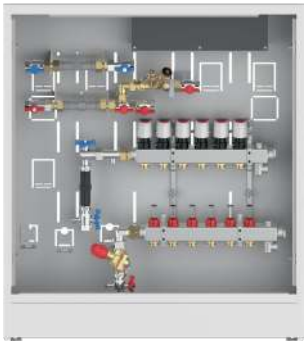
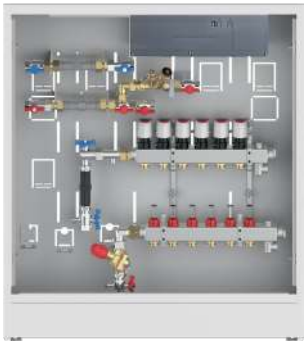
ENGINEERING TOMORROW

Data Sheet

UnoFloor Metering
Comfort / Control

Description





Product

Danfoss UnoFloor Metering is a prefabricated pressure independent stainless steel distribution units for floor heating.

UnoFloor Metering comes wired and premounted installed in a cabinet for in-wall or on-wall installation.

These solutions make it easier for the installer to order a ready-made plug & play construction for mounting of distribution pipes for the building section.

The units are available as standard solutions with 4 to 12 connections left/right version and include manual air vent and drain valve. In addition the solutions include a flow meter to maintain the designated flow rate.

The AB-PM set ensures optimal hydronic blance. Flow limitation independent of differential pressure is granted.

UnoFloor Metering comes with a domestic water line and MTCV balancing valve for hot water circulation.

Features & benefits

- Plug & Play construction
- Durable stainless steel distribution unit
- Minimum space required for installation
- In-wall cabinet ensures minimum time required for installation
- Pre-mounted ensures minimal risk of installation faults
- Correct heat distribution, even under partial load
- Reliable hydronic balancing for lower heating costs
- Integrated DHW metering line with MTCV valve
- App solutions for installer and end-user (Control)

Applications

- UnoFloor Metering Comfort
- UnoFloor Metering Control

Ordering

Product code numbers UnoFloor

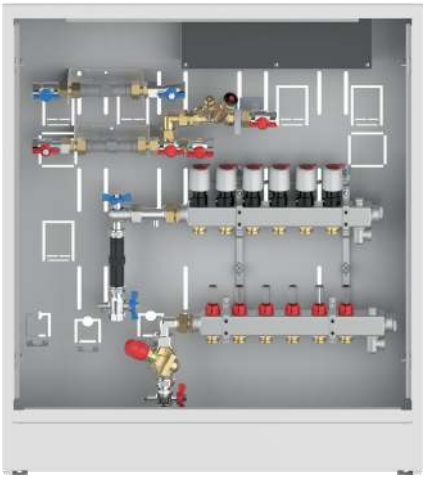
Distribution unit	Comfort	Control
4 circuits left version	088X4104	088X4224
5 circuits left version	088X4105	088X4225
6 circuits left version	088X4106	088X4226
7 circuits left version	088X4107	088X4227
8 circuits left version	088X4108	088X4228
10 circuits left version	088X4110	088X4230
12 circuits left version	088X4112	088X4232
4 circuits right version	088X4114	088X4234
5 circuits right version	088X4115	088X4235
6 circuits right version	088X4116	088X4236
7 circuits right version	088X4117	088X4237
8 circuits right version	088X4118	088X4238
10 circuits right version	088X4120	088X4240
12 circuits right version	088X4122	088X4242

On-wall panels

Code number	Description
088X3026	On-wall panels UnoFloor 790 wide (4 - 6 circuits)
088X3028	On-wall panels UnoFloor 940 wide (7 - 8 circuits)
088X3030	On-wall panels UnoFloor 1140 wide (10 - 12 circuits)

Spare parts code numbers

Code number	
013G7376	Service built-in valve for manifold
088U0819	Replacement flowmeter for FHF & SSM manifold
088H3112	TWA-A, RA , NC, 230V
088U1040	ICON Wiring center
088U2110	ICON2 Advanced Master controller
088X3020	Frame and door for UniFloor cabinet 790
088X3022	Frame and door for UnoFloor cabinet 940
088X3024	Frame and door for UnoFloor cabinet 1140

