. 13	X		X			X	
Hydr. 15	X	X	X				
Hydr. 25	X	X	X			X	
Hydr. 26	X	X	X				X
Hydr. 27	X		X	X		X	
Hydr. 28	X		X	X			X

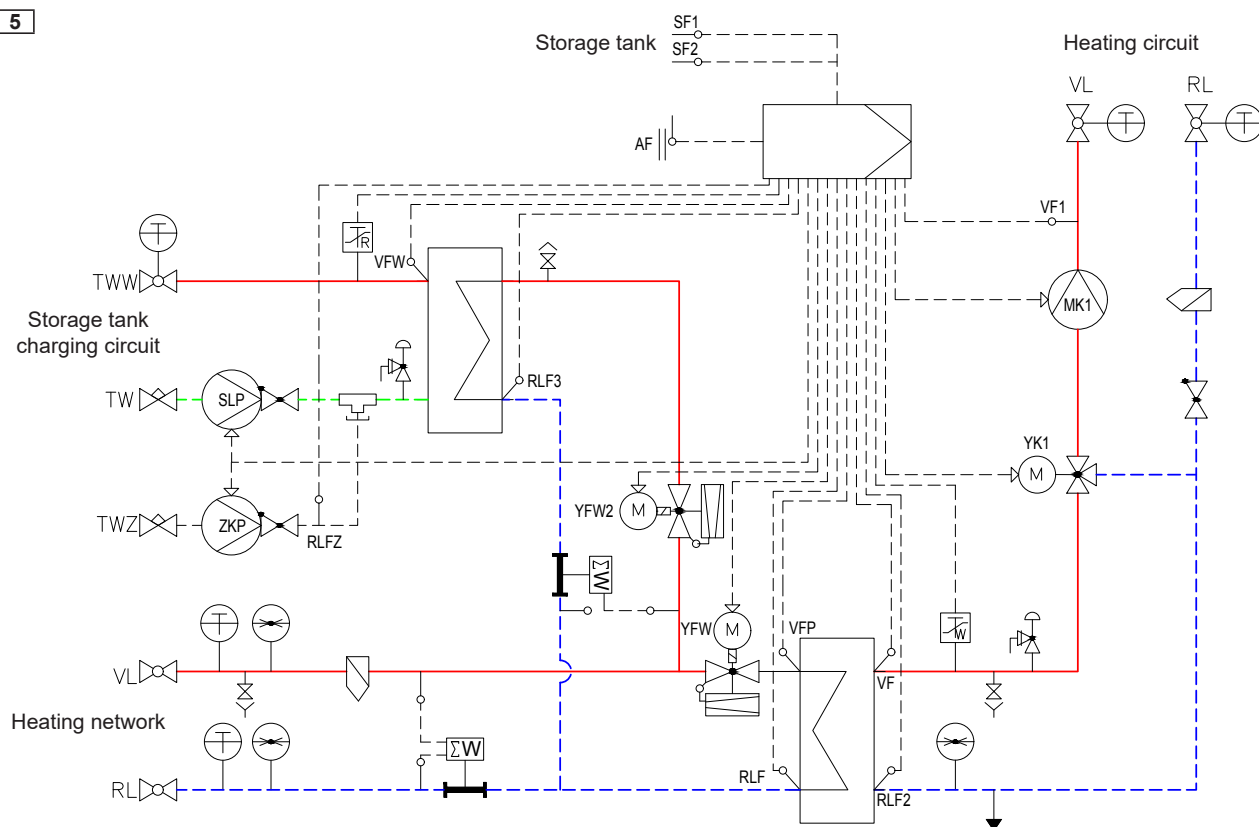
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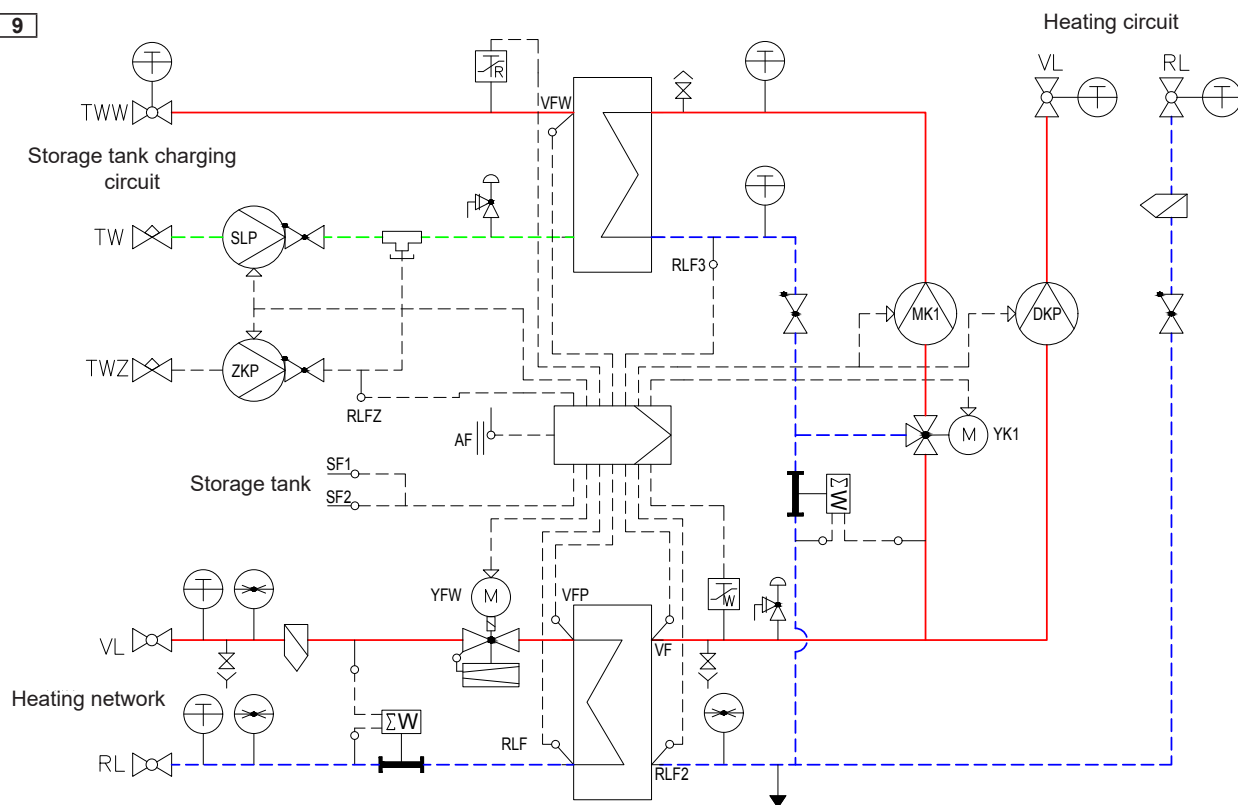
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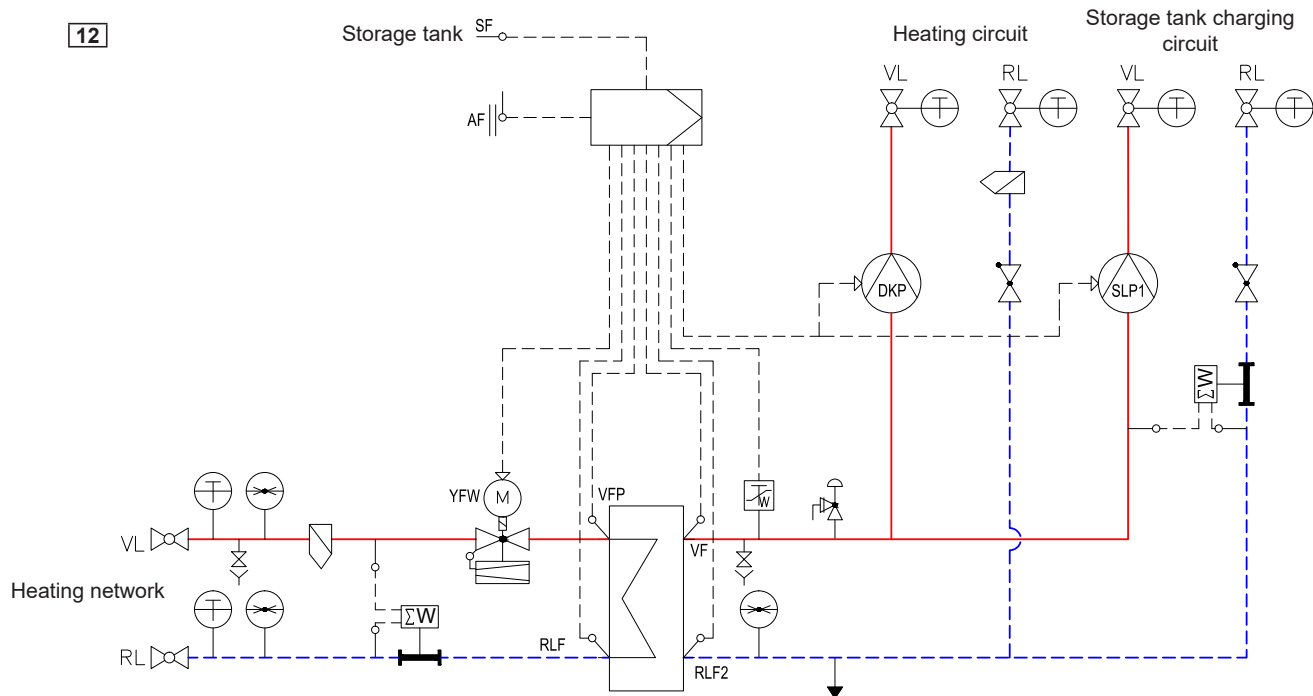
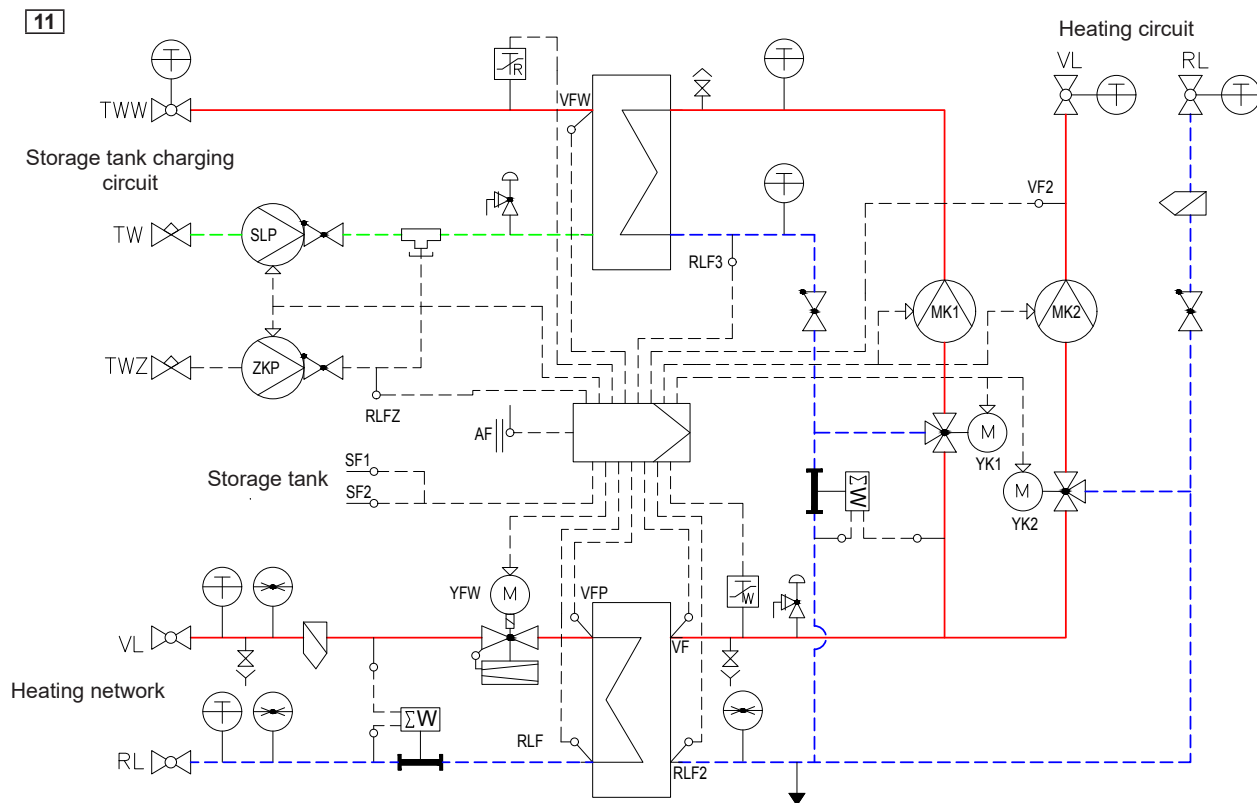


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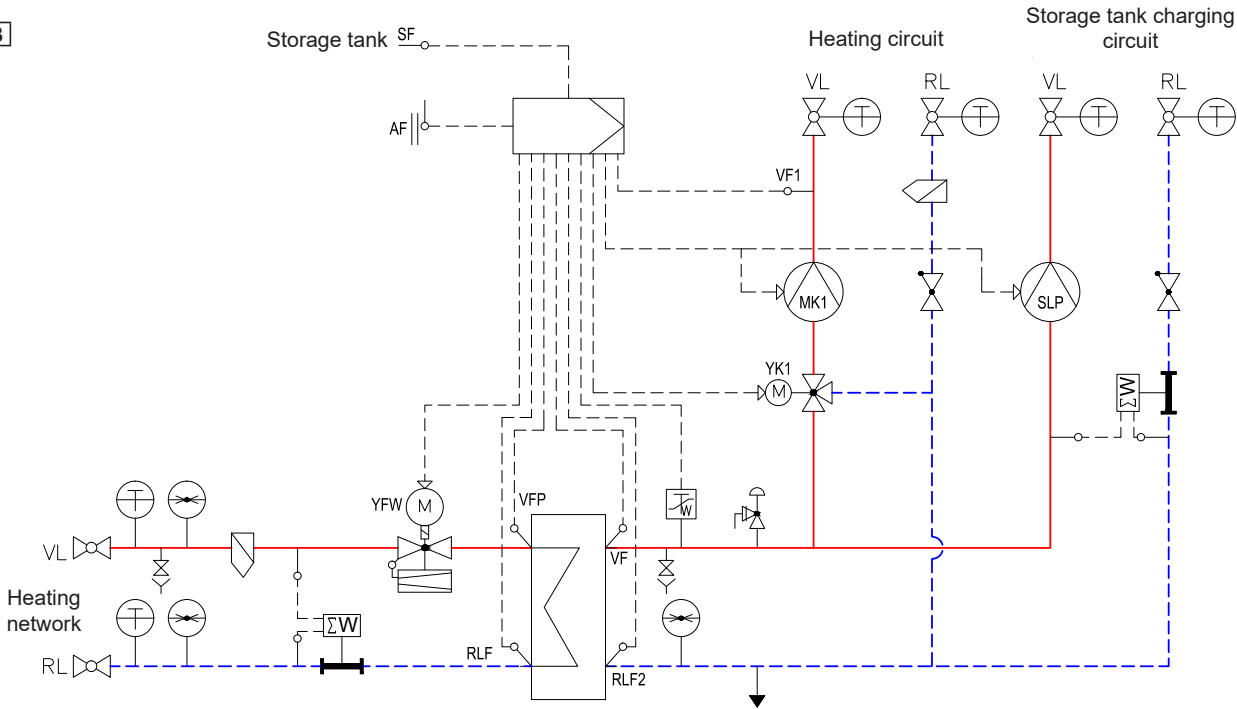


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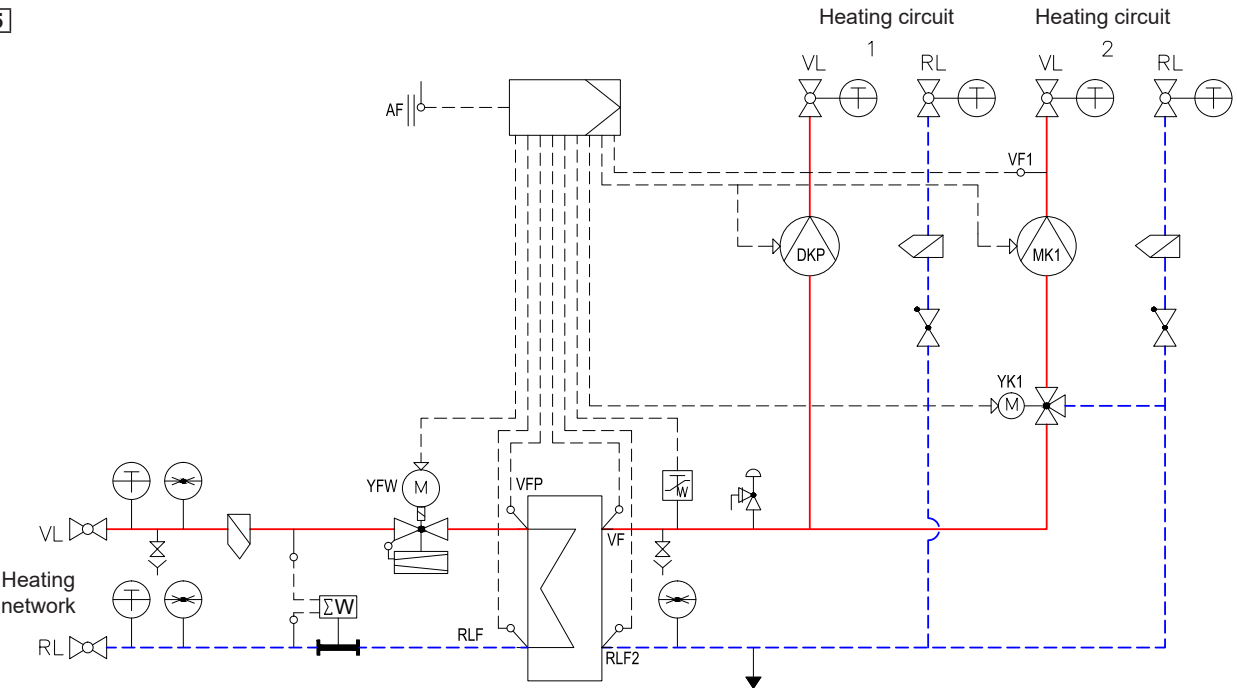




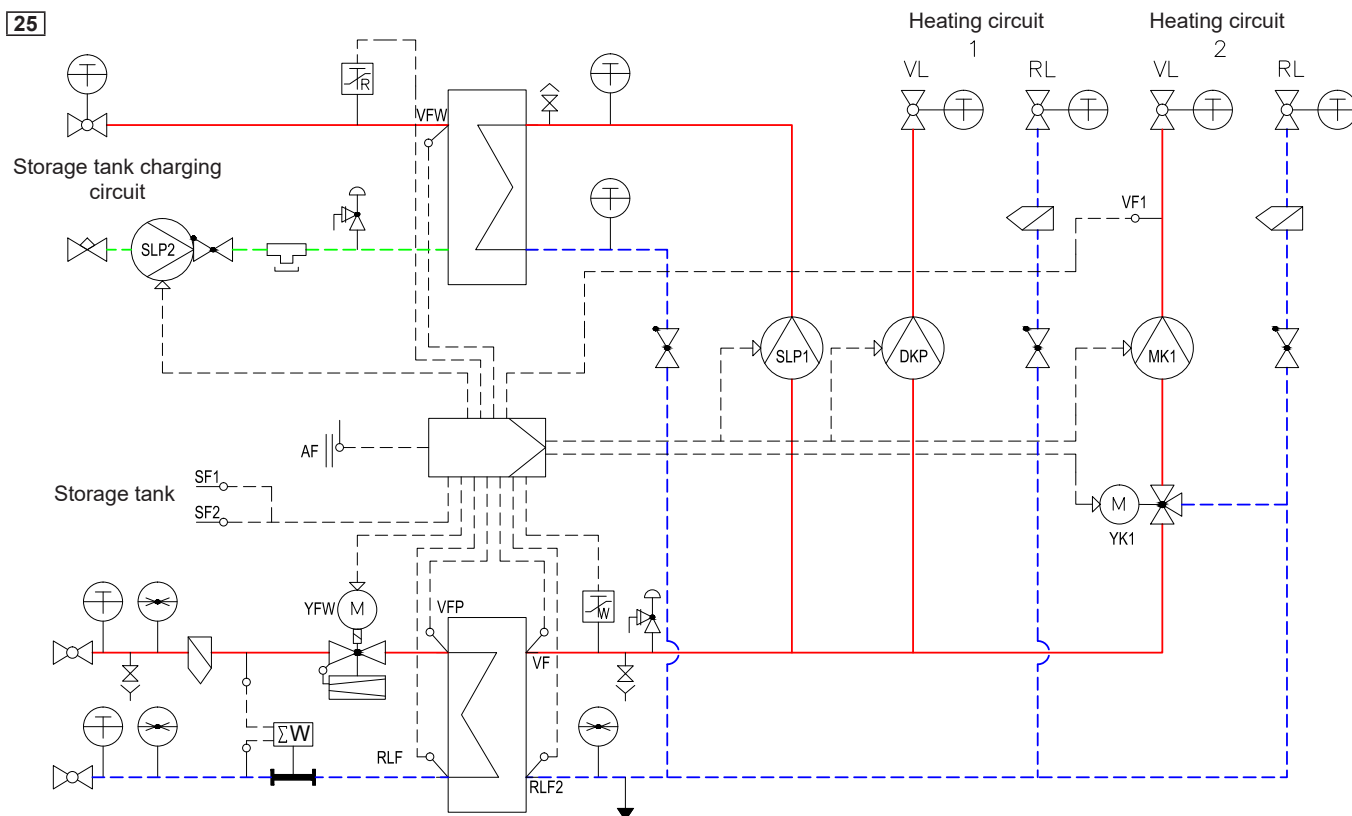
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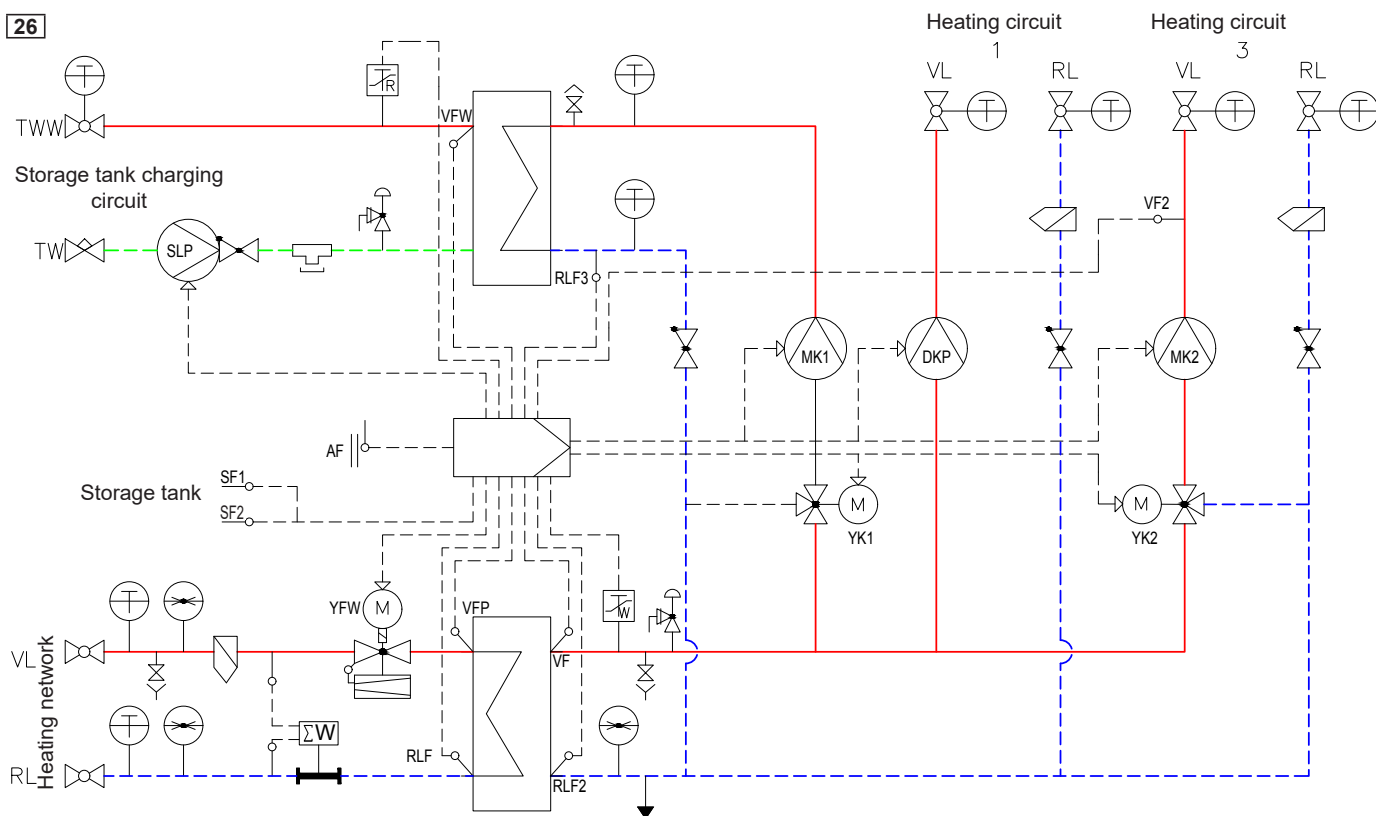
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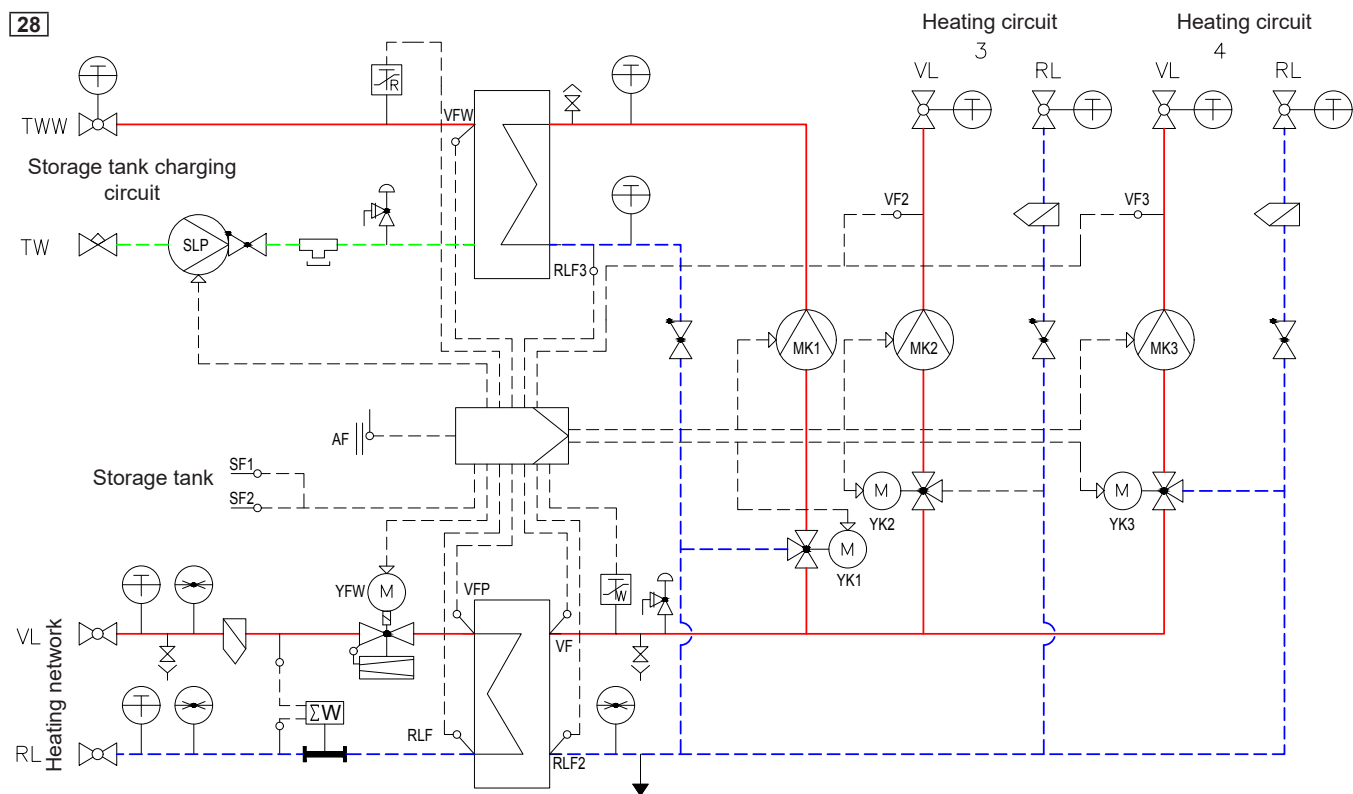
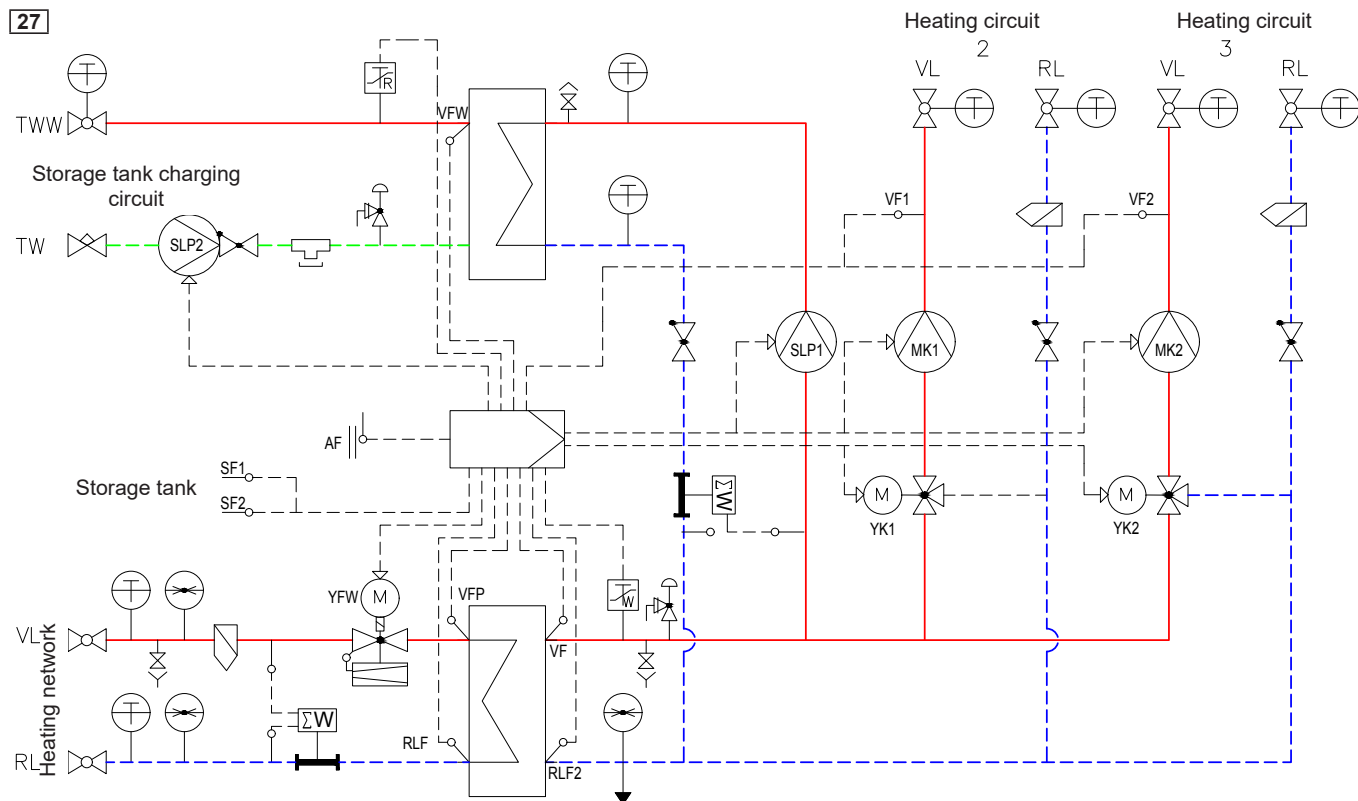


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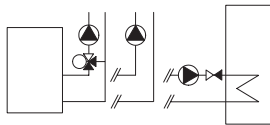
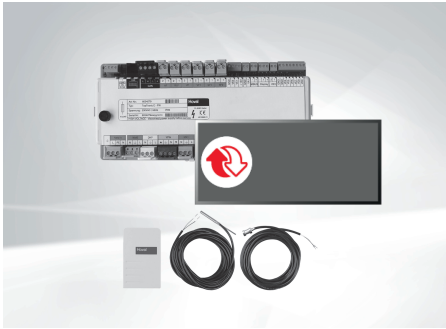


26





TopTronic® E basic module



TopTronic® E basic module district heating/fresh water TTE-FW

Controller mod. for controlling district heating systems in non-communicative networks and the corresponding consumers with integrated control functions for:

- primary valve control
- cascade management
- 1 heating circuit without mixer
- 1 heating circuit with mixer
- 1 hot water loading circuit
- various additional functions

Consisting of:

- TopTronic® E basic module district heating/fresh water incl. 2 mounting clips for top hat rail attachment
- 1 outdoor sensor AF/1.1P/K
- 1 immersion sensor TF/1.1P/2.5/6T, L = 2.5 m
- 1 contact sensor ALF/1.1P/2.5/T, L = 2.5 m
- complete plug set for DH module

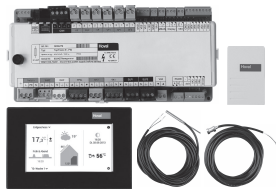
Notice

If the basic module is used without Hoval heat generator then a TopTronic® E control module must be ordered separately!

Notice

Depending on the complexity, module expansions are required for using the listed functions (max. 5 module expansions can be connected)!

TopTronic® E district heating controller set



TopTronic® E district heating controller set

Consisting of:

- TopTronic® E basic module district heating/fresh water
- TopTronic® E control module black
- outdoor sensor AF/1.1P/K
- immersion sensor TF/1.1P/2.5/6T, L = 2.5 m
- contact sensor ALF/1.1P/2.5/T, L = 2.5 m
- plug set for DH module

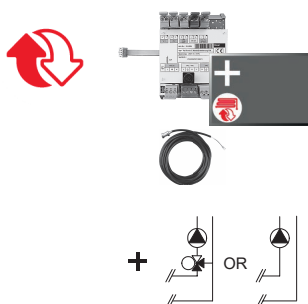
Part No.

6034 569

6038 523

TopTronic® E module expansions for TopTronic® E basic module district heating/fresh water

Max. 5 module expansions can be connected, of these, max. 3 module expansions heating circuit district heating



TopTronic® E module expansion heating circuit district heating TTE-FE HK FW

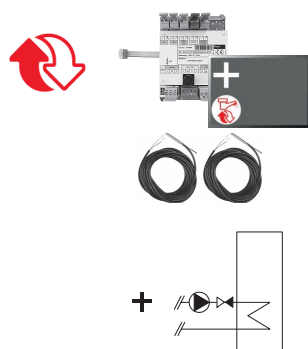
Expansion to the inputs and outputs of the basic module district heating/fresh water or basic module district heating com for carrying out the following functions:

- 1 heating/cooling circuit w/o mixer or
- 1 heating/cooling circuit with mixer

Consisting of:

- TopTronic® E module expansion district heating
- top hat rail with fitting accessories
- ribbon cable for connecting the device bus to the controller module
- connection set for connecting the controller module to the mains voltage
- 1 contact sensor ALF/1.1P/5/T with length 2.5 m
- complete plug set for module expansions district heating

6038 119



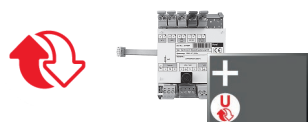
TopTronic® E module expansion hot water district heating TTE-FE WW FW

Expansion to the inputs and outputs of the basic module district heating/fresh water or basic module district heating com for implementing a hot water circuit

Consisting of:

- TopTronic® E module expansion district heating
- top hat rail with fitting accessories
- ribbon cable for connecting the device bus to the controller module
- connection set for connecting the controller module to the mains voltage
- 2 immersion sensors TF/1.1/2.5/T with length 2.5 m
- complete plug set for module expansions district heating

6038 120



TopTronic® E module expansion universal district heating TTE-FE UNI FW

Expansion to the inputs and outputs of the basic module district heating/fresh water or basic module district heating com for carrying out the following functions

Consisting of:

- TopTronic® E module expansion district heating
- top hat rail with fitting accessories
- ribbon cable for connecting the device bus to the controller module
- connection set for connecting the controller module to the mains voltage
- complete plug set for module expansions district heating

6038 117

Further information

See "Hoval TopTronic® E module expansions district heating" chapter

Notice

Refer to the Hoval System Technology to find which functions and hydraulic arrangements can be implemented.

