



## Convec Panels

# FloorLine product programme

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## Product description

### Convec FloorLine Panel

FloorLine is a compact panel for installing in heating applications in buildings.

### Applications

Aesthetics and comfort are the keywords for FloorLine panels. The discreet panels enable you to create a room with harmony and balance regardless of the building style and purpose.

FloorLine can be used in district heating, oil/gas boilers, heating pumps or similar systems - as a primary source of heating or in combination with other heat emitters, e.g. floor heating.

### Technical information

Heated system water is conducted through Convec panels by two finned pipes (flow and return). An electric fan creates an airstream across the finned pipes and transfers heat to the air in the room.

Unlike traditional flow control, the Convec panel's output is controlled by adjusting the fan speed. As the panels operate at the same average temperature difference along the entire length of the panel, the heat output will be uniform over the panel's entire length.

### Forced convection

The Convec panels are based on *forced convection*, which transmits heat directly into the air in the room.

The use of forced convection means that the panels can increase room temperature very quickly and will often be able to change the room temperature by several degrees in quite a short space of time.

### Controls

The room temperature is controlled by manually adjusting the CHR room thermostat to the desired temperature. Alternatively, a 0-10 V signal from e.g. a BMS unit can be send to the panel's motor control.

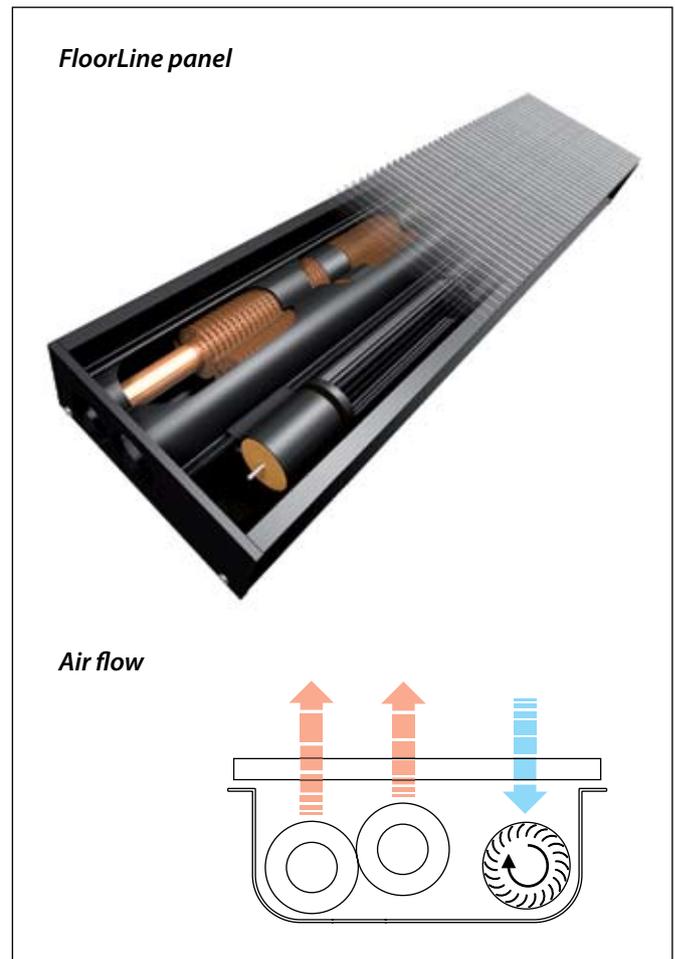
### Dimensions

The cross section of a FloorLine panel including grating is 59 x 135 mm (h x w). Panels can be supplied in lengths of up to 3500 mm (tolerance +/-2 mm).

Several panels can be built together creating panels to a length of 15 m without visible joints.

### Installation

FloorLine panels are - as the name suggests - primarily developed for integration into floor space. Installation instructions are given on pages 5 and 6 of this product sheet. For more detailed information on installation, please see the FloorLine Installation Instructions supplied with the panels.



### Cold draught

Modern architecture often contains large sections of glass. Such large window sections can lead to cold draught and thereby create discomfort in rooms.

When installing FloorLine panels along window sections, MEINERTZ recommends placing of the panels with the finned pipes facing the window. The fan will then force the hot air in direction of the windows and cold draughts are avoided.

MEINERTZ offers to assist in calculating the exact heating output required to avoid cold draughts.

### Visual optimisation (empty panel casing)

FloorLine can be supplied as an empty panel casing, i.e. without fan or finned pipes, for use in projects where a longer panel is required for aesthetic reasons.

### Installation duct and adjustments

The panels are supplied with self-jointing rubber strips, which "absorb" small inaccuracies in the installation duct in the floor.

To achieve the best visual appearance, it is necessary to observe the measurements of the installation duct, especially the width of 139 mm, as precisely as possible

(see page 5).