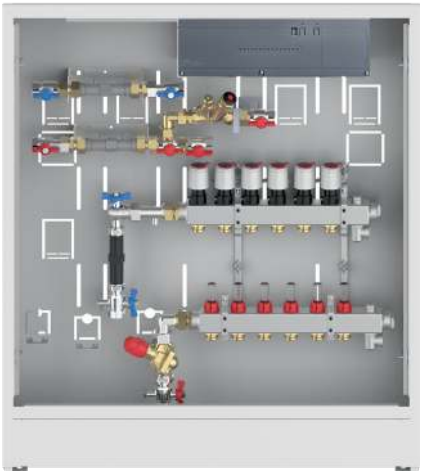


UnoFloor Metering Comfort
Is delivered with flow meter and fitted with an Icon™ wiring center 230V and thermoactuators TWA NC for control of the floor heating system. Wired room thermostats.

AB-PM set which ensures optimal hydronic blance.

Wired solution – UnoFloor Metering Comfort with ICON™ Wiring Center Installed

Code number		
088U1000	Danfoss ICON™ Dial, In-wall	
088U1010	Danfoss ICON™ Display, In-wall	
088U1020	Danfoss ICON™ Programable, In-wall	
088U1005	Danfoss ICON™ Dial, On-wall	
088U1015	Danfoss ICON™ Display, On-wall	
088U1025	Danfoss ICON™ Programable, On-wall	
088U1110	Floor sensor	



UnoFloor Metering Control
Is delivered with flow meter and fitted with an Icon2™ Advanced Master Controller 230V and thermo-actuators TWA NC for control of the floor heating system. Wireless or wired room thermostats.

AB-PM set which ensures optimal hydronic blance.
App based installation guide for the installer with the option of an installation report as documentation.
By purchasing an Ally gateway, the end-user can control the room heating in his home via the Danfoss Ally app.

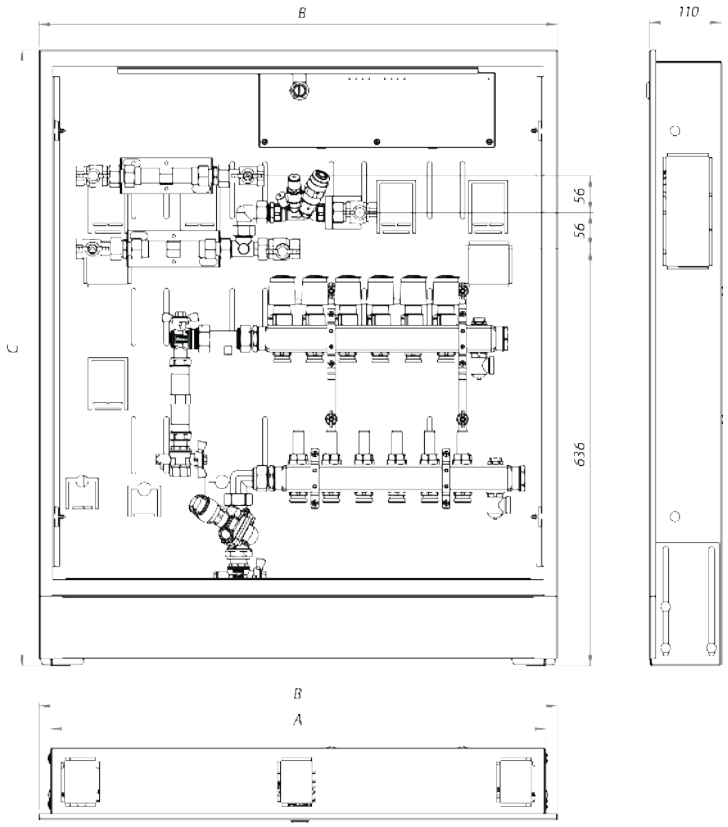
Wireless / wired solution – UnoFloor Metering Control with ICON2™ Advanced Master Controller Installed		
Code number		
088U2121	Danfoss ICON2™ RT display thermostat Wireless	
088U2122	Danfoss ICON2™ Featured RT display thermostat with infrared floor sensor Wireless	
088U2120	Danfoss ICON2™ Sensor, no settings or display Wireless	
088U2128	Danfoss ICON2™ On-wall thermostat 2-wire 24V	
088U2125	Danfoss ICON2™ In-wall thermostat 2-wire 24V	
088U1110	Floor sensor	
014G2400	Danfoss Ally™ Gateway (for user-app)	