TopTronic® E controller modules, control/room control modules, HovalConnect, wall casing, sensor
see separate chapter

TopTronic® E basic module district heating/fresh water

Type	TTE-FW
• Power supply max.	230 V AC +6/-10 %
• Frequency	50-60 Hz
• Min. power consumption	0.6 W
• Max. power consumption	5.4 W
• Fuse	H5.0AF
Output (low voltage)	
• Electromechanical relays	9
Output (extra-low voltage)	
• Signal output PWM or 0-10 V	4
Switching capacity	
• Electromechanical relays	5 A
Input (low voltage)	
• Optocoupler input	0
Inputs (extra-low voltage)	
• Input 0-10 V	4
• Inputs sensors	11
• Inputs flow rate sensor	0
• Pulse input	1
Expansion (module expansion)	
• Max. number	5
(of these, max. 3 module expansions heating circuit district heating)	
Casing	
• Installation	Top hat rail mounting
• Dimensions (W x H x D) incl. plug	250 x 120 x 75 mm
• Ambient temperature (during operation)	0...50 °C
• Humidity (in operation)	20...80 % RH, non-condensing
• Storage temperature	-20...60 °C
Bus system (Hoval CAN bus)	
• Capacity	max. 4 control modules / 3 control modules + 1 gateway
• Bus supply	yes
• Bus line	4-wire bus
• Bus length	twisted, shielded, max. 100 m
• Line cross-section	min. 0.5 mm ²
• Cable type (recommended)	JY-(ST) 2 x 2 x 0.6
Other bus interfaces	Internal unit bus (master)
	Mbus (master)
	RS485
Miscellaneous	
• Spring reserve	approx. 96 hours (supercapacitor)
• Type of protection	IP 20
• Protection class	I – EN 60730
• Plug types	Rast 5 (coloured, coded), alternative plug-in terminal technology

Electrical connection

TopTronic® E basic module district heating/fresh water



TopTronic® E basic module district heating com

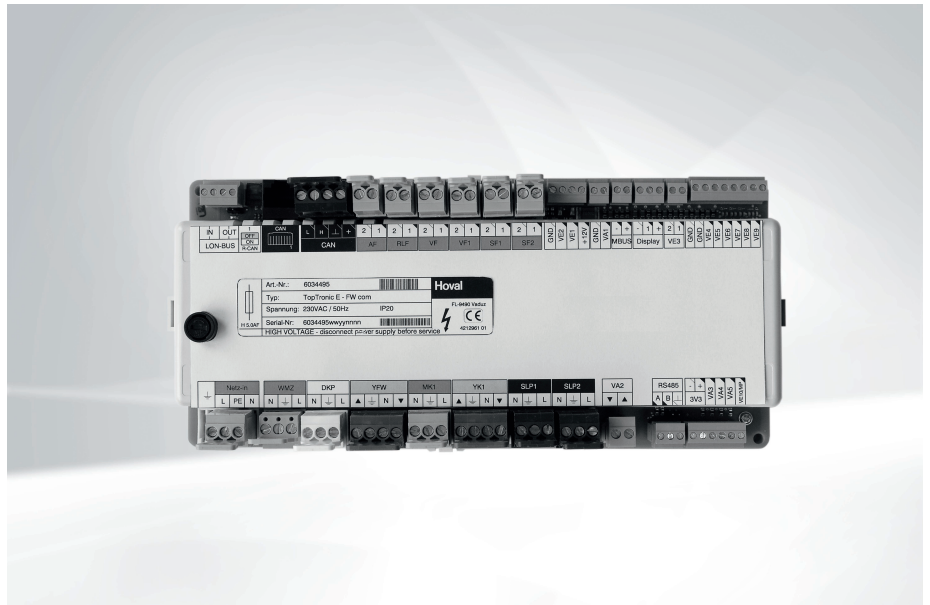
- Control unit for controlling district heating systems in communicative networks (communication interface for management system) and the corresponding consumers with integrated control functions for
 - Primary valve control
 - Cascade management
 - 1 heating circuit with mixer
 - 1 heating circuit without mixer
 - 1 DHW charging circuit
 - Various additional functions
- Connection technology partially executed as plug-in screw terminals in coded Rast5 design as well as conventional plug-in screw terminal technology
- Update capability of the controller software
- Time and date via integrated RTC, multi-day spring reserve via capacitor
- Microfuse 5 A
- Controller module suitable for cabinet installation thanks to ability to install on DIN rail 35 x 15 x 2.2 mm or 35 x 7.5 x 2.2 mm
- Multiple expansion possibilities via Hoval CAN bus:
 - max. 16 controller modules in the bus system
 - Cascade connection with up to 8 different heat generators possible
 - Cascade connection with up to 10 different transfer stations possible
 - can be extended to up to 48 heating circuits

Notice

Operation of the controller module is generally via the TopTronic® E control module installed in the heat generator!
If the controller module is used without Hoval heat generator then the control module for operating the basic module district heating com and a wall casing with control module cut-out must be ordered separately!

Inputs and outputs

- 230 V 3-point output for activating the primary valve or pilot control of a buffer storage solution
- 230 V 3-point output, e.g. for controlling the mixer
- 230 V output, e.g. for controlling the recirculation pump
- 230 V continuous phase, e.g. for supplying the heat meter
- Volt-free contact for outputting an alarm message
- 0-10 V input, e.g. for connecting to heating zone control systems or for integrating and additional heat generator via 0-10 V interface or switching contact (e.g.: solid-fuel boiler, etc.)
- 0-10 V or PWM output for controlling a variable-speed pump
- 0-10 V outputs for controlling continuous valves (e.g. for a primary valve and a mixing circuit valve)
- Variable inputs and outputs:
 - 230 V output, e.g. for controlling the direct circuit pump, feed pump
 - 230 V output, e.g. for controlling the storage tank charging pump
 - 230 V output, e.g. for controlling the recirculation pump
 - 2 analog inputs 4-20 mA/0-10 V for reference value specification
 - 1 analog output 4-20 mA






Notice

Max. 5 module expansions can be connected to the TopTronic® E basic module, thereof max. 3 module expansions for heating circuits district heating (i.e. max. 4 mixer circuits, 1 direct heating circuit). However, a maximum of 4 control modules can be installed per basic module district heating. This means that not every heating circuit can be equipped with a control module! Room control is possible only for the direct and 2 mixed heating circuits. In the master/slave group, an additional mixer circuit with room control function can be used on the slave controller. If further heating circuits with control modules are required, heating circuit/hot water modules can also be combined with the basic module district heating (max. 48 heating circuits).

- MBus interface for reading out max. 16 MBus meters
- LON bus interface for communication with the HovalSupervisor control system

Option

- Can be expanded by max. 5 module expansions (expansion of the inputs/outputs), thereof max. 3 module expansions heating circuit district heating:
 - Module expansion heating circuit district heating (1 heating circuit with/without mixer) or
 - Module expansion hot water district heating (1 hot water loading circuit) or
 - Module expansion Universal district heating (various special functions)
- Can be expanded with various accessories:
 - Ethernet connection TTE-FW com
 - Repeater TTE-FW com LON bus
 - Router TTE-FW com CAN bus
 - Data socket 13-pin TTE-FW com LON bus and lightning protection
 - various software licences for HovalSupervisor
 - various services for HovalSupervisor

-  TopTronic® E module expansion Heating circuit district heating
-  TopTronic® E Module expansion hot water district heating
-  TopTronic® E module expansion Universal district heating

Functions

- Update capability of the controller software via central data network
- 100 % parameter setting capability of the complete controller via the HovalSupervisor central management system
- Weather-supported flow temperature controller for heating operation with or without room influence taking account of building characteristics and switch-on optimisation
- Optimisation of the heating circuit flow temperatures and improvement in the room climate taking account of the weather forecast (only possible in combination with HovalConnect)
- Different basic programs (week programs, eco mode, holiday, etc.) can be defined for each heating circuit plus ability to activate manual operation (construction site mode)
- Separate switching time programs for each heating circuit as well as for hot water with
 - 2 individually preset week programs comprising
 - 5 different - individually preset day programs with
 - 6 switching points per day
- Different temperatures can be set for each switching cycle

- Various functions for hot water:
 - Selection of different basic programs (week programs, eco mode, holiday, etc.)
 - various operating modes (e.g. accumulator priority or parallel mode)
 - Buffer storage circuit on the primary or secondary side
 - adjustable loading criteria (e.g.: adjustable loading times, undershooting the minimum nominal value, etc.)
 - adjustable switch-off criteria (e.g. achieving the setpoint value, achieving the lower sensor setpoint value, etc.)
 - adjustable loading block (if the loading flow temperature is too low, the setpoint temperature is not reached, differential temperature-dependent solar circuit control)
- Definable switching times for recirculation pump control
- Automatic changeover of summer/winter time
- Heating characteristic adaptation possible for each individual heating circuit
- Screed drying function for underfloor heating
- Requirement contact for constant requirements (ventilation, swimming pool, ...)
- Modem switching function
- Pump anti-blocking protection
- Frost protection function
- Cascade management that is activated following the combination with other basic modules (up to 8 heat generators)
- Cascade connection of 10 district heating stations in master/slave combination possible
- Definition of priorities for switching over between heating and hot water operation
- Operating hours and pulse counter
- Electronic output power limit by heat meter
- Outdoor temperature-dependent return limitation
- Reduction characteristic curve for network protection
- Integrated event memory
- Buffer storage circuit can be connected on the primary or secondary side of the heat exchanger
- Warm water input circuit
- Self-test with error diagnosis and error memory

- Relay test for each output can be activated separately
- Zero passage circuit
The TopTronic® E basic module district heating com has a special zero passage circuit of the fitted relays. This is used for reducing the load on the switching contacts, and thus increases the service life of the relays.
- Functions that can be implemented with module expansions:
 - heating circuit without mixer
 - heating circuit with mixer or
 - hot water charging circuits
 - various additional functions

Notice

Depending on the complexity, module expansions are required for using the listed functions (max. 5 module expansions can be connected)!

Application

- Control of district heating stations or other transfer stations (buffer storage solutions) in a very wide power range
- Control for multiple heat generator/district heating systems by integrated cascade management:
 - 10 district heating stations by master/slave connection or
 - 8 different heat generators
- Flexible connection to the management system
- For room heating and hot water charging circuit
- For optimisation of the room climate by control algorithm taking account of the weather forecast (only possible in combination with HovalConnect)
- Upstream control for technical systems such as ventilation, air conditioning systems, etc. or also for heating zone control systems
- For decentralised assembly - remote from the control module - directly at the sensors and actuators:
 - Installation in wall casing/control panel
 - Connection to the operating unit via Hoval CAN bus
- With significant expansion capability by controller modules via the Hoval CAN bus
- For flexible integration of heat generators in modern communication systems via different interfaces
- For remote connection of heat generators via HovalConnect

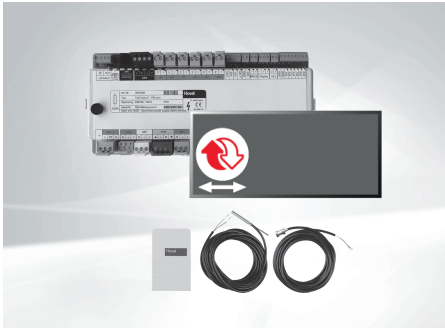
Delivery

- TopTronic® E basic module district heating com
- 2 mounting clips for DIN rail attachment
- 1 outdoor sensor AF/1.1P/K
- 1 immersion sensor TF/1.1P/2.5/6T, L = 2.5 m
- 1 contact sensor ALF/1.1P/2.5/T, L = 2.5 m
- Complete plug set for district heating module

Functions that can be implemented

see TopTronic® E basic module district heating/fresh water/hydraulic applications

TopTronic® E basic module



TopTronic® E basic module district heating com TTE-FW com

Control unit for controlling district heating systems in communicative networks (communication interface for management system) and the corresponding consumers with integrated control functions for

- Primary valve control
- Cascade management
- 1 heating circuit without mixer
- 1 heating circuit with mixer
- 1 DHW charging circuit
- Various additional functions

Consisting of:

- TopTronic® E basic module district heating communicative incl. 2 mounting clips for DIN rail attachment
- 1 outdoor sensor AF/1.1P/K
- 1 immersion sensor TF/1.1P/2.5/6T, L = 2.5 m
- 1 contact sensor ALF/1.1P/2.5/T, L = 2.5 m
- Complete plug set for district heating module

Notice

If the basic module is used without Hoval heat generator then a TopTronic® E control module must be ordered separately!

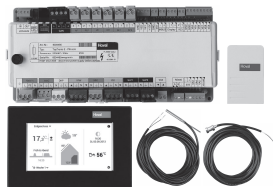
Notice

Depending on the complexity, module expansions are required for using the listed functions (max. 5 module expansions can be connected)!

Part No.

6034 570

TopTronic® E district heating controller set



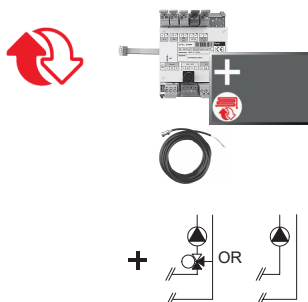
Communicative district heating controller set TopTronic® E

Consisting of:

- TopTronic® E basic module district heating com
- TopTronic® E control module black
- 1 outdoor sensor AF/1.1P/K
- 1 immersion sensor TF/1.1P/2.5/6T, L = 2.5 m
- 1 contact sensor ALF/1.1P/2.5/T, L = 2.5 m
- Complete plug set for district heating module

6038 524

TopTronic® E module expansions for TopTronic® E basic module district heating com



Max. 5 module expansions can be connected, thereof max. 3 module expansions heating circuit district heating

TopTronic® E module expansion Heating circuit district heating TTE-FE HK FW

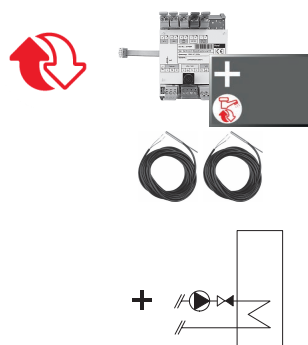
Expansion to the inputs and outputs of the basic module district heating/fresh water or basic module district heating com for implementing the following functions:

- 1 heating/cooling circuit without mixer or
- 1 heating/cooling circuit with mixer

Consisting of:

- TopTronic® E module expansion district heating
- DIN rail with fitting accessories
- Ribbon cable for connecting the device bus to the controller module
- Connection set for connecting the controller module to the mains voltage
- 1 contact sensor ALF/1.1P/2.5/T, L = 2.5 m
- Complete plug set for module expansions district heating

6038 119



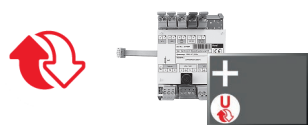
TopTronic® E module expansion Domestic hot water district heating TTE-FE WW FW

Expansion to the inputs and outputs of the basic module district heating/fresh water or the basic module district heating com for implementing a hot water circuit

Consisting of:

- TopTronic® E module expansion district heating
- DIN rail with fitting accessories
- Ribbon cable for connecting the device bus to the controller module
- Connection set for connecting the controller module to the mains voltage
- 2 immersion sensors TF/1.1P/2.5/6T, L = 2.5 m
- Complete plug set for module expansions district heating

6038 120



TopTronic® E module expansion Universal district heating TTE-FE UNI FW

Expansion to the inputs and outputs of a basic module district heating/fresh water or a basic module district heating com for implementing various functions

Consisting of:

- TopTronic® E module expansion district heating
- DIN rail with fitting accessories
- Ribbon cable for connecting the device bus to the controller module
- Connection set for connecting the controller module to the mains voltage
- Complete plug set for module expansions district heating

6038 117

Notice

Refer to the Hoval System Technology to find which functions and hydraulic arrangements can be implemented.

Further information

See "Hoval TopTronic® E module expansions" chapter



Ethernet connection TopTronic® E district heating com

- Communication module expansion for TopTronic® E basic module district heating com
- TCP/IP interface for communication with the HovalSupervisor management system
- Top hat rail mounting directly adjacent to the basic module
- Connection to the basic module via ribbon cable
- Dimensions: 46 x 125 x 51 (L x W x H)



Repeater TopTronic® E district heating com LON bus

- Repeater as electrical signal booster of the LON bus network
- Used for increasing the range of the signal when there are long distances between the control centre and the individual TopTronic® E basic module district heating com controller modules
- Positioning of the repeaters depending on the data network (routing type, cable type, length, etc.) at different points in the network
- Electrical power supply 230 VAC
- Dimensions: 71 x 92 x 60 (L x W x H)

Notice

After 5 repeaters, a router must be used for boosting the signal. Article on request.



Router TopTronic® E district heating com - CAN bus

- Interface between the Hoval LON bus network and HovalSupervisor
- Interface between the Hoval TCP/IP network and HovalSupervisor
- Serves as a physical interface between the data stream of the district heating network and e.g. master computer with TCP/IP interface
- Possibility of connecting differential pressure sensors variable inputs 0 - 10 V or 0/4 - 20 mA
- Router can be installed in control panel with DIN-rail mounting
- Temperature and pressure control for up to five strands or 5 heating circuits
- Dimensions: 355 x 120 x 75 (L x W x H)

TopTronic® E control module black for operating the router (optional) and mating connector set must be ordered separately.

Part No.

2044 995

2045 034

6047 303



**Data socket TopTronic® E
district heating com**

LON bus and lightning protection

- Data socket for connecting the telecommuni-
cation cable at the building connection
- Connection must be made according
to the appropriate applicable regulations
- Data sockets must also be installed
with dummy connections
- 1 pce. input block 13-pin
- 2 pcs. output blocks each 13-pin
- 2 pcs. 3-pin outputs to controller and
repeater
- Damp room socket IP55, dimensions:
180 x 140 x 75 (L x W x H),
incl. 10 stepped nipples

**TopTronic® E controller modules,
Room control modules, HovalConnect,
wall casings, sensors**
see separate chapters

Part No.

2061 738

TopTronic® E basic module district heating com

Type	TTE-FW com
• Power supply max.	230 V AC +6/-10 %
• Frequency	50-60 Hz
• Min. power consumption	0.7 W
• Max. power consumption	5.4 W
• Fuse	H5.0AF
Output (low voltage)	
• Electromechanical relays	9
Output (extra-low voltage)	
• Signal output PWM or 0-10V	4
Switching capacity	
• Electromechanical relays	5A
Input (low voltage)	
• Optocoupler input	0
Inputs (extra-low voltage)	
• Input 0-10 V	4
• Inputs sensors	11
• Flow rate sensor inputs	0
• Pulse input	1
Expansion (module expansion)	
• Max. number (thereof max. 3 module expansions heating circuit district heating)	5
Casing	
• Installation	Top hat rail mounting
• Dimensions (W x H x D) incl. plug	250 x 120 x 75 mm
• Ambient temperature (during operation)	0 ... 50 °C
• Humidity (in operation)	20...80% RH, non-condensing
• Storage temperature	-20...60 °C
Bus system (Hoval CAN bus)	
• Capacity	Max. 4 control modules / 3 control modules + 1 gateway
• Bus supply	Yes
• Bus line	4-wire bus
• Bus length	Twisted, shielded, max. 100 m
• Line cross-section	Min. 0.5 mm ²
• Cable type (recommended)	JY-(ST) 2 x 2 x 0.6
Other bus interfaces	Internal unit bus (master) Mbus (master) LON (slave, encrypted) RS485 TCP/IP optional
Miscellaneous	
• Spring reserve	Approx. 96 hours (supercapacitor)
• Type of protection	IP 20
• Protection class	I – EN 60730
• Plug types	Rast5 (coloured, coded), alternative plug-in terminal technology

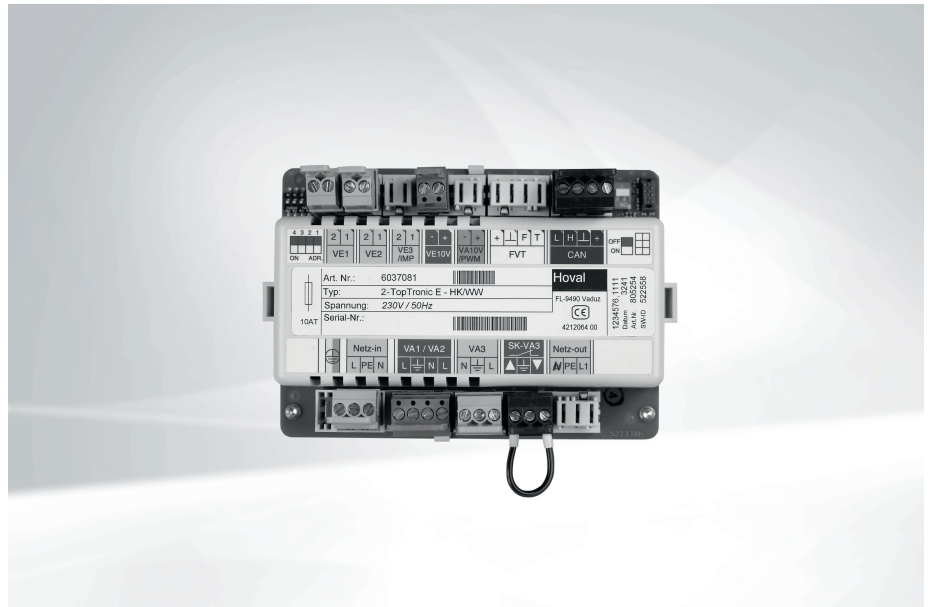
Electrical connection

TopTronic® E basic module district heating com



TopTronic® E heating circuit/ hot water module

- Control unit for controlling consumers with integrated control functions for:
 - 1 heating/cooling circuit with mixer or
 - 1 heating/cooling circuit without mixer or
 - 1 DHW loading circuit
 - Various additional functions
- Connection technology executed as plug-in screw terminals in coded RAST-5 design
- Update capability of the controller software
- Time and date via integrated RTC, multi-year spring reserve
- Fine fuse 10 A
- Control unit suitable for cabinet installation thanks to ability to install on DIN rail 35 x 15 x 2.2 mm
- Expansion possibilities via Hoval CAN bus:
 - max. 16 controller modules in the bus system
 - max. 16 heating circuit/hot water modules in the bus system



Notice

Operation of the controller module is generally via the TopTronic® E control module installed in the heat generator!
If the control module is used without Hoval heat generator, the control module for operating the heating circuit/domestic hot water module and a wall casing with control module cut-out must be ordered separately!

Notice

Max. 2 module expansions can be connected.



TopTronic® E
module expansion
heating circuit



TopTronic® E
module expansion
Universal

Inputs and outputs

- 3 variable sensor inputs:
 - 2x variable input for connection of a sensor
 - 1x variable input for connection of a sensor or pulse sensor
- 0-10V input, e.g. for connecting to heat zone control systems
- 0-10V or PWM output for controlling a variable-speed pump
- Connection of a flow rate sensor (or pulse sensor), e.g. for heat metering at the heat generator or with hot water
- Variable 230V 3-point output, e.g. for controlling the mixer
- Variable 230V output, e.g. for controlling the recirculation pump
- 230V optocoupler input connected in series to the variable 230V output, e.g. for connecting a flow temperature guard for monitoring underfloor heating systems

Option

- Can be expanded by max. 2 module expansions (expansion of the inputs/outputs):
 - Module expansion heating circuit (1 heating/cooling circuit with/without mixer) or
 - Module expansion Universal (various special functions)

Functions

- Simple configuration and parameter setting of the plant by predefined hydraulic and function applications
- Weather-supported flow temperature controller for cooling operation with or without room influence taking account of building characteristics and switch-on optimisation

- Optimisation of the heating circuit flow temperatures and improvement in the room climate taking account of the weather forecast (only possible in combination with HovalConnect)
- Different basic programs (week programs, economy mode, holiday until, etc.) can be defined for each heating/cooling circuit plus ability to activate manual operation (construction site mode)
- Separate switching time programs for each heating/cooling circuit as well as for hot water with
 - 2 individually preset week programs comprising
 - 5 different - individually preset - day programs with
 - 6 switching points per day
- Different temperatures can be set for each switching cycle
- Various functions for hot water:
 - Selection of different basic programs (week programs, economy mode, holiday until, etc.)
 - various operating modes (e.g. accumulator priority or parallel mode)
 - adjustable storage tank pump post-operation
 - Storage tank discharge protection
 - Limiting and protection functions
- Definable switching times for recirculation pump control
- Automatic changeover of summer/winter time
- Heating characteristic adaptation possible for each individual heating circuit
- Screed drying function for underfloor heating
- Requirement contact for constant requirements (ventilation, swimming pool, etc.)
- Modem switching function
- Free timer switch channel

- Pump anti-blocking protection
- Frost protection function
- Heat balancing for heat circuit or hot water
- Plant flow control (3-point mixer for controlling the plant reference temperature)
- Thermostat function
- Self-test with error diagnosis and error memory
- Relay test for each output can be activated separately
- Functions that can be implemented with module expansions:
 - Heating/cooling circuits without mixer
 - Heating/cooling circuits with mixer or
 - hot water loading circuits

Notice

Depending on the complexity, module expansions are required for using the listed functions (max. 2 module expansions can be connected)!

Use

- For room heating/cooling or hot water charging circuit
- For optimisation of the room climate by control algorithm taking account of the weather forecast (only possible in combination with HovalConnect)
- Upstream control for technical systems such as ventilation, air conditioning systems, etc. or also for heating zone control systems

- For decentralised assembly - remote from the control module - directly at the sensors and actuators (regulating armature located a long way away):
 - Installation in wall casing/control panel
 - Connection to the operating unit via Hoval CAN bus
- With significant expansion capability by controller modules via the Hoval CAN bus
- For flexible integration in modern communication systems via different interfaces
- For remote connection via HovalConnect

Delivery

- TopTronic® E heating circuit/hot water module incl. 2x mounting clips for DIN rail attachment
- DIN rail with fitting accessories
- 2x immersion sensor TF/2P/5/6T, L = 5.0 m
- 1x contact sensor ALF/2P/4/T, L = 4.0 m
- Basic plug set for controller module
 - Mains in
 - Plug for 230V output (VA3)
(direct circuit pump, mixer circuit pump)
 - Plug for 2x 230V output (mixer) (VA1/VA2)
 - Plug for optocoupler input (SK-VA3)
(flow temperature guard)
 - 2x plug for sensor (VE1/VE2)
 - Plug for 0-10V or PWM output (VA10V)
 - Plug for Hoval CAN bus

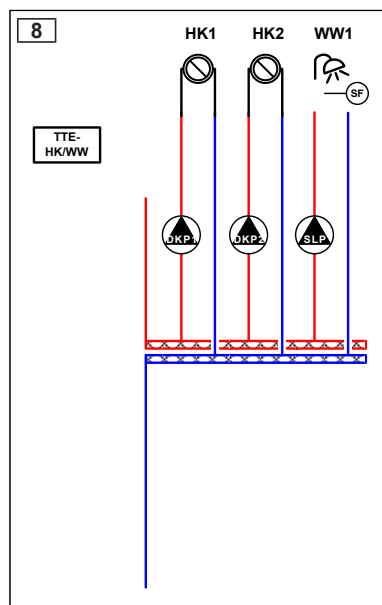
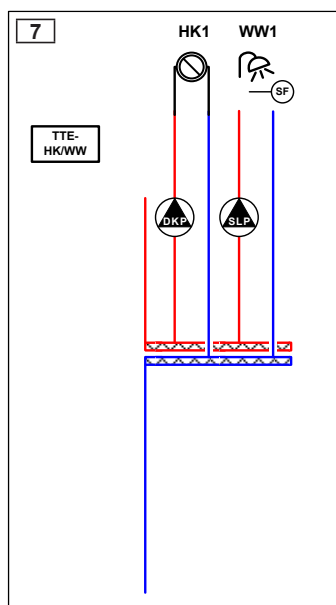
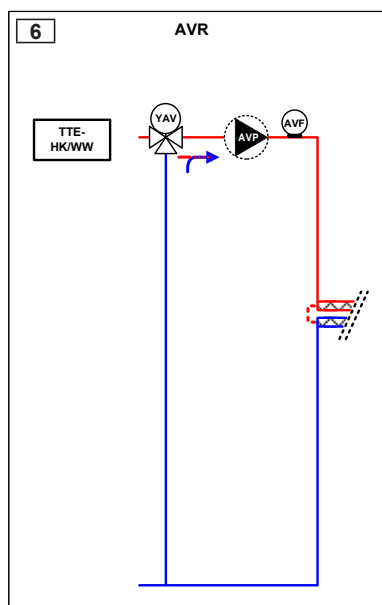
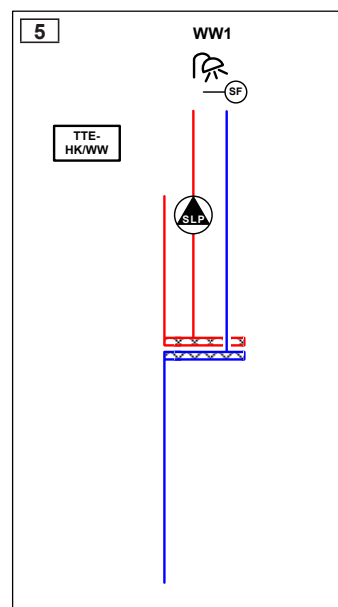
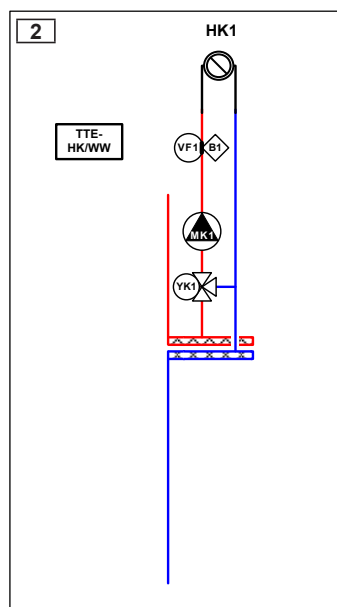
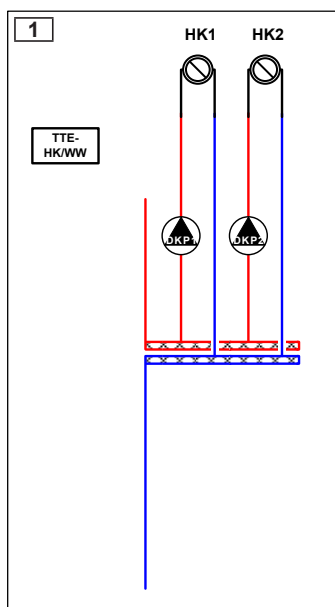
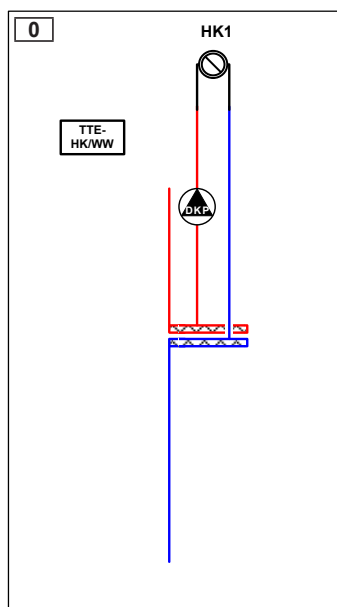
Notice

The supplementary plug set may have to be ordered to implement functions differing from the standard!

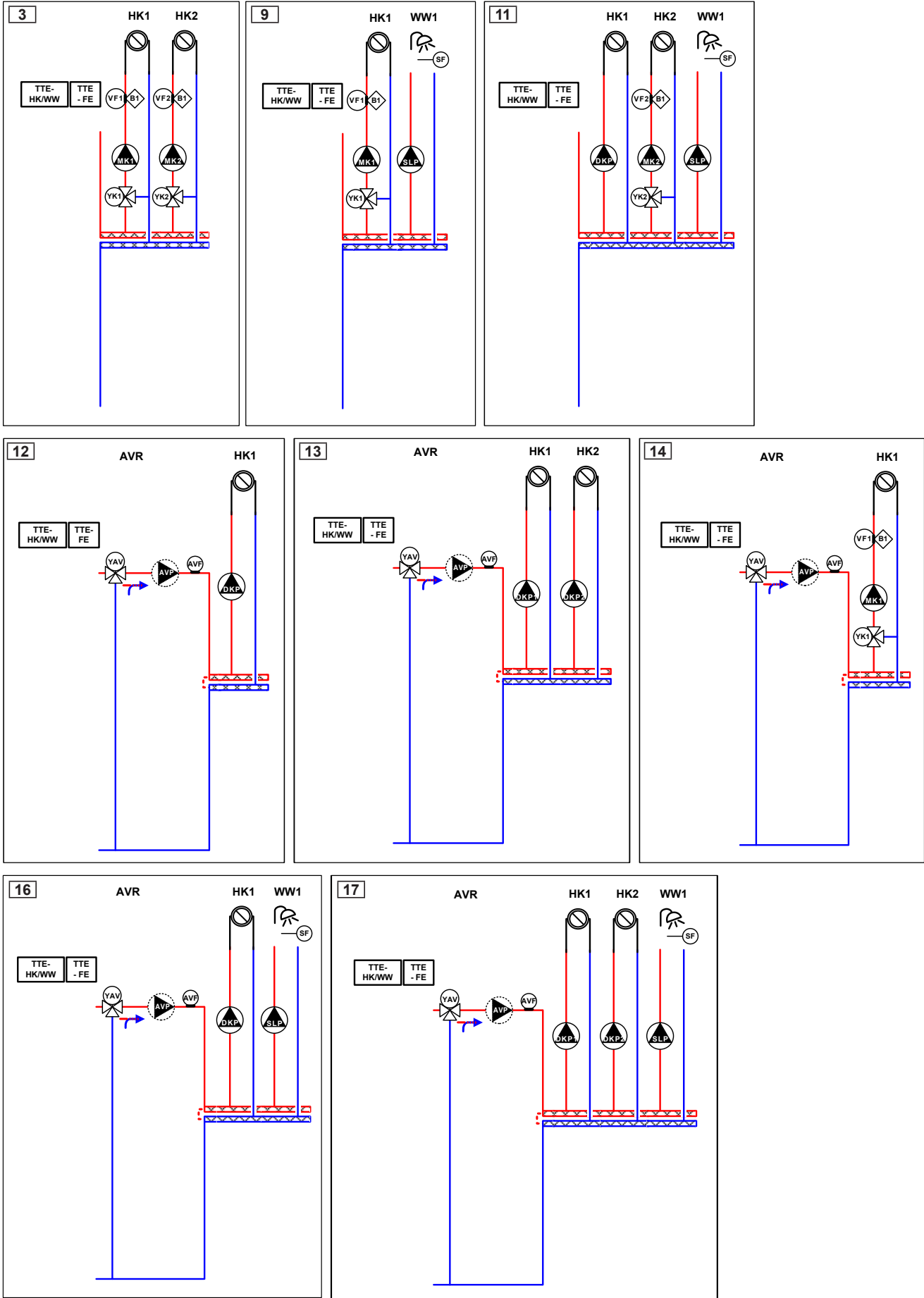
Functions that can be implemented

TopTronic® E heating circuit/hot water module

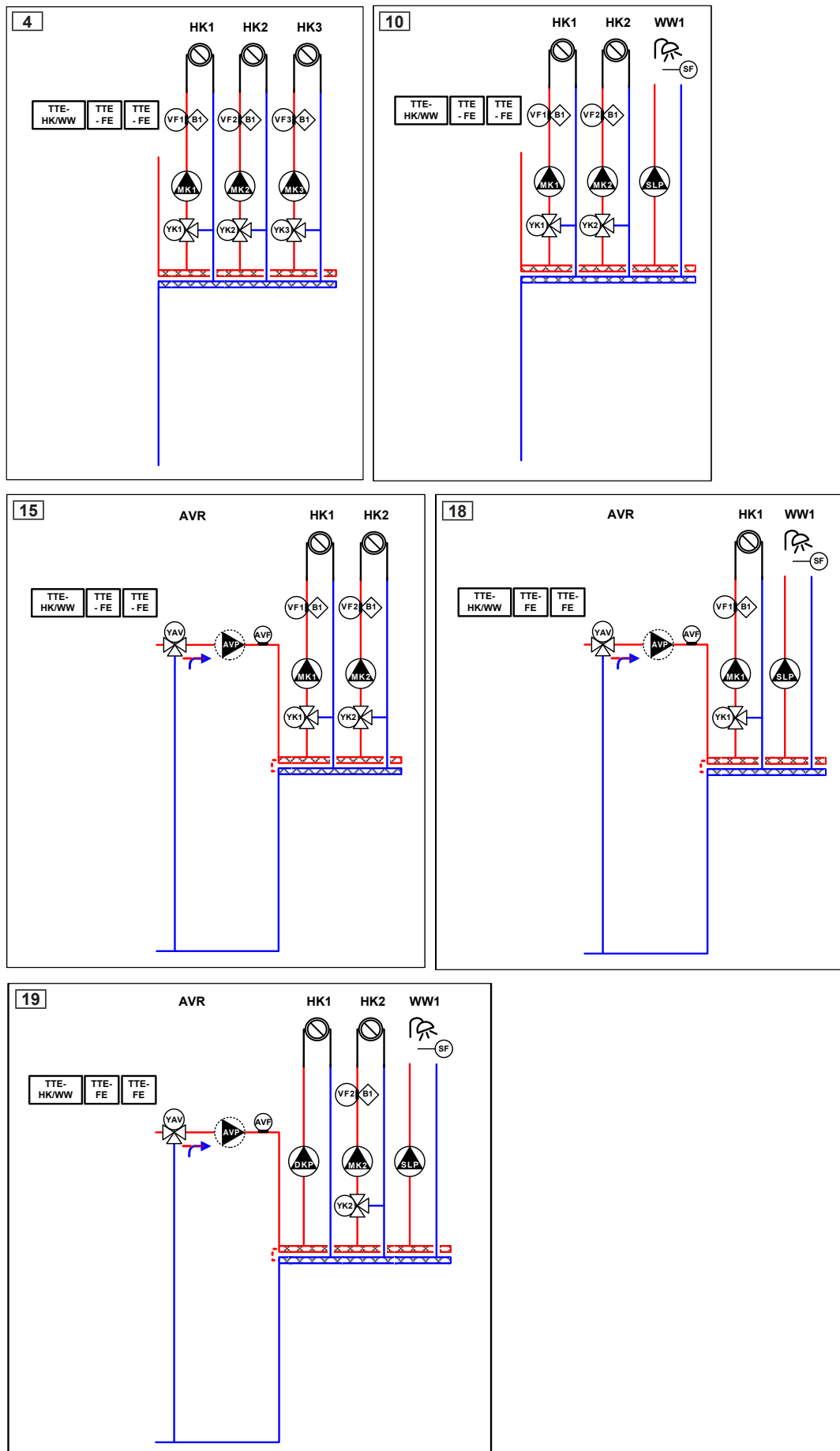
TTE-HK/ WW	Plant flow control	1 direct heating circuit	2 direct heating circuits	1 mixed heating circuit	2 mixed heating circuits	3 mixed heating circuits	1 calorifier
Hydr. 0		X					
Hydr. 1			X				
Hydr. 2				X			
Hydr. 3					X		
Hydr. 4						X	
Hydr. 5							X
Hydr. 6	X						
Hydr. 7		X					X
Hydr. 8			X				X
Hydr. 9				X			X
Hydr. 10					X		X
Hydr. 11		X		X			X
Hydr. 12	X	X					
Hydr. 13	X		X				
Hydr. 14	X			X			
Hydr. 15	X				X		
Hydr. 16	X	X					X
Hydr. 17	X		X				X
Hydr. 18	X			X			X
Hydr. 19	X	X		X			X



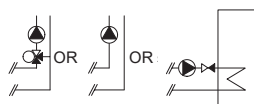
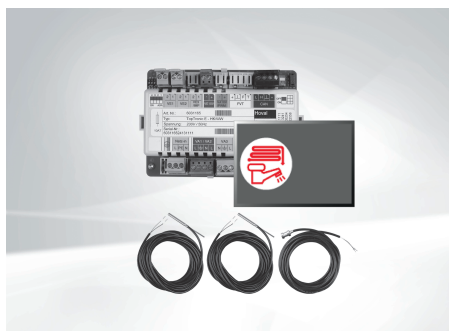
TopTronic® E heating circuit/hot water module and 1 module expansion



TopTronic® E heating circuit/hot water module and 2 module expansions



TopTronic® E controller module



TopTronic® E heating circuit/hot water module TTE-HK/WW

Controller module for controlling consumers with integrated control functions for:

- 1 heating/cooling circuit w/o mixer or
- 1 heating/cooling circuit with mixer or
- 1 hot water loading circuit
- various additional functions

Consisting of:

- TopTronic® E heating circuit/hot water module incl. 2 pcs. mounting clips for top hat rail attachment
- 2 pcs. immersion sensor TF/2P/5/6T, L = 5 m
- 1 pce. contact sensor ALF/2P/4/T, L = 4 m
- basic plug set for controller module:
 - mains in
 - plug for 230 V output (VA3) (direct circuit pump, mixer circuit pump)
 - plug for 2x 230V output (mixer) (VA1/VA2)
 - plug for optocoupler input (SK-VA3) (flow temperature monitor)
 - 2x plugs for sensors (VE1/VE2)
 - Plug for 0-10V or PWM output (VA10V)
- top hat rail with fitting accessories

Notice

If the controller module is used without Hoval heat generator then a TopTronic® E control module must be ordered separately!

