MCC2/MCD2 Operations Manual - Hydronic

A Comfort Heat floor heating system has been installed in your floor. Under floor heating will warm from the floor up giving you unparalleled feeling of comfort. This heating system is controlled by an electronic thermostat that has a floor sensor for optimum temperature control.

PRIOR TO TURNING ON
The sub-floor and screed have to be fully cured before turning the heating on. For sand & cement screeds you must wait at least 3 weeks before turning on. When turning on the floor for the first time, increase the floor temperature gradually over 2-3 days.

WARRANTY THERMOSTAT & SENSOR - 2 years	**RECOMENDED TEMPERATURE SETTINGS** FLOOR TEMPERATURE [CERAMIC] - 23°C ~ 25°C FLOOR TEMPERATURE [CARPET] - 23°C ~ 25°C FLOOR TEMPERATURE [TIMBER] - 24°C max.

The MICROTEMP RANGE of electronic thermostats are specifically designed for underfloor heating systems.
The thermostats are vertically flush mounted and have a 2pole isolator with 16A output relay.

MCC2/MCD2 - The MCC2/MCD2 thermostat has a built in programmable time-clock to automatically turn the floor heating system ON and OFF at selected times. During the OFF periods the floor does not turn OFF but programs the floor temperature to your selected 'set back temperature'.When the $\approx$ appears on your screen, the floor is heating. If you see 'E1' or'E2' there is an error.

MCC2/MCD2

TECHNICAL DATA

Supply Voltage:	240Vac, 50/60hz
Output Relay:	16A SPST, 3600W max
Switching Differential:	0.4 degC
Built-in Switch:	2 pole 16A
Temperature Range:	0/+50 degC
Housing/protection:	IP20 & IP21
Dimensions (HxWxD):	115mm x 84mm x 58mm
Sensor Length:	3m
Mounted:	Vertically/Flush Mounted

BASIC SET UP

Set the date and time when the thermostat is turned on for the first time or reset.
>Press on/off button to turn thermostat on - (display will flash)
>Press up and down arrow keys to set the correct time
>Press tick button once you have the correct time displaying
Next, set the day of the week;
>Press up and down arrow keys to set the day of the week (1-7 at the bottom of the display) (1=Monday - 7=Sunday)
>Press tick button once you have the correct day displaying

The thermostat is now set to 'factory default' settings and is fully operational.
Default setting for MCC2 - floor sensing
Default setting for MCD2 - air sensing

If your thermostat has already been set up but you are not sure if the settings are correct, you can reset your thermostat by pressing a pin into the reset hole for 3 seconds. You will need to then set the time and day as listed above.

Default settings:
weekdays (day 1-5): on at 6am - 25°C
                     off (set back) at 8am - 20°C   note: thermostat does not "tun off" but
                     on at 4pm - 27°C   changes to a "set back" temperature.
                     off (set back) at 10.30pm - 20°C   This set back temperature can be changed.

week - ends (day 6-7): on at 8am - 27°C
                       off (set back) at 11pm - 20°C

MANUAL MODE SETUP

Temporary override of the automatic on /off programmed setting.
>Press the tick button once - hand will display.
>Press up and down arrow keys to set the desired floor temperature

The display will flash on the screen and then stop automatically.
Thermostat is now in manual mode.
To change the thermostat back to automatic mode - press the tick button again

PROGRAMMABLE MODE SETUP

Please refer to our full thermostat manual to programm customised settings.

MCD2 ONLY - AIR WITH FLOOR LIMIT / FLOOR ONLY / AIR ONLY MODE SETUP

Select between sensing modes
>Hold the 'Up' & 'Down' buttons together for approx 3 seconds until 'Info' is displayed.
>Press the 'Down' button until 'APP' is displayed and press the 'Tick' button.
roLi = Air Sensor with Floor Limit   Flo= Floor Sensor Only   ro=Air Sensor Only
>Press the 'Down' button to change to your selected sensing mode and press 'Tick' button
You can now select the temperate settings and press the 'Tick' button to confirm

CONNECTING MCC2/MCD2 TO SMART POWER METER

The Smart Power Meter varies the power tariff rate at different times of the day. Overnight the rate is at 'Off Peak' rates and during the afternoon and evenings there is the 'Peak' rate. At the times between these there are 'Shoulder' rates. The exact times of these rates should be confirmed from your power provider.