Media

Use heating water according to VDI2035 or Ö-NORM H5195-1, fluid category ≤ 3 according to EN1717

Product details

Dimensions



Dimensions [mm]	A	B	C
4 circuits	762	790	922
5 circuits	762	790	922
6 circuits	762	790	922
7 circuits	912	940	922
8 circuits	912	940	922
10 circuits	1112	1140	922
12 circuits	1112	1140	922

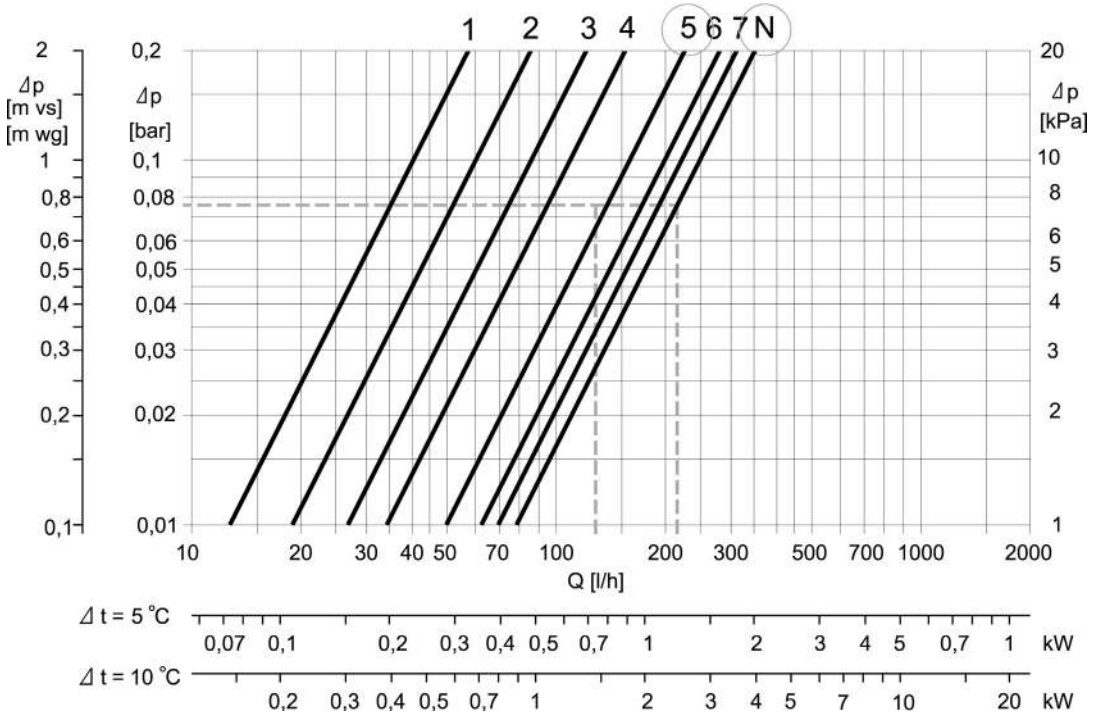
Connections

SSM Floor heating manifold

The SSM manifold is used for controlling water flow in underfloor heating system. Each tube of the floor heating system is connected to the manifold, thus making it possible to control water flow or heat supply to each room in the building individually.

Nomimal pressure	PN 6
DH supply temperature Tmax	60 °C
Supply voltage	230V
Output voltage	230V
Connection sizes	G ¾" (IT)

Pre-setting diagram



AB-PM DN20 (Comfort / Control)

The AB-PM connection set is an compact and time saving conguration — designed for creating optimal hydronic balance in horizontal loops — radiator and underoor heating applications. Flow limitation independent of dierential pressure is now
guaranteed. It can be combined with most types of manifolds, heat meters and manifold cabinets.