Notice

Depending on the complexity, module expansions are required for using the listed functions (max. 2 module expansions can be connected)!

Notice

The supplementary plug set may have to be ordered to implement functions differing from the standard!



Supplementary plug set

for controller modules and module expansion TTE-FE HK

Consisting of Rast-5 mating plugs for connecting further sensors and actuators on the controller module or on the module expansion. The controller module is already equipped with a basic plug set, the supplementary plug set is required for advanced functions.

Consisting of:

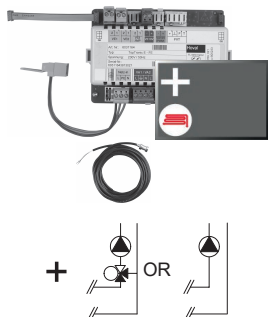
- Plug for mains out
- Plug for sensor (variable input) (VE3)
- Plug for 0-10 V input (VE10V)
- Plug for flow rate sensor (FVT)

Part No.

6034 571

6034 503

TopTronic® E module expansions for TopTronic® E heating circuit/hot water module



Max. 2 expansions can be connected.

TopTronic® E module expansion heating circuit TTE-FE HK

Expansion to the inputs and outputs of the basic module heat generator or the heating circuit/domestic hot water module for implementing the following functions:

- 1 heating/cooling circuit w/o mixer or
- 1 heating/cooling circuit with mixer

Consisting of:

- TopTronic® E module expansion
- top hat rail with fitting accessories
- ribbon cable for connecting the
- device bus to the controller module
- connection set for connecting the
- controller module to the mains voltage
- 1 pce. contact sensor ALF/2P/4/T, L = 4.0 m
- basic plug set for module expansions:
 - Plug for 230 V output (VA3)
(direct circuit pump, mixer circuit pump)
 - Plug for 2x 230V output (mixer) (VA1/VA2)
 - Plug for optocoupler input (SK-VA3)
(flow temperature monitor)
 - 2x plugs for sensors (VE1/VE2)
 - Plug for 0-10 V or PWM output (VA10V)

Notice

The supplementary plug set may have to be ordered to implement functions differing from the standard!



Supplementary plug set

for controller modules and module expansion TTE-FE HK

Consisting of Rast-5 mating plugs for connecting further sensors and actuators on the controller module or on the module expansion. The controller module is already equipped with a basic plug set, the supplementary plug set is required for advanced functions.

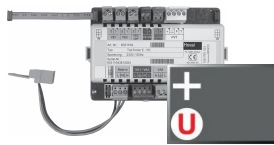
Consisting of:

- Plug for mains out
- Plug for sensor (variable input) (VE3)
- Plug for 0-10 V input (VE10V)
- Plug for flow rate sensor (FVT)

Part No.

6034 576

6034 503



TopTronic® E module expansion Universal TTE-FE UNI

Expansion to the inputs and outputs of a controller module (basic module heat generator, heating circuit/domestic hot water module, solar module, buffer module) for implementing various functions

Consisting of:

- TopTronic® E module expansion
- top hat rail with fitting accessories
- ribbon cable for connecting the device bus to the controller module
- connection set for connecting the controller module to the mains voltage
- complete plug set for module expansions

Further information

See "Hoval TopTronic® E module expansions" chapter

TopTronic® E controller modules, control/room control modules, HovalConnect, wall casing, sensor
see separate chapter

Part No.

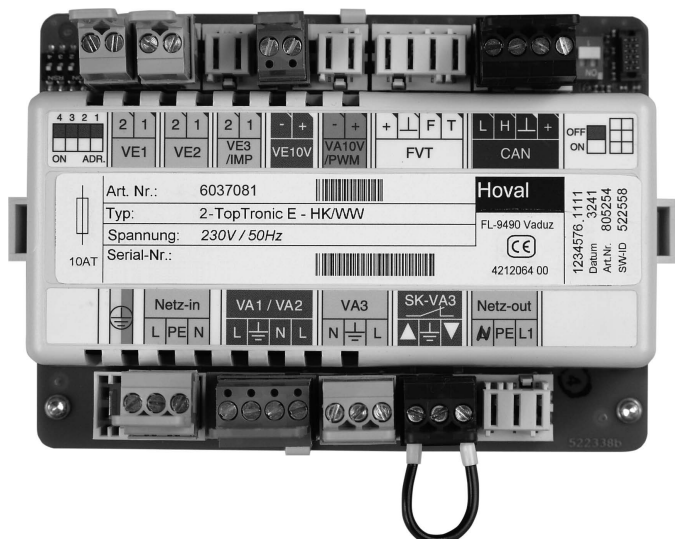
6034 575

TopTronic® E heating circuit/hot water module

Type	TTE-HK/WW
• Power supply max.	230 V AC +6/-10 %
• Frequency	50-60 Hz
• Min. power consumption	0.8 W
• Max. power consumption	7.8 W
• Fuse	10 A slow-blow
Output (low voltage)	
• Electromechanical relays	3
Output (extra-low voltage)	
• Signal output PWM or 0-10 V	1
Switching capacity	
• Electromechanical relays	3 A
Input (low voltage)	
• Optocoupler input	1
Inputs (extra-low voltage)	
• Input 0-10 V	1
• Inputs sensors	2
• Inputs flow rate sensor	1
• Pulse input	1 (can be switched over to sensor)
Expansion (module expansion)	
• Max. number	2
Casing	
• Installation	Top hat rail mounting
• Dimensions (W x H x D) incl. plug	150 x 100 x 75 mm
• Ambient temperature (during operation)	0...50 °C
• Humidity (in operation)	20...80 % RH, non-condensing
• Storage temperature	-20...60 °C
Bus system (Hoval CAN bus)	
• Capacity	max. 4 control modules / 3 control modules + 1 gateway
• Bus supply	yes
• Bus line	4-wire bus
• Bus length	twisted, shielded, max. 100 m
• Line cross-section	min. 0.5 mm²
• Cable type (recommended)	JY-(ST) 2 x 2 x 0.6
Other bus interfaces	Internal unit bus (master)
Miscellaneous	
• Spring reserve	approx. 10 years, battery buffered
• Type of protection	IP 20
• Protection class	I – EN 60730
• Plug types	Rast 5 (coloured, coded)

Electrical connection

TopTronic® E heating circuit/hot water module



TopTronic® E solar module

- The controller module is suitable for use as differential temperature control, control of thermal solar plants, for heating process water and/or heating support.
- The controller module contains predefined hydraulic applications for different applications or plants.
- The solar yield calculation calculates the current output, the split yield in kWh as well as the total yield in MWh.
- Control unit with integrated regulating functions for:
 - One/two circuit solar energy plants
 - integrated heat balancing
 - Various additional functions
- Connection technology executed as plug-in screw terminals in coded RAST-5 design
- Update capability of the controller software
- Time and date via integrated RTC, multi-year spring reserve
- Fine fuse 10 A
- Control unit suitable for cabinet installation thanks to ability to install on DIN rail 35 x 15 x 2.2 mm
- Expansion possibilities via Hoval CAN bus:
 - max. 16 controller modules in the bus system
 - max. 16 solar modules in the bus system

Notice

Operation of the controller module is generally via the TopTronic® E control module installed in the heat generator!
If the control module is used without Hoval heat generator, the control module for operating the solar module and a wall casing with control module cut-out must be ordered separately!

Inputs and outputs

- 3 variable sensor inputs:
 - 2 variable inputs for connection of a sensor
 - 1 variable input for connection of a sensor or pulse sensor
- 0-10 V input
- 0-10 V or PWM output for controlling a variable-speed pump
- Connection of a flow rate sensor (or pulse sensor), e.g. for heat metering
- Variable 230 V 3-point output
- Variable 230 V output, e.g. for controlling a solar charging pump
- 230 V optocoupler input connected in series to the variable 230 V output

Option

- Can be expanded by max. 2 module expansions (expansion of the inputs/outputs):
 - Module expansion universal



Notice

Max. 2 module expansions can be connected.



TopTronic® E
module expansion
Universal



TopTronic® E
module expansion
Universal

Functions

- Simple configuration and parameter setting of the plant by predefined hydraulic and function applications
- 41 pre-programmed basic variants
- Differential temperature control
- Integrated solar yield calculation
- Storage tank cascade with up to 4 consumers
- Loading and unloading function for buffer
- Cooling down function
- Overheating and frost protection
- Forced energy/high-temperature discharge
- Collector cascade with up to 2 collector fields
- Charging via plate heat exchanger
- Heat exchanger cascade
- Additional functions, e.g. recharging function, recirculation pump, etc.
- Start help function
- Consumer loading with type selection
- High temperature discharge
- Fault reporting output
- Return flow increase
- Forced energy/high-temperature discharge on storage tank or buffer maximum temperature

- Relay test for each output can be activated separately
- Self-test with error diagnosis and error memory
- Functions that can be implemented with module expansions:
 - Multi-circuit solar plants with up to 4 consumers
 - 2 collector fields
 - misc. application functions acc. to heating system diagrams

Notice

Depending on the complexity of the corresponding system hydraulics, module expansions are required for using the listed functions (max. 2 module expansions can be connected!)

Use

- Control of thermal solar plants with differential temperature control for heating process water and/or heating support
- For one/two-circuit solar plants with varying complexity with integrated heat balancing
- For decentralised assembly - remote from the control module - directly at the sensors and actuators (solar regulating armature located a long way away):
 - Installation in wall casing/control panel
 - Connection to the operating unit via Hoval CAN bus
- With significant expansion capability by controller modules via the Hoval CAN bus
- For flexible integration in modern communication systems via different interface modules
- For remote connection via HovalConnect

Delivery

- TopTronic® E solar module incl. 2 mounting clips for DIN rail attachment
- DIN rail with fitting accessories
- 1 immersion sensor TF/2P/5/6T, L = 5.0 m
- 1 collector sensor TF/1.1P/2.5S/5.5T, L = 2.5 m
- Basic plug set for controller module
 - Mains in
 - Plug for 230 V output (VA3)
 - Plug for 2 230 V outputs (VA1/VA2)
 - Plug for optocoupler input (SK-VA3)
 - 2 plugs for sensor (VE1/VE2)
 - Plug for 0-10 V output (VA10V/PWM)
 - Plug for Hoval CAN bus

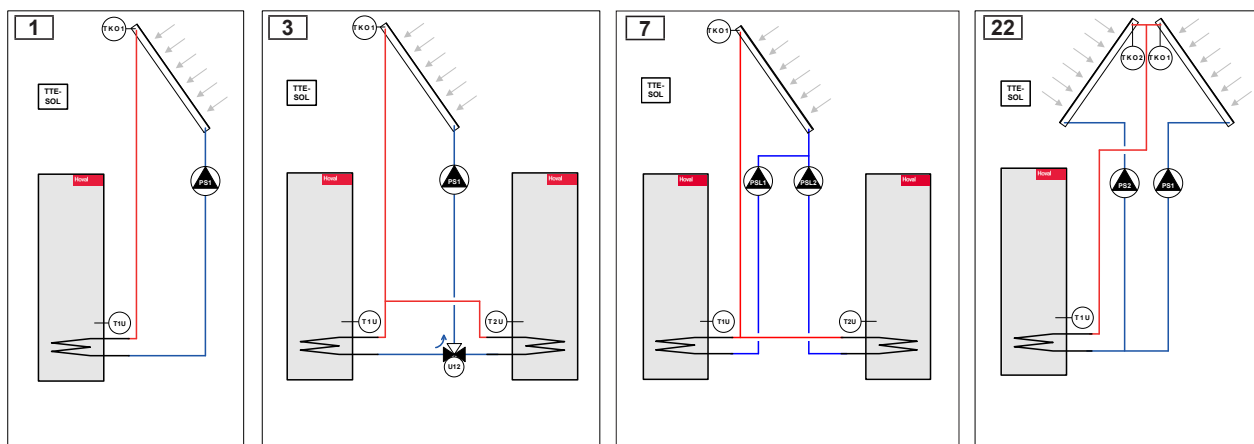
Notice

The supplementary plug set may have to be ordered to implement functions differing from the standard!

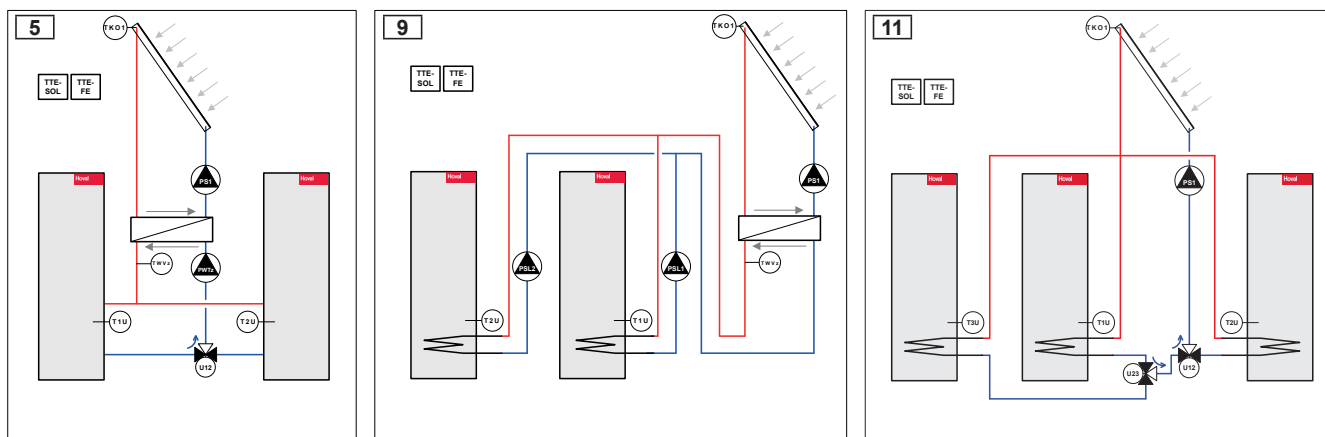
Functions that can be implemented

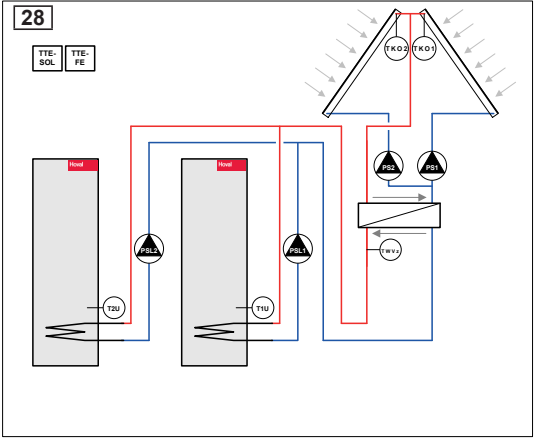
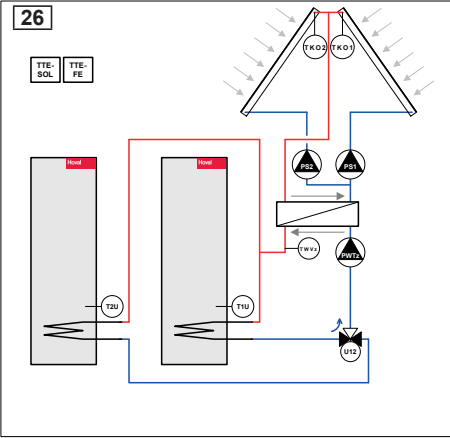
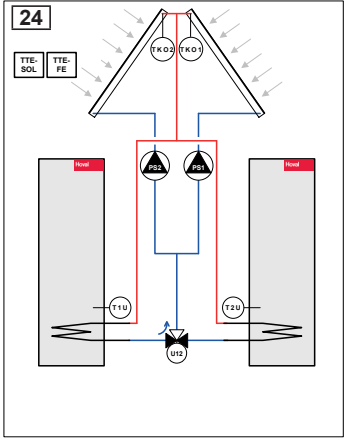
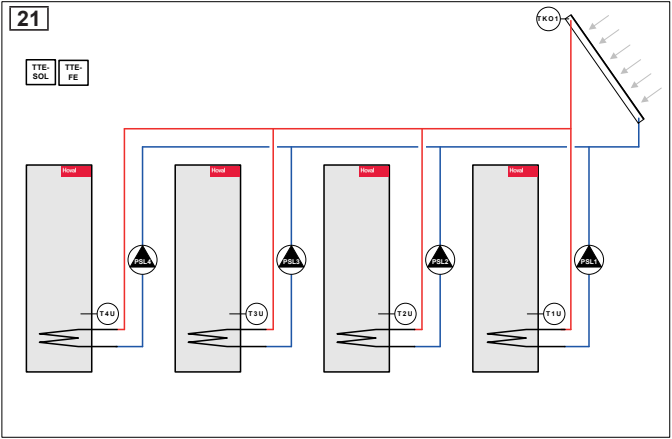
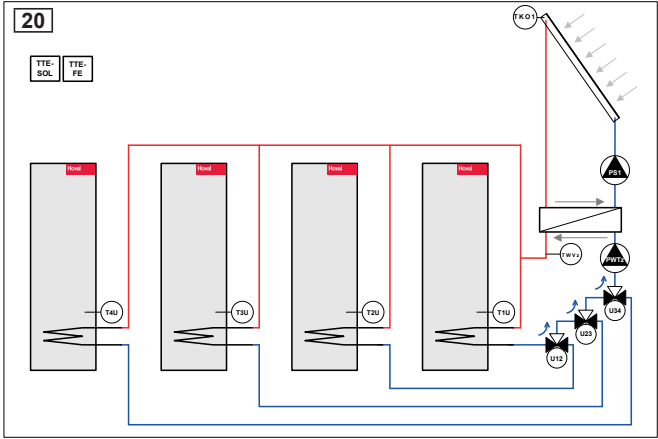
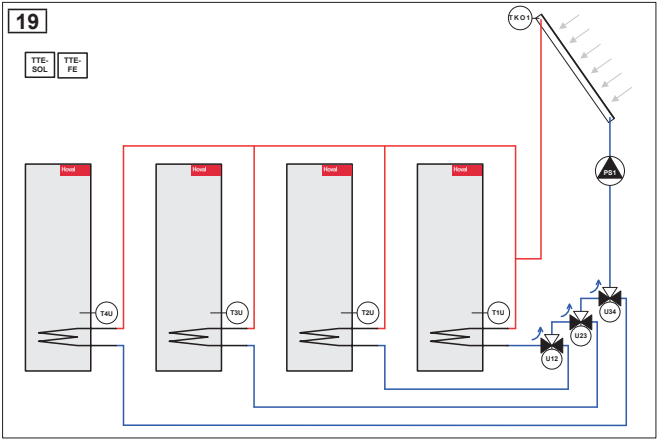
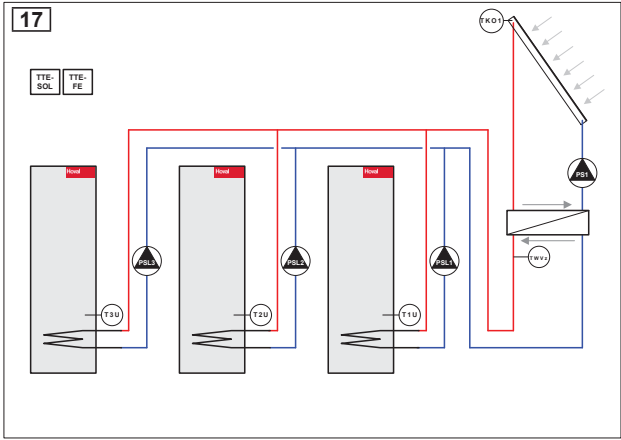
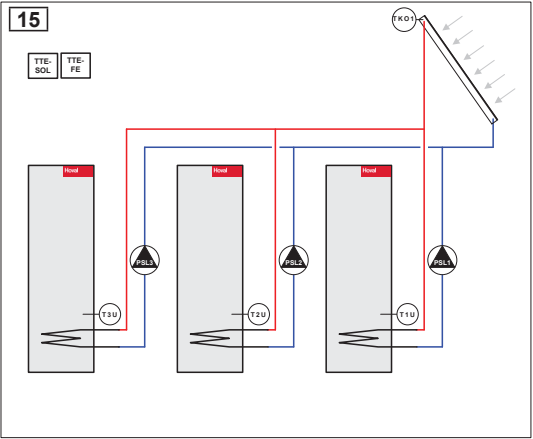
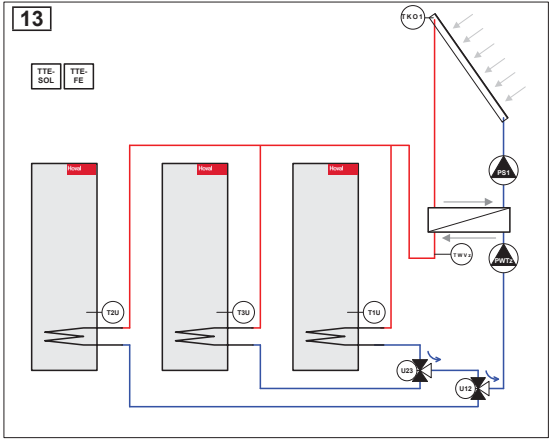
TopTronic® E solar module

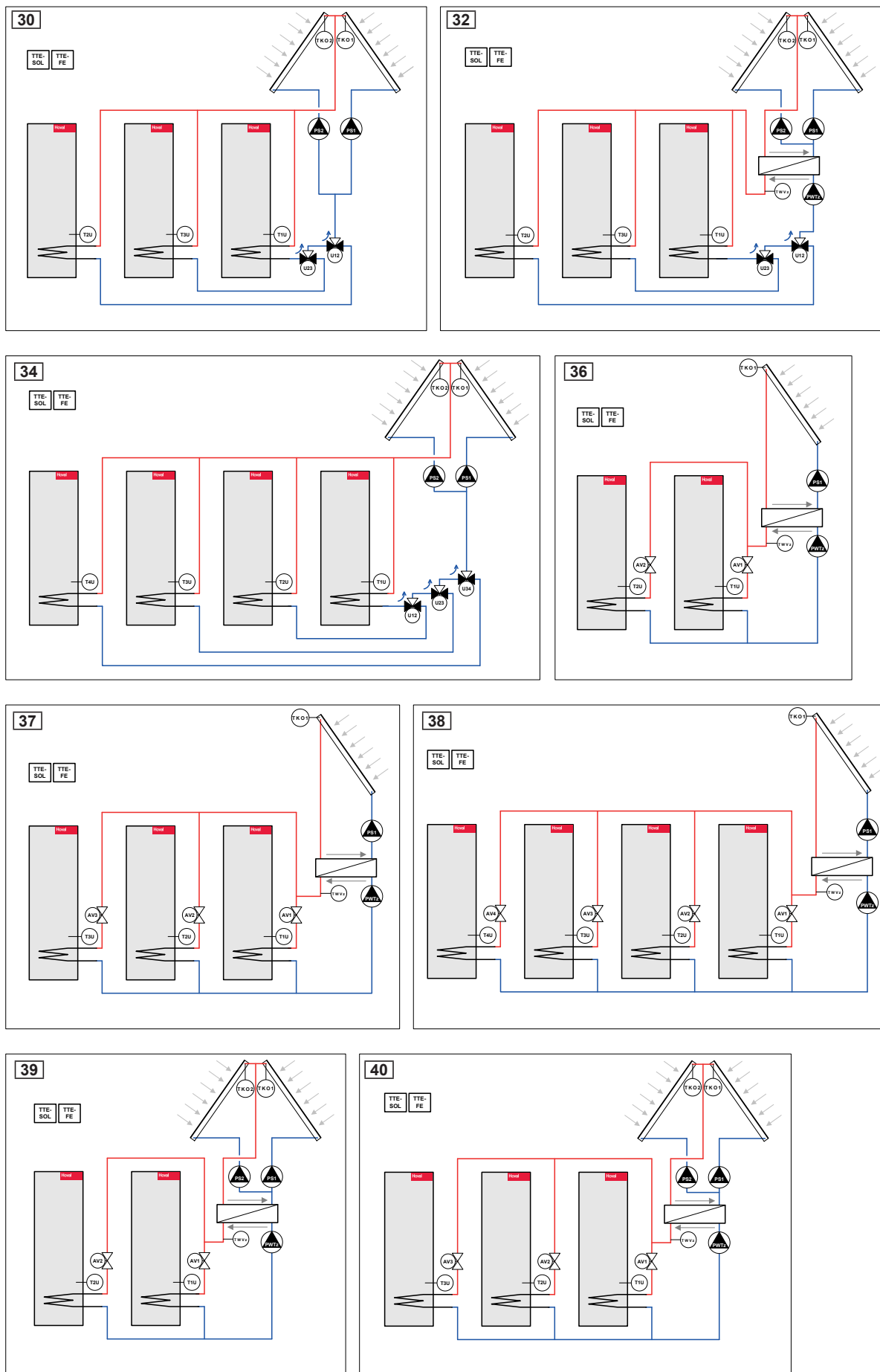
TTE-SOL	1 collector	2 collectors	Ext. HE	1 consumer	2 consumers	3 consumers	4 consumers	Change-over unit	Shut-off unit
Hydr. 1	X			X					
Hydr. 3	X			X	X			X	
Hydr. 5	X		X	X	X			X	
Hydr. 7	X			X	X				
Hydr. 9	X		X	X	X				
Hydr. 11	X			X	X	X		X	
Hydr. 13	X		X	X	X	X		X	
Hydr. 15	X			X	X	X			
Hydr. 17	X		X	X	X	X			
Hydr. 19	X			X	X	X	X	X	
Hydr. 20	X		X	X	X	X	X	X	
Hydr. 21	X			X	X	X	X		
Hydr. 22		X		X					
Hydr. 24		X		X	X			X	
Hydr. 26		X	X	X	X			X	
Hydr. 28		X	X	X	X				
Hydr. 30		X		X	X	X		X	
Hydr. 32		X	X	X	X	X		X	
Hydr. 34		X		X	X	X	X	X	
Hydr. 35		X	X	X	X	X	X	X	
Hydr. 36	X		X	X	X				X
Hydr. 37	X		X	X	X	X			X
Hydr. 38	X		X	X	X	X	X		X
Hydr. 39		X	X	X	X				X
Hydr. 40		X	X	X	X	X			X
Hydr. 41		X	X	X	X	X	X		X



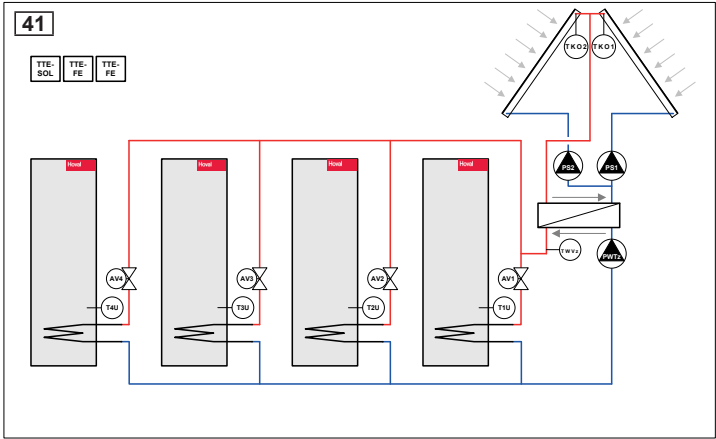
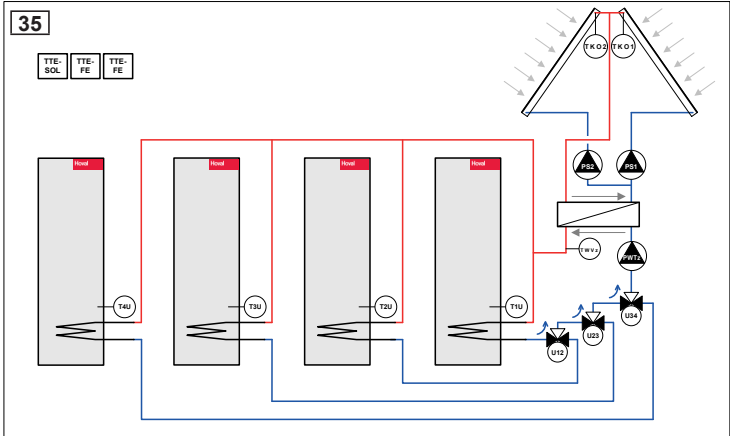
TopTronic® E solar module and 1 module expansion



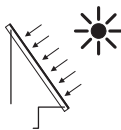
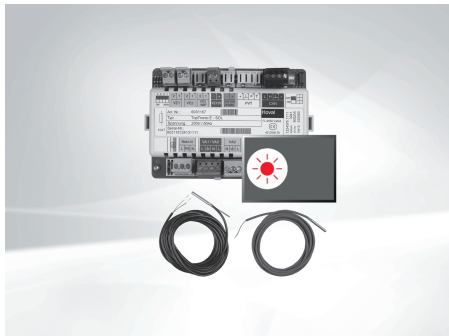




TopTronic® E solar module and 2 module expansions



TopTronic® E controller module



TopTronic® E solar module TTE-SOL

The controller module is suitable for use as temperature differential control, control of thermal solar plants, for heating process water and/or heating support.

Controller module with integrated control functions for

- Solar circuit
- Collector cascade
- Storage tank cascade with up to 4 consumers
- Consumer loading, with type selection
- Temperature differential control
- Loading and unloading function for additional/reserve buffer tank
- Integrated solar yield calculation

Consisting of:

- TopTronic® E solar module incl. 2 mounting clips for top hat rail attachment
- 1 immersion sensor TF/2P/5/6T, L = 5 m
- 1 collector sensor TF/1.1P/2.5S/5.5T, L = 2.5 m
- basic plug set for controller module:
 - Mains in
 - Plug for 230 V output (VA3)
 - Plug for 2 230 V outputs (VA1/VA2)
 - Plug for optocoupler input (SK-VA3)
 - 2 plugs for sensors (VE1/VE2)
 - Plug for 0-10 V output (VA10V/PWM)
 - Plug for Hoval CAN bus
- top hat rail with fitting accessories

Notice

In a standalone application, the control module for operating the solar module and a wall casing must be ordered separately!

Notice

Depending on the complexity, module expansions are required for using the listed functions (max. 2 module expansion can be connected)!

Notice

The supplementary plug set may have to be ordered to implement functions differing from the standard!



Supplementary plug set

for controller modules and module expansion TTE-FE HK

Consisting of Rast-5 mating plugs for connecting further sensors and actuators on the controller module or on the module expansion.

The controller module is already equipped with a basic plug set, the supplementary plug set is required for advanced functions.

Consisting of:

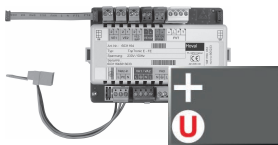
- Plug for mains out
- Plug for sensor (variable input) (VE3)
- Plug for 0-10 V input (VE10V)
- Plug for flow rate sensor (FVT)

Part No.

6037 058

6034 503

TopTronic® E module expansion for TopTronic® E solar module



Max. 2 expansions can be connected.

TopTronic® E module expansion Universal TTE-FE UNI

Expansion to the inputs and outputs of a controller module (basic module heat generator, heating circuit/domestic hot water module, solar module, buffer module) for implementing various functions

Consisting of:

- TopTronic® E module expansion
- top hat rail with fitting accessories
- ribbon cable for connecting the device bus to the controller module
- connection set for connecting the controller module to the mains voltage
- complete plug set for module expansions

Notice

Refer to the Hoval System Technology to find which functions and hydraulic arrangements can be implemented.

Further information

See "Hoval TopTronic® E module expansions" chapter

**TopTronic® E controller modules,
control/room control modules,
HovalConnect, wall casing, sensor**
see separate chapter

Part No.