As the cost of electricity during 'Peak' times is more expensive than during the 'Off Peak' or 'Shoulder' times the MCC2 thermostat should be programmed to 'TURN OFF' when it is 'Peak' periods. Following is an outline on how to achieve this arrangement:-

1.Set the Adaptive Function to 'Off' – The adaptive function is a program within the thermostat that tries to predict when the floor heating should be turned on to achieve the selected temperature at the 'Time On' setting. As this may allow the floor heat to operate during the 'Peak' period. Check this function is 'Off' in the thermostat program as follows:-

>Hold the 'Up' & 'Down' buttons together for approx 3 seconds until 'Info' is displayed.
>Press the 'Up' button until the 'AdAP is displayed and press the 'Tick' button.
>Press the 'Down' button to change 'On' to 'Off' and press 'Tick' button
>Press the 'Down' button to display 'End' and press 'Tick' button.

2.Programme the daily 'off' event to coincide with the 'Peak' times

INSTRUCTIONS

Type MCC2 / MCD2

English

Type MCC2/MCD2 is an electronic on/off thermostat for control of temperature by means of an NTC sensor either placed externally or internally in the thermostat.

Type MCC2/MCD2 is for flush mounting in a wall socket.

Product programme

MCC2-1991-UA	Clock thermostat incl. floor sensor 3 m
MCC2-1999-UA	Clock thermostat with built-in room sensor
MCD2-1999-UA	Clock thermostat with built-in room sensor and incl. limitation sensor 3 m

Type MCC2-1991-UA
Mounting of floor sensor (fig. 3)
The floor sensor is used for temperature regulation in floor surfaces. For easy replacement the sensor can be mounted in a tube which is placed between 2 heating cables. The tube is ended towards the floor surface and sealed.
If required, the sensor cable can be extended up to about 100 m with a standard installation cable. 2 leads in a multi lead cable, which is used as supply cable for the heating cable, must not be used. Voltage signals may occur which may disturb the thermostat function. If a screened cable is used, the screen must not be earthed but must be connected to terminal 6.

Type MCC2-1999-UA and MCD2-1999-UA
Mounting of thermostat with built-in sensor (fig. 4)
The room sensor is used for comfort temperature regulation in rooms. The thermostat is mounted on the wall with free air circulation about 1.6 m above the floor. Draught, direct sunlight, or any other direct heating outlet must be avoided.

Type MCD2-1999-UA
Mounting of limitation sensor:
Max. temperature limitation is used for protection of installation or construction against excessive temperature. The sensor is mounted at a place where excessive temperature may arise.
Min. temperature is used for better heating comfort. The sensor is mounted as floor sensor.

Mounting of thermostat
1. Release the front cover ONLY by inserting a small screwdriver into the air grills on both sides of the thermostat (see fig. 1).
   DO NOT open the thermostat by releasing the four fixing clips on the back.
2. Connect cables according to the diagram (fig. 2)
3. The thermostat is mounted in the wall socket. The cover and the frame are remounted.

Operation
The first time the thermostat is connected, time and day must be set:

☞ △▽√   Setting of time (the clock flashes during setting)

☞ △▽√   Setting of day (day flashes during setting)

Programming
See user's manual.

Fault location
If the sensor is disconnected or short-circuited, the heating system is cut out. The sensor can be checked according to the resistance table fig. 5.

Error codes
E0: Internal error. The thermostat must be replaced.
E1: Built-in sensor short-circuited or disconnected.
E2: External sensor short-circuited or disconnected.

CE marking
According to the following standards,
EMC: EN 61000-6-1: 2001
         EN 61000-6-3: 2001
LVD: EN 60730-1
         EN 60730-2-9

Classification
The product is a class II device (enhanced insulation) and the product must be connected to the following leads,
Term. 1:   Phase (L) 230 V±15%, 50/60 Hz
Term. 2:   Neutral (N)
Term. 3–4: Load max. 16A, 3,600W