FloorLine panels are equipped with integrated adjustment screws, which enable the panel height to be accurately adjusted to suit the floor level.

### Operational conditions

FloorLine panels can be used in a heating system with a maximum water temperature of 85 °C and a 10 bar operational static pressure (test pressure = 1.3 x operational pressure).

### Safety and handling during the building period

During the building period and before installation, it is important to store and handle FloorLine panels correctly. Each panel consists of a variety of precisely manufactured components, which are sensitive to impacts or dirt. It is recommended that final installation is performed in the building at a time when it will be possible to protect the panels from damage.

### Maintenance

The panel components are developed for long-term use. Maintenance comprises cleaning grating and possible hoovering of panel (as required).

### Test

Convec panels has been tested by the Danish Institute of Technology, according to DS/EN 442.

### Ordering

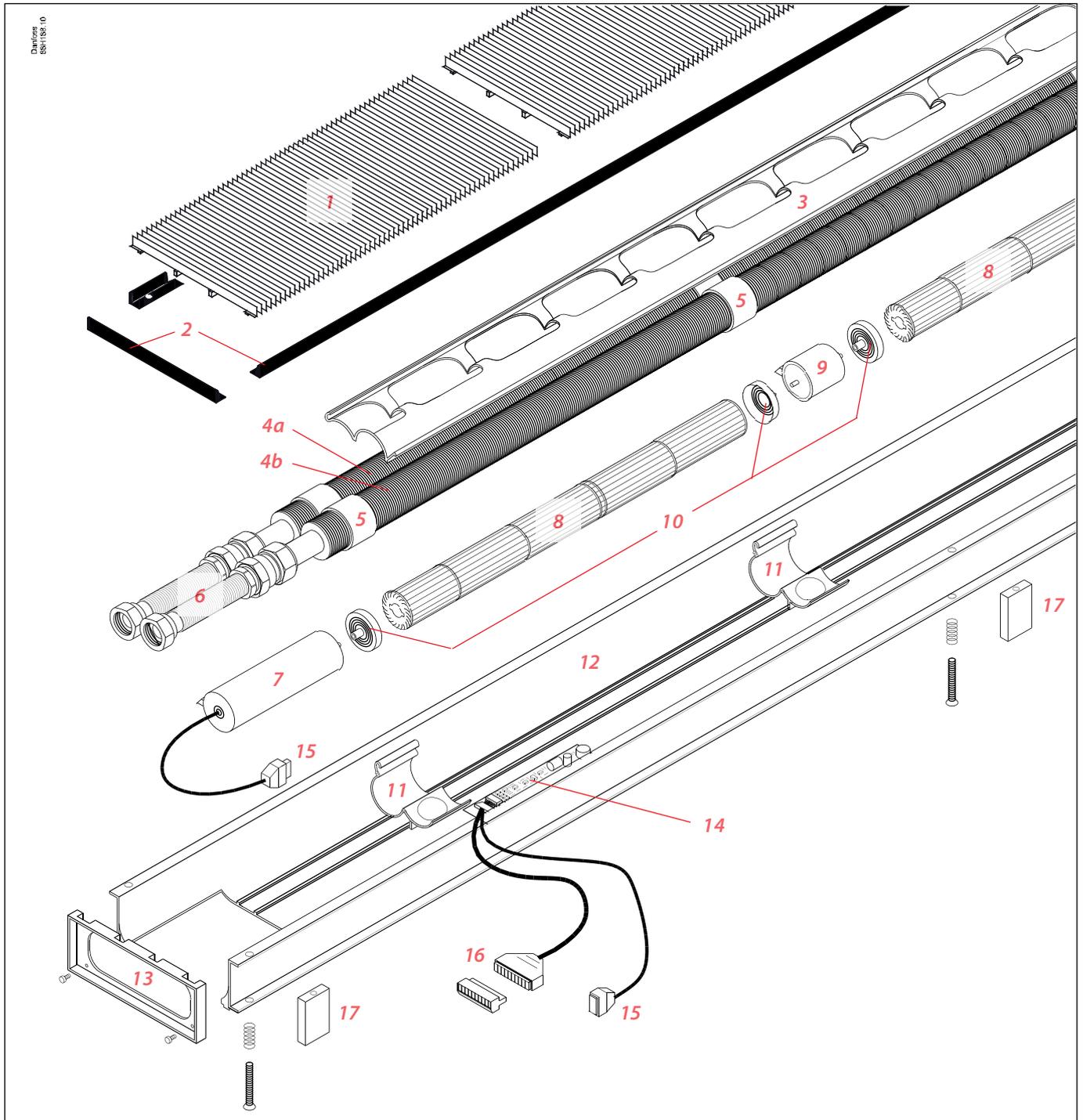
See "Ordering" on page 25 and the section "Placing orders" on the back page.