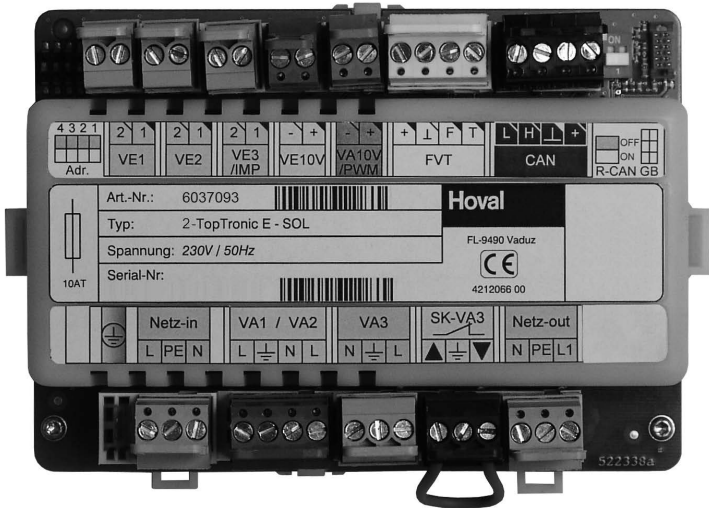
6034 575

TopTronic® E solar module

Type	TTE-SOL
• Power supply max.	230 V AC +6/-10 %
• Frequency	50-60 Hz
• Min. power consumption	0.8 W
• Max. power consumption	7.8 W
• Fuse	10 A slow-blow
Output (low voltage)	
• Electromechanical relays	3
Output (extra-low voltage)	
• Signal output PWM or 0-10 V	1
Switching capacity	
• Electromechanical relays	3 A
Input (low voltage)	
• Optocoupler input	1
Inputs (extra-low voltage)	
• Input 0-10 V	1
• Inputs sensors	2
• Inputs flow rate sensor	1
• Pulse input	1 (can be switched over to sensor)
Expansion (module expansion)	
• Max. number	2
Casing	
• Installation	Top hat rail mounting
• Dimensions (W x H x D) incl. plug	150 x 100 x 75 mm
• Ambient temperature (during operation)	0...50 °C
• Humidity (in operation)	20...80 % RH, non-condensing
• Storage temperature	-20...60 °C
Bus system (Hoval CAN bus)	
• Capacity	max. 4 control modules / 3 control modules + 1 gateway
• Bus supply	yes
• Bus line	4-wire bus
• Bus length	twisted, shielded, max. 100 m
• Line cross-section	min. 0.5 mm²
• Cable type (recommended)	JY-(ST) 2 x 2 x 0.6
Other bus interfaces	Internal unit bus (master)
Miscellaneous	
• Spring reserve	approx. 10 years, battery buffered
• Type of protection	IP 20
• Protection class	I – EN 60730
• Plug types	Rast 5 (coloured, coded)

Electrical connection

TopTronic® E solar module



TopTronic® E buffer module

- Control unit with integrated regulating functions for:
 - Heating buffer management or
 - Cooling buffer management
 - Various additional functions
- Connection technology executed as plug-in screw terminals in coded RAST-5 design
- Update capability of the controller software
- Time and date via integrated RTC, multi-year spring reserve
- Fine fuse 10 A
- Control unit suitable for cabinet installation thanks to ability to install on DIN rail 35 x 15 x 2.2 mm
- Expansion possibilities via Hoval CAN bus:
 - max. 16 controller modules in the bus system
 - max. 2 buffer modules
 - max. 1 active heating buffer and max. 1 active cooling buffer function



Notice

Operation of the controller module is generally via the TopTronic® E control module installed in the heat generator!
If the control module is used without Hoval heat generator, the control module for operating the buffer module and a wall casing with control module cut-out must be ordered separately!

Notice

Max. 2 module expansions can be connected.



TopTronic® E
module expansion
Universal



TopTronic® E
module expansion
Universal

Inputs and outputs

- 3 variable sensor inputs:
 - 2 variable inputs for connection of a sensor
 - 1 variable input for connection of a sensor or pulse sensor
- 0-10 V input, e.g. for setpoint connection
- 0-10 V or PWM output for controlling a variable-speed pump
- Connection of a flow sensor (or pulse sensor)
- Variable 230 V 3-point output
- Variable 230 V output, e.g. for controlling a buffer charging pump
- 230 V optocoupler input connected in series to the variable 230 V output

Option

- Can be expanded by max. 2 module expansions (expansion of the inputs/outputs):
 - Module expansion universal

Functions

- Simple configuration and parameter setting of the plant by predefined hydraulic and function applications
- Heating buffer loading controls:
 - 1 or 2 buffer sensors
 - Stratified charge mixing valve with separate buffer loading sensor
 - Modulating buffer charging pump (0-10 V/PWM) constant or delta T-controlled
- Heating buffer discharge control with
 - 1 buffer sensor
 - Changeover element or discharging mixer valve with separate buffer discharging sensor
- Cooling buffer loading control with 1 or 2 cooling buffer sensors
- External requirement contacts for constant requirement
- External requirement contacts for reference value increase/reduction for implementing tariff charging, SmartGrid, etc.
- Separate differential controls and thermostat functions for changeover in multiple buffer applications
- Pump anti-blocking protection
- Heat quantity balancing
- Buffer charging or buffer discharging
- Relay test for each output can be activated separately
- Self-test with error diagnosis and error memory
- Thermostat function
- Functions that can be implemented with module expansions:
 - misc. special functions acc. to heating system diagrams

Notice

Depending on the complexity, module expansions are required for using the listed functions (max. 2 module expansions can be connected)!

Use

- For energy management of heating and cooling buffers in simply and complex heating systems
- For optimising the energy efficiency of the overall system by various functions such as tariff charging, SmartGrid function, etc.
- For decentralised assembly - remote from the control module - directly at the sensors and actuators (buffer storage tank located a long way away)
 - Installation in wall casing/control panel
 - Connection to the operating unit via Hoval CAN bus
- With significant expansion capability by controller modules via the Hoval CAN bus
- For flexible integration in modern communication systems via different interfaces
- For remote connection via HovalConnect

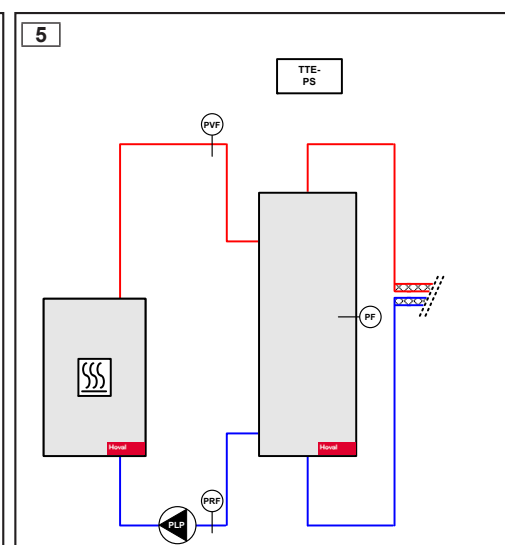
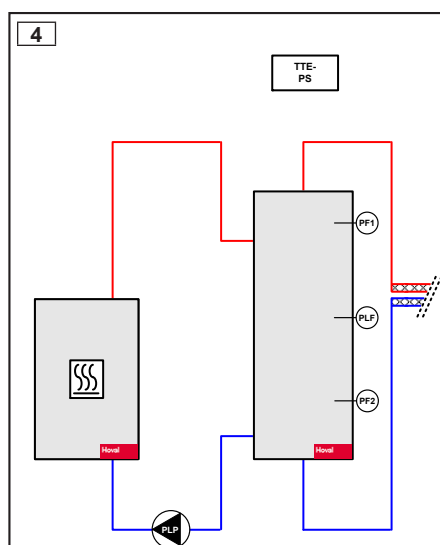
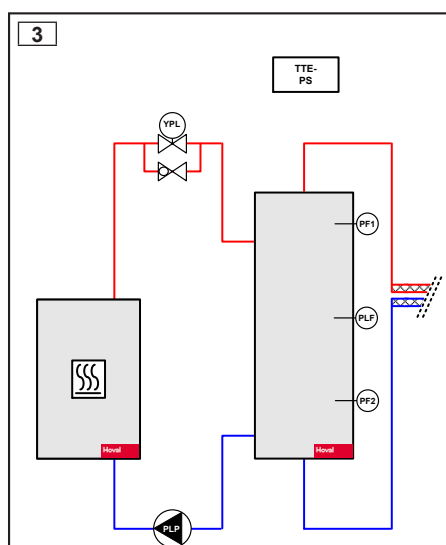
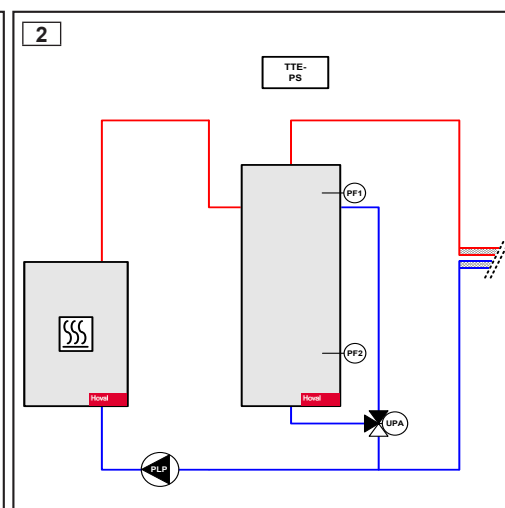
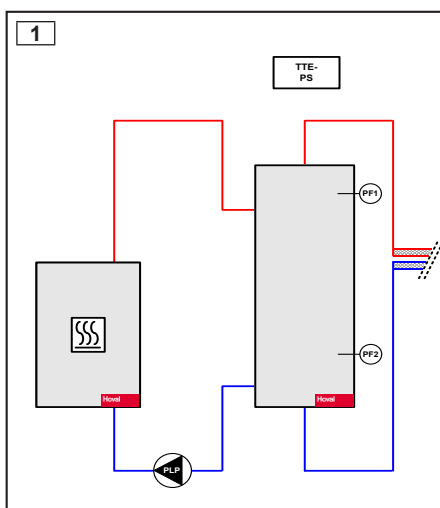
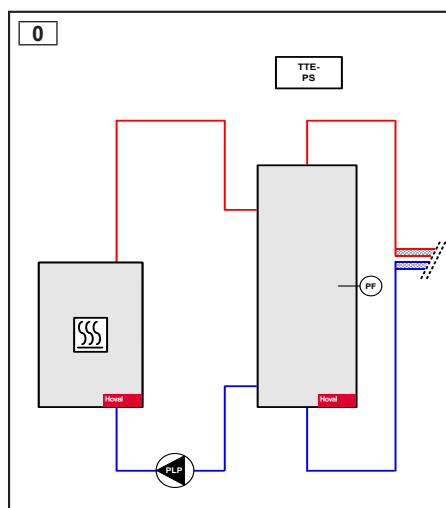
Delivery

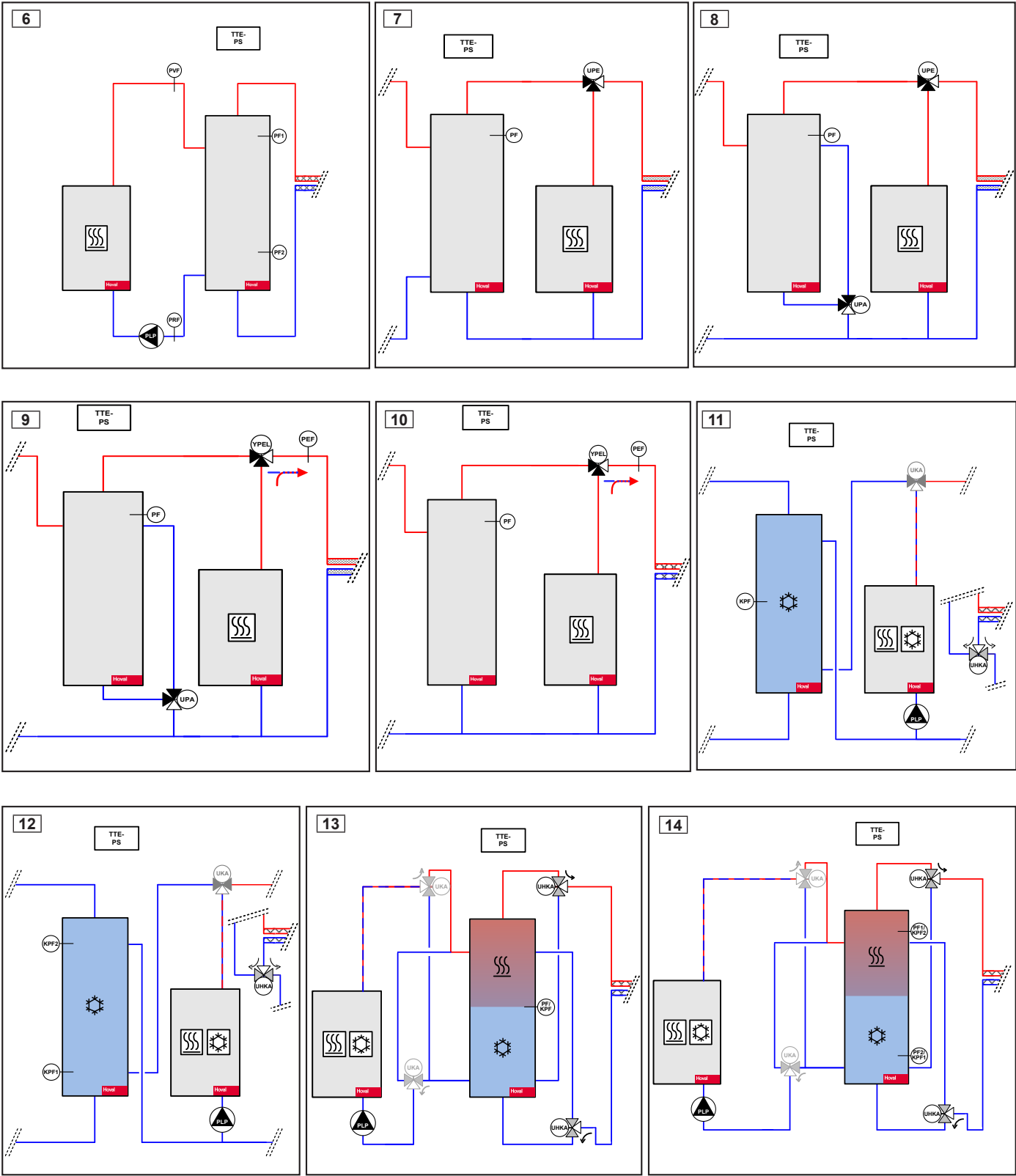
- TopTronic® E buffer module incl.
2x mounting clips for DIN rail attachment
- DIN rail with fitting accessories
- 2x immersion sensor TF/2P/5/6T, L = 5.0 m
- Basic plug set for controller module
 - Mains in
 - Plug for 230V output (VA3) (direct circuit pump, mixer circuit pump)
 - Plug for 2x 230V output (mixer) (VA1/VA2)
 - Plug for optocoupler input (SK/VA3) (flow temperature controller)
 - 2x plug for sensor (VE1/VE2)
 - Plug for 0-10V or PWM output (VA10V)
 - Plug for Hoval CAN bus

Notice

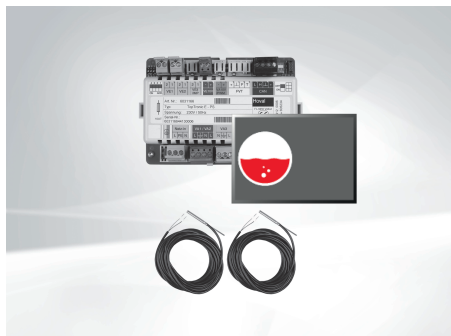
The supplementary plug set may have to be ordered to implement functions differing from the standard!

TTE-PS	Heating buffer charging control					Heating buffer charging control			Cooling buffer charging control	
	1 buffer sensor	2 buffer sensors	Charging mixing valve	Modulating charging pump constant	dT	Change-over unit	Discharging mixer	Buffer start-up release	1 buffer sensor	2 buffer sensors
Hydr. 0	x									
Hydr. 1		x						x		
Hydr. 2		x								
Hydr. 3		x	x							
Hydr. 4		x		x						
Hydr. 5	x				x					
Hydr. 6		x			x					
Hydr. 7						x				
Hydr. 8						x				
Hydr. 9							x	x		
Hydr. 10							x			
Hydr. 11									x	
Hydr. 12										x
Hydr. 13	x								x	
Hydr. 14		x								x





TopTronic® E controller module



TopTronic® E buffer module TTE-PS

Controller module with integrated control functions for:

- heating buffer management
- or
- cooling buffer management
- var. additional functions

Consisting of:

- TopTronic® E buffer module incl. 2 mounting clips for top hat rail attachment
- 2 immersion sensors TF/2P/5/6T, L=5 m
- basic plug set for controller module:
 - mains in
 - plug for 230 V output (VA3) (direct circuit pump, mixer circuit pump)
 - plug for 2 230 V outputs (mixer) (VA1/VA2)
 - plug for optocoupler input (SK-VA3) (flow temperature monitor)
 - 2 plugs for sensors (VE1/VE2)
 - Plug for 0-10 V or PWM output (VA10V)
 - plug for Hoval CAN bus
- top hat rail with fitting accessories

Notice

If the controller module is used without Hoval heat generator then a TopTronic® E control module must be ordered separately!

Notice

Depending on the complexity, module expansions are required for using the listed functions (max. 2 module expansions can be connected)!

Notice

The supplementary plug set may have to be ordered to implement functions differing from the standard!



Supplementary plug set

for controller modules and module expansion TTE-FE HK

Consisting of Rast-5 mating plugs for connecting further sensors and actuators on the controller module or on the module expansion.

The controller module is already equipped with a basic plug set, the supplementary plug set is required for advanced functions.

Consisting of:

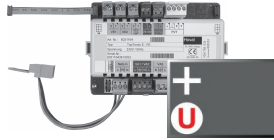
- Plug for mains out
- Plug for sensor (variable input) (VE3)
- Plug for 0-10 V input (VE10V)
- Plug for flow rate sensor (FVT)

Part No.

6037 057

6034 503

TopTronic® E module expansion for TopTronic® E buffer module



Max. 2 expansions can be connected.

TopTronic® E module expansion Universal TTE-FE UNI

Expansion to the inputs and outputs of a controller module (basic module heat generator, heating circuit/domestic hot water module, solar module, buffer module) for implementing various functions

Consisting of:

- TopTronic® E module expansion
- top hat rail with fitting accessories
- ribbon cable for connecting the device bus to the controller module
- connection set for connecting the controller module to the mains voltage
- complete plug set for module expansions

Notice

Refer to the Hoval System Technology to find which functions and hydraulic arrangements can be implemented.

Further information

See "Hoval TopTronic® E module expansions" chapter

**TopTronic® E controller modules,
control/room control modules,
HovalConnect, wall casing, sensor**
see separate chapter

Part No.

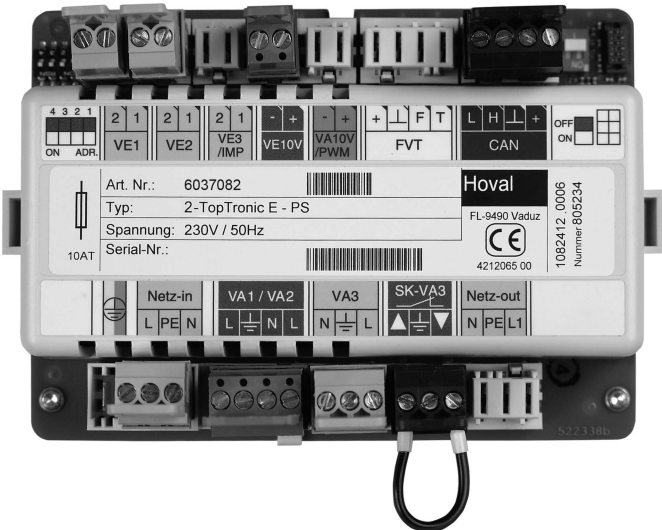
6034 575

TopTronic® E buffer module

Type	TTE-PS
• Power supply max.	230 V AC +6/-10 %
• Frequency	50-60 Hz
• Min. power consumption	0.8 W
• Max. power consumption	7.8 W
• Fuse	10 A slow-blow
Output (low voltage)	
• Electromechanical relays	3
Output (extra-low voltage)	
• Signal output PWM or 0-10V	1
Switching capacity	
• Electromechanical relays	3 A
Input (low voltage)	
• Optocoupler input	1
Inputs (extra-low voltage)	
• Input 0-10 V	1
• Inputs sensors	2
• Inputs flow rate sensor	1
• Pulse input	1 (can be switched over to sensor)
Expansion (module expansion)	
• Max. number	2
Casing	
• Installation	Top hat rail mounting
• Dimensions (W x H x D) incl. plug	150 x 100 x 75 mm
• Ambient temperature (during operation)	0...50 °C
• Humidity (in operation)	20...80 % RH, non-condensing
• Storage temperature	-20...60 °C
Bus system (Hoval CAN bus)	
• Capacity	max. 4 control modules / 3 control modules + 1 gateway
• Bus supply	yes
• Bus line	4-wire bus
• Bus length	twisted, shielded, max. 100 m
• Line cross-section	min. 0.5 mm²
• Cable type (recommended)	JY-(ST) 2 x 2 x 0.6
Other bus interfaces	Internal unit bus (master)
Miscellaneous	
• Spring reserve	approx. 10 years, battery buffered
• Type of protection	IP 20
• Protection class	I – EN 60730
• Plug types	Rast 5 (coloured, coded)

Electrical connection

TopTronic® E buffer module



TopTronic® E measuring module

- Controller module with MBus interface for reading out heat, gas and electricity meters (max. 16 MBus meters)
- Counter values can be used in different functions in the controller system, and displayed
- Voltage: 12 VDC 120 mA
- Type of protection: IP20
- Connection technology executed as plug-in screw terminals
- Update capability of the controller software
- Controller module suitable for cabinet installation by ability to install on DIN rail 35 x 15 x 2.2 mm or 35 x 7.5 x 2.2 mm
- Many possible uses via the Hoval CAN bus

Notice

Operation of the controller module is generally via the TopTronic® E control module installed in the heat generator!

Inputs and outputs

- MBus interface for reading out max. 16 MBus meters

Notice

If an electrical power supply is required for the MBus meter, it is not provided by the TopTronic® E measuring module



Use

- For accommodating different MBus-capable meters in the bus system

Notice

Electrical power supply via the Hoval CAN bus, i.e. using the measuring module reduces the max. number of room control modules that can be connected to the bus system! List of compatible MBus devices see chapter "Energy/heat quantity balancing".

Delivery

- TopTronic® E measuring module incl. 2x mounting clips for DIN rail attachment
- Plug set for controller module
 - Plug for MBus
 - Plug for Hoval CAN bus
- DIN rail with fitting accessories

Part numbers

TopTronic® E controller module



TopTronic® E measuring module TTE-MWA

Controller module with MBus interface for reading max. 16 MBus meters

Consisting of:

- TopTronic® E measuring module incl. 2 mounting clips for DIN rail attachment
- Plug set for controller module:
 - Plug for MBus
 - Plug for Hoval CAN bus,
- DIN rail with fitting accessories

Part No.

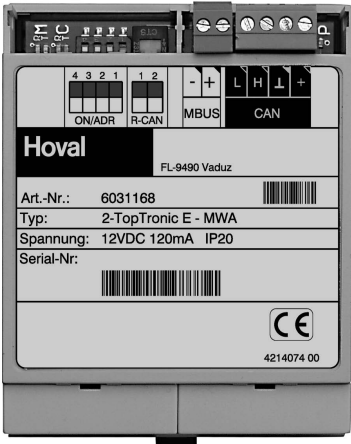
6034 574

TopTronic® E measuring module

Type	TTE-MWA
• Power supply max.	12 VDC +6/-10 %
• Min. power consumption	0.6 W
• Max. power consumption	< 2.5 W
Casing	
• Installation	DIN rail mounting
• Dimensions (W x H x D) incl. plug	70 x 92 x 35 mm
• Ambient temperature (during operation)	0...50 °C
• Humidity (in operation)	20...80% RH, non-condensing
• Storage temperature	-20...60 °C
Bus system (Hoval CAN bus)	
• Capacity, electrical power supply 12 VDC-TTE-MWA module	120 mA, > 120 mA external lectrical power supply required, depending on the MBus terminal units
• Bus supply	No
• Bus line	4-wire bus
• Bus length	twisted, shielded, max. 100 m
• Line cross-section	min. 0.5 mm²
• Cable type (recommended)	JY-(ST) 2 x 2 x 0.6
MBus interface	
MBus voltage	30 V
Transfer rate	300 to 2400 baud
Electrical isolation	No
Capacity	maximum 16 terminal units (standard loads 1.5 mA each)
MBus protocol	according to list of Hoval documentation
Bus length	twisted, shielded, max. 500 m with line cross section 0.8 mm²
Line cross-section	min 0.8 mm²
Miscellaneous	
• Type of protection	IP 20
• Protection class	II – EN 60730
• Plug types	Plug-in terminal technology

Electrical connection

 TopTronic® E measuring module



TopTronic® E module expansion

Heating circuit

- Expansion to the inputs and outputs of a TopTronic® E basic module heat generator or the heating circuit/hot water module for implementing the following functions:
 - 1 heating/cooling circuit without mixer or
 - 1 heating/cooling circuit with mixer
- Max. 1 module expansion possible per basic module heat generator
- Max. 2 module expansions per heating circuit/hot water module possible
- Connection technology executed as plug-in screw terminals in coded RAST-5 design
- Connection to basic module using ribbon cable and mains connector set (max. distance between basic module and module expansion 10 cm)
- Control unit suitable for cabinet installation (mounting on DIN rail 35 x 15 x 2.2 mm)
- Protection via the basic module (10 A microfuse)

Notice

Module expansions must be installed directly next to the controller module!

Inputs and outputs

- 3 variable sensor inputs:
 - 2 variable inputs for connection of a sensor
 - 1 variable input for connection of a sensor or pulse sensor
- 0-10 V input, e.g. for connecting to heat zone control systems
- 0-10 V or PWM output for controlling a variable-speed pump
- Connection of a flow rate sensor (or pulse sensor), e.g. for heat metering at the heating circuit
- Variable 230 V 3-point output, e.g. for controlling the mixer
- Variable 230 V output, e.g. for controlling the recirculation pump
- 230 V optocoupler input connected in series to the variable 230 V output, e.g. for connecting a flow temperature guard for monitoring underfloor heating systems

Functions

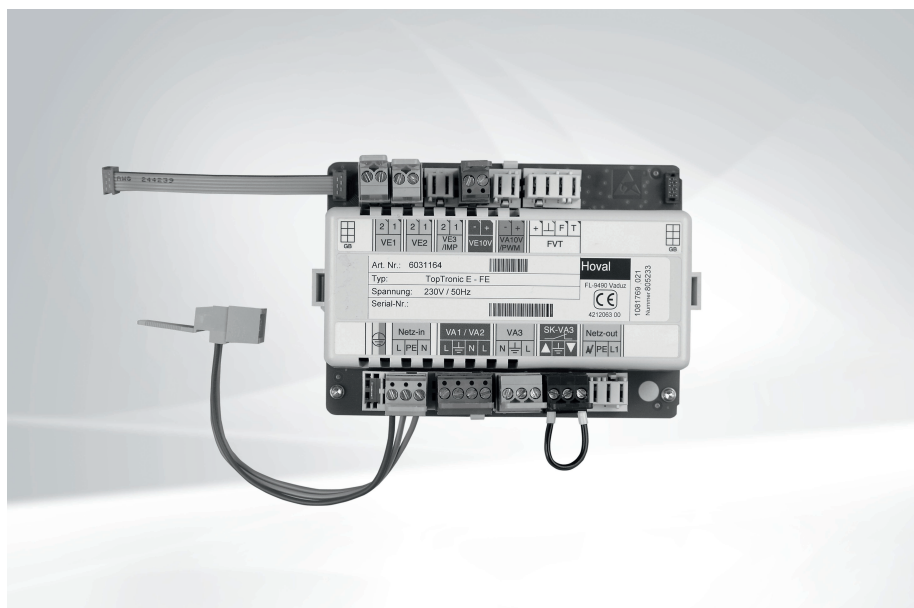
- Refer to the product description of the controller module to which the module expansion is attached to find which functions can be implemented

Use

- For expanding the functions on the connected controller module
- Refer to the Hoval System Technology to find which functions and hydraulic arrangements can be implemented

Delivery

- TopTronic® E module expansion
- DIN rail with fitting accessories
- Ribbon cable for connecting the device bus to the controller module
- Connection set for connecting the controller module to the mains voltage
- 1 contact sensor ALF/2P/4/T, L = 4.0 m
- Basic connector set for module expansions
 - Plug for 230 V output (VA3)
 - (direct circuit pump, mixer circuit pump)
 - Plug for 2 230 V outputs (mixer) (VA1/VA2)



TopTronic® E module expansion
heating circuit



TopTronic® E module expansion
heat balancing



TopTronic® E module expansion
Universal

- Plug for optocoupler input (SK-VA3) (flow temperature controller)
- 2 plugs for sensor (VE1/VE2)
- Plug for 0-10 V or PWM output (VA10V)

Notice

The supplementary plug set may have to be ordered to implement functions differing from the standard!

- Controller module suitable for cabinet installation (mounting on DIN rail 35 x 15 x 2.2 mm)
- Protection via the basic module (10 A microfuse)

Notice

Module expansions must be installed directly next to the controller module!

TopTronic® E module expansion Heat balancing

- Expansion to the inputs and outputs of a TopTronic® E basic module heat generator for implementing the following function
 - Calculation of the total energy consumption
 - Calculation of the heat generator energy for heating
 - Calculation of the heat generator energy for hot water
- Max. 1 module expansion possible per TopTronic® E basic module heat generator
- Connection technology executed as plug-in screw terminals in coded Rast-5 design
- Connection to basic module using ribbon cable and mains connector set (max. distance between basic module and module expansion 10 cm)

Inputs and outputs

- 3 variable sensor inputs
 - 2 variable inputd for connection of a sensor
 - 1 variable input for connection of a sensor or pulse sensor
- 0-10 V input
- 0-10 V or PWM output
- Connection of a flow rate sensor (vortex or pulse sensor), e.g. for heat metering
- Variable 230 V 3-point output
- Variable 230 V output
- 230 V optocoupler input connected in series to the variable 230 V output

Functions

- Refer to the product description of the controller module to which the module expansion is attached to find which functions can be implemented

Use

- For expanding the functions on the connected controller module
- Refer to the Hoval System Technology to find which functions and hydraulic arrangements can be implemented

Delivery

- TopTronic® E module expansion
- DIN rail with fitting accessories
- Ribbon cable for connecting the device bus to the controller module
- Connection set for connecting the controller module to the mains voltage
- 3 contact sensors ALF/2P/4/T, L = 4.0 m
- Complete plug set for module expansions

Notice

Flow rate sensor DN 8-32 must be ordered separately (depending on the maximum output to be measured)

TopTronic® E module expansion

Universal

- Expansion to the inputs and outputs of a TopTronic® E basic module heat generator or a controller module (heating circuit/hot water module, solar module, buffer module) for implementing various functions
- Max. 1 module expansion possible per TopTronic® E basic module heat generator
- Max. 2 module expansions per heating circuit/hot water module, solar module, buffer module possible

- Connection technology executed as plug-in screw terminals in coded RAST-5 design
- Connection to controller module using ribbon cable and mains connector set (max. distance between basic module and module expansion 10 cm)
- Controller module suitable for cabinet installation (mounting on DIN rail 35 x 15 x 2.2 mm)
- Protection via the basic module (10 A microfuse)

Notice

Module expansions must be installed directly next to the controller module!

Inputs and outputs

- 3 variable sensor inputs:
 - 2 variable inputs for connection of a sensor
 - 1 variable input for connection of a sensor or pulse sensor
- 0-10 V input
- 0-10 V or PWM output for controlling a variable-speed pump
- Connection of a flow sensor (or pulse sensor)
- Variable 230 V 3-point output
- Variable 230 V output
- 230 V optocoupler input connected in series to the variable 230 V output

Functions

- Refer to the product description of the controller module to which the module expansion is attached to find which functions can be implemented

Use

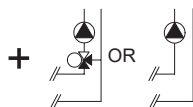
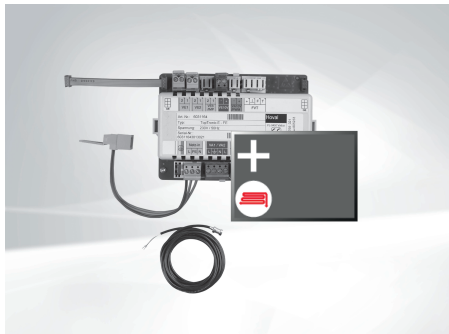
- For expanding the functions on the connected controller module
- Refer to the Hoval System Technology to find which functions and hydraulic arrangements can be implemented

Delivery

- TopTronic® E module expansion
- DIN rail with fitting accessories
- Ribbon cable for connecting the device bus to the controller module
- Connection set for connecting the controller module to the mains voltage
- Complete plug set for module expansion

TopTronic® E module expansions

Heating circuit, heat balancing, universal



TopTronic® E module expansion heating circuit TTE-FE HK

Expansion to the inputs and outputs of the basic module heat generator or the heating circuit/domestic hot water module for implementing the following functions:

- 1 heating/cooling circuit w/o mixer or
- 1 heating/cooling circuit with mixer

Consisting of:

- TopTronic® E module expansion
- top hat rail with fitting accessories
- ribbon cable for connecting the device bus to the controller module
- connection set for connecting the controller module to the mains voltage
- 1 contact sensor ALF/2P/4/T, L = 4.0 m
- basic plug set for module expansions:
 - Plug for 230 V output (VA3) (direct circuit pump, mixer circuit pump)
 - Plug for 2 230 V outputs (mixer) (VA1/VA2)
 - Plug for optocoupler input (SK-VA3) (flow temperature monitor)
 - 2 plugs for sensors (VE1/VE2)
 - Plug for 0-10 V or PWM output (VA10V)

Notice

The supplementary plug set may have to be ordered to implement functions differing from the standard!



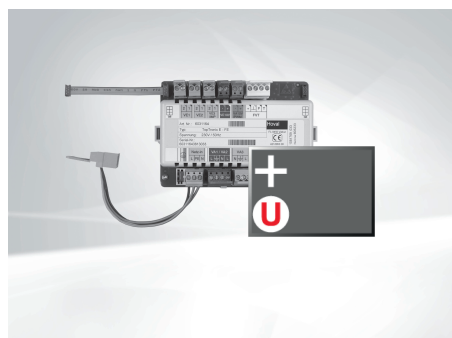
Supplementary plug set

for controller modules and module expansion TTE-FE HK

Consisting of Rast-5 mating plugs for connecting further sensors and actuators on the controller module or on the module expansion. The controller module is already equipped with a basic plug set, the supplementary plug set is required for advanced functions.

Consisting of:

- Plug for mains out
- Plug for sensor (variable input) (VE3)
- Plug for 0-10 V input (VE10V)
- Plug for flow rate sensor (FVT)



TopTronic® E module expansion Universal TTE-FE UNI

Expansion to the inputs and outputs of a controller module (basic module heat generator, heating circuit/domestic hot water module, solar module, buffer module) for implementing various functions

Consisting of:

- TopTronic® E module expansion
- top hat rail with fitting accessories
- ribbon cable for connecting the device bus to the controller module
- connection set for connecting the controller module to the mains voltage
- complete plug set for module expansions

Notice

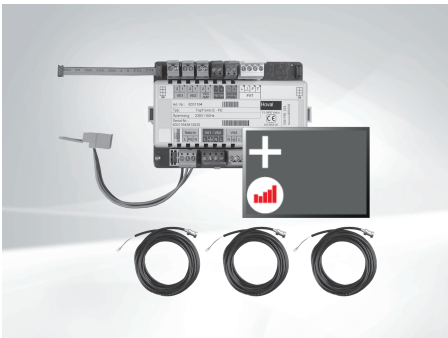
Refer to the Hoval System Technology to find which functions and hydraulic arrangements can be implemented.

Part No.

6034 576

6034 503

6034 575



TopTronic® E module expansion heating circuit incl. energy balancing
TTE-FE HK-EBZ
Expansion to the inputs and outputs of the basic module heat generator or the heating circuit/domestic hot water module for implementing the following functions:

- 1 heating/cooling circuit w/o mixer or
- 1 heating/cooling circuit with mixer

in each case incl. energy balancing

- Consisting of:
- TopTronic® E module expansion
 - 3 contact sensors ALF/2P/4/T with length 4.0 m
 - complete plug set for module expansions
 - top hat rail with fitting accessories
 - ribbon cable for connecting the device bus to the controller module
 - connection set for connecting the controller module to the mains voltage

Notice
The continuous flow sensor set must be ordered as well.