OJ ELECTRONICS A/S
Stenager 13B · DK - 6400 Sønderborg
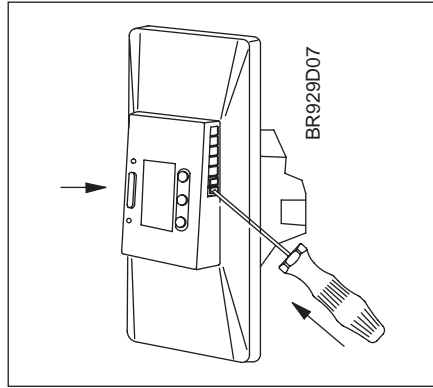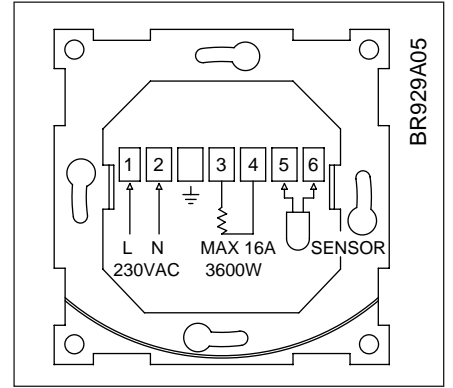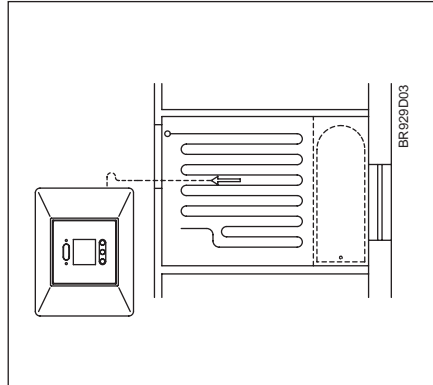Tel: +45 73 12 13 14 · Fax: +45 73 12 13 13
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Fig. 1

BR929D07

Fig.

BR929A05

| 1 | 2 | | 3 | 4 | 5 | 6 |

L N   MAX 16A   SENSOR
230VAC   3600W

Fig. 3

BR929D03

Fig. 4

BR929D04
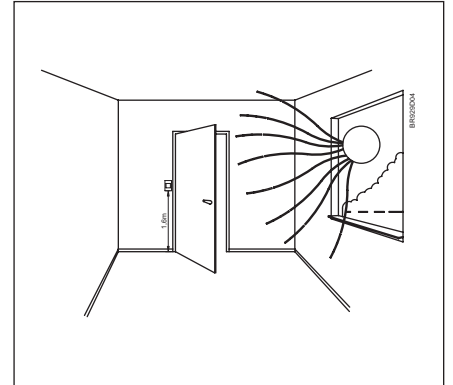
Fig. 5

BR929A08

Sensor	
Temp.(˚C)	Value (ohm)
-10	64000
0	38000
10	23300
20	14800
30	9700

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MCC2/MCD2
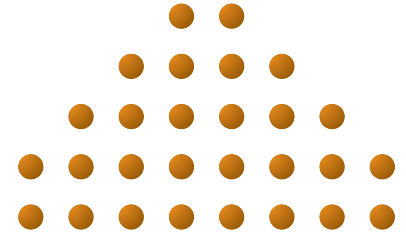
THERMOSTATS FOR UNDERFLOOR HEATING

3 YEAR warranty

4-event Clock Thermostat

Recommended for control of heating systems for heating comfort with minimum power consumption.

- On/off control up to 3,600W, 16A.
- Built-in clock function for automatic comfort and setback temperature.
- Set only time and day at installation. Delivered with factory-set program.
- With built-in 2-pole interrupter for convenient switching off at airing the room and at summer times.
- Adaptive control ensuring comfort temperature at the required time.
- Inclined backlit display for better read-out.
- Flush mounting in a standard wall socket.
- Snap mounting of front cover for easy installation.
- MCD2 - with limitation sensor. For optimal comfort avoiding cold tiles during spring and autumn, or as protection against damaging wooden floors.

PRODUCT PROGRAM

TYPE	PRODUCT
MCC2-1991-UA	Clock thermostat incl. floor sensor 3 m
MCC2-1999-UA	Clock thermostat with built-in room sensor
MCD2-1999-UA	Clock thermostat with built-in room sensor and incl. limitation sensor 3m

ACCESSORIES	
ETF-144/99-A	Floor sensor, 3m
ETF-944/99-H	Remote room sensor for surface wall mounting Used together with MCC2-1991-UA

Thermostat Control
Electronic on/off thermostat for control of temperature. The heating output is switched on and off with a differential of only 0.4ºC.