Technical data

Qmax (at Δpr = 20 kPa)	600 l/h (at 100% setting)
Upper limit of pressure controller at zero flow	35 kPa
Differential pressure (Δp for the valve + circuit)	28 - 400 kPa
Nominal maximal pressure	16 bar (PN 16)
Control valves characteristic	Linear
Shut-off leakage rate	Acc. to ISO 5208 class A - no visible leakage
Medium temperature	-10 °C to 120 °C
CV stroke	2.25 mm
Connection - external thread ISO	G 1 A
Connection - actuator	M30 X 1.5

Sizing

AB-PM is to be sized based on manifold's needed flow (Q) [l/h], and needed dierential pressure drop for the loop (pr). Max AB-PM flow data are presented in table below.

For any other Q and pr needed, AB-PM size and setting can be indetied based on Fig. 1.

Type	DN 20 HP at 100% setting	
Qmax	600 l/h	915 l/h
Maximum pressure drop available for system at max flow	20 kPa	10 kPa
Upper limit of pressure controller at zero flow	35 kPa	
Start required differential pressure (for the valve)	8 kPa	

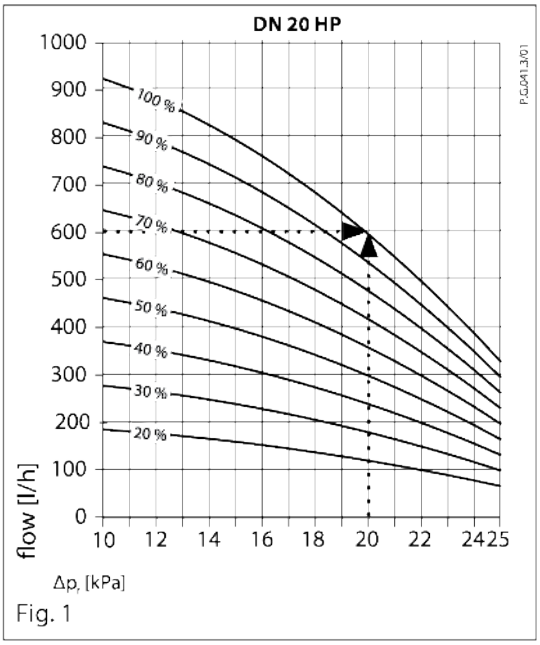


Fig. 1

Balancing valve

MTCV balancing valve

The MTCV is a multifunctional thermostatic balancing valve used in domestic hot water installations with circulation.

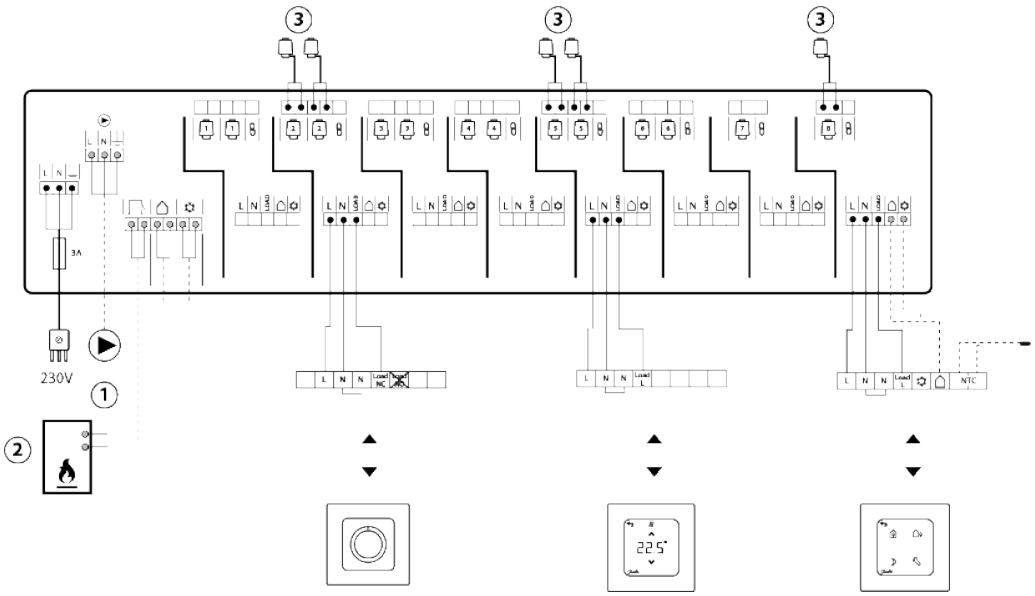
The MTCV provides a thermal balance in hot water installations by keeping a constant temperature in the system, thus limiting the flow in the circulation pipes to the minimum required level.