Sets flow rate sensor

- Used in combination with the module expansion heat accounting or var. controller modules for heat metering
- Flow sensor supplies the current flow rate as well as the current temperature to the measuring point

- Consisting of:
- flow rate sensor
 - connection cable
 - Rast5 plug for connecting to TopTronic® E



Plastic housing		
Unit of measure	Connection	Flow rate l/min
DN 8	G 3/4"	0.9-15
DN 10	G 3/4"	1.8-32
DN 15	G 1"	3.5-50
DN 20	G 1 1/4"	5-85
DN 25	G 1 1/2"	9-150

6038 526
6038 507
6038 508
6038 509
6038 510



Brass housing		
Unit of measure	Connection	Flow rate l/min
DN 10	G 1"	2-40
DN 32	G 1 1/2"	14-240

6042 949
6042 950

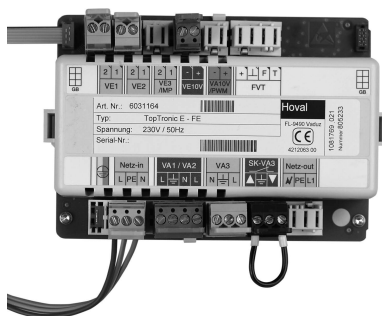
TopTronic® E module expansions

Heating circuit, heat balancing, universal

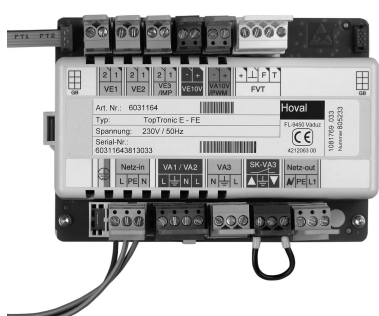
Type	TTE-FE HK / TTE-WMZ/EBZ / TTE-FE UNI
• Power supply max.	230 V AC +6/-10 %
• Frequency	50-60 Hz
• Min. power consumption	0.2 W
• Max. power consumption	1.8 W
• Fuse	none - protection via controller module
Output (low voltage)	
• Electromechanical relays	3
Output (extra-low voltage)	
• Signal output PWM or 0-10 V	1
Switching capacity	
• Electromechanical relays	3 A
Input (low voltage)	
• Optocoupler input	1
Inputs (extra-low voltage)	
• Input 0-10 V	1
• Inputs sensors	2
• Inputs flow rate sensor	1
• Pulse input	1 can be switched over
Expansion (module expansion)	
• Max. number	-
Casing	
• Installation	Top hat rail mounting
• Dimensions (W x H x D) incl. plug	150 x 100 x 75 mm
• Ambient temperature (during operation)	0...50 °C
• Humidity (in operation)	20...80 % RH, non-condensing
• Storage temperature	-20...60 °C
Bus system (Hoval CAN bus)	
• Capacity	-
• Bus supply	-
• Bus line	-
• Bus length	-
• Line cross-section	-
• Cable type (recommended)	JY-(ST) 2 x 2 x 0.6
Other bus interfaces	Internal unit bus (master)
Miscellaneous	
• Type of protection	IP 20
• Protection class	I – EN 60730
• Plug types	Rast 5 (coloured, coded)

Electrical connection

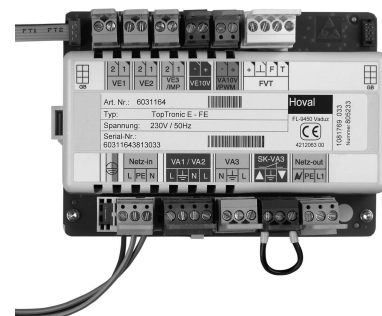
TopTronic® E module expansions



TopTronic® E module expansion
Heating circuit



TopTronic® E module expansion
Heat balancing



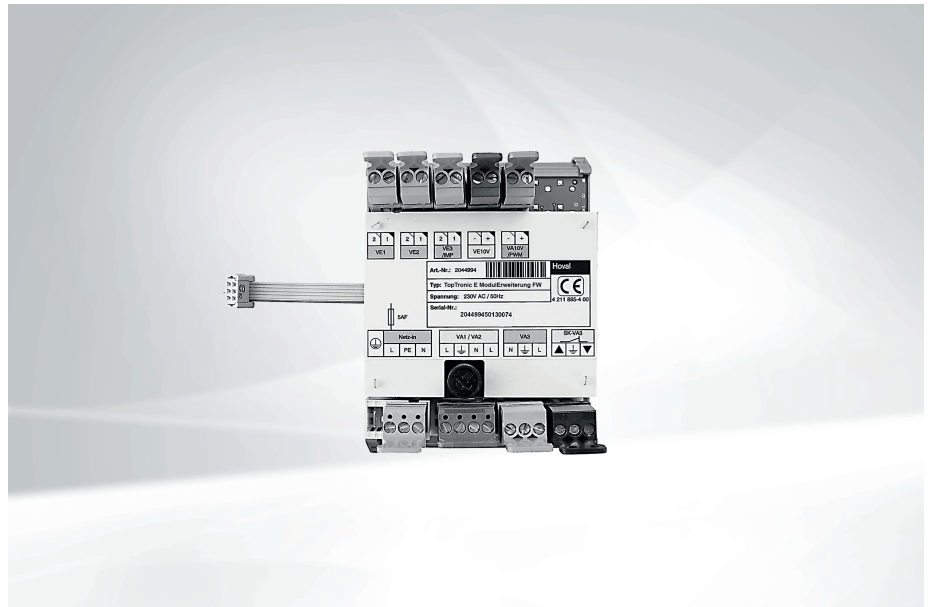
TopTronic® E module expansion
Universal

TopTronic® E module expansion heating circuit district heating

- Expansion to the inputs and outputs of a basic module (basic module district heating/ fresh water, basic module district heating com) for carrying out various functions
 - 1 heating circuit without mixer
 - 1 heating circuit with mixer
- Max. 5 module expansions possible per basic module
- Connection technology executed as plug-in screw terminals in coded Rast 5 design
- Ribbon cable for connecting the device bus to the controller module
- Controller module suitable for cabinet installation (mounting on DIN rail 93 x 125 x 95 mm)
- Protection via the basic module

Notice

Module expansions must be installed directly next to the controller module!



Inputs and outputs

- 3 variable sensor inputs
 - 2 variable inputs for connection of a sensor
 - 1 variable input for connection of a sensor or pulse sensor
- 0-10 V input
- 0-10 V output for controlling a continuous valve (e.g. mixing circuit valve)
- Variable 230 V 3-point output, e.g. for controlling the mixer
- Variable 230 V output, e.g. for controlling the recirculation pump
- 230 V optocoupler input connected in series to the variable 230 V output, e.g. for connecting a flow temperature guard for monitoring underfloor heating systems

Functions

- Refer to the product description of the controller module to which the module expansions are attached to find which functions can be implemented

Use

- For expanding the functions on the connected controller module
- Refer to the Hoval System Technology to find which functions and hydraulic arrangements can be implemented

Delivery

- TopTronic® E module expansion district heating
- DIN rail with fitting accessories
- Ribbon cable for connecting the device bus to the controller module
- Connection set for connecting the controller module to the mains voltage
- 1 contact sensor ALF/1.1P/2.5/T, L = 2.5 m
- Basic plug set for module expansion district heating
 - Mains_in
 - Plug for 230 V output (direct circuit pump, mixer circuit pump)
 - Plug for 2 230 V outputs (mixer)
 - Plug for optocoupler input (flow temperature controller)
 - 2 plugs for sensor
 - Plug for 0-10 V input

Notice

The supplementary plug set may have to be ordered to implement functions differing from the standard!

TopTronic® E module expansion hot water district heating

- Expansion to the inputs and outputs of a TopTronic® E basic module district heating/ fresh water, district heating com for implementing a hot water circuit
- Max. 5 module expansions per TopTronic® E basic module district heating/fresh water, district heating possible
- Connection technology executed as plug-in screw terminals in coded Rast 5 design
- Connection to basic module using ribbon cable
- Controller module suitable for cabinet installation (mounting on DIN rail 93 x 125 x 95 mm)
- Protection via the basic module

Notice

Module expansions must be installed directly next to the controller module!



TopTronic® E module expansion heating circuit district heating



TopTronic® E module expansion hot water district heating



TopTronic® E module expansion universal district heating

Inputs and outputs

- 3 variable sensor inputs:
 - 2 variable inputs for connection of a sensor
 - 1 variable input for connection of a sensor or pulse sensor
- 0-10 V input
- Variable 230 V 3-point output
- Variable 230 V output, e.g. for controlling the hot water pump
- 230 V optocoupler input connected in series to the variable 230 V output

Functions

- Refer to the product description of the controller module to which the module expansion is attached to find which functions can be implemented

Use

- For expanding the functions on the connected controller module
- Refer to the Hoval System Technology to find which functions and hydraulic arrangements can be implemented

Delivery

- TopTronic® E module expansion district heating
- DIN rail with fitting accessories
- Ribbon cable for connecting the device bus to the controller module
- Connection set for connecting the controller module to the mains voltage

- 2 immersion sensors TF/1.1P/2.5/6T, L = 2.5 m
- Basic plug set for module expansion district heating
 - Mains_in
 - Plug for 230 V output (direct circuit pump, mixer circuit pump)
 - Plug for 2 230 V outputs (mixer)
 - Plug for optocoupler input (flow temperature controller)
 - 2 plugs for sensor
 - Plug for 0-10 V input

Delivery

- TopTronic® E module expansion district heating
- DIN rail with fitting accessories
- Ribbon cable for connecting the device bus to the controller module
- Connection set for connecting the controller module to the mains voltage
- Complete plug set for module expansions

Notice

The supplementary plug set may have to be ordered to implement functions differing from the standard!

TopTronic® E module expansion universal district heating

- Expansion to the inputs and outputs of a basic module district heating or a basic module district heating/fresh water for implementing various functions
- Max. 5 module expansions are possible per basic module
- Connection technology executed as plug-in screw terminals in coded RAST 5 design
- Connection to controller module using ribbon cable
- Controller module suitable for cabinet installation (mounting on DIN rail 93 x 125 x 95 mm)
- Protection via the basic module

Notice

Module expansions must be installed directly next to the controller module!

Inputs and outputs

- 3 variable sensor inputs:
 - 2 variable inputs for connection of a sensor
 - 1 variable input for connection of a sensor or pulse sensor
- 0-10 V input
- 0-10 V output for controlling a continuous valve (e.g. mixing circuit valve)
- Variable 230 V 3-point output
- Variable 230 V output
- 230 V optocoupler input connected in series to the variable 230 V output

Functions

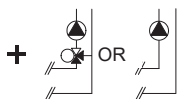
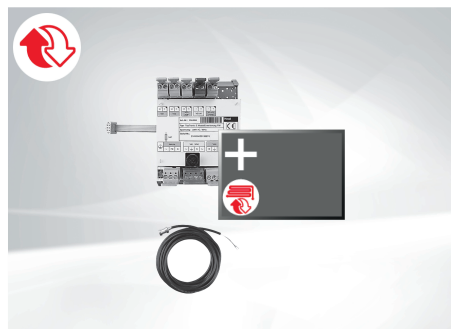
- Refer to the product description of the controller module to which the module expansion is attached to find which functions can be implemented

Use

- For expanding the functions on the connected controller module
- Refer to the Hoval System Technology to find which functions and hydraulic arrangements can be implemented

TopTronic® E module expansions

Heating circuit, hot water,
universal district heating



TopTronic® E module expansion heating circuit district heating TTE-FE HK FW

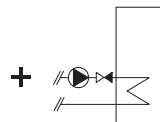
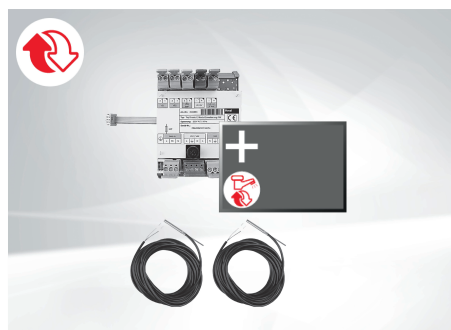
Expansion to the inputs and outputs of the basic module district heating/fresh water or basic module district heating com for carrying out the following functions:

- 1 heating/cooling circuit w/o mixer or
- 1 heating/cooling circuit with mixer

Consisting of:

- TopTronic® E module expansion district heating
- top hat rail with fitting accessories
- ribbon cable for connecting the device bus to the controller module
- connection set for connecting the controller module to the mains voltage
- 1 contact sensor ALF/1.1P/5/T with length 2.5 m
- complete plug set for module expansions district heating

6038 119



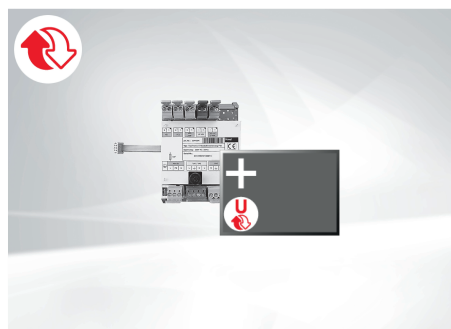
TopTronic® E module expansion hot water district heating TTE-FE WW FW

Expansion to the inputs and outputs of the basic module district heating/fresh water or basic module district heating com for implementing a hot water circuit

Consisting of:

- TopTronic® E module expansion district heating
- top hat rail with fitting accessories
- ribbon cable for connecting the device bus to the controller module
- connection set for connecting the controller module to the mains voltage
- 2 immersion sensors TF/1.1/2.5/T with length 2.5 m
- complete plug set for module expansions district heating

6038 120



TopTronic® E module expansion universal district heating TTE-FE UNI FW

Expansion to the inputs and outputs of the basic module district heating/fresh water or basic module district heating com for carrying out the following functions

Consisting of:

- TopTronic® E module expansion district heating
- top hat rail with fitting accessories
- ribbon cable for connecting the device bus to the controller module
- connection set for connecting the controller module to the mains voltage
- complete plug set for module expansions district heating

6038 117

Notice

Refer to the Hoval System Technology to find which functions and hydraulic arrangements can be implemented.

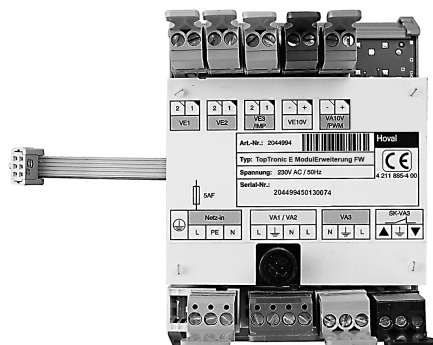
TopTronic® E module expansions district heating

Heating circuit direct heating circuit, hot water direct heating, universal district heating

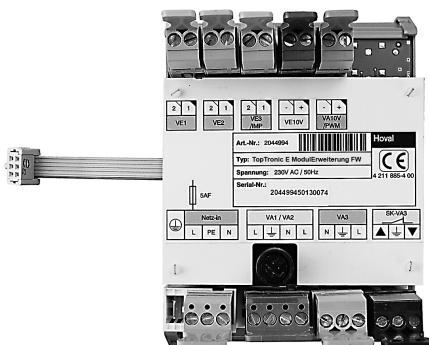
Type	TTE-FE FW HK / TTE-FE FW WW / TTE-FE FW UNI
• Power supply max.	230 V AC +6/-10 %
• Frequency	50-60 Hz
• Min. power consumption	0.8 W
• Max. power consumption	1.8 W
• Fuse	none - protection via controller module
Output (low voltage)	
• Electromechanical relays	3
Switching capacity	
• Electromechanical relays	5 A
Input (low voltage)	
• Optocoupler input	1
Inputs (extra-low voltage)	
• Input 0-10 V	1
• Inputs sensors	2
• Pulse input	1 can be switched over
Expansion (module expansion)	
• Max. number	-
Casing	
• Installation	Top hat rail mounting
• Dimensions (W x H x D) incl. plug	150 x 100 x 75 mm
• Ambient temperature (during operation)	0...50 °C
• Humidity (in operation)	20...80 % RH, non-condensating
• Storage temperature	-20...60 °C
Bus system (Hoval CAN bus)	
• Capacity	-
• Bus supply	None
• Bus line	-
• Bus length	twisted, shielded, max. 100 m
• Line cross-section	min. 0.5 mm ²
• Cable type (recommended)	JY-(ST) 2 x 2 x 0.6
Other bus interfaces	Internal unit bus (master)
Miscellaneous	
• Type of protection	IP 20
• Protection class	I – EN 60730
• Plug types	Rast 5 (coloured, coded)

Electrical connection

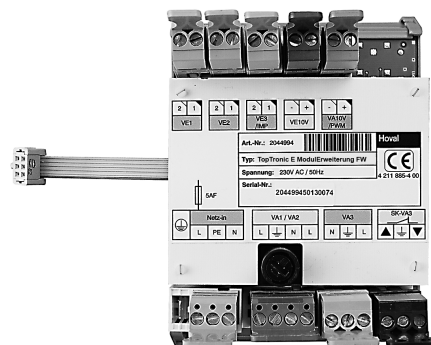
TopTronic® E module expansions



TopTronic® E module expansion
heating circuit district heating



TopTronic® E module expansion
hot water district heating



TopTronic® E module expansion
universal district heating

TopTronic® E control module black

- Colour touchscreen 4.3 inch with black high-gloss trim
- Resolution: 480 x 320
- Connection to the Hoval bus system via RJ45 plug connection or plug terminals (max. 0.75 mm²)
- Flat design with flexible installation options
- Installation
 - in the control panel of the heat generator
 - in the Hoval wall casing
 - in the front of the control panel
 - on the wall with surface mounting frame (deep control module incl. frame approx. 25 mm)
 - on the wall using wall mounting plate with concealed sockets (deep control module incl. mounting plate approx. 12 mm)

Notice

Supplied accessories for installation of device in the front of the control panel. Take account of additional accessories for alternative installation!

- Commissioning wizard for simple configuration and parameter setting of the plant
- Operation of all controller modules connected to the bus system (basic, solar, buffer module, etc.)
- Emission measurement and manual mode
- LED for displaying the current system status
- Automatic dimming depending on the ambient light
- User-friendly user interface and menu system
- Activation of functions and display texts depending on the user level
- Plant-specific naming of heating and hot water circuits possible
- Display of all information in plain text and in different languages
- Display of detailed plant information
- Extensive fault message management by plain text and categories
- Service and maintenance function
- Operating mode selection incl. configurable week and day programs
- Operation of all heating and hot water circuits connected to the bus system
- Rights management for heating and hot water circuits incl. activation of the common operating mode
- Efficient control of the heating installation by simple working with day programs
- Analysis function (outside temperature, room temperature, solar yield curves, etc.)
- Customer-specifically configurable start screen for displaying
 - Time and date
 - Lunar phase
 - Heat generator temperature
 - Hot water temperature
 - Active day and basic program incl. temperature profile
 - Output and consumption of a heating/hot water circuit or of the heat generator (possible in combination with flow rate sensors)
 - Collector temperature (in combination with solar module)
- Display of the current weather or weather forecast (only possible in combination with HovalConnect)

TopTronic® E control module



TopTronic® E room control modules



easy white



comfort white



comfort black

Delivery

- TopTronic® E control module black
- Clamping device control module
- Clamping device adapter control module
- CAN cable RJ45/Rast-5, L = 500 cm

TopTronic® E room control module

- Colour touchscreen 4.3 inch with high-gloss trim
 - Room control module easy white
 - Room control module comfort either white or black
- Resolution: 480 x 320
- Connection to the Hoval bus system via RJ45 plug connection or plug terminals (max. 0.75 mm²)
- Installation on the wall
 - with a surface mounting frame (deep room control module incl. frame approx. 25 mm)
 - with a wall mounting plate with concealed sockets (deep room control module incl. mounting plate approx. 12 mm)
- Optimum mounting height in the room: 1500-1600 mm
- LED for displaying the current system status
- Automatic dimming depending on the ambient light
- User-friendly user interface and menu system
- Plant-specific naming of heating and hot water circuits possible
- Display of all information in plain text and in different languages
- Display of detailed plant information

- Extensive fault message management by plain text and categories
- Service and maintenance function
- Operating mode selection incl. configurable week and day programs
- Room sensor installed

Delivery

- TopTronic® E room control module
- Surface-mounted assembly frame
- Design frame
- Wall mounting adapter
- Assembly material

TopTronic® E room control module easy white

- Room control module can only be allocated to a heating circuit
- Software with reduced range of functions for simple operation of the room temperature and selection of the basic program without problems

TopTronic® E room control module

white or black

- Operation of all heating and hot water circuits connected to the bus system
- Rights management for heating and hot water circuits incl. activation of the common operating mode
- Efficient control of the heating installation by simple working with day programs
- Analysis function (outside temperature, room temperature, solar yield curves, etc.)
- Selection between different start-up screens possible during commissioning
- Customer-specifically configurable start screen for displaying
 - Time and date
 - Lunar phase
 - Heat generator temperature
 - Hot water temperature
 - Active day and basic program incl. temperature profile
 - Output and consumption of a heating/hot water circuit or of the heat generator (possible in combination with flow rate sensors)
 - Collector temperature (in combination with solar module)
- Display of the current weather or weather forecast (only possible in combination with HovalConnect)

TopTronic® E control module



Notice

Take account of additional accessories for alternative installation!

TopTronic® E control module black

- For operation of all controller modules connected to the bus system (basic, solar, buffer modules, ecc.)
- Connection to the Hoval Bus system by RJ45 plug connection or plug-in terminals (max. 0.75 mm²)
- Flat design with flexible mounting option
- Mounting
 - in the control panel of the heat generator,
 - in the Hoval wall casing,
 - on the front of the control panel
- Colour touchscreen 4.3 inch with black high-gloss trim
- Customer-specific configuration of the start-up screen
- Display of the current weather or weather forecast (only possible in combination with HovalConnect)

Consisting of:

- TopTronic® E control module black
- clamping device set for control module
- RJ45 Rast-5 CAN cable, L = 500

Part No.

6043 844

TopTronic® E room control modules



TopTronic® E room control module easy white

- Room control module for a heating circuit
- Software with a reduced range of functions for simple operation of the room temperature and unproblematic selection of the basic program
- For mounting on the wall
 - with an on-wall mounted installation frame (depth of room control module incl. frame approx. 25 mm)
 - with a wall-mounting plate for in-wall sockets (depth of room control module incl. mounting plate approx. 12 mm)
- Optimum mounting height: 1500-1600 mm
- Connection to the Hoval bus system by RJ45 plug connection or plug-in terminals (max. 0.75 mm²)
- Colour touchscreen 4.3 inch with white high-gloss trim

Consisting of:

- TopTronic® E room control module white
- on-wall mounted installation frame white
- designer frame white
- wall-mounting adapter
- fitting accessories

Notice

Take account of additional accessories for alternative installation!

6037 071



Notice

Take account of additional accessories for alternative installation!

TopTronic® E room control module comfort white

- Operation of all heating and domestic hot water circuits connected to the bus system
- Customer-specific configuration of the start-up screen
- Display of the current weather or weather forecast (only possible in combination with HovalConnect)
- Efficient control of the heating installation by simple working with day programs
- Analysis functions (outdoor temperature, room temperature, solar yield curves, etc.)
- For mounting on the wall
 - with an on-wall mounted installation frame (depth of room control module incl. frame approx. 25 mm)
 - with a wall-mounting plate for in-wall sockets (depth of room control module incl. mounting plate approx. 12 mm)
- Optimum mounting height: 1500-1600 mm
- Connection to the Hoval bus system by RJ45 plug connection or plug-in terminals (max. 0.75 mm²)
- Colour touchscreen 4.3 inch with white high-gloss trim

Consisting of:

- TopTronic® E room control module white
- on-wall mounted installation frame white
- designer frame white
- wall-mounting adapter
- fitting accessories

Part No.

6037 069



Notice

Take account of additional accessories for alternative installation!

TopTronic® E room control module comfort black

- Operation of all heating and domestic hot water circuits connected to the bus system
- Customer-specific configuration of the start-up screen
- Display of the current weather or weather forecast (only possible in combination with HovalConnect)
- Efficient control of the heating installation by simple working with day programs
- Analysis functions (outdoor temperature, room temperature, solar yield curves, etc.)
- For mounting on the wall
 - with an on-wall mounted installation frame (depth of room control module incl. frame approx. 25 mm)
 - with a wall-mounting plate for in-wall sockets (depth of room control module incl. mounting plate approx. 12 mm)
- Optimum mounting height: 1500-1600 mm
- Connection to the Hoval bus system by RJ45 plug connection or plug-in terminals (max. 0.75 mm²)
- Colour touchscreen 4.3 inch with black high-gloss trim

Consisting of:

- TopTronic® E room control module black
- on-wall mounted installation frame black
- designer frame black
- wall-mounting adapter
- fitting accessories

6037 070

Accessories



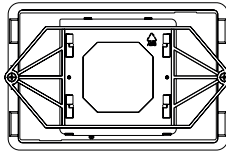
Enhanced language package TopTronic® E

one SD card required per control module

Consisting of the following languages:

HU, CS, SL, RO, PL, TR, ES, HR,
SR, JA, DA

6039 253



Clamping device set for control module

Can be used for mounting the
control module

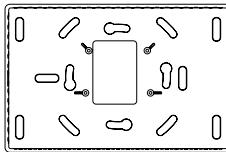
- in the Hoval wall casing
- in front of the control panel,
cut-out 136 x 88 mm with a material
thickness of 0.5-6 mm,
connection to the Hoval bus system
either via RJ45 plug connection or
via plug-in terminals (max. 0.75 mm²)

Consisting of:

- clamping device,
- clamping device adapter for 138x92 mm
(wall casing) material thickness (0.5–3 mm)

Included in the scope of delivery for the
TopTronic® E control module.

6041 812



On-wall mounted installation frame black

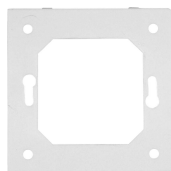
- Can be used for on-wall mounting of the
control module/room control module black
- depth of control module incl. on-wall mounted
installation frame approx. 25 mm
- colour matt black
- connection to the Hoval bus system by
RJ45 plug connection or plug-in terminals
(max. 0.75 mm²)

Consisting of:

- On-wall mounting frame black
- fixing accessories incl. screws
for locking the control module

Included in the scope of delivery for the
TopTronic® E room control modules.

6035 797



Wall installation adapter

- Can be used for wall installation of the
control module/room control module black
or white
- Very flat design possible
- Depth of control module incl. on-wall
mounted installation frame is only 13 mm
- Use requires an existing in-wall socket or
connection to the Hoval bus system is by
plug-in terminals (max. 0.75 mm²)

Included in the scope of delivery for the
TopTronic® E room control modules.

2053 488

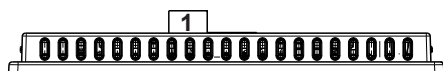
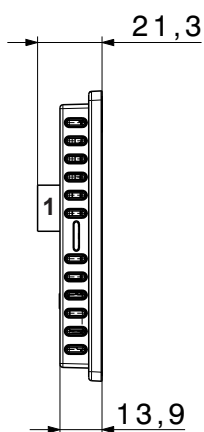
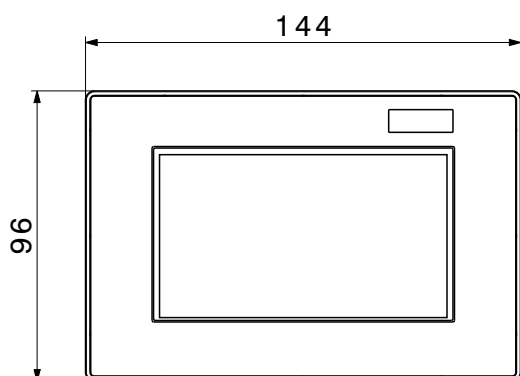
TopTronic® E control module / room control module

- Connection to the Hoval bus system via RJ45 plug connection or plug terminals (max. 0.75 mm²)
- Resolution: 480 x 320
- Voltage: 12 V DC 100 mA
- Humidity (in operation): 20...80 % RH, non-condensing

■ Dimensions

TopTronic® E control module / room control module

(Dimensions in mm)



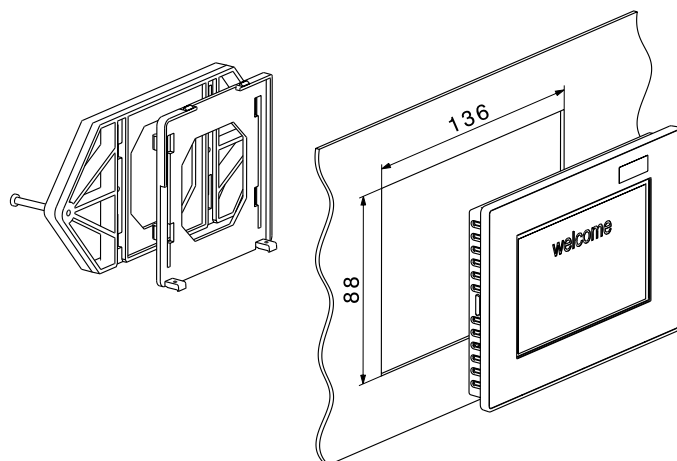
- 1 Removable RJ45 plug connection
Alternative: plug terminal (max. 0.75 mm²)

TopTronic® E control module / room control module

Installation

Installation in control panel

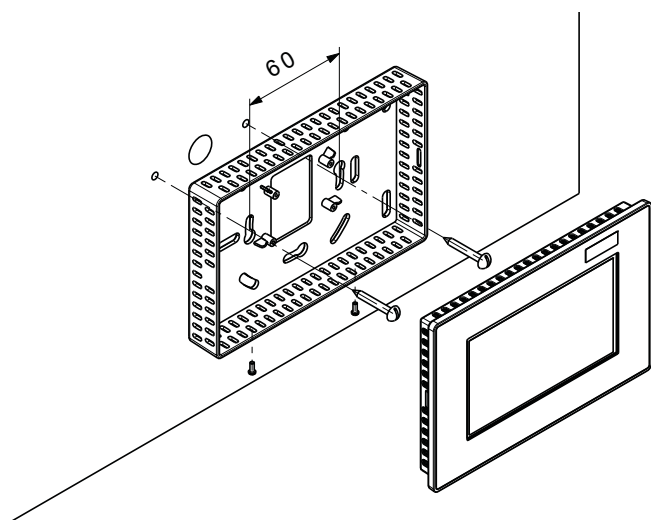
(Clamping device is included in the scope of delivery for the control module)
(Dimensions in mm)



- Cut-out: 136 x 88 mm
- Material thickness: 0.5-6 mm
- Connection to the Hoval bus system either via RJ45 plug connection or plug terminals (max. 0.75 mm²)

Wall mounting with surface-mounting frame

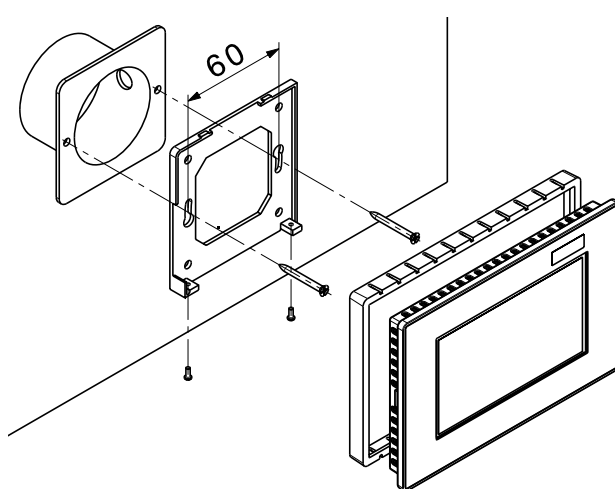
(Surface-mounting frame is included in the scope of delivery for the room control modules)
(Dimensions in mm)



Wall mounting with wall mounting plate with concealed sockets

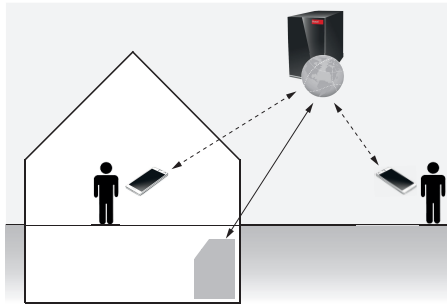
(Wall mounting plate is included in the scope of delivery for the room control modules)

- Connection to the Hoval bus system via RJ45 plug connection or plug terminals (max. 0.75 mm²)
(Dimensions in mm)



HovalConnect

- Browser access permits access to the TopTronic® E system
- The app enables simplified operation of the Hoval heating system via smartphone from home or while travelling.
- High data security by special encryption of communication between the plant and Hoval server
- Simple changing of the required room temperature, day or basic program



- The app can be downloaded free of charge via the iTunes Store for iOS devices and via the Google Play Store for Android devices
- Minimum requirements of the smartphone operating system:
 - Android 7.0 or higher
 - iOS 11 or higher
- Minimum requirements of the browser:
 - Chrome (latest version + previous version)
 - Firefox (latest version + previous version)
 - Safari (latest version + previous version)
 - Edge (latest version + previous version)
 - Internet explorer (with limitations)
- **Additional functions in the browser**
 - Clear graphical user interface (dashboard) with end user display
 - Input of a e-mail contact for triggering alarms in case of faults on the heating system
 - Energy accounting for graphical representation of a plant's solar data
- The heating system / TopTronic® E is connected to the Internet either via a LAN cable or a WLAN-enabled gateway
 - Simple installation and configuration of the gateway
 - No configuration required on the router
 - Customer creates his/her personal account on the Hoval server and registers his/her plant

Notice

Internet access is required for installation!

- One gateway required per Hoval bus system

Notice

Electrical power supply via the Hoval CAN bus or the mains adapter, i.e. using the module reduces the max. number of (room) control modules that can be connected to the bus system!

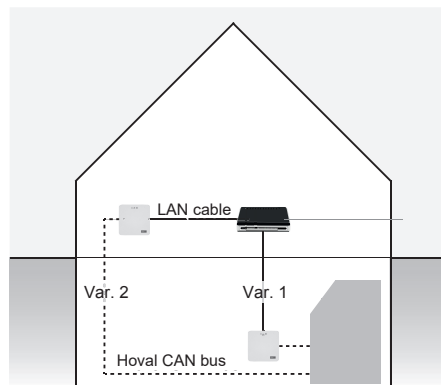
- Update capability of the gateway software
- Gateway is either mounted on the wall or placed on a surface without mounting
- Type of protection: IP20

Notice

The DIN rail mounting set must be ordered separately for installing the gateway in the heat generator or in the control panel! Only the LAN version is allowed to be installed in the heat generator! An e-mail alarm does not replace a fault monitoring system in case of critical applications.

HovalConnect LAN

- The heating system is connected to the Internet via a LAN cable to the router in the case of Var.1 – gateway installed in cellar – or via a 4-wire cable (Hoval CAN bus) to the cellar in the case of Var.2 – gateway installed in the living area.



- Gateway electric power supply: 12 VDC
100 mA with LAN

HovalConnect available from mid-2020

Up to that point, TopTronic® E online is delivered - conversion to HovalConnect is carried out free of charge.

Delivery

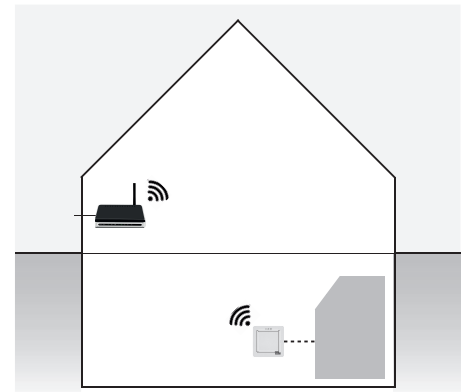
- Gateway V2.0
- Wall mounting adapter white
- License for HovalConnect
- Cover for Gateway V2.0
- Fitting accessories for covering the gateway

HovalConnect WLAN

- Version same as HovalConnect LAN. Connection is wireless, however.
- For the WLAN version, the electrical power supply must be provided via the supplied mains adapter
- Heating system is connected to the home network via a supplied WLAN-capable gateway

Notice

Take account of maximum WLAN range of the router!

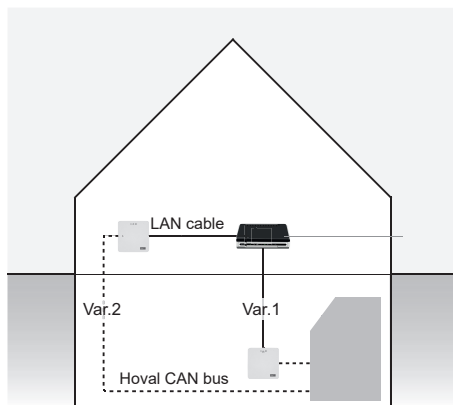


- Voltage: 12 VDC 200 mA with WLAN

Delivery

- Gateway V2.0
- Wall mounting adapter white
- License for HovalConnect
- WLAN antenna (matching Gateway V2.0)
- Cover for Gateway V2.0
- Fitting accessories for covering the gateway
- Mains adapter 12 V/6 W with cable, L = 1800 mm

HovalConnect



2 installation possibilities of the Gateway V2.0:

Var. 1: Installation in the basement, i.e. long LAN cable to the router

Var. 2: Installation in the living area, i.e. 4-wire cable (Hoval CAN bus) into the basement

HovalConnect available from mid-2020

Up to that point, TopTronic® E online is delivered - conversion to HovalConnect is carried out free of charge.

HovalConnect LAN

- The app enables simplified operation of the Hoval heating system via smartphone from home or while travelling
- Easy change of the required room temperature, day or basic program
- Additional functions via browser access (Hoval website with logon)
- LAN interface for connecting the Gateway V2.0 to the router of the home network

Consisting of:

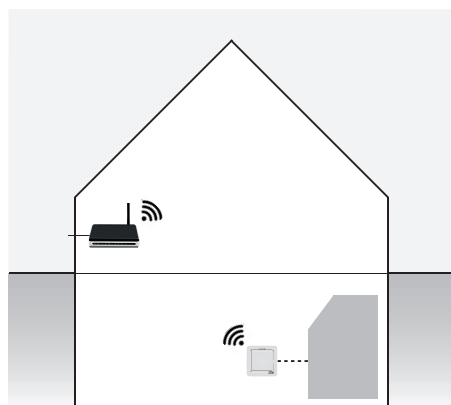
- Gateway V2.0
- wall-mounting adapter white
- licence for HovalConnect
- cover for Gateway V2.0
- fitting accessories for covering the Gateway

Part No.