### Technical information / specifications

Weight (without water)	5.4 kg/m
Length per panel unit	1000 - 3500 mm (±2 mm)
Storage temperature	-10 - 60 °C
Water temperature	8 - 85 °C
Water quality	VDI 2035
Max. operating static pressure	10 Bar
Max. test pressure	13 Bar
Air flow, 1500 rpm	85 m <sup>3</sup> /h per meter panel
Noise level at 1500 rpm	*22dB(A)

*\*Measured a 2200 mm panel, water flow 300 l/h, distance 1.5 m.*

## Design



- |                                  |                                      |
|----------------------------------|--------------------------------------|
| 1. Floor grating (aluminium)     | 9. Bearing block (aluminium/brass)   |
| 2. Moulding strip (Santoprene)   | 10. Fan coupling (plastic)           |
| 3. Guide profile (aluminium)     | 11. Pipe fixture (aluminium)         |
| 4a. Finned pipe, flow (copper)   | 12. Installation profile (aluminium) |
| 4b. Finned pipe, return (copper) | 13. Panel end (aluminium)            |
| 5. Velcro tape                   | 14. CHM motor control print          |
| 6. Flexible pipes                | 15. Motor connection                 |
| 7. Motor                         | 16. Connection cable and terminals   |
| 8. Fan (aluminium)               | 17. Adjustment blocks (aluminium)    |

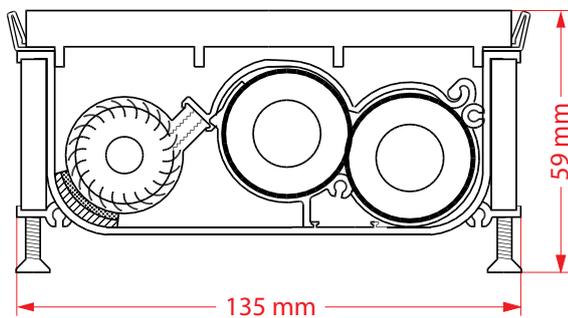
## Dimensions

### Product dimensions

Convec FloorLine panels measure 135 mm in width and 59 mm in height.

The panels are equipped with integrated adjustment screws, which enable the panel height to be accurately adjusted to suit floor level.

Panels are supplied with self-joining rubberstrips, which ensure an optimal finish for floor coverings.

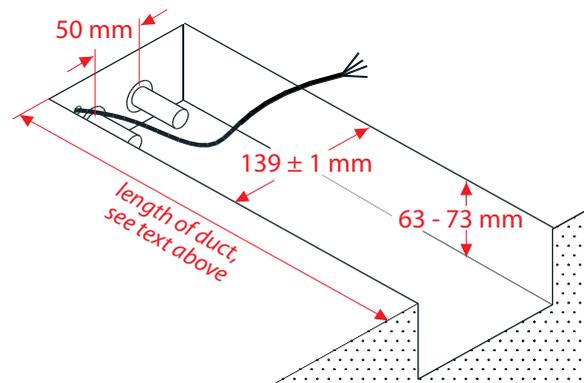


### Installation measurements

Installation ducts must meet certain measurements if an optimal finish is to be achieved.

The duct should be long enough to allow room for thermal expansion. The length of the duct can be calculated as follows:

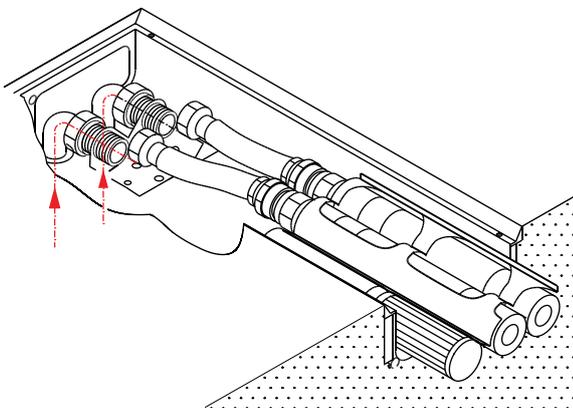
1. For panels **shorter** than 6000 mm, the length equals the total panel length + 5 mm.
2. For panels **longer** than 6000 mm, the channels should extend a further 1 mm per meter panel exceeding 6 meters.



## Installation

### Connection bracket

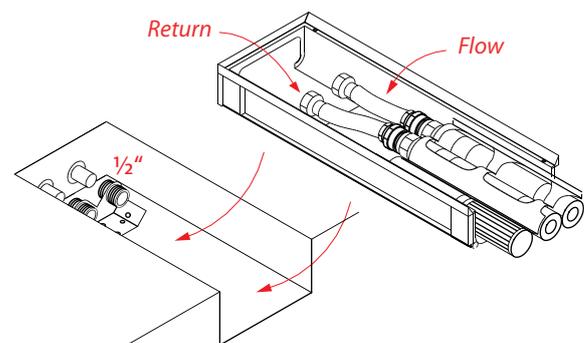
In order to ease the FloorLine panels connection to the system supply, there is a gap of 100 x 100 mm in the panel and a further gap of 105 x 35 mm in the panel end. Connection to the system pipework can therefore be performed either through the back or through the panel end.