Max. working pressure	10 bar
Test pressure	16 bar
Max. flow temperature	100 °C
K_{vs} at 20 °C	DN15: 1.5 m^3/h
Hysteresis	1.5 K

ICON™ Wiring Center (UnoFloor Metering Basic/Comfort)

Danfoss ICON™ Wiring Center is a connection box for use in hydronic floor heating using 230V thermostats and actuators.

Can connect up to 14 thermal actuators from up to 8 room thermostats. It is provided with 230V circulation pump output and voltage-free relays for controlling a boiler. The relays are activated when one or more thermostats require heat.



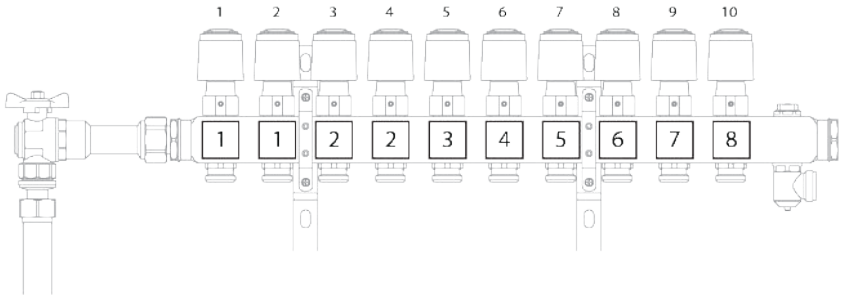
1 Circulation pump
2 Heat signal (potential free)
3 230V thermal actuator, NC

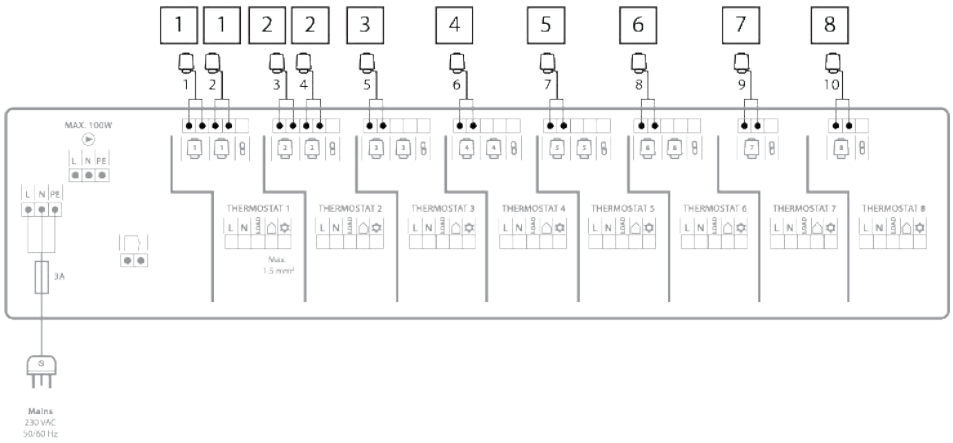
Note! It is possible to connect up to 8 room thermostats. This means that with 10 and 12 circuits, one or two room thermostats must control two circuits each.

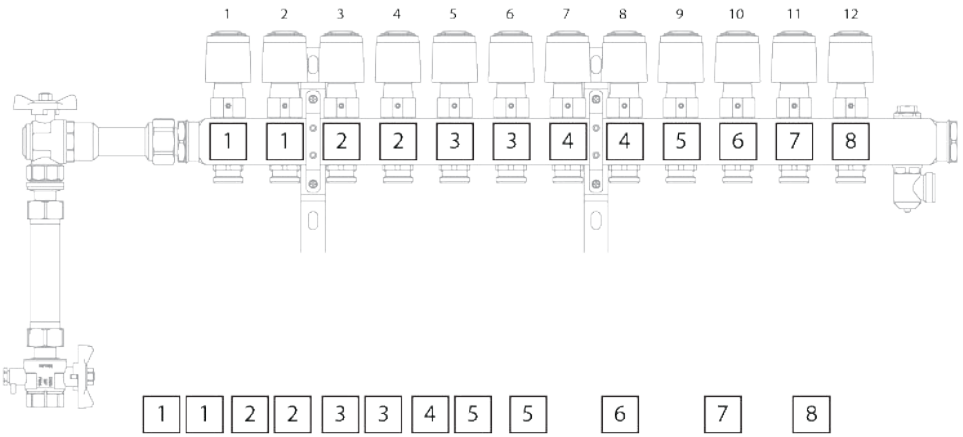
The TWA´s is connected from the factory, see how on the next page. But it will be possible to change the connections afterwards.