6049 496

Part No.

6049 498

**HovalConnect WLAN**

- The app enables simplified operation of the Hoval heating system via smartphone from home or while travelling
- Easy change of the required room temperature, day or basic program
- Additional functions via browser access (Hoval website with logon)
- LAN interface or WLAN interface for connecting the Gateway V2.0 to the router of the home network

Consisting of:

- Gateway V2.0
- wall-mounting adapter white
- licence for HovalConnect
- WLAN antenna (matching Gateway V2.0)
- cover for Gateway V2.0
- fitting accessories for covering the Gateway
- Mains adapter 12 V/6 W with cable, L = 1800 mm

Notice

Take account of maximum WLAN range of the router!

Notice

Do not install the gateway in the heat generator

HovalConnect available from mid-2020

Up to that point, TopTronic® E online is delivered - conversion to HovalConnect is carried out free of charge.



Mains adapter for Gateway V2.0

- Plug-in mains adapter for external power supply of the Gateway V2.0
- required if the device is not powered via the Hoval CAN bus
- supply via the Hoval CAN bus unless the max. number of control modules is exceeded
- For the WLAN version, the electrical power supply must be provided via the supplied mains adapter
- connection to Gateway V2.0 via a DC plug 5.5 x 2.1 x 10 mm
- I/O 100-240VAC/12VDC 1A
- Only required as spare part.

Top hat rail mounting set incl. top hat rail for Gateway

For mounting the Gateway in the heat generator, in a wall casing or in a control panel

Consisting of:

- Top hat rail with fixing accessories
- Top hat rail mounting adapter

Part No.

2076 328

6035 800

HovalConnect - Gateway

Casing

• Mounting	Top hat rail mounting
• Dimensions LAN/WLAN (W x H x D)	100 x 100 x 27 mm (incl. top-hat rail 42 mm)
• Dimensions ModBus (W x H x D)	155 x 100 x 47 mm (terminal block incl. top-hat rail 55 mm)
• Dimensions KNX (W x H x D)	160 x 100 x 53 mm (incl. top-hat rail 68 mm)
• Material	plastic
• Weight LAN/WLAN	approx. 150 g
• Weight ModBus	approx. 500 g
• Weight KNX	approx. 500 g

Electrical safety

• Protection type (according to EN 60529)	IP 20
• Complies with EN 50491-3	
• Safety extra-low voltage	SELV DC 24 V

EMC requirements

- Complies with EN 61000-6-2, EN 61000-6-3, EN 50491-5-1, EN 50491-5-2 and EN 50491-5-3
- According to EMC Directive (residential and functional building)

Environmental conditions

• Ambient temperature (during operation)	0...45 °C
• Storage temperature	-20...60 °C
• Humidity (in operation)	20...80% RH, non-condensing

Ethernet

- 10BaseT (10Mbit/s)
- Supported protocols: UDP/IP, TCP/IP, DHCP and static IP

Power supply

• External supply	LAN gateway: CAN bus WLAN gateway: mains adapter 12 V DC ModBus gateway: CAN bus KNX gateway: mains adapter 12 V DC
• Power consumption	< 800 mW

**Industrial mobile data VPN router
2G/3G/4G-LTE**

- VPN router for connecting a HovalConnect gateway to the Internet via LAN or WLAN
- For installation in a control panel
- Configuration via web server
- 2G/3G/4G-LTE mobile data technology
- Version with sturdy metal casing
- Dimensions: L x W x H: 93 x 90 x 27 mm
- Connections:
 - 2 x SMA antenna connection for mobile radio
 - 1 x SMA antenna connection for WLAN
 - 2 x 10/100 Mbit Ethernet
 - 2 x SIM card slots

Delivery

- VPN router
- 2 x LTE tilt-and-swivel antennas for direct router mounting
- 1 x WLAN tilt-and-swivel antenna for direct router mounting
- Plug-in power supply
- Top hat rail mounting clips

Notice

SIM card is not supplied and must be provided by the customer. Telephone network provider can be selected as required.



Industrial mobile data VPN router 2G/3G/4G-LTE



Industrial mobile data VPN router 2G/3G/4G-LTE

Industrial router for connecting the HovalConnect gateway to the Internet via LAN/WLAN
For control panel mounting, metal casing
Without SIM card, free choice of phone network
Configuration via web server
Connections:
2x 10/100Mbit Ethernet, 2x simcard slot
SMA connections: 2x mobile data, 1x WLAN
Scope of delivery:
VPN router, aeriols: 2x LTE, 1x WLAN
Shockproof mains adapter, top hat rail mounting clips

Part No.

2076 329



Cellular antenna (2G/3G/4G-LTE)

for installation outdoors or indoors.
Consisting of:
2G/3G/4G-LTE antenna, 5 m antenna cable with SMA-male plug, incl. metal mounting bracket.
For each router, an external omnidirectional antenna should be used which is suitable either for control panel mounting or mounting on a wall with metal brackets.

2073 752



Antenna extension cable - 5 m

Connections: SMA-male to SMA-female
Cable type: HDF-195
Cable length: 5 metres
To avoid excessive signal attenuation, only one extension cable should be used.

2073 750



Antenna extension cable - 10 m

Connections: SMA-male to SMA-female
Cable type: HDF-195
Cable length: 10 metres
To avoid excessive signal attenuation, only one extension cable should be used.

2073 751

Mobile data VPN router

The mobile data VPN router is used for connecting a HoValConnect gateway to the Internet and is provided for use in boiler rooms (control panel with top hat rail). The connection is established via the mobile data network, in which case the telephone network or provider can be selected as required (depending on the SIM card used). The SIM card is not supplied with the device and must be provided separately.

It is recommended for the router to be extended with an omnidirectional antenna and, if necessary, an extension cable from the accessories and for this antenna to be mounted outdoors. In this case, one of the enclosed antennas should be used indoors as the 2nd antenna. The antenna connection to the outside is labelled "Main".

When extending antenna cables, it is important to note that each additional meter of cable also attenuates the signal. Therefore, extensions should be handled with care.

Dimensions

- L x W x H: 93 x 90 x 27 mm

Delivery

- VPN router
- 2x LTE tilt-and-swivel antennas for direct router mounting
- 1x WLAN tilt-and-swivel antenna for direct router mounting
- Plug-in power supply DC 5 V / 2 A
- Top hat rail mounting clips

Technical data

- Mobile data technology: 2G/3G/4G-LTE
- WLAN: 11N (2.4GHz) WiFi Uplink
- Voltage supply range: 5 to 18 VDC
- Configuration: web server
- DHCP server
- Firewall / NAT
- IPSec, PPTP, L2TP, GRE, OpenVPN, DM-VPN, L2TP over IPSec

Connections

- 2 x SMA antenna connection for mobile radio
- 1 x SMA antenna connection for WLAN
- 2x 10/100 Mbit Ethernet
- 2x SIM card slots

Ambient conditions:

- Temperature range between -30 °C and +70 °C
- Humidity: 10% to 95% (non-condensing)
- Type of protection: IP30

Omnidirectional antenna (2G/3G/4G-LTE)

- Frequencies: 698-960 / 1710-2700 MHz
- 2dBi max gain @ 698-960 MHz
- 4dBi max gain @ 1710-2700 MHz
- Antenna length: approx. 82 mm
- Total height including mounting bracket: 164 mm
- Diameter: approx. 48 mm
- Temperature range: between -40 °C and +80 °C

Antenna extension cable

- Cable type: Low-Loss HDF195
- Attenuation at 1GHz: approx. 0.36 dB per metre
- Connector type: SMA-male / SMA-female

BMS module 0-10 V/ OT - OpenTherm TopGas® (building management system)

- BMS module for linking to the Hoval TopGas® comfort, TopGas® classic, TopGas® (35-120) by connecting the control voltage (0-10 V).

Functions

- Interface converts the 0-10 V signal into a reference temperature value or a reference output value for controlling a TopGas®
- Specification of the reference temperature to the Hoval TopGas® condensing gas boiler
- Specification of the reference output to the Hoval TopGas® condensing gas boilers
- The type of control of the Hoval TopGas® can be configured by the DIP switches.



■ Part No.

Part No.

*Only in combination with
TopGas® comfort, TopGas® classic,
TopGas® (35-120)
(OpenTherm bus)*

BMS module 0-10 V/ OT - OpenTherm

(building management system)

no control unit TopTronic® E or RS-OT
necessary

power supply via OT bus

Temp. control external with 0-10 V

0-1.0 V no request

1.0-9.5 V0-100 °C

Cannot be installed in boiler control

panel:

TopGas® classic (12-30)

Can be installed in boiler control

panel:

TopGas® classic (35-120),

TopGas® comfort

6016 725



BMS module 0-10 V / OT - OpenTherm (building master control system)

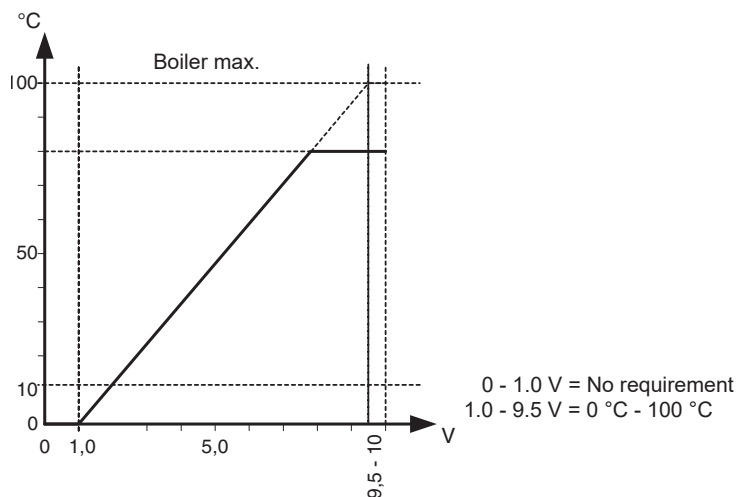
Only in combination with TopGas® comfort,
TopGas® classic, TopGas® (35-60)
(OpenTherm bus)

- Dimensions: L x W x H
68x45x23 mm
- Electrical power supply: via the
OT bus

Temperature control

- DIP switch 1 = OFF
- Module converts an input signal at the input into a heat generator reference value.
- The signal conversion follows a straight line.
1.0 V = 0 °C to 9.5 V = 100 °C.
- Voltages below 1.0 V: no heat request

External temperature control with 0-10 V

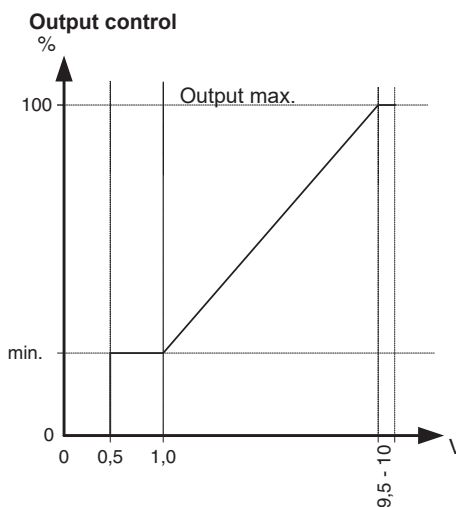


Output control

- DIP switch 1 = ON
- The module converts an input signal at the input into an output reference value.
- Limitation to the maximum flow temperature reference value

It is possible to differentiate between four different areas:

- 0 - 0.5 V No heat request
- 0.5 - 1 V Minimum output
- 1 - 9.5 V Output depending on 0 - 10 V signal
- 9.5 - 10 V Maximum output



TopTronic® E BMS module 0-10V

- BMS module for linking to the Hoval CAN bus system for the following functions:
 - Connecting a control voltage (0-10 V) for specifying a reference temperature value to the heat generator or to the heat generator cascade or
 - Connecting a control voltage (0-10 V) for specifying a reference output value to an individual heat generator
- Temperature specification for heating, hot water and also cooling operation possible (module expansion may be required)
- Output specification for heating and cooling operation possible
- Configurable characteristics for connecting temperature or output (see diagrams below)
- Connection technology executed as plug-in screw terminals in coded Rast-5 design
- Update capability of the controller software
- Time and date via integrated RTC, multi-year spring reserve
- Fine fuse 10 A
- Controller module suitable for cabinet installation by ability to install on DIN rail 35 x 15 x 2.2 mm

Inputs and outputs

- 3 variable sensor inputs
 - for heating / cooling change-over
 - for connecting information sensors
 - for connecting a reference value increase or reduction in the system
 - 1x variable input for connection of a sensor or pulse sensor
- 0-10 V input for connecting the reference temperature/output value
- The connection to a flow rate sensor or a pulse sensor is not possible.
- Variable 230 V 3-point output, e.g. for outputting a reference value detection function for heating, hot water and cooling operation
- Variable 230 V output, e.g. for outputting an alarm message

Option

- Can be expanded by max. 2 module expansions (expansion of the inputs/outputs):
 - Module expansion universal (connection of separate reference temperature values)

Use

- For connecting the heat generator or the heat generator cascade to a higher-level building management system using 0-10 V

Delivery

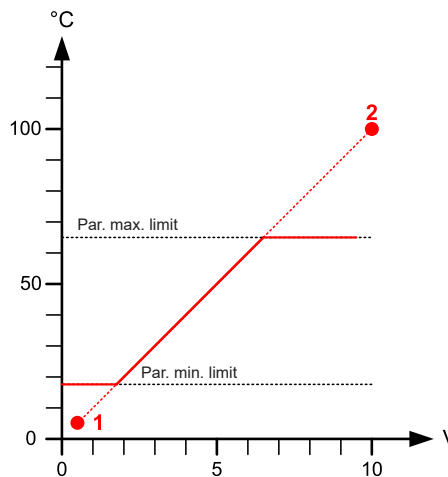
- TopTronic® E BMS module 0-10 V incl. 2x mounting clips for DIN rail attachment
- DIN rail with fitting accessories
- Complete plug set for controller module

Example for temperature requirement

0-0.5 V = OFF = No requirement

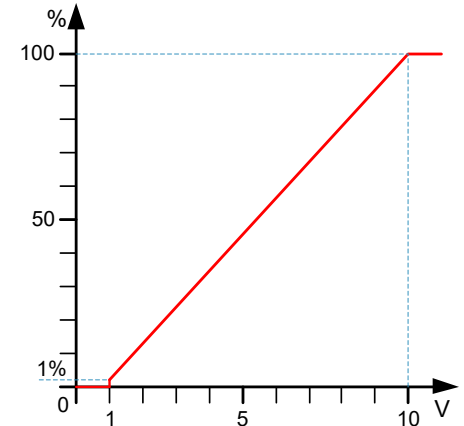
0.5-10 V = 5-100 °C

The reference flow value is limited by the programmed min./max. limit.



Input signal output requirement

Using the 0 -10 V characteristic curve, an output is read in by means of linear conversion. The characteristic curve is set on the points {1 V, 1 %} and {10 V, 100 %}.



Voltages between 0 V and 0.9 V are interpreted as "OFF". No requirement is transferred.

Voltages

0 V - 0.9 V heat generator off

1 V - 10 V heat generator required approx.

1 % to 100 % output, voltage produces reference output

Notice

A separate set value specification for heating and hot water is recommended. Therefore, a module expansion universal is required in addition to the BMS module.

Part No.



TopTronic® E GLT module 0-10 V

Communication module for connecting the heat generator or the heat generator cascade to a higher-level building management system using 0-10 V

Consisting of:

- TopTronic® E building management module 0-10 V incl. 2 pcs. mounting clips for top hat rail attachment
- top hat rail with fitting accessories
- complete plug set for controller module

Part No.

6034 578

HovalConnect Modbus

- Communication module for data exchange from Hoval TopTronic® E control systems with building management systems via Modbus TCP or Modbus RS485
- 1 Modbus module per cascade group required
- Refer to the data point table for data points and addressing
- Voltage: 12 VDC 100 mA
- Type of protection: IP20
- Connection is made, for one thing, either using RJ12 (Modbus RS485) or, for another, using a supplied connection cable via RJ45 plug connections (Modbus TCP)
- Update capability of the controller software
- Device suitable for cabinet installation by ability to install on DIN rail 35 x 15 x 2.2 mm or 35 x 7.5 x 2.2 mm

Notice

Electrical power supply via the Hoval CAN bus, i.e. using the module reduces the max. number of room control modules that can be connected to the bus system!

Inputs and outputs

- RJ12 plug connection for connecting to Modbus RS485
- RJ45 plug connection for connecting to Modbus TCP
- Connection to Hoval CAN bus via terminals

Use

- Controller module for connecting the heat generator or the heat generator cascade to a higher-level building management system using Modbus RS485 or Modbus TCP

Notice

The gateway Modbus can be connected to HovalConnect!

Delivery

- Gateway Modbus incl. mounting cover for DIN rail attachment
- DIN rail with fitting accessories
- Connection cable for connecting to Modbus RS485
- Licence for HovalConnect

■ Part No.



Technical data

see "HovalConnect" chapter

HovalConnect available from mid-2020

Up to that point, the gateway module Modbus TCP/RS485 is delivered - conversion to HovalConnect is carried out free of charge.

HovalConnect Modbus

Communication module for data exchange from Hoval TopTronic® E control systems with building management systems via Modbus TCP or Modbus RS485

- The app enables users to access and operate their Hoval heating system via smartphone and tablet PC from home or while travelling
- Simple changing of the required room temperature, day or basic program
- Additional functions via browser access (Hoval website with logon)

Delivery

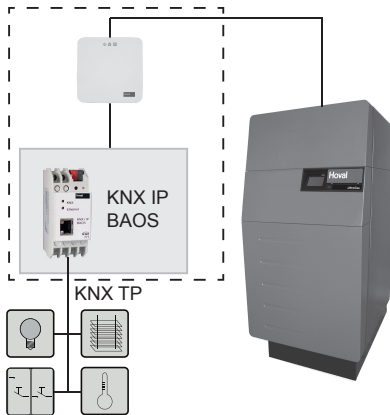
- Gateway Modbus TCP/RS485 incl. mounting cover for DIN rail attachment
- top hat rail with fitting accessories
- Licence for HovalConnect

Part No.

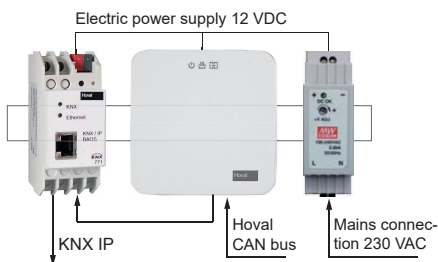
6049 501

HovalConnect KNX

- Communication module for data exchange from Hoval TopTronic® E control systems with building management systems via KNX TP



- Gateway module KNX consisting of
 - Coupling module
 - Gateway KNX
 - Mains adapter



KNX bus connection

- 1 gateway KNX required per Hoval bus system
- Refer to the data point table for data points and addressing
- Voltage: 230 VAC
- Power consumption: approx. 1 W
- Type of protection: IP20
- Connection made via terminals (mains voltage, KNX TP)
- Operating elements: teach-in button for KNX
- Display elements:
 - Teach-in LED (red)
 - LED indicator (green) for KNX
 - LED indicator (green) for LAN
- Device suitable for cabinet installation by ability to install on DIN rail 35 x 15 x 2.2 mm or 35 x 7.5 x 2.2 mm

Use

- Controller module for connecting the heat generator or TopTronic® E bus system to a building management system using KNX

Notice

The gateway KNX can be connected to HovalConnect!

Delivery

- Gateway KNX incl. mounting cover for DIN rail attachment
- Coupling module to KNX twisted pair
- Mains adapter
- DIN rail with fitting accessories
- Licence for HovalConnect

Part No.



HovalConnect KNX

Communication module for data exchange from Hoval TopTronic® E control systems with building management systems via Modbus KNX TP

- The app enables users to access and operate their Hoval heating system via smartphone and tablet PC from home or while travelling
- Simple changing of the required room temperature, day or basic program
- Additional functions via browser access (Hoval website with login)

Delivery

- Gateway KNX incl. mounting cover for DIN rail attachment
- coupling module on KNX twisted part
- power supply unit
- top hat rail with fitting accessories
- Licence for HovalConnect

Technical data

see "HovalConnect" chapter

HovalConnect available from mid-2020

Up to that point, the TopTronic® E gateway module KNX is delivered - conversion to HovalConnect is carried out free of charge.

Part No.

6049 593

Hoval TopTronic® E wall casings

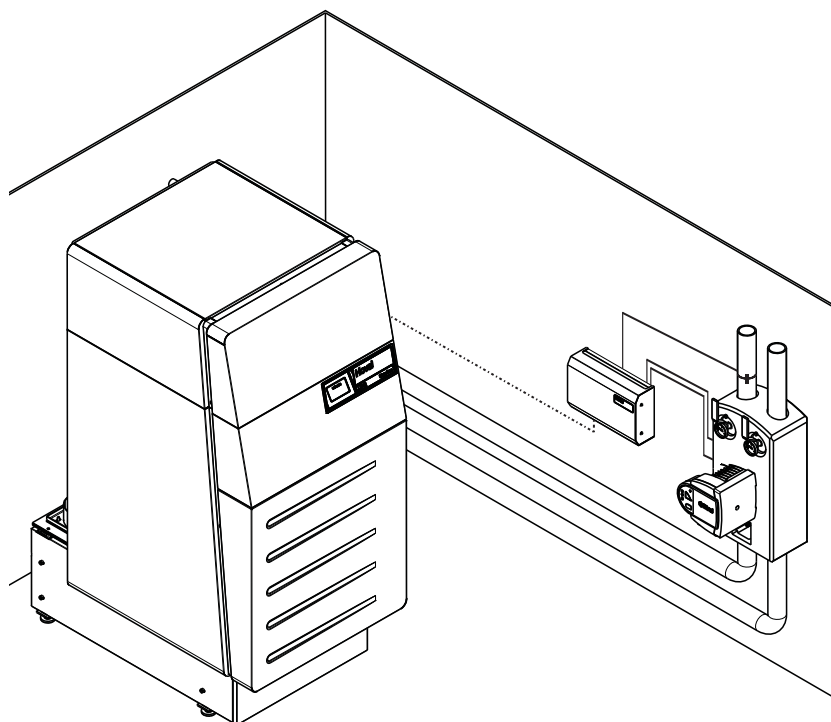
- Reduction in the wiring complexity on site thanks to installing the controller module directly at the sensors and actuators (e.g.: regulating armature)
- Flexible connection possibilities due to available cable introductions at the top and at the bottom
- Strain relief by cable ties and fastening points
- Material: powder-coated metal sheet
- Colour: flame red (RAL 3000)

Delivery

- Wall casing incl. built-in DIN rail
- Cable tie for strain relief
- Fastening material

On site

- Wiring between wall casing and calorifier according to diagram



■ Part No.

Hoval TopTronic® E wall casings



Wall casing small WG-190

- Suitable for installing a controller module/basic module
- Operation of the controller module for control purposes using the control module in the heat generator
- No installation of the TopTronic® E control module possible
- Dimensions: 190 x 230 x 102 (L x W x H)
- Index of protection: IP20

Consisting of:

- small wall casing incl. built-in top hat rail
- cable ties for strain relief
- fixing accessories

6035 563



Wall casing medium WG-360

- Suitable for installing
 - 1 basic module w/o module expansion or
 - 1 controller module plus 1 module expansion or
 - 2 controller modules
- Operation of the controller module for control purposes using the control module in the heat generator
- No installation of the TopTronic® E control module possible
- Dimensions: 360 x 230 x 102 (L x W x H)
- Index of protection: IP20

Consisting of:

- medium wall casing incl. built-in top hat rail
- cable ties for strain relief
- fixing accessories

6035 564


Wall casing medium with control module cut-out WG-360 BM

- TopTronic® E control module for the controller module can be installed in the wall casing
- Suitable for installation of
 - 1 basic module w/o module expansion or
 - 1 controller module plus module expansion or
 - 2 controller modules
- Suitable for renovation works or for stand-alone systems, i.e. controller functioning independently from the heat generator (autonomous heating circuit control, solar plant, etc.)
- Dimensions: 360 x 230 x 102 (L x W x H)
- Index of protection: IP20

Consisting of:

- medium wall casing with control module cut-out incl. built-in top hat rail
- cable ties for strain relief
- fixing accessories


Wall casing compact with control module cut-out WG-360-3 BM

- Suitable for the installation of
 - 1 basic module plus 1 module extension or
 - 1 basic module plus 1 controller module or
 - 2 controller modules plus 1 module extension or
 - 1 controller module plus 1 module extension or
 - 3 controller modules
- Operation of the controller module for control purposes using the control module in the heat generator
- No installation of the TopTronic® E control module possible
- Dimensions: 360 x 300 x 102 (L x W x H)
- Protection rating: IP20

Consisting of:

- Wall casing compact incl. built-in top hat rail
- Cable tie for strain relief
- Fastening material

Part No.

6035 565

6046 830

Part No.


Wall casing large WG-510

- Suitable for installing
 - 1 basic module plus 1 module expansion or
 - 1 basic module plus 1 controller module or
 - 2 controller modules plus 1 module expansion or
 - 1 controller module plus 2 module expansions or
 - 3 controller modules
- Operation of the controller module for control purposes using the control module in the heat generator
- No installation of the TopTronic® E control module possible
- Dimensions: 510 x 230 x 102 (L x W x H)
- Index of protection: IP20

Consisting of:

- large wall casing incl. built-in top hat rail
- cable ties for strain relief
- fixing accessories

6035 566


Wall casing large with control module cut-out WG-510 BM

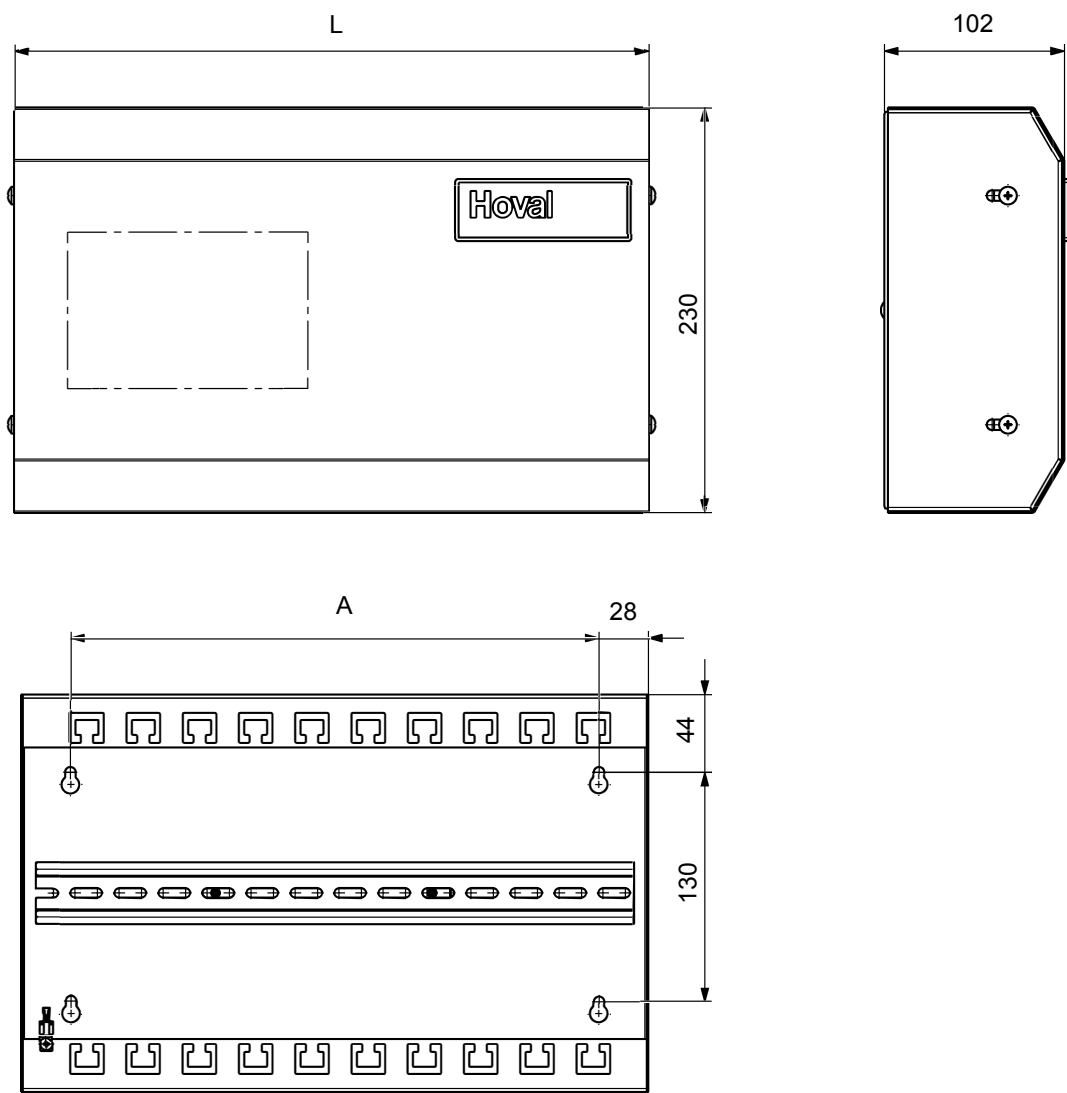
- TopTronic® E control module for the controller module can be installed in the wall casing
- Suitable for installing
 - 1 basic module plus 1 module expansion or
 - 1 basic module plus 1 controller module or
 - 2 controller modules plus 1 module expansion or
 - 1 controller module plus 2 module expansions or
 - 3 controller modules
- Operation of the controller module for control purposes using the control module in the heat generator
- Dimensions: 510 x 230 x 102 (L x W x H)
- Index of protection: IP20

Consisting of:

- large wall casing incl. built-in top hat rail
- cable ties for strain relief
- fixing accessories

6038 533

TopTronic® E wall casing
(Dimensions in mm)



Wall casing	L	A
WG-190	190	130
WG-360	360	300
WG-360 BM	360	300
WG-510	510	300
WG-510 BM	510	300



Single thermostat with setting in the casing

15-95 °C externally visible setting in the casing, immersion depth 100/150 mm
Differential gap 6K, splash water-protected polymer casing, nickel-plated brass immersion sleeve with thread seal G 1/2", max. operating pressure 10 bar.
1 changeover contact max. 6 A (ind.) at 230 V

Single thermostat - immersion depth 100 mm
RAKTW.1000B

6010 081

Single thermostat - immersion depth 150 mm
RAKTW.1000S

6010 082



Clamp-on flow temperature controller

RAK-TW1000S
15-95°C, setting (visible from the outside) inside the housing cover, with tensioning band

242 902



Calorifier thermostat control

- Universal storage tank thermostat controller for thermostatic pump charge demand
- Setting in casing, visible from outside
- 15 - 95 °C
- Switching differential 6K
- Capillar length 700 mm
- Incl. fastening material for Hoval storage tanks
- Can be used with integrated immersion well

6010 080



Flue gas thermostat AGT 519

- Switching temperature 80 °C (switching differential approx. 15K)
- 1 switchover contact 10A at 230 V/ 50 Hz ohm resistive load
- Simple screw fastening on flue gas pipe, with 2 m connecting cable
- Tested according to DIN 3440

641 256

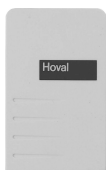


Temperature controller LAE LTR-5TSRE

- Electronic 2 point temperature controller
- -50...+150 °C
- switching interval 1-25 K
- 1 switchover contact
- cable sensor 2 m/ ø 0.7 mm

2004 485

Sensors for heating technology



Outdoor sensor AF/2P/K

for TopTronic® E controller modules/module expansions with exception of basic module district heating/fresh water or basic module district heating com

- Terminal connection
- Sensor may already be included in scope of delivery of heat generator
- Dimensions: 80 x 50 x 28 mm (H x W x T)
- Operating temperature: -50...80 °C
- Index of protection: IP x4
- Incl. fitting accessories

2055 889



Contact sensor ALF / 2P / 2 / T / K, L = 2.0 m incl. connection box

for TopTronic® E controller modules/module expansions with exception of basic module district heating/fresh water or basic module district heating com

- Cable length: 2 m with connection box
- Dewpoint-proof
- Operating temperature: -20...105 °C
- Index of protection: IP67

2056 800



Contact sensor ALF/2P/4/T, L = 4.0 m

for TopTronic® E controller modules/module expansions with exception of basic module district heating/fresh water or basic module district heating com

- Cable length: 4 m without plug
- Dewpoint-proof
- Operating temperature: -35...105 °C
- Index of protection: IP67

2056 775



Contact sensor ALF / 2P / 4 / T / S1, L = 4.0 m with plug

for TopTronic® E controller modules/module expansions with exception of basic module district heating/fresh water or basic module district heating com

- Cable length: 4 m with plug
- Dewpoint-proof
- Operating temperature: -20...105 °C
- Index of protection: IP67

2056 801



Immersion sensor TF/2P/2.5/6T, L = 2.5 m

for TopTronic® E controller modules/module expansions with exception of basic module district heating/fresh water or basic module district heating com

- Cable length: 2.5 m without plug
- (plug supplied with controller module/module expansion)
- Sensor sleeve diameter: 6 x 50 mm (Dewpoint-proof)
- Sensor may already be included in scope of delivery of heat generator/controller module/module expansion
- Operating temperature: -20...105 °C
- Index of protection: IP67

2056 789



Immersion sensor TF/2P/2.5/6T / S1, L = 2.5 m, with plug

for TopTronic® E controller modules/module expansions with exception of basic module district heating/fresh water or basic module district heating com

- Cable length: 2.5 m with plug
- Sensor sleeve diameter: 6 x 50 mm
- Dewpoint-proof
- Sensor may already be included in scope of delivery of heat generator/controller module/module expansion
- Operating temperature: -20...105 °C
- Index of protection: IP67

2056 790

Part No.


**Immersion sensor TF / 2P / 2.5S / 6T,
L = 2.5 m silicone**

for TopTronic® E controller modules/module expansions with exception of basic module district heating/fresh water or basic module district heating com

- For use at high ambient temperatures
- Cable length: 2.5 m (silicone) without plug (plug supplied with controller module/module expansion)
- Sensor sleeve diameter: 6 x 50 mm
- Dewpoint-proof
- Operating temperature: -20...105 °C
- Index of protection: IP67

2056 787


Immersion sensor TF / 12N / 2.5 / 6T, L = 2.5 m

for gas boiler with TopTronic® RS-OT

- Cable length: 2.5 m
- Sensor sleeve diameter: 6x50 mm
- Dewpoint-proof
- Operating temperature: -20...105 °C
- Index of protection: IP67

2056 791


Immersion sensor TF/2P/5/6T, L = 5.0 m

for TopTronic® E controller modules/module expansions with exception of district heating/fresh water or basic module district heating com

- Cable length: 5 m without plug
- Sensor sleeve diameter: 6 x 50 mm
- Dewpoint-proof
- Operating temperature: -20...105 °C
- Index of protection: IP67

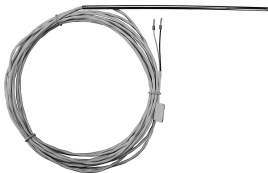
2055 888


**Immersion sensor TF/2P/5/6T, L = 5.0 m,
with plug**

for TopTronic® E controller modules/module expansions with exception of basic module district heating/fresh water or basic module district heating com

- Cable length: 5 m with plug
- Sensor sleeve diameter: 6 x 50 mm
- Dewpoint-proof
- Sensor may already be included in scope of delivery of heat generator/controller module/module expansion
- Operating temperature: -20...105 °C
- Index of protection: IP67

2056 788


**Flue gas temperature sensor TF / 1.1P / 5 / 4 / B,
L = 5.0 m**

for TopTronic® E controller modules/module expansions with exception of basic module district heating/fresh water or basic module district heating com

- Cable length: 5 m without plug (plug supplied with controller module/module expansion)
- Sensor sleeve diameter: 4 x 200 mm
- Dewpoint-proof
- Operating temperature: -50...300 °C
- Index of protection: IP67
- Supplied with fastening flange and screws

2056 794

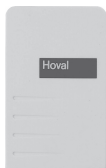

Collector sensor TF/1.1P/2.5S/5.5T, L = 2.5 m

for TopTronic® E solar module solar controllers ESR and UVR

- Collector sensor for solar plants
- Cable length: 2.5 m (silicone) without plug
- Sensor sleeve diameter: 6 x 50 mm
- Dewpoint-proof
- Operating temperature: -50...200 °C
- Index of protection: IP65

2056 776

Sensors for district heating



Outdoor sensor AF/1.1P/K FW

for TopTronic® E basic module district heating/
fresh water or basic module district heating com

- Sensor for district heating application (PT1000)
- Terminal connection
- Sensor may already be included in scope of delivery of heat generator
- Dimensions:: 80 x 50 x 28 mm (H x W x D)
- Operating temperature: -50...80 °C
- Index of protection: IP x4
- Incl. fitting accessories

2056 774



Immersion sensor TF/1.1P/2.5/6T, L = 2.5 m FW

for TopTronic® E basic module district heating/
fresh water, basic module district heating com,
fixed setting controller RKP

- Sensor for district heating applications (PT1000)
- Cable length: 2.5 m without plug (plug supplied with controller module/module expansion)
- Sensor sleeve
- Diameter: 6 x 50 mm
- Dewpoint-proof
- Sensor may already be included in scope of delivery of heat generator/controller module/module expansion
- Operating temperature: -50...105 °C
- Index of protection: IP67

2056 777



Contact sensor ALF/1.1P/2.5/T, L = 2.5 m FW

for TopTronic® E basic module district heating/
fresh water or basic module district heating com

- Sensor for district heating applications (PT1000)
- Cable length: 2.5 m without plug (plug supplied with controller module/module expansion)
- Dewpoint-proof
- Sensor may already be included in scope of delivery of heat generator/controller module/module expansion
- Operating temperature: -50...105 °C
- Index of protection: IP67

2056 778

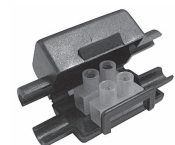


Fast temperature sensor KTY

with screw connection G 1/2"

Cable length: 2000 mm

2055 075



Clamp connectors

for the extension of sensor lines

2037 954



Bivalent switch for installation in the boiler control panel

- Can be used with bivalent systems for changing over priorities between heat generators or in other plant-specific switching procedures
- Can be installed in the TopTronic® E heat generator control panel
- 2-part switch – combination of operation interruption heat generator and bivalent switch
- Max. 1 bivalent switch can be installed
- Voltage: 230 V

Part No.