### Connection to the pipework

A connection bracket with 1/2" fittings is used to connect to the pipework system to prevent transmission of any expansions from the system to the panel.

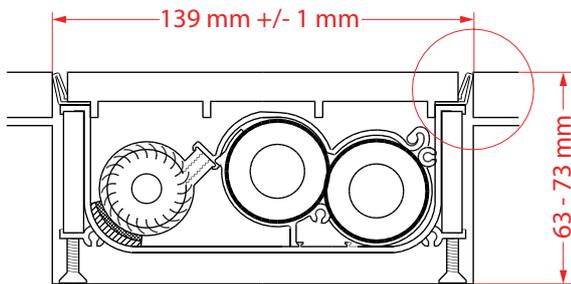
The connection bracket can be installed early in the construction period, which allows the system pipework to be completed at an early stage. The FloorLine panel can then be installed at a later phase of the building period and easily connected to the connection bracket using flexible hoses.



## Adjustments

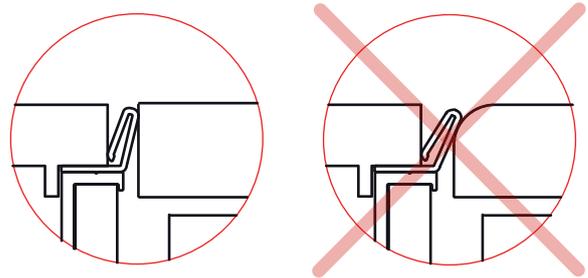
### Height adjustment

The panel can be adjusted 10 mm in height. Installation ducts must not be deeper than 73 mm to ensure adequate, stable support of the panel. It is very important that all adjustment screws are in contact with the base of the installation channel to ensure panel stability.



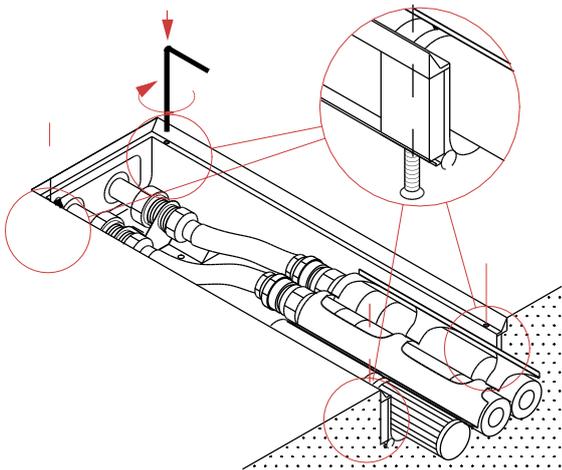
### Floor support

The height of the panel including grating can be adjusted to align with the floor covering. The edges of the installation channel must be straight and "sharp" to ensure a good finish and correct securement of the grating. A carpet strip can be used to achieve a correct finish when laying carpet.



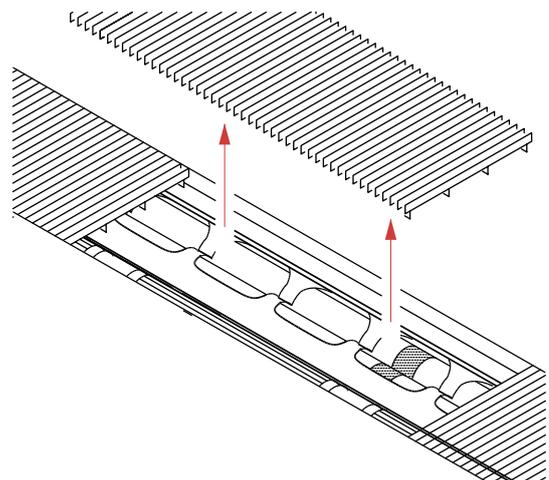
### Adjustment screws

The FloorLine panel must be adjusted to floor height by using the integrated adjustment screws, which are placed along the length of the panel.

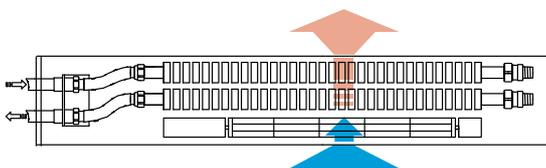


### Grating

The FloorLine panel grating is supplied as modules to allow easy access to the panel casing.