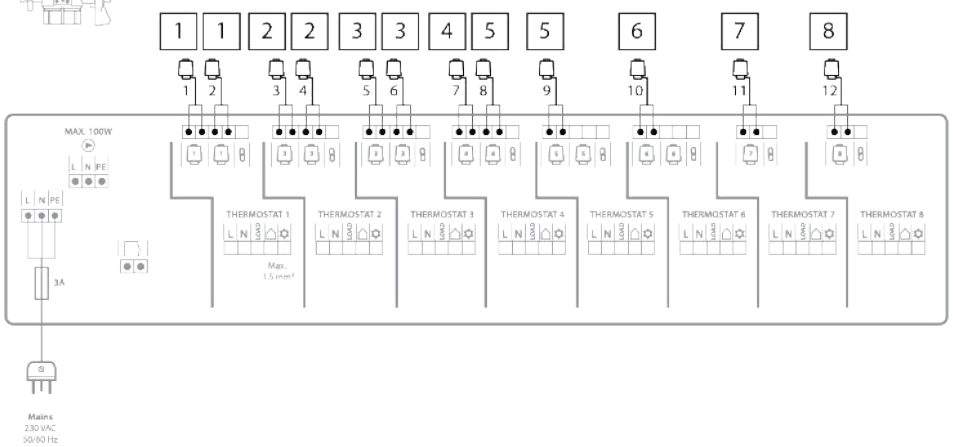
Actuator wiring LEFT variant

The actuators are wired to respective terminals on the Wiring Center as below.
Actuators and cables will be marked accordingly.





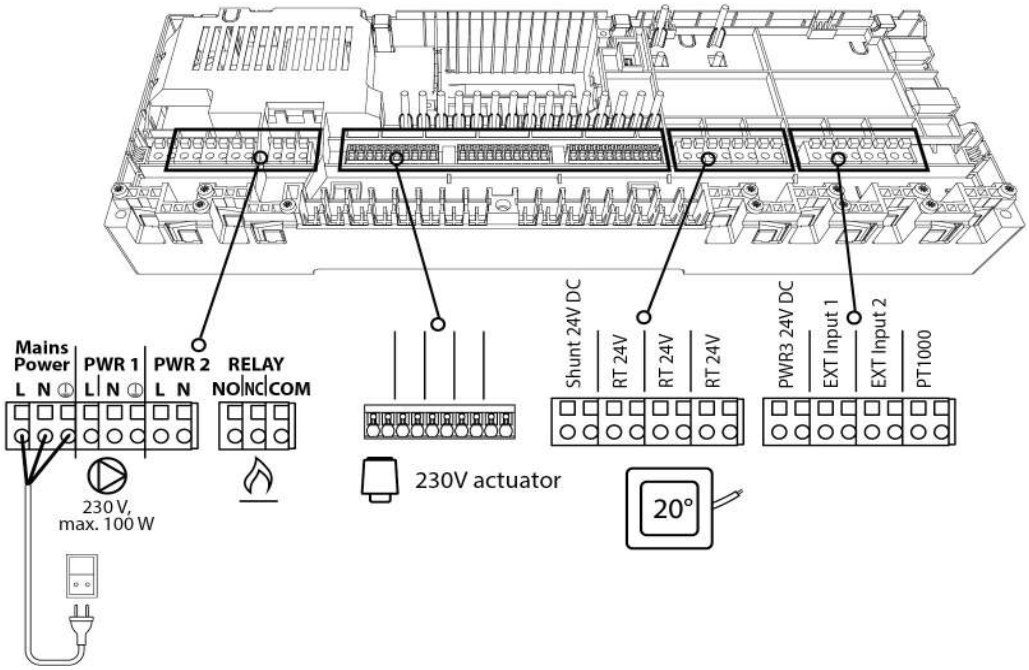




ICON2™ Advanced Master Controller (UnoFloor Metering Control)

Danfoss ICON2TM Advanced Master Controller is a control box for use in hydronic floor heating using wireless or wired thermostats and 230V actuators.