2061 826

Hoval system components

Part No.

System component SB-K5 - TTE

- For operation of external constant temperature request/minimum value operation (ventilation/swimming pool, etc.)
- Without casing

Consisting of:

- relay R1K
- support/snap track (8 cm) incl. fixing accessories for installation in boiler controllers
- Rast5 plug 2-pin green wired
- Rast5 plug 2-pin yellow

6038 550


System component SB-K6

- For combination of external calorifier demand with thermostat
- Without casing

Consisting of:

- relay R1K,
- support/snap track (8 cm) incl. fixing accessories for installation in boiler controllers
- Rast5 plug 2-pin green wired

6013 067


System component SB-R1K (relay)

- For universal implementation
- Relay with switchover contact
- 230 V/10A
- Without casing

Consisting of:

- relay R1K
- support/snap track (8 cm) incl. fixing accessories for installation in boiler controllers

6013 064


System component SB-R3K 16A (relay)

- For universal use without casing
- Improved contact material AgSnO2
- Relay with 3 switchover contacts
- max. 400 V/16 A, control voltage 230 V

Consisting of:

- support/snap track (8 cm) incl. fastenings for installation in boiler controller
- Control voltage 230 V
- Without housing

6044 844


System housing 182 mm - universal

- Simple universal housing for installation of system modules or a controller module, if accommodating in the heat generator is not possible
- Dimensions: 182 x 180 x 111 mm
- Colour: light grey

Consisting of:

- Top hat rail 180 mm
- 6 pcs. diaphragm lead-throughs M20

6038 551



System housing 254 mm - universal

- Simple universal housing for installation of system modules or a controller module (1 pce. basic module heat generator or 1 pce. controller module), if accommodating in the heat generator is not possible
- Dimensions: 254 x 180 x 111 mm
- Colour: light grey

Consisting of:

- Top hat rail 250 mm
- 10 pcs. diaphragm lead-throughs M20

Part No.

6038 552

Balancing valve TN

- As a line balancing and shut-off valve with direct indication of the set flow rate on the sight glass
- Automatically blocking bypass routed parallel to the main flow, with measuring and indication section
- Measuring section with float and counter-spring
- Materials
 - Housing components: brass
 - Interior components: stainless steel, brass and polymer
 - Sight glass: borosilicate
 - Seals: EPDM
 - Female thread (Rp) acc. to DIN 2999/ISO 7



Size	Measuring range l/min
DN 20	2-12
DN 20	8-30
DN 25	10-40
DN 32	20-70

Electrical flow rate meter VIG

- Single-jet water meter
- Impeller wheel meter for exact registration of the flow rate with volt-free pulse output
- Temperature range up to max. 90 °C



Type	Continuous flow m³/h
VIG 2.5	2.5
VIG 4	4.0
VIG 10	10.0

Flow rate sensor set

- Flow rate sensor according to the principle of the Kármán vortex street
- Used for limiting the heat quantity in conjunction with the heat balancing module expansion or various controller modules
- Flow rate sensor supplies the current flow rate as well as the current temperature at the measuring point
- No moving parts, therefore insensitive to dirt build-up
- Low pressure drop
- High accuracy
- Can be used up to 125 °C



Plastic housing

Size	Flow rate l/min
DN 8	0.9-15
DN 10	1.8-32
DN 15	3.5-50
DN 20	5-85
DN 25	9-150

Brass housing

Size	Flow rate l/min
DN 10	2-40
DN 32	14-240



**Solar balancing valve with bypass**

As a line balancing and shut-off valve with direct indication of the set flow rate on the sight glass.
Maximum operating temperature 185 °C

Size	Measuring range l/min	Connection Rp x Rp	kvs
DN 20	2-12	¾" x ¾"	2.2
DN 20	8-30	¾" x ¾"	5.0
DN 25	10-40	1" x 1"	8.1
DN 32	20-70	1¼" x 1¼"	17.0

Part No.

2038 034
2038 035
2038 036
2038 037

**Electrical flow rate pulse generator VIG**

Impeller wheel meter for exact registration of the flow rate with pulse output.

Type	Litres/pulse	Connection
VIG 2.5	0.5	R ½"
VIG 4	0.5	R ¾"
VIG 10	1.0	R 1¼"

6045 699
6045 700
6045 701

Sets flow rate sensor

- Used in combination with the module expansion heat accounting or var. controller modules for heat metering
- Flow sensor supplies the current flow rate as well as the current temperature to the measuring point

Consisting of:

- flow rate sensor
- connection cable
- Rast5 plug for connecting to TopTronic® E

**Plastic housing**

Unit of measure	Connection	Flow rate l/min
DN 8	G ¾"	0.9-15
DN 10	G ¾"	1.8-32
DN 15	G 1"	3.5-50
DN 20	G 1¼"	5-85
DN 25	G 1½"	9-150

6038 526
6038 507
6038 508
6038 509
6038 510

**Brass housing**

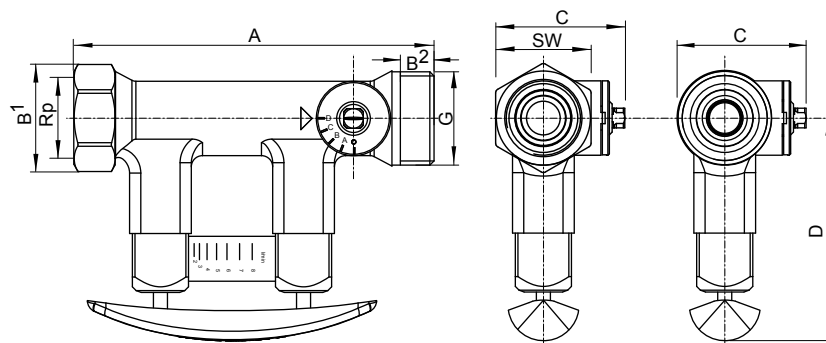
Unit of measure	Connection	Flow rate l/min
DN 10	G 1"	2-40
DN 32	G 1½"	14-240

6042 949
6042 950

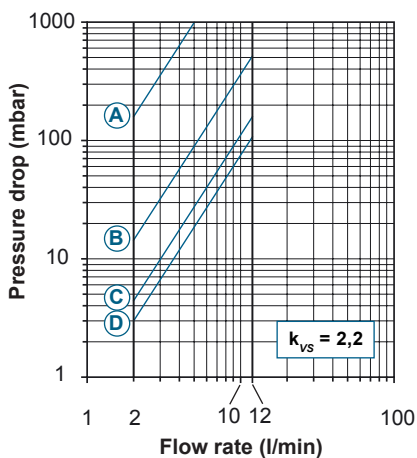
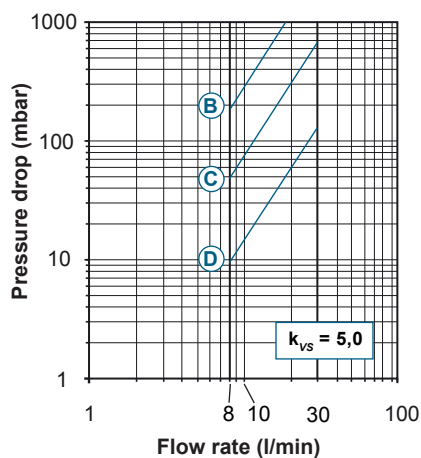
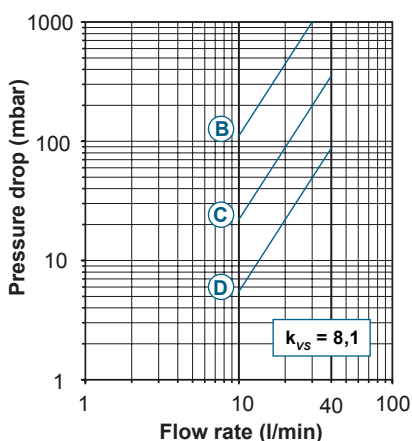
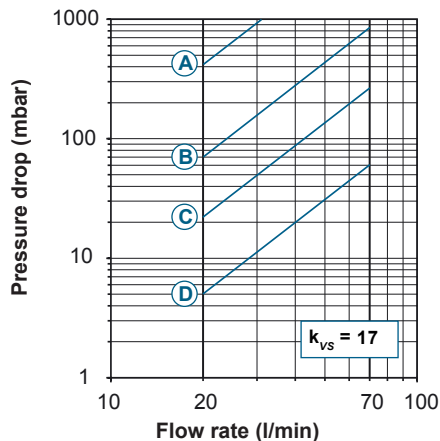
Balancing valve TN

(Dimensions in mm)

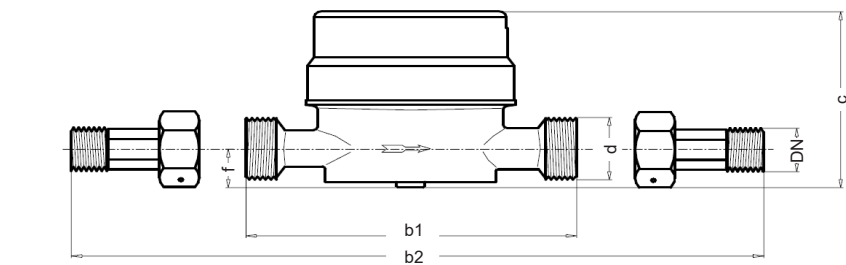
- Type DN 20 - $\frac{3}{4}$ ", DN 20 - $\frac{3}{4}$ ", DN 25 - 1", DN 32 - $1\frac{1}{4}$ "
- Connections
 - DN 20 - Rp $\frac{3}{4}$ " x Rp $\frac{3}{4}$ "
 - DN 20 - Rp $\frac{3}{4}$ " x Rp $\frac{3}{4}$ "
 - DN 25 - Rp 1" x Rp 1"
 - DN 32 - Rp $1\frac{1}{4}$ " x Rp $1\frac{1}{4}$ "
- Measuring accuracy $\pm 10\%$ of the display value
- Kvs values
 - 2.2 m³/h
 - 5.0 m³/h
 - 8.1 m³/h
 - 17.0 m³/h
 at viscosity 1 mm²/s
- Measuring ranges
 - 2-12 l/min
 - 8-30 l/min
 - 10-40 l/min
 - 20-70 l/min
- In conjunction with sealing plugs
Max. operating temperature 185 °C



DN	A	B1	C	D	SW	Rp
20	129	39	46	79	34	$\frac{3}{4}$ "
25	152	47	58	82	41	1"
32	161	56	65	84	49	1"

Pressure drop curves**DN 20 - Rp $\frac{3}{4}$ " x Rp $\frac{3}{4}$ " - 2-12 l/min****A-D** Valve position**DN 20 - Rp $\frac{3}{4}$ " x Rp $\frac{3}{4}$ " - 8-30 l/min****B-D** Valve position**DN 25 - Rp 1" x Rp 1" - 10-40 l/min****B-D** Valve position**DN 32 - Rp $1\frac{1}{4}$ " x Rp $1\frac{1}{4}$ " - 20-70 l/min****A-D** Valve position

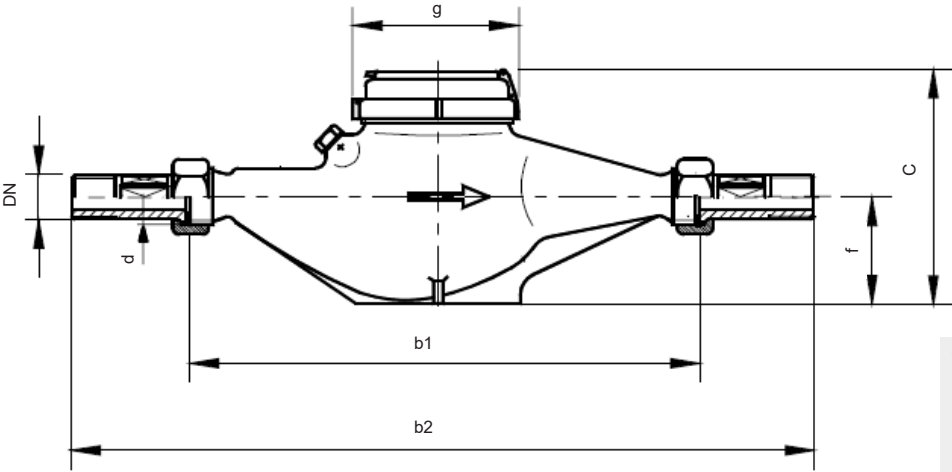
Hoval flow rate meters VIG 2,5 und 4
(Dimensions in mm)



VIG 2.5 and 4:
Horizontal and vertical installation possible

Before and after the sensor:
min. 20 cm straight pipe run as settling line

Hoval flow rate meters VIG 10
(Dimensions in mm)



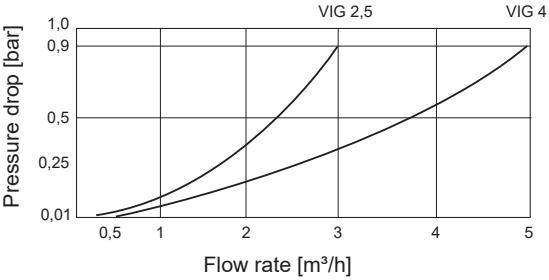
VIG 10:
Horizontal installation

Before and after the sensor:
min. 20 cm straight pipe run as settling line

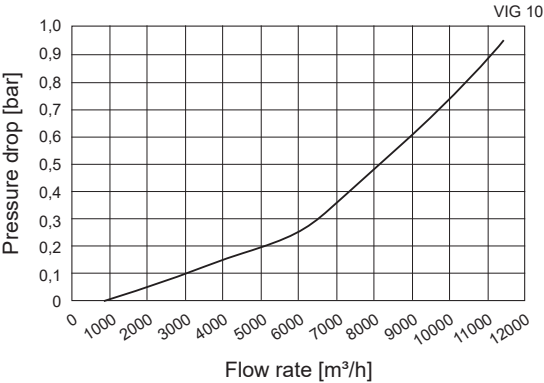
Type	DN		Continuous flow Q3 m³/h	Max. flow Qmax m³/h	Qt l/h	Qmin l/h	d Thread mm	b1 Meter length mm	b2	c	g	f	Weight
	mm	Inch							mm	mm	mm	mm	kg
VIG 2.5	15	R ½"	2.5	3.0	-	-	G ¾"	110	188	78	-	17	0.505
VIG 4	20	R ¾"	4.0	5.0	-	-	G 1"	130	228	78	-	21	0.530
VIG 10	32	R 1¼"	10.0	12.0	480	120	G 1½"	260	378	130	100	40	3.6

Pressure drop curve

VIG 2,5, 4

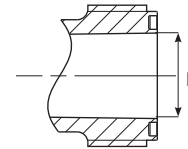
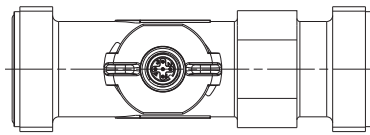
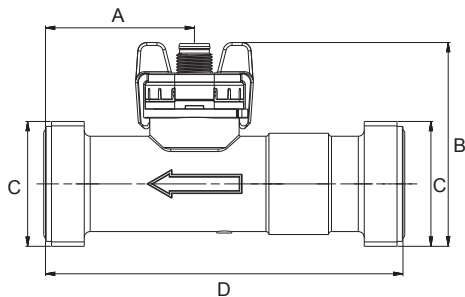


VIG 10

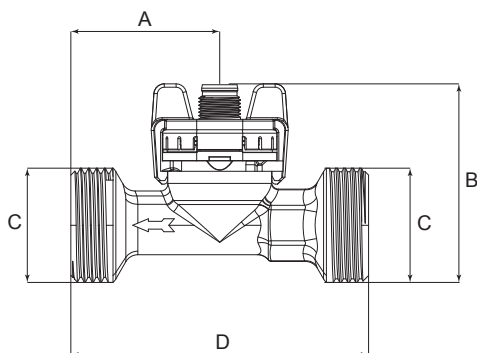


Hoval flow rate sensor sets

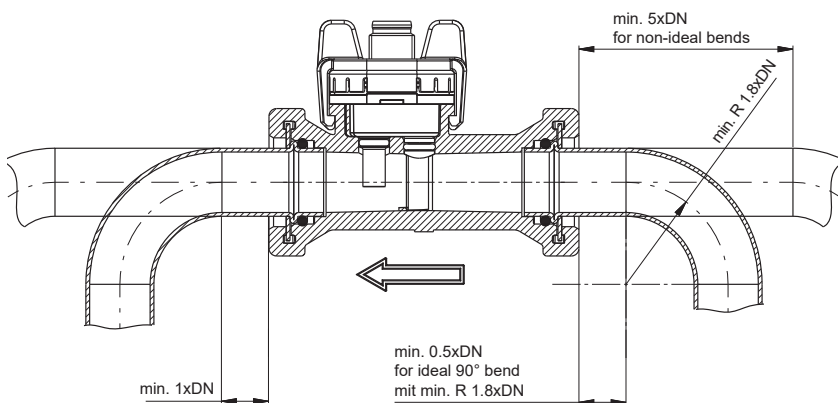
(Dimensions in mm)

Plastic housing

DN	A	B	C	D	E
8	48.2	55.7	G ¾"	86	11.5
10	39.5	54.1	G ¾"	90	11.5
15	41.6	59.5	G 1"	97	16.0
20	42.6	65.8	G 1¼"	117	20.0
25	56.0	71.3	G 1½"	132	26.0

Brass housing

DN	A	B	C	D
10	43	57.3	G 1"	86
32	50	74.9	G 1½"	134

Dimensions of installation section**Pressure drop
Plastic housing**

	Flow rate l/min			Flow rate l/h			Pressure drop mbar		
	min.	mid.	max.	min.	mid.	max.	min.	mid.	max.
DN 8	0,9	7	15	54	420	900	1	42	190
DN 10	1,8	15	32	108	900	1920	1	50	230
DN 15	3,5	25	50	210	1500	3000	1	42	170
DN 20	5,0	38	85	300	2280	5100	1	37	180
DN 25	9,0	70	150	540	4200	9000	1	45	210

Brass housing

	Flow rate l/min			Flow rate l/h			Pressure drop mbar		
	min.	mid.	max.	min.	mid.	max.	min.	mid.	max.
DN 10	2	20	40	120	1200	2400	1	90	360
DN 32	14	120	240	840	7200	14400	1	36	140

Application conditions

- Temperature
 - Media < +125 °C
 - Surroundings -15 ... +85 °C
 - Storage -30 ... +85 °C
- Maximum pressure at media temperature
 - over the life-time 12 bar at +40 °C
 - over the life-time 6 bar at +100 °C
 - for 600 hours 4 bar at +125 °C
 - for 2 hours 4 bar at +140 °C
 - maximum test pressure 18 bar at +40 °C
- Cavitation

The following equation applies in order to avoid cavitation: $P_{\text{abs outlet}} / P_{\text{difference}} > 5.5$

SHARKY 775
Ultrasound compact heat meter

Compact heat meter consisting of ultrasound heat meter and calculation unit.

Ultrasound heat meter

- The heat meter measures the volume flow statically using the ultrasound measurement principle.
- The meter is characterised by long-term stability for energy measurements with maximum measurement accuracy.
- Insensitive to dirt build-up
- Any installation position (exceptions see "Technical data")
- Sizes DN 15 to DN 100
- Nominal flow rates 1.5-60 qp
- Media temperature 5-130 °C
- Temperature sensor PT500, firmly connected with the calculation unit

Calculation unit

- Electronic calculation unit with 8-digit LCD display
- 3.6 VDC battery power supply or 230 VAC (50-60 Hz) mains supply
- The calculation unit is removable and can be mounted on the wall as on-wall version
- Temperature sensor PT500, firmly connected with the calculation unit
- Temperature measuring range 1...180 °C
- The consumption values measured by the meter can be read out on the meter on site.
- Mains supply version with integrated M-bus module for connecting to the TopTronic® E basic module district heating or to the TopTronic® E measuring module

Application

- For collection of all payroll-relevant data for measurement of the energy consumption in heating and/or refrigeration plants

On site

- Installation of the calculation unit directly onto the volume measuring unit or the wall



Threaded version

Connection size	Nominal flow rate qp m³/h
R ¾"	1.5
R 1"	2.5
R 1¼"	6.0
R 2"	10

Flange version

Connection size	Nominal flow rate qp m³/h
DN 50	15
DN 65	25
DN 80	40
DN 100	60

Approval

MID (DE-10-MI004-PTB013) and PTB K 7.2

Heat meter SHARKY 775

**Ultrasound compact heat meter SHARKY 775**

- Volume flow measurement using the ultrasound measurement principle
- Calculation unit for compact and wall installation
- Two temperature sensors, firmly connected with the calculation unit
- The consumption values measured by the meter can be read out on the meter on site.
- Mains supply version with integrated M-bus module for connecting to the TopTronic® E basic module district heating or to the TopTronic® E measuring module

Heat meter with external thread

without screw connections (max. 150 °C, PN 25)

Connection size	Nominal flow rate	Install. length	kvs value	Sensor	Sensor cable length
	m ³ /h	mm	m ³ /h		m
<i>Battery power supply without MBus</i>					
R ¾"	1.5	110	5.48	M10×1 ¹⁾	2
R 1"	2.5	130	7.91	M10×1 ¹⁾	2
R 1¼"	6.0	260	16.8	2x ½"x85 ²⁾	3
R 2"	10	300	32.4	2x ½"x85 ²⁾	3

2047 509
2047 511
2059 660
2059 661

Mains supply incl. MBus

R ¾"	1.5	110	5.48	M10×1 ¹⁾	2	2047 512
R 1"	2.5	130	7.91	M10×1 ¹⁾	2	2047 513
R 1¼"	6.0	260	16.8	2x ½"x85 ²⁾	3	2047 516
R 2"	10	300	32.4	2x ½"x85 ²⁾	3	2047 517

Heat meter with flange connection

without counter flanges (max. 150 °C, PN 25)

Connection size	Nominal flow rate	Install. length	kvs value	Sensor	Sensor cable length
	qp				
	m ³ /h	mm	m ³ /h		m
<i>Battery power supply without MBus</i>					
DN 50	15	270	53.00	2x ½"x120 ²⁾	3
<i>Mains supply incl. MBus</i>					
DN 50	15	270	53.00	2x ½"x120 ²⁾	3
DN 65	25	300	91.29	2x ½"x120 ²⁾	3
DN 80	40	300	141.42	2x ½"x120 ²⁾	3
DN 100	60	360	219.09	2x ½"x120 ²⁾	3

2059 662

2047 518
2047 519
2047 520
2047 522

¹⁾ Direct installation sensor²⁾ Immersion sensor without immersion sleeve

Immersion sleeves must be ordered separately in the appropriate length.

Accessories


Immersion sleeve
 with external thread

Connection size	Install. length mm
G ½"	40
G ½"	85
G ½"	120

 2047 503
 2047 505
 2047 506

Heat meter installation set

Consisting of:

 2 ball valves with union nut
 1 ball valve with sensor seat
 1 pipe nipple, galvanised

Ball valve Rp	Union nut Rp	Pipe nipple G	Install. length mm
¾"	¾"	¾"	110
¾"	1"	1"	130
1"	1¼"	1¼"	150

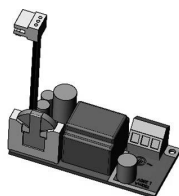
 2073 104
 2073 105
 2073 106

 Not suitable for installation in heating arma-
 ture groups.

Heat meter accessories Diehl M. PT500

 Sensor pair PT500
 Sensor M10x1
 Cable lengths: 2.0 m
 Only needed as spare part

2059 953


Mains adapter for calculation unit

 230 V AC voltage module
 Terminals suited for a cable
 with up to 2.5 mm²
 galvanic isolation
 Frequency 50 Hz
 soldered-in safety fuse (50 mA)
 The supply line must be secured with
 max. 6 A and be protected against
 manipulation
 Is needed as spare part or for
 converting battery meters to
 mains-supplied meters

2069 807

MBus communication module

 MBus module standardised acc. to
 EN 1434-3 with 2-pin terminal with
 "24" and "25" connections
 reverse-polarity protected
 MBus supply via the meter
 Is needed as spare part
 or MBus upgrade of battery meters.
 Can also be used as 2nd module for
 additional MBus read-out
 (e.g. on site GLT)

2053 201

Flow rate sensor

Connection size	R	Inches	$\frac{3}{4}$	1	1 $\frac{1}{4}$	2
Nominal flow rate	qp	m ³ /h	1.5	2.5	6	10
Nominal diameter	DN	mm	15	20	25	40
Installation length	L	mm	110	130	260	300
Starting value		l/h	2.5	4	10	20
Min. flow rate (DR 1:250)	qi	l/h	6	10	24	40 ¹⁾
Min. flow rate (DR 1:100)	qi	l/h	15	25	60	100
Max. flow rate	qs	m ³ /h	3	5	12	20
Overload value		m ³ /h	4.6	6.7	18.4	24
Operating pressure	PN	bar	16/25	16/25	16/25	16/25
Pressure drop with qp	Δp	mbar	120	100	128	140
Heat meter temp. range		°C	5 ... 130	5 ... 130	5 ... 150	5 ... 150
Kvs value ($\Delta p=Q^2/Kvs^2$)			4.33	7.91	16.77	26.73

Connection size	DN		50	65	80	100
Nominal flow rate	qp	m ³ /h	15	25	40	60
Nominal diameter	DN	mm	50	65	80	100
Installation length	L	mm	270	300	300	360
Starting value		l/h	40	50	80	120
Min. flow rate (DR 1:250)	qi	l/h	60 ¹⁾	100 ¹⁾	160	240 ¹⁾
Min. flow rate (DR 1:100)	qi	l/h	150	250	400	600
Max. flow rate	qs	m ³ /h	30	50	80	120
Overload value		m ³ /h	36	60	90	132
Operating pressure	PN	bar	16/25	16/25	16/25	16/25
Pressure drop with qp	Δp	mbar	140	75	80	75
Heat meter temp. range		°C	5 ... 150	5 ... 150	5 ... 150	5 ... 150
Kvs value ($\Delta p=Q^2/Kvs^2$)			40.09	91.29	141.42	219.09

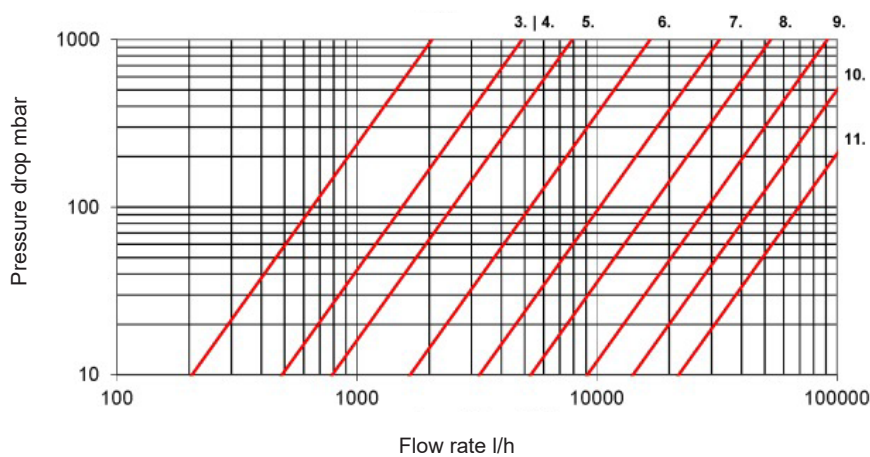
¹⁾ Horizontal installation only

Pressure drop SHARKY 775

The pressure loss in a flow rate sensor is indicated as the maximum pressure loss with qp. According to EN 1434, the maximum pressure loss must not exceed 0.25 bar.

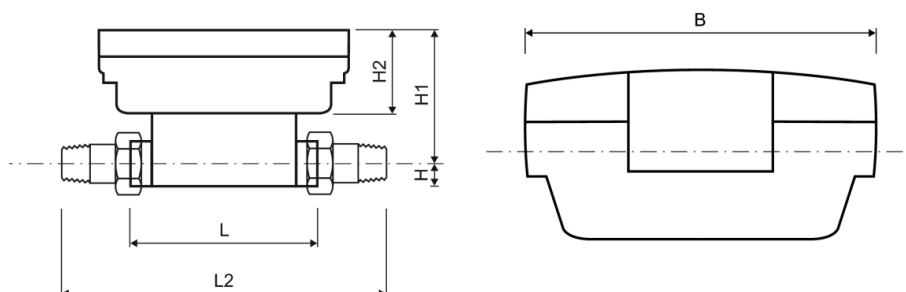
Curve	Nominal flow rate qp m³/h	Max. flow rate qs m³/h	Min. flow rate (DR 1:250) qi l/h	Min. flow rate (DR 1:100) qi l/h	Nominal diameter mm	Kvs value
3.	1.5	3.0	6	15	DN 15/20	4.33
4.	1.5	3.0	6	15	DN 15/20	5.48
5.	2.5	3.0	10	25	DN20	7.91
6.	6	12	24	60	DN 25	16.77
7.	10	20	40 ¹⁾	100	DN 40	26.73
8.	15	30	60 ¹⁾	150	DN 50	40.09
9.	25	50	100 ¹⁾	250	DN 65	91.29
10.	40	80	160	400	DN 80	141.42
11.	60	120	240 ¹⁾	600	DN 100	219.09

¹⁾ Horizontal installation only

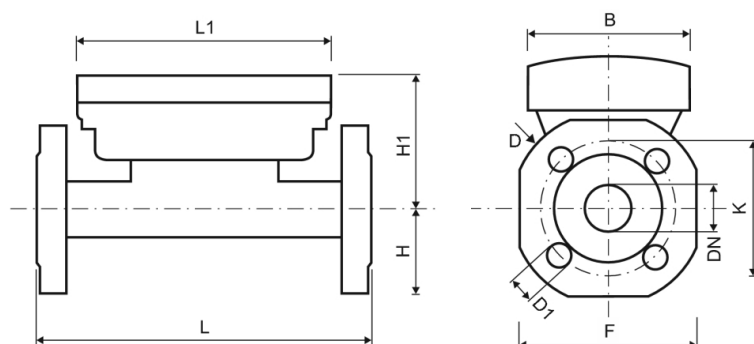


SHARKY 775

(Dimensions in mm)

Threaded version

Nominal flow rate	Nominal diameter	Installation length	Installation length with screw connection	Length calculation unit	Height	Height	Height calculation unit	Width calculation unit	Connection thread meter	Connection thread screw connection
qp m³/h	DN mm	L mm	L2 mm	L1 mm	H mm	H1 mm	H2 mm	B mm	F mm	D mm
1.5	15	110	190	150	14.5	82	54	100	G ¾ B	R ½
2.5	20	130	230	150	18	84	54	100	G 1 B	R ¾
6	25	260	380	150	23	88.5	54	100	G 1¼ B	R1
10	40	300	440	150	33	94	54	100	G 2 B	R 1½

Flange version

Nominal flow rate	Nominal diameter	Installation length	Length calculation unit	Height	Height	Height calculation unit	Width calculation unit	Flange dimensions	Flange diameter	Pitch circle diameter	Diameter	Number of flange drill holes
qp m³/h	DN mm	L mm	L1 mm	H mm	H1 mm	H2 mm	B mm	F mm	D mm	K mm	D1 mm	units
15	50	270	150	73.5	99	54	100	147	163	125	18	4
25	65	300	150	85	106.5	54	100	170	184	145	18	8
40	80	300	150	92.5	114	54	100	185	200	160	19	8
60	100	360	150	108	119	54	100	216	235	180 ¹⁾ /190	19 ¹⁾ /22	8

¹⁾ Values for PN 16 casing

Electricity meter UEM80-D

- Three-phase electricity meter with integrated M-Bus communication
- Direct connection up to 80 A
- Fully bi-directional 4-quadrant measurements for all energies and powers
- For 4-wire networks with balanced or unbalanced load
- Class B according to EN 50470-3 (MID)
- S0 output for energy pulse emission
- MID certification

**Electricity meter UEM1P5-D**

- Three-phase electricity meter with integrated M-Bus communication
- For 1 or 5 A current transformer
- Programmable current transformer ratio
- Fully bi-directional 4-quadrant measurements for all energies and powers
- For 3/4 wire networks with balanced or unbalanced load
- Class B according to EN 50470-3 (MID)
- S0 output for energy pulse emission
- MID certification

**Use**

- Measurement of the electrical energy
- Readout with TopTronic® E basic module district heating / MWA module
- Use/display/representation with HovalSupervisor

Notice

The installation must be carried out by a specialist according to the given regulations.

Electricity meters



Electricity meter UEM80-D M-BusMID
80A/3ph
MID certification, EN 50470-3 class B
Direct connection up to 80 A,
400 VAC, 50 Hz
Bidirectional 4 quadrant meter
Size according to DIN, 4 HUs
Large LCD display with graphic symbols
M-Bus connection, S0 connection

Part No.

2073 565



Electricity meter UEM1P5-D M-Bus MID 6A/3ph
MID certification, EN 50470-3 class B
Converter 1-10.000A/1|5A, 400VAC, 50Hz
Bidirectional 4 quadrant meter
Size according to DIN, 4 HUs
Large LCD display with graphic symbols
M-bus connection, S0 connection
Current converter optional

2073 567

Accessories



Current transformer CT PRO XT
• Through-hole current transformer
• Accuracy: class 1

- Consisting of:
- Current transformer
 - Sealed terminal cover
 - Installation accessories
 - Self-tapping screw M5

Nominal
output (VA)

Notice
Required for measuring high currents and structurally difficult integration of a normal direct connection meter.