## Defining the connection side of a panel

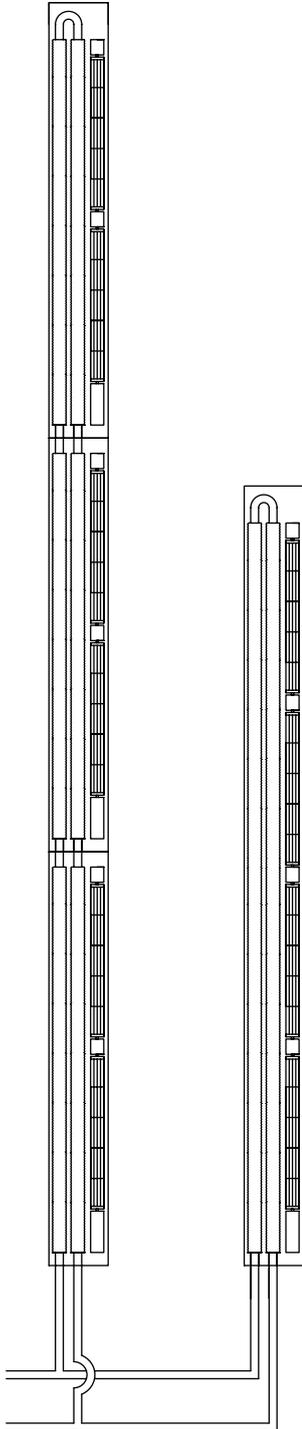


### Note!

When ordering FloorLine panels right or left connection must be stated. This is defined according to the fan motor. The panel shown is with left connection.

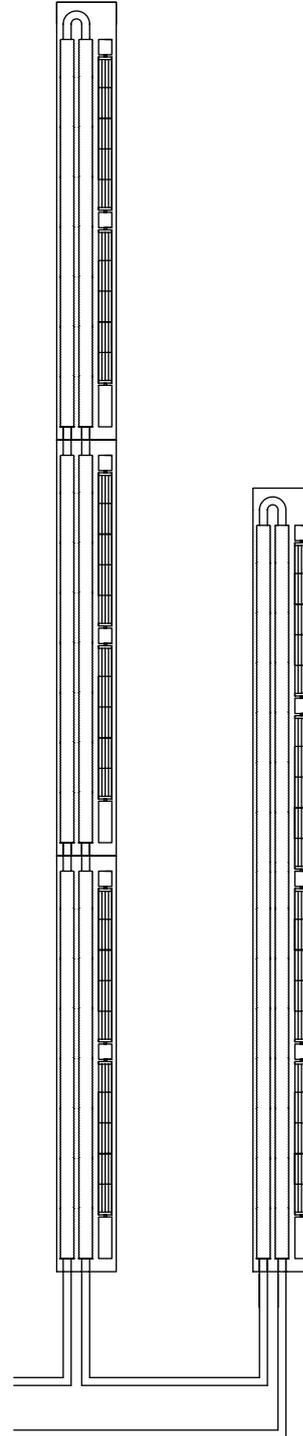
## Applications

**Two-pipe system**



FloorLine panels can be used in a traditional two-pipe system or connected in series of lengths of up to 15000 mm with the potential for intermediary pipe work. The same panel string can be used for several rooms as the panel output is controlled by fan speed rather than flow.

**One-pipe system**



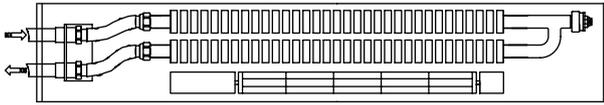
FloorLine panels can also be used in a one-pipe system. However, this will create a different output than stated in this product sheet. *Contact MEINERTZ for further information regarding one pipe systems.*

## Panel variants - left

FloorLine is available in six different panel variants, which differ according to use and panel connections.

Each panel variant can be supplied with left or right connection.

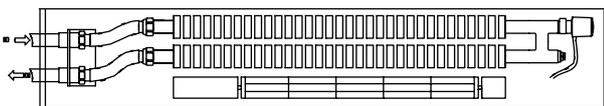
### Stand-alone panels (S & ST)



S-panel: Stand-alone panel unit with connection to system supply, incl. return bend with air vent.

**K<sub>v</sub>**

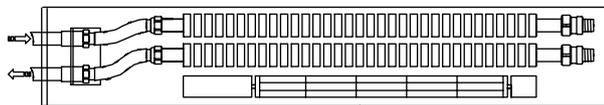
1.3



ST-panel: Stand-alone panel unit with connection to system supply, incl. return valve with TWA-A thermal actuator and air vent.

0.9

### Connection panel (C)

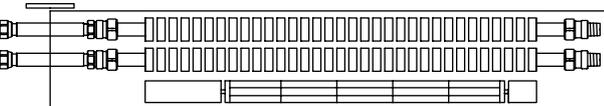


C-panel with connection to system supply and nipples for direct panel extension with other panels.

**K<sub>v</sub>**

1.4

### Extension panel (E)

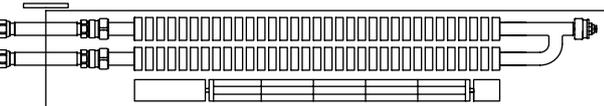


E-panel for use with direct connection to two panels, incl. flexible pipes and nipples.

**K<sub>v</sub>**

1.4

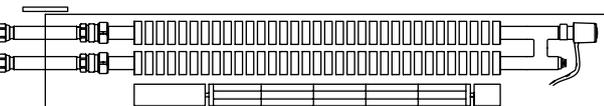
### Return panels (R & RT)



R-panel: Panel for finishing panel string, incl. flexible pipes and air vent.

**K<sub>v</sub>**

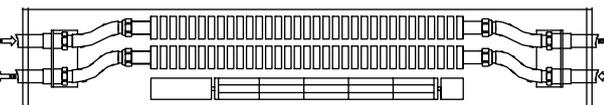
1.4



RT-panel: Panel for finishing panel string, incl. flexible pipes, air vent and TWA-A thermal actuator.

0.9

### Link panel (L)

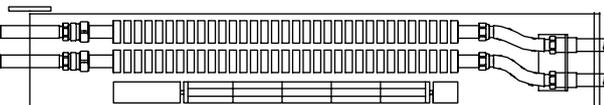


L-panel for series connection of panels of the same string that are not connected directly into a panel. Closed at both ends with connection to system supply.

**K<sub>v</sub>**

1.1

### Finishing panel (F)



F-panel for ending a series connection panel string before tubing is connected to the next panel, incl. flexible pipes and connection to system supply.

**K<sub>v</sub>**

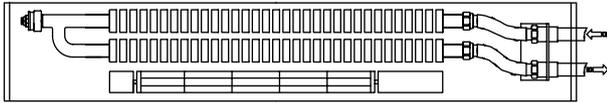
1.1

## Panel variants - right

The different panel variants can be combined together. Left or right connection must be requested in orders. See panel codes for orders on page 25.

**NOTE!** The stated  $K_v$  values are used when calculating the total pressure loss over one or more panels. See guidance on page 16.

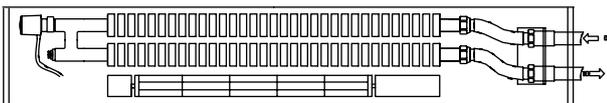
### Stand-alone panels (S & ST)



S-panel: Stand-alone panel unit with connection to system supply, incl. return bend with air vent.

$K_v$

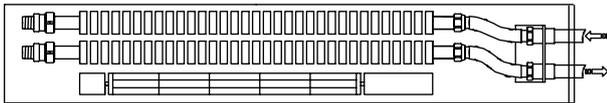
1.3



ST-panel: Stand-alone panel unit with connection to system supply, incl. return valve with TWA-A thermal actuator and air vent.

0.9

### Connection panel (C)

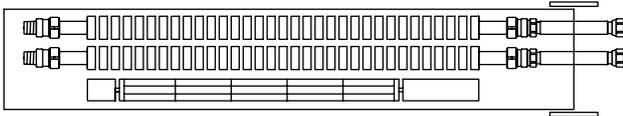


C-panel with connection to system supply and nipples for direct panel extension with other panels.

$K_v$

1.4

### Extension panel (E)

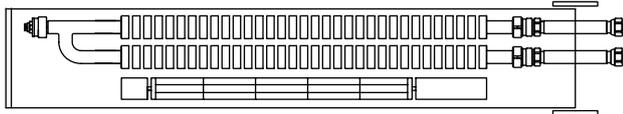


E-panel for use with direct connection to two panels, incl. flexible pipes and nipples.

$K_v$

1.4

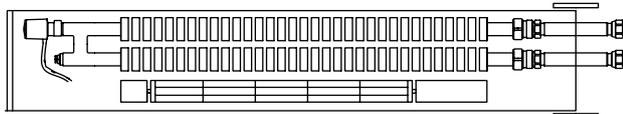
### Return panels (R & RT)



R-panel: Panel for finishing panel string, incl. flexible pipes and air vent.

$K_v$

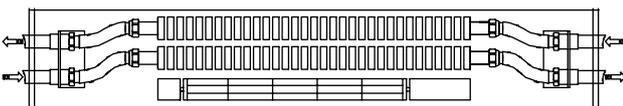
1.4



RT-panel: Panel for finishing panel string, incl. flexible pipes, air vent and TWA-A thermal actuator.

0.9

### Link panel (L)

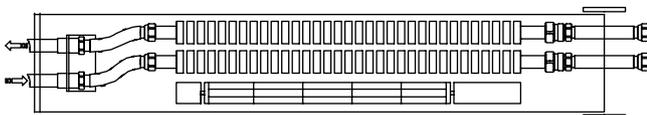


L-panel for series connection of panels of the same string that are not connected directly into a panel. Closed at both ends with connection to system supply.

$K_v$

1.1

### Finishing panel (F)



F-panel for ending a series connection panel string before tubing is connected to the next panel, incl. flexible pipes and connection to system supply.

$K_v$

1.1

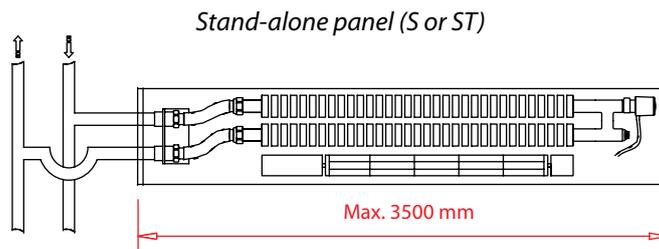
## Panel configuration I

### Panel length up to 3500 mm (stand-alone solution)

If possible, panels of up to 3500 mm should be constructed as a stand-alone solution. In principle, this is carried out like a traditional radiator installation, connected to a two-pipe system.

60 cm of a panel unit is used for motor, connections and fittings. To ensure maximum output per meter of panel, it is recommended using panel units as long as possible.

#### Example

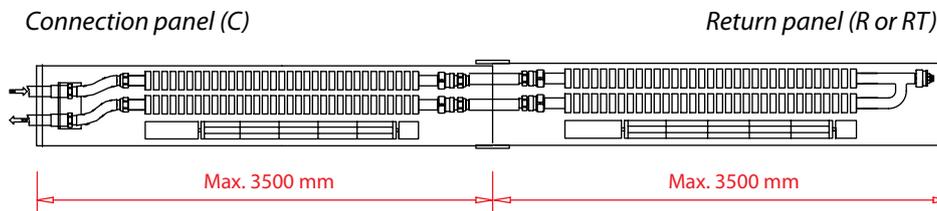


### Panel length 3500 mm to 7000 mm (connection of 2 panels)

Panels longer than 3500 mm are created by connecting a connection panel (C) with a return panel (R or RT).

This configuration has a max. length of 7000 mm.

#### Example

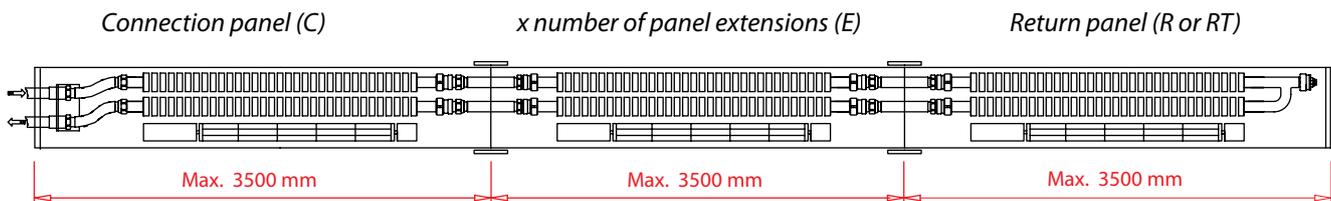


### Panel length 7000 mm to 15000 mm (connection of 3 or more panels)

Extension panels (E) are used to extend Convec panels from 7000 mm up to 15000 mm by connecting the panels directly together.

The recommended maximum length of the combined panel is 15000 mm. However, the pressure loss must be observed prior to ordering.

#### Example

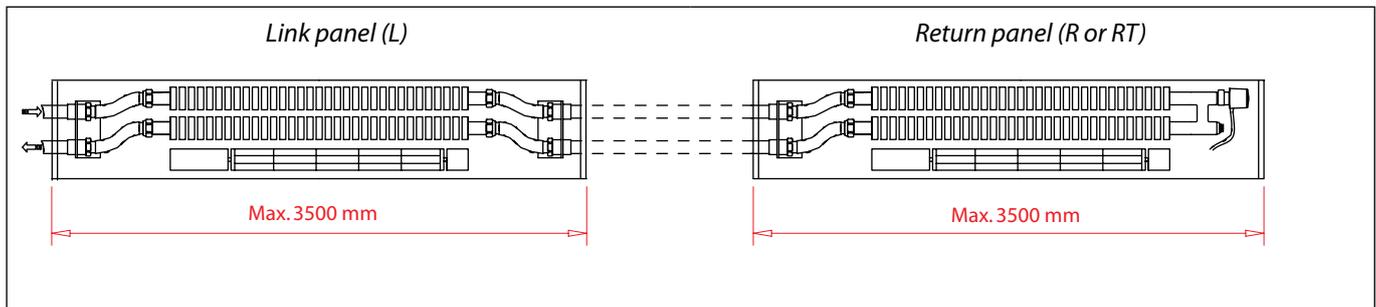


## Panel configuration II

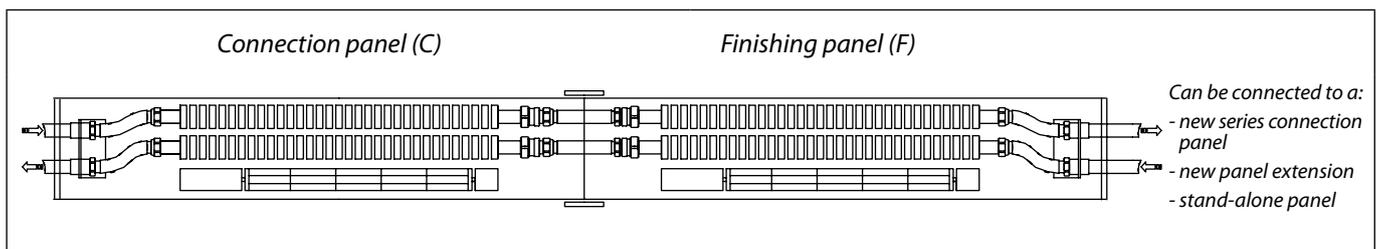
### Series connection of panels

In addition to extending panels by direct connection of FloorLine panels, it is also possible to connect panels of the same string by using intermediary tubing in series.

Series connection allows you to successfully run one string through several rooms.



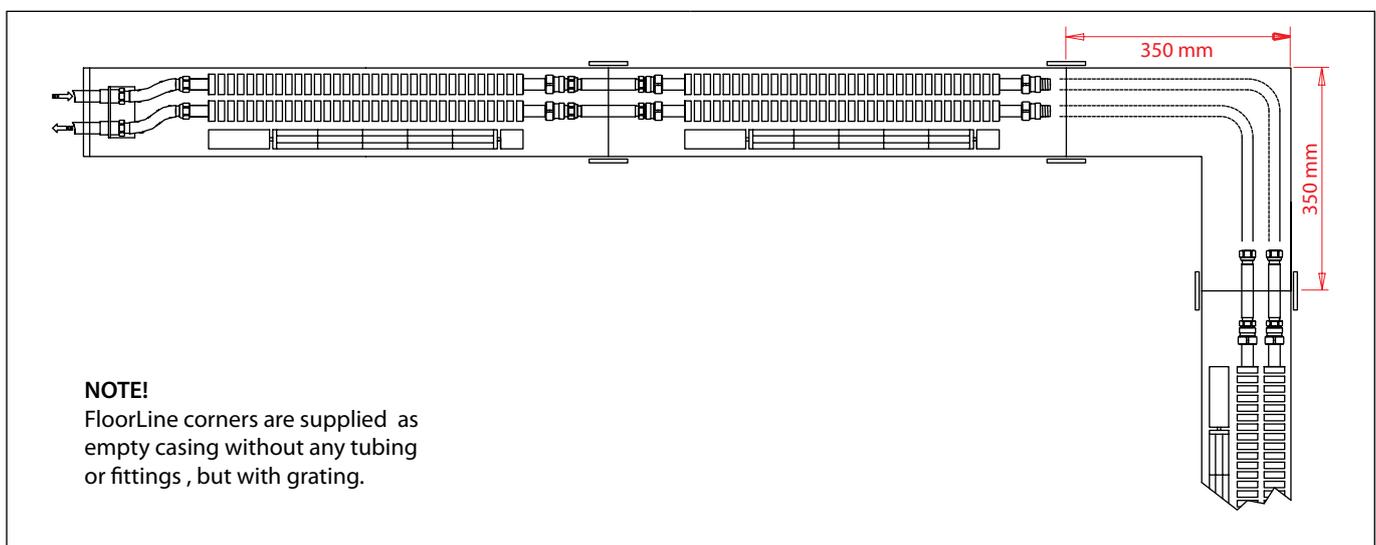
### Series connection using finishing panels



### Corner solutions

FloorLine corner solutions can be used to ensure optimum visual installation and simple tubing installation. Corner solutions are carried out with bevelled gratings.

Corners are supplied with connection blocks for easy and safe connection with other panels.



## Heat output I

<b>Temperature set: 50/45/20 °C</b>		(Fan speed: 1500 RPM)
Panel length	Heat output	Flow
1000 - 1199 mm	102 W	18 l/h
1200 - 1399 mm	164 W	29 l/h
1400 - 1599 mm	227 W	40 l/h
1600 - 1799 mm	292 W	51 l/h
1800 - 1999 mm	355 W	62 l/h
2000 - 2199 mm	420 W	73 l/h
2200 - 2399 mm	484 W	84 l/h
2400 - 2599 mm	