- Automatic balancing (PWM+), which ensure that hydraulic balancing of the system is done by the master controller based on the actual room demand.
- Requires no pre-setting on the manifold
- On/Off control possibility
- Possibility to combine wired and wireless thermosats in same installation



1 Circulation pump
2 Heat signal (potential free)
3 230V thermal actuator, NC

Certificates, declarations and approvals

CE	
EU RoHS	

Tender text

Pre-assembled underfloor heating balancing and control distribution unit must come wired and pre-mounted, suitable for left- and right-hand side connection to the manifold, fitted in in-wall cabinet. Cabinet must be painted in white (RAL 9016), 939 mm in height, up to 1140 mm in width and 110 mm in depth.

The manifold is used for heat regulation in floor heating systems. Each circuit in the floor heating system is connected to the manifold, which makes it possible to regulate the heat supply to each room in the building independently.

The manifold shall consist of a flow and return manifold where the flow manifold must be able to close each circuit independently. The return manifold must be equipped with presetting valves, ensuring optimal balancing of the system. Balancing of the floor heating system shall be done on a swivel scale ranging from 1-7 and N so that the value can be read and checked after commissioning. Valves shall be controlled electronically by thermal actuators installed without adapters.

The manifold must be provided in modules of up to 12 outlets with air vent and drain / fill function valve. Ball valves must be available as an option for positive shut-off between manifold and system.

The manifold must be made of stainless steel and have the following specifications:

• Maximum flow temperature : 90 °C

• Maximum differential pressure: 0,6 bar

• Maximum operating pressure with flow meter: 6 bar

• Max Kv setting of the valve (N): 0,97 m

Multifunctional thermostatic balancing valve for DHW should be included with following product characteristics:

• Valve should be made of lead-free brass

• Valve should have possibility to mount an actuator for electronically controlled disinfection

• Valve should have a safety spring to protect thermo-element from being damaged

• Valve should have a special sealing of the thermo-element to protect it against direct contact with water

• Max working pressure 10 bar

• Max. flow temperature 100 °C

• Kvs at 20 °C 1,5 m3/h

• Hysteresis 1,5 K

Icon 230V Wiring Center:

It must be possible to connect the room thermostats to the NC actuators via a connection box.

The connection box must have not less 8 channels and 14 actuator outputs, have two potential free relays: one for the pump and one for the boiler. Distribution voltage: 230 V AC. Voltage: 230 V AC, max. power per output: 3 W. The actuator must be premounted on a valve. The actuator receives a signal from the room thermostat. Based on the signal, it opens and closes the valve which makes it possible to regulate the energy supply to each room in the building independently. For easy and secure installation, the actuator must be delivered as one part (no adapter) and mounted on the manifold by use of an Allen screw.

Icon2 Advanced Master Controller:

It must be possible to connect the room thermostats to the NC/NO actuators via aconnection box.

The connection box must have not less 15 channels and 15 actuator outputs, have potential-free relay, one micro disconnection output and permanent 230 V (max 50W) output. Supply voltage: 230 V AC. Output voltage for actuators: 230 V AC, max. power per output: 2 W.

It must be possible for the installer to set up the underfloor heating control vi an app. In the app, it must be possible to generate a commissioning report as a PDF that can be sent to the building owner as documentation.

It must be possible to offer the user an app from which he can control the heat in his home.

Connnection of room sensors can be done wired and/or wireless.

For accurate hydronic control, automatic heat load control feature must be available. The actuator must be premounted on a valve. The actuator receives a signal from the room thermostat. Based on the signal, it opens and closes the valve which makes it possible to regulate the energy supply to each room in the building independently. For easy and secure installation, the actuator must be delivered as one part (no adapter) and mounted on the manifold by use of an Allen screw.

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