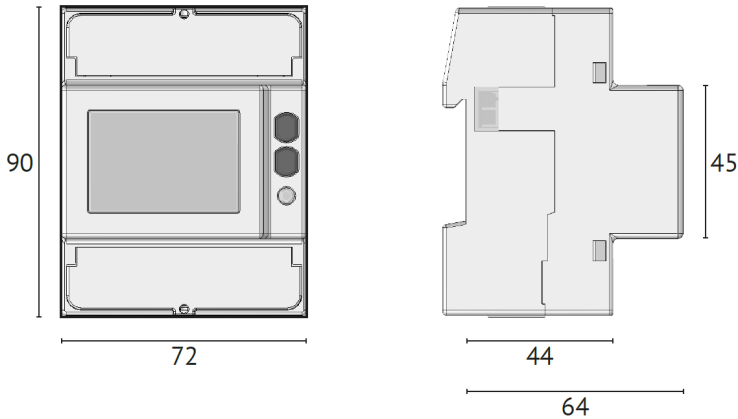
CT PRO XT 100 / 100A-5A
CT PRO XT 150 / 150A-5A
CT PRO XT 200 / 200A-5A

3
5
5

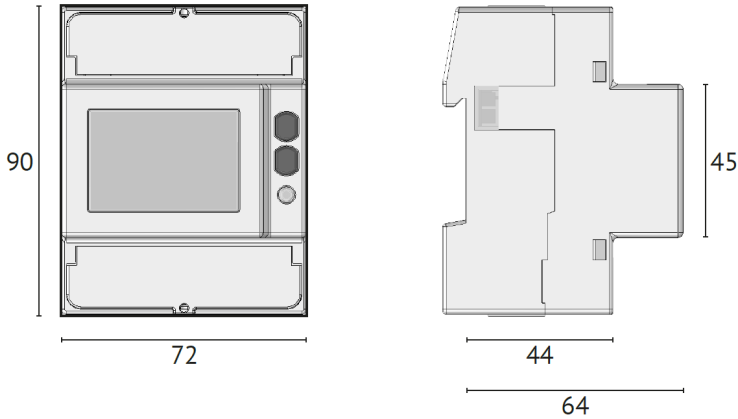
2074 378
2074 379
2074 380

Type		UEM80-D	UEM1P5-D
Auxiliary voltage			
• Auxiliary voltage is taken from the measuring circuit			
• Nominal measurement voltage	%	±20	±20
• Max. consumption (per phase) MBus model		0.5 W	1 W
• Nominal frequency	Hz	50/60	50/60
Voltage (range) & frequency			
• Nominal values	V	3x230/400...3x240/415	3x230/400...3x240/415
	Hz	50/60	50/60
Current			
• Inrush current I _{st}	mA	20	2
• Minimum current I _{min}	mA	250	10
• Suppressed leakage current I _{tr}	mA	500	50
• Reference current I _{ref} (Ib)	A	5	1
• Maximum current I _{max}	A	80	6
Communication for MBus model			
• Interface		wired (EN 1434-3)	wired (EN 1434-3)
• Protocol		MBus	MBus
• Communication speed	bps	300...38400	300...38400
• Unit load		1	1
Accuracy			
• Active energy class B according to		EN 50470-3 (MID)	
• Reactive energy class 2 according to		IEC/EN62053-23	
S0 output			
• Passive opto-isolated			
• Max. values (according to Directive EN 62053-31)		27 V _{DC} - 27 mA	27 V _{DC} - 27 mA
• Meter constant	imp/kWh	100	1000 > CT = 1...4
The measuring unit (imp/kWh, imp/kvarh, imp/kVAh) changes according to the assigned meters (kWh, kvarh, kVAh)			200 > CT = 5...24
			40 > CT = 25...124
			8 > CT = 125...624
			1 > CT = 625...3124
			0,1 > CT = 3125...10000
• Pulse duration	ms	50 ±2 ON time min. 30 ±2 OFF time	50 ±2
Tariff input			
• Active opto-isolated		•	•
• Auxiliary voltage range for tariff 2	V _{AC-DC}	80 ... 276	80 ... 276
Test LED for measuring technology			
• Meter constant	imp/kWh	1000	10000
• Pulse duration	ms	10 ±2	10 ±2
Ambient conditions			
• Operating temperature range	°C	-25...+55	-25...+55
• Storage temperature range	°C	-25...+75	-25...+75
• Relative humidity (without condensation)	%	80	80
• Degree of protection - front side (only guaranteed if installed in a control panel with at least type of protection IP51)		IP51	IP51
• Terminal protection type		IP20	IP20

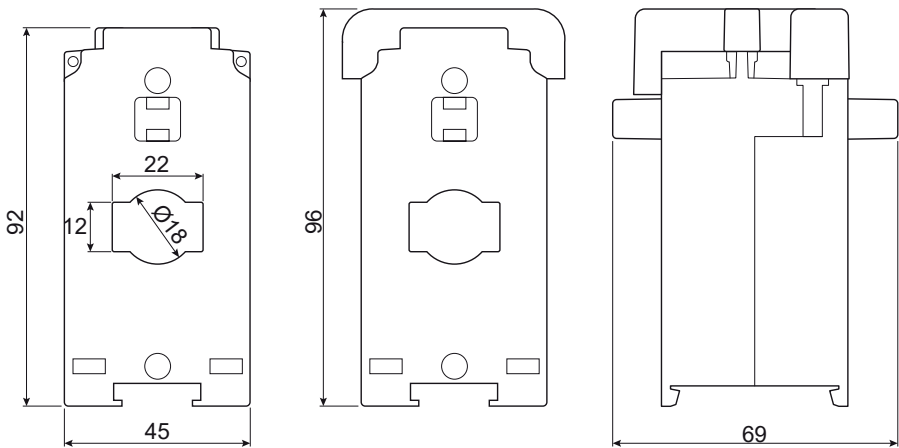
Electricity meter UEM80-D
(Dimensions in mm)



Electricity meter UEM1P5-D
(Dimensions in mm)

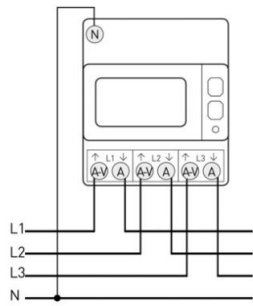


Current transformer CT PRO XT
(Dimensions in mm)

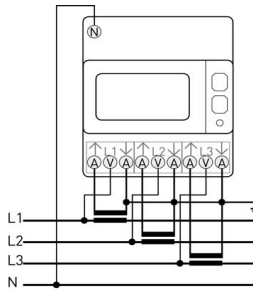


Electrical connection UEM80-D

4-wire connection

**Fig. 01****Electrical connection UEM1P5-D**

4-wire connection with measuring converter

**Fig. 02****MBus interface**

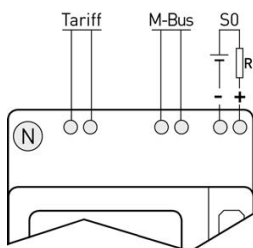
The integrated MBus interface enables data to be read out according to the MBus compatibility list in the "Energy/heat balancing" chapter.

Further information

see chapter "Energy/heat quantity balancing"

Notice

It may be necessary to connect an MWA module to the TopTronic® system.

MBus connection UEM80-D / UEM1P5-D**Fig. 03**

MBus meter matching TopTronic® E control and its functions

	Gas meter	Electricity meter (only positive values are released)	Heat meter	Water meter
Designation	Diehl AERIUS G4 M17 v0x30 Diehl AERIUS G4 M18 v0x30 NZR WSD 32 M EMH DIZ-W1EL-00-KM0-0M-200010-E50/K algodue UEM80-D M, v0x04 algodue UEM1P5-D M, v0x04 algodue UEM40-2C, v 0x04 (must be set to "algodue 1-phase" under configuration) Hydrometer Sharky 775 M11 v0x2F Kamstrup Multical® Compact v0x01 Kamstrup Multical® 602 v0x0F Siemens UH50-A22C-AT06-F 0x04 Hydrometer SHARKY 775 M14 v0x20 Kamstrup 403 W 402 DB v0x34 Siemens WFZ 31 v0x3 Kamstrup Multical® 401 v0x02 Kamstrup Multical® 403 v0x34 Kamstrup Multical® 601 v0x01 Kamstrup Multical® 603 v0x35 Danfoss EEM-C manufacturer ID: KAM v0x01 Hydrometer Sharky 773 v0x2E Kamstrup Multical® 66C v0x01 Kamstrup Multical® 402 v0x0B Kamstrup ultrakon EWZ 810 manufacturer ID:KAM v0x01 Kamstrup Multical® 602 incl. pulse module v0x0F Siemens UH50-A22C-AT06-F 0x04 Sontex Neovac Supercal531 v0x19 (Must be set to "Sontex" under configuration) Sontex Superstatic 749 v0x0E (Must be set to "Sontex" under configuration) Engelmann SensoStar2 v0x00 AQUA Metro Calec energy Master v0xD2 Amtron Sonic D15 ista Sensonic II M-bus Itron UltraMaXX MK HA, M-bus ista Ultego III perfect, M-bus Corona E			
Current energy			• • • • •	
Current power			• • • • •	
Current flow rate	• •		• • • • •	•
Current volume	• •		• • • • •	•
Current flow temperature	• •		• • • • •	
Current return temperature			• • • • •	
Current differential temperature			• • • • •	
Serial number	• •	• •	• •	•
Fault message/M-bus status byte	• •	• •	• •	
Manufacturer	• •	• •	• •	
Sort	• •	• •	• •	•
Current tariff register 1			•	
Current tariff register 2			•	
Current date			•	•
Current time			•	•
Energy key date 1			•	
Volume 1			•	
Tariff register 1 / S1			•	
Tariff register 2 / S1			•	
Date 1			•	•
Date future key date 1			•	•
Energy key date 2			•	
Volume 2			•	
Tariff register 1 / S2			•	
Tariff register 2 / S2			•	
Date 2			•	
Date future key date 2			•	
Current pulse input counter 1				•
Current pulse input counter 2				•
Version	• •	• •	• •	•
Operating days			•	
Current energy cold			•	
Current output cold			•	
Current volume ltr	• •		• •	
Current active power L1 W		• •		
Current active power L2 W		• •		
Current active power L3 W		• •		
Current active power total W		• •		
Current reactive power L1 W		• •		
Current reactive power L2 W		• •		

	Gas meter		Electricity meter (only positive values are released)				Heat meter																				Water meter																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
Designation	Diehl AERIUS G4 M17 v0x30		Diehl AERIUS G4 M18 v0x30		NZR WSD 32 M		EMH DIZ-W1EL-00-KM0-0M-200010-E50/K				algodue UEM80-D M, v0x04				algodue UEM1P5-D M, v0x04				algodue UEM40-2C, v 0x04 (must be set to "algodue 1-phase" under configuration)				Hydrometer Sharky 775 M11 v0x2F				Kamstrup Multical® Compact v0x01				Kamstrup Multical® 602 v0x0F				Siemens UH50-A22C-AT06-F 0x04				Hydrometer SHARKY 775 M14 v0x20				Kamstrup 403 W 402 DB v0x34				Siemens WFZ 31 v0x3				Kamstrup Multical® 401 v0x02				Kamstrup Multical® 403 v0x34				Kamstrup Multical® 601 v0x01				Kamstrup Multical® 603 v0x35				Danfoss EEM-C manufacturer ID: KAM v0x01				Hydrometer Sharky 773 v0x2E				Kamstrup Multical® 66C v0x01				Kamstrup Multical® 402 v0x0B				Kamstrup ultrakon EWZ 810 manufacturer ID:KAM v0x01				Kamstrup Multical® 602 incl. pulse module v0x0F				Siemens UH50-A22C-AT06-F 0x04				Sontex Neovac Supercal531 v0x19 (Must be set to "Sontex" under configuration)				Sontex Superstatic 749 v0x0E (Must be set to "Sontex" under configuration)				Engelmann SensoStar2 v0x00				AQUA Metro Calec energy Master v0xD2				Antron Sonic D15				ista Sensonic II M-bus				Itron UltraMaxX MK HA, M-bus				ista Ultego III perfect, M-bus				Corona E																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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Overview energy/heat quantity balancing

System	Consumer	Energy balancing (through-flow measuring method)		
		Easy		Premium (calibrated)
		up to ~50 kW per circuit	more than ~50 kW per circuit	
EBZ_010	1 heating circuit + hot water	Flow rate sensor (according to the principle of the Kármán vortex street)		
EBZ_020		Water meter (with pulse output)		
EBZ_030				M-bus meter
EBZ_040	2 heating circuits + hot water	Water meter (with pulse output)		
EBZ_050				M-bus meter
EBZ_060	3 heating circuits + hot water	Water meter (with pulse output)		
EBZ_070				M-bus meter
additional heating/consumer circuits on request				

Description of the system

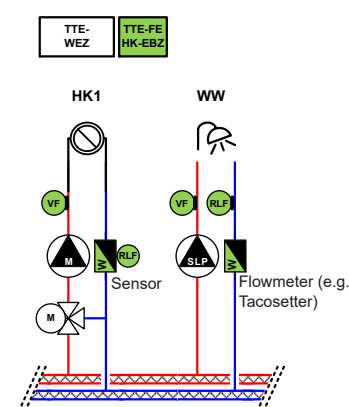
EBZ_010	1 heating circuit + hot water	up to ~50 kW per circuit
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Energy balancing for heating circuit by flow rate sensor

Energy balancing for domestic hot water using constant through-flow

Components required:

- 1x TopTronic® E basic module heat generator for controlling heating circuit 1 + hot water (usually installed in the heat generator)
- 1x TopTronic® E module expansion heating circuit incl. energy balancing TTE-FE HK-EBZ (heating circuit 1)
- 1x flow rate sensor set (for measuring flow rate heating circuit 1)
- 1x balancing valve TN / flowmeter for setting the constant through-flow (for measuring hot water)



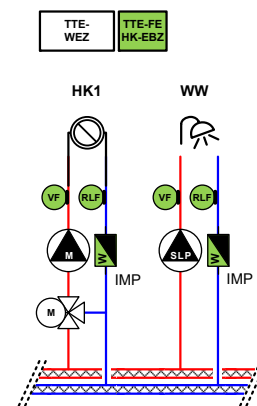
EBZ_020	1 heating circuit + hot water	up to and more than 50 kW per circuit
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Energy balancing for heating circuit by water meter with pulse output

Energy balancing for hot water by water meter with pulse output

Components required:

- 1x TopTronic® E basic module heat generator for controlling heating circuit 1 + hot water (usually installed in the heat generator)
- 1x TopTronic® E module expansion heating circuit incl. energy balancing TTE-FE HK-EBZ (heating circuit 1)
- 2x on-site water meters (e.g. flow rate sensor VIG) with pulse output (for heating circuit 1 + hot water, max. pulse value 10 ltr./pulse)



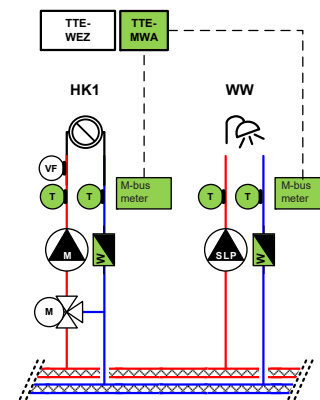
EBZ_030	1 heating circuit + hot water	calibrated measurement per circuit
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Calibrated energy balancing for heating circuit by M-bus meter

Calibrated energy balancing for hot water by M-bus meter

Components required:

- 1x TopTronic® E basic module heat generator for controlling heating circuit 1 + hot water (usually installed in the heat generator)
- 1x TopTronic® E measuring module TTE-MWA
- 2x M-bus meter (for heating circuit 1 + hot water)



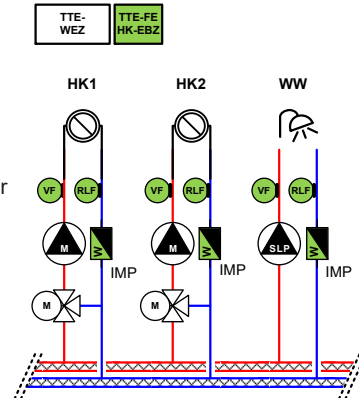
EBZ_040	2 heating circuits + hot water	up to/more than ~50 kW per circuit
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Energy balancing for heating circuits by water meter with pulse output

Energy balancing for hot water by water meter with pulse output

Components required:

- 1x TopTronic® E basic module heat generator for controlling heating circuit 1 + hot water (usually installed in the heat generator)
- 1x TopTronic® E module expansion heating circuit incl. energy balancing TTE-FE HK-EBZ (heating circuit 2)
- 1x contact sensor (hot water return)
- 3x on-site water meters (e.g. flow rate sensor VIG) with pulse output (for heating circuit 1 + heating circuit 2 + hot water, max. pulse value 10 ltr./pulse)



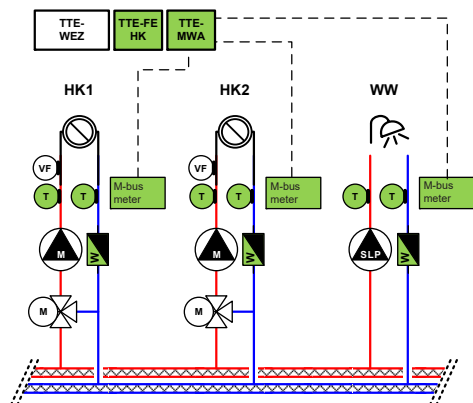
EBZ_050	2 heating circuits + hot water	calibrated measurement per circuit
---------	-----------------------------------	------------------------------------

Calibrated energy balancing for heating circuits by M-bus meter

Calibrated energy balancing for hot water by M-bus meter

Components required:

- 1x TopTronic® E basic module heat generator for controlling heating circuit 1 + hot water (usually installed in the heat generator)
- 1x TopTronic® E module expansion heating circuit for controlling heating circuit 2
- 1x TopTronic® E measuring module TTE-MWA
- 3x M-bus meter (for heating circuit 1 + heating circuit 2 + hot water)



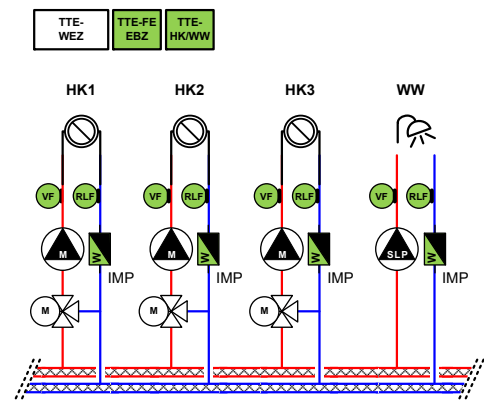
EBZ_060	3 heating circuits + hot water	up to/more than ~50 kW per circuit
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Energy balancing for heating circuits by water meter with pulse output

Energy balancing for hot water by water meter with pulse output

Components required:

- 1x TopTronic® E basic module heat generator for controlling heating circuit 1 + hot water (usually installed in the heat generator)
- 1x TopTronic® E module expansion heating circuit incl. energy balancing TTE-FE HK-EBZ (heating circuit 2)
- 1x TopTronic® E heating circuit/hot water module for controlling heating circuit 3
- 2x contact sensors (hot water return + heating circuit 3)
- 4x on-site water meters (e.g. flow rate sensor VIG) with pulse output (for heating circuit 1 + heating circuit 2 + heating circuit 3 + hot water, max. pulse value 10 ltr./pulse)



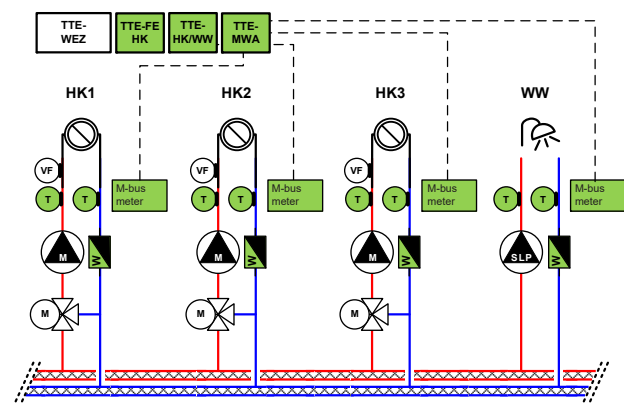
EBZ_070	3 heating circuits + hot water	calibrated measurement per circuit
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Calibrated energy balancing for heating circuits by M-bus meter



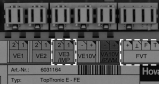





Calibrated energy balancing for hot water by M-bus meter

Components required:

- 1x TopTronic® E basic module heat generator for controlling heating circuit 1 + hot water (usually installed in the heat generator)
- 1x TopTronic® E module expansion heating circuit for controlling heating circuit 2
- 1x TopTronic® E heating circuit/hot water module for controlling heating circuit 3
- 1x TopTronic® E measuring module
- 4x M-bus meter (for heating circuit 1 + heating circuit 2 + heating circuit 3 + hot water)



Assignment heat meter - TopTronic® E modules

			Basic module heat generator TTE-WEZ	Basic module district heating/fresh water district heating com TTE-FW / TTE-FW com	TopTronic® E Controller module (solar, buffer, etc.) TTE-SOL / TTE-PS	Module expansion incl. energy balancing TTE-FE	Measuring module TTE-MWA
			1x IMP 	1x FVT / 16x M-bus 	Available inputs 1x FVT / 1x IMP 		16x M-bus 
Heat meter	FlowRotor 	FVT			•	•	
	Flow rate sensor set 	FVT		○	•	•	
	Flow rate meter VIG 	FVT or IMP	•		•	•	
	Heat meter 	M-bus		•			•

○ Only with TransTherm aqua F

TopTronic® E

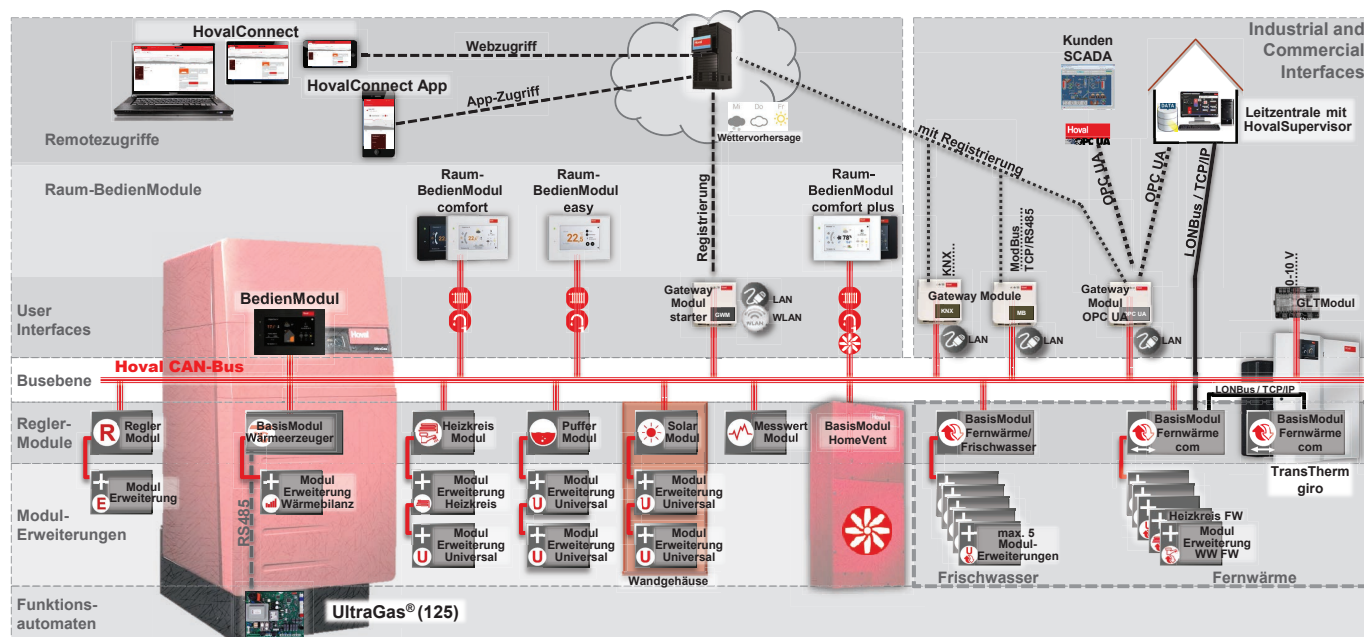
The TopTronic® E controller system is based on independent controller units (modules) that are connected together via the Hoval CAN bus. The individual modules are set using a central operating unit (master operation).

Max. 16 controller modules can be connected. Of these, max. 8 modules can be equipped as basic module heat generators (TTE H-Gen).

Max. 2 module expansions can be connected to the controller modules.

Notice

Max. 1 module expansion can be connected to the basic module heat generator (TTE-WEZ)!



Number of TopTronic® E modules that can be installed in the heat generator:

Heat generator \ TopTronic® E	Basic module heat generator (TTE-WEZ)	Heating circuit/hot water module (TTE-HK/WW) or buffer module (TTE-PS) or solar module (TTE-SOL) or module expansion (TTE-FE)*	Heating circuit/hot water module (TTE-HK/WW) or buffer module (TTE-PS) or solar module (TTE-SOL) or module expansion (TTE-FE)*	Heating circuit/hot water module (TTE-HK/WW) or buffer module (TTE-PS) or solar module (TTE-SOL) or module expansion (TTE-FE)*	Heating circuit/hot water module (TTE-HK/WW) or buffer module (TTE-PS) or solar module (TTE-SOL) or module expansion (TTE-FE)*
UltraSource® B	installed	•	•	-	-
Belaria® comfort ICM	installed	•	•	-	-
Belaria® twin I/IR	installed	•	•	-	-
Belaria® twin A/AR (Electrical box option)	installed	•	•	•	-
Belaria® dual AR (60) (Electrical box option)	installed	•	•	•	-
UltraSource® T	installed	•	•	-	-
Thermalia® comfort	installed	•	•	-	-
Thermalia® twin	installed	•	•	-	-
Thermalia® dual	installed	•	•	-	-
BioLyt (13-43)	installed	•	•	-	-
BioLyt (50-150/160)	installed	•	•	•	-
TopGas® comfort	(can be installed)	-	-	-	-
TopGas® combi	no modules can be installed				
TopGas® classic (12-30)	no modules can be installed				
TopGas® classic (35-80)	(can be installed)	-	-	-	-
TopGas® classic (100,120)	(can be installed)	-	-	-	-
UltraGas® (15-300)	installed	•	•	-	-
UltraGas® (350-500)	installed	•	•	•	-
UltraGas® (575-1000)	installed	•	•	•	•
UltraGas® (250D-600D) (per boiler)	installed	•	•	-	-
UltraGas® (700D-1150D) (per boiler)	installed	•	•	•	-
UltraGas® (1150D-2300D) (per boiler)	installed	•	•	•	•
CompactGas	installed	•	•	•	-
MultiJet® (12-25)	installed	•	•	-	-
MultiJet® LSP (12-20)	installed	•	•	-	-
UltraOil® (16-80)	installed	•	•	-	-
UltraOil® (110-300)	installed	•	•	•	-
UltraOil® (320D-600D) (per boiler)	installed	•	•	•	-
Max-3 (420-6000)	installed	•	•	•	-

* Max. 2 module expansions can be connected to the controller modules.

Exception:

Max. 1 module expansion can be used with the basic module heat generator!

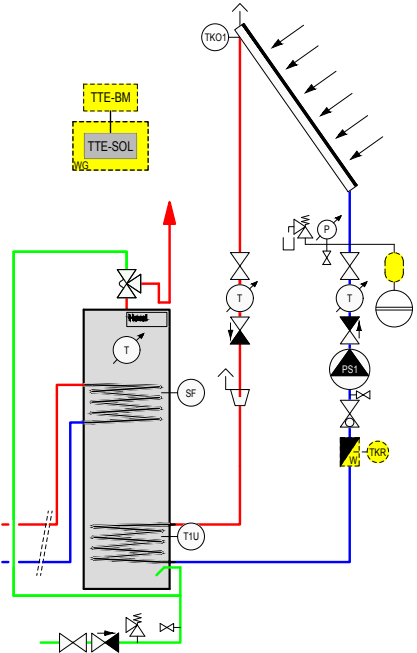
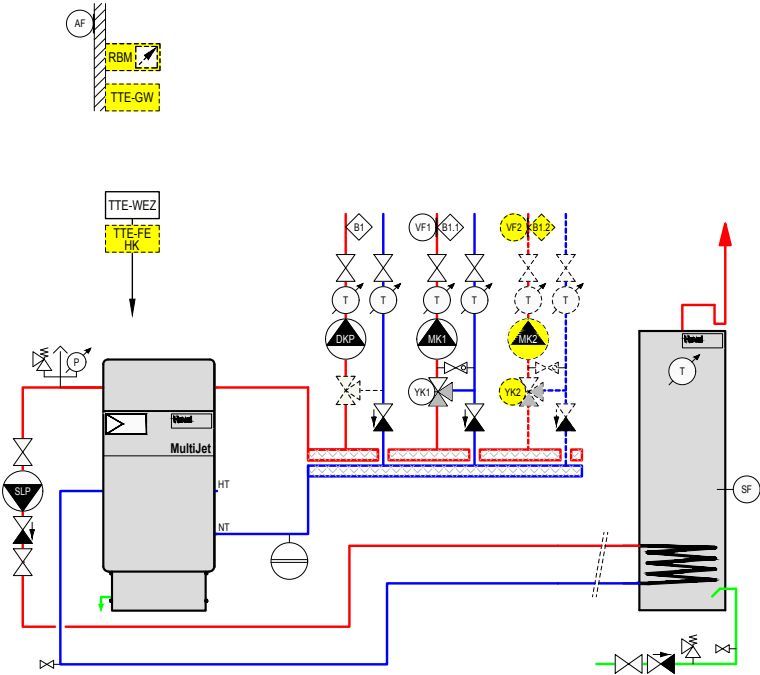
Heat generator \ TopTronic® E	Basic module district heating com (TTE-FW com)	Module expansion district heating (TTE-FE FW)	Module expansion district heating (TTE-FE FW)	Module expansion district heating (TTE-FE FW)	Module expansion district heating (TTE-FE FW)	Module expansion district heating (TTE-FE FW)	Ethernet connection
TransTherm giro	installed	•	•	-	-	-	•
TransTherm giro plus	installed	-	-	-	-	-	•
TransTherm pro comfort	installed	no further modules can be installed					
TransTherm pro S/RS	installed	•	•	•	•	•	•

Calorifier charging module \ TopTronic® E	Basic module district heating/ fresh water (TTE-FW)	Module expansion district heating (TTE-FE FW)	Module expansion district heating (TTE-FE FW)	Module expansion district heating (TTE-FE FW)
TransTherm aqua L	installed	no further modules can be installed		
TransTherm aqua F	installed	no further modules can be installed		

Sample order
TopTronic® E components

System	MultiJet®	Hot water Design/type Free-standing tank	Heating circuit assembly Connection type Calorifier before distributor 1 DC + 1-...MC
BEAE040			

System	Solar collectors	Hot water Design/type Free-standing tank (2 coils)
BAAE020		



Designation	Part No.	Functions
TTE-WEZ TopTronic® E basic module heat generator	installed	
TTE-SOL TopTronic® E solar module	6037 058	<ul style="list-style-type: none">• Control unit with integrated regulating functions for:<ul style="list-style-type: none">- One/two circuit solar energy plants- integrated heat balancing- Various additional functions
<i>Optional</i>		
RBM TopTronic® E room control module		<ul style="list-style-type: none">• Operation of the Hoval heating system from the living area
	TopTronic® E room control module easy white 6037 071	
	TopTronic® E room control module comfort white 6037 069	
	TopTronic® E room control module comfort black 6037 070	
TTE-GW TopTronic® Gateway		<ul style="list-style-type: none">• App or browser access permits access to the TopTronic® E system
	HovalConnect LAN 6049 496	
	HovalConnect WLAN 6049 498	
TTE-FE HK TopTronic® E module expansion heating circuit	6034 576	<ul style="list-style-type: none">• Expansion to the inputs and outputs of the basic module heat generator or the heating circuit/domestic hot water module for implementing the following functions:<ul style="list-style-type: none">- 1 heating/cooling circuit w/o mixer or- 1 heating/cooling circuit with mixer

Further information
see separate chapter in the “Controls” chapter

Safety measures for

EMC-compliant installation

- Cables carrying mains voltage must be routed separately from sensor or data bus cables. A minimum distance of 2 cm between the cables must be observed. Cable crossovers are permitted.

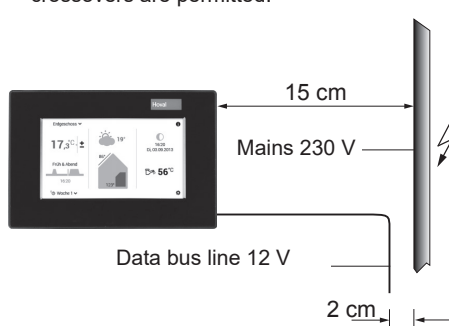


Fig. 1: Minimum distances for electrical installation

- In the case of controller modules with their own mains supply, it is imperative that cables carrying mains voltage are routed separately from sensor or data bus cables. If cable ducts are used, these must be provided with separator strips.
- When installing controller modules or room control modules, maintain a minimum clearance of 40 cm from other electrical devices with electromagnetic emissions, such as power contactors, motors, transformers, dimmers, microwave ovens and TV sets, loudspeakers, computers, mobile phones, etc.

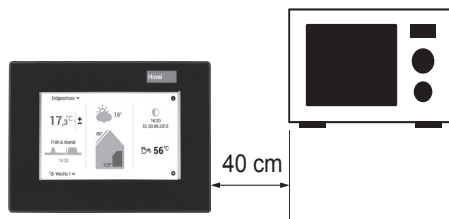
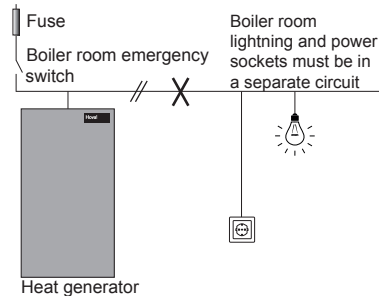


Fig. 2: Minimum distance from other electrical units

- Avoid unnecessary cable lengths, including in spare cables
- Coils of relays, contactors and other inductors in the panel, and possibly in the vicinity, must be connected. The connection can be made with RC elements, for example.
- Measures must be taken in the building and on electrical equipment to protect the devices against overvoltage caused by lightning strikes

- The mains connection for the heating system must be designed as an independent electrical circuit. Neither fluorescent lamps nor other sources of interference for the relevant machinery may be connected or capable of connection.



- Equipotential bonding must be established between the individual control components, control panels and the heating system
- Shielded cables must be used for the data cables. Recommended versions:
J-Y(ST)Y 2 x 2 x 0.6 mm
- Shields of data cables, analog signal cables and power cables must be connected to earth over a large area with a highly conductive connection. The cable shields must be connected to a shield bar directly after the entry of the cable into the panel.
- Multiple earthing of a cable is not permitted (ripple pickup)

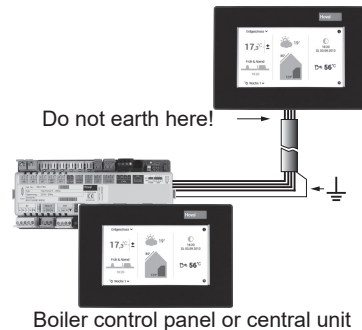


Fig. 4: One-sided earthing of the shielding

In the case of star-shaped data bus networks, double earthing is not permitted. The earthing must be effected one-sided at the star point!

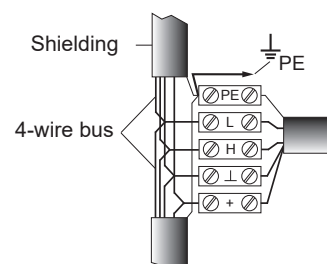


Fig. 5: Earthing for star-shaped data bus

- The outdoor sensor must not be fitted in the vicinity of transmitters and receivers (on garage walls near receivers for garage door openers, amateur radio antennae, radio alarm installations or in the immediate vicinity of large transmitters etc.).

Maximum permitted cable lengths for cables carrying sensor and low voltage (without PWM):

- Min. 0.5 mm²
- Max. permitted cable length: 50 m
- Max. PWM cable length according to pump specification

Longer connecting cables should be avoided because of the danger of radiated interference!

Inter-building installations

- Inter-building installations and laying the bus line underground are not permitted
- Where possible, avoid routing low-voltage and safety extra-low voltage cables (CAN bus line) in parallel in adjacent buildings (overbuildings) or through underground car parks. If this cannot be avoided, one or more of the following options should be selected to improve the decoupling:
 - Increase the spacing distance
 - Route cables in a metal cable tray or metal cable duct that is enclosed on all sides, and must be well earthed
 - Use high-quality twisted-pair cables
- Potential differences between CAN_H, CAN_L and ground must be kept low
- If there are higher potential differences, the frequency of errors will increase until the point when bus traffic is completely blocked

Advantage of an inter-building installation

- Bus modules can be connected together, communication of reference values

Disadvantages of an inter-building installation

- Increased susceptibility to interference, communication problems
- Voltage surge damage

To ensure correct electrical installation of unit connection and equipotential bonding (energy supply company and building installation), all applicable laws, regulations and standards must be complied with; in particular, the regulations of the responsible energy supply company. Common equipotential bonding must be carried out in accordance with the regulations and standards. The cable shield is not allowed to be used for equipotential bonding. The work is only allowed to be carried out by qualified specialist personnel. It is the responsibility of the electrician to ensure appropriate EMC installation.

MBus interface

The connection of the stations to the MBus is possible in line or star topology. The wiring among the stations should be carried out with a cable with a cross-section not less than 0.5 mm². The use of a type J-Y(ST)Y n x 2 x 0.8 mm cable is recommended. The MBus cable is protected against reverse polarity, i.e. the wires can be swapped over.

Weather sensor

- Install 2/3 of the way up the facade, not above windows or under porch roofs
- Place on the side of the building where the rooms important for measuring the temperature are located, as follows:

Main rooms distributed

- Install the sensor on the north wall or the north-west corner

South-facing main rooms

- Install the sensor on the west wall if there are thermal radiator valves, otherwise on the south wall

East-facing main rooms

- Protect the sensor against the morning sunlight
- If the weather sensor is exposed to full sunlight for more than 2 hours, we recommend the sensor should be covered

Room air sensor

- Place on an interior wall in the main occupied room. Do not expose to sunlight or effects of other heat sources (chimney wall, proximity to radiators, draughts, TV set, light source)
- Do not cover by furniture or curtains
- Approx. 1.6 m above the floor
- Seal the installation pipe to prevent draughts
- No thermostatic valves are allowed to be used in the same room

Flow temperature sensor

- Mount on the heating flow. If the pump is in the flow, mount it immediately after the pump. If the pump is in the return, mount approx. 1.5 m after the mixing point.
- Mount the contact sensor on the bare metal flow pipe
- Attach the immersion sensor in a pipe bend so the immersion sleeve is pointing opposite to the flow

Return temperature sensor

- Mount directly before the boiler return connection
- Mount the contact sensor on the bare metal pipe
- Attach the immersion sensor in a pipe bend so the immersion sleeve is pointing opposite to the flow