Housing IP21
Can be mounted in bathrooms and other humid rooms, taking local regulations into consideration.
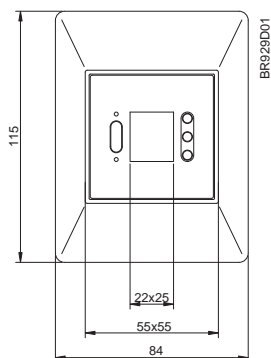
Built-in Clock Function
MCC2/MCD2 is with built-in 4-event program for automatic comfort and setback temperature.
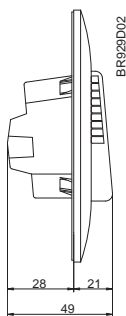
Temperature Limitation
The MCD2 is delivered with a floor sensor which can be used for:

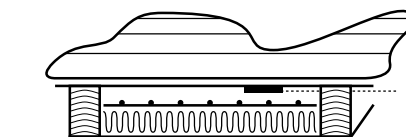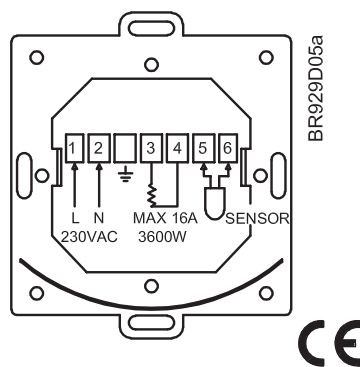**Max. temperature limitation:** Protection of i.e. wooden floors.
Min. temperature limitation: For better heating comfort.

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taking comfort further

Dimensions (mm)

Connections

Mounting of limitation sensor

Monitoring of Energy Consumption

Total switch-on time in percentage can be read out within the latest 2 days, 30 days or 365 days. In this way the heating consumption can be controlled.

Factory-set of Events

The thermostat is delivered with factory-set programs as follows:

DAY 1-5

EVENT	TIME	TEMPERATURE	W/FLOOR SENSOR	W/ROOM SENSOR
1	06:00-08:00	Comfort	25°C	20°C
2	08:00-16:00	Setback	20°C	15°C
3	16:00-22:30	Comfort	27°C	22°C
4	22:30-06:00	Setback	20°C	15°C

DAY 6-7

EVENT	TIME	TEMPERATURE	W/FLOOR SENSOR	W/ROOM SENSOR
1	08:00-23:00	Comfort	27°C	22°C
4	23:00-08:00	Setback	20°C	15°C

Individual Programming of Events:

The factory-set periods and/or temperatures can be changed according to requirement.
Furthermore, the following programs can be selected:
• 4 events 6 days and 2 events day 7
• 4 events per day

The thermostat is with adaptive function meaning it calculates, when the heating has to be switched on to make sure that the comfort temperature is obtained at the required time.

Comfort Mode

The temperature can be temporarily changed for a single event. The comfort mode temperature is reset at the next event, and the thermostat will return to the scheduled event program.

Manual Mode

The scheduled event program can be cancelled e.g. during holidays, instead the temperature can be adjusted to e.g. 5°C for frost protection. The new setpoint is valid until the manual mode is cancelled.

Backup Function

All settings and the clock are maintained in case the thermostat is switched off on the built-in interrupter.
In case the main power supply is interrupted for more than 50 hours the current time and date must be adjusted.
In power term installations with daily disconnection of the main power to the heating installation, it is recommended to connect the thermostat to the primary line that is not disconnected, and connect the heating installation over an external relay.

Read-out of Sensor Temperature

The actual temperature of the floor sensor can be read out.

Changing of Type

Via the software menu type MCD2 can be modified to one of the following thermostats:

TYPE	PRODUCT
MCC2-1991-UA	Clock thermostat incl. floor sensor 3m
MCC2-1999-UA	Clock thermostat with built-in room sensor

At factory reset the thermostat will return to an MCD2 type for security reasons. In case the limitation sensor has been removed it will generate a failure code "E2".

TECHNICAL DATA

Supply voltage	230V AC ±15%, 50/60 Hz
Output relay SPST	16A, 3,600W
	resistive load or 1A inductive load
Built-in interrupter	2-pole, 16A
Temperature range	+5/+40°C
Limit sensor MCD2	5/55°C
	Factory setting min. 15°C/max. 28°C
Clock function	4-event program
Ambient temperature	0/+40°C during operation
On/off differential	0.4°C
Housing	IP21
Sensor type	NTC
Dimensions (H/W/D)	115/84/49 mm
Size of display (H/W)	25/22 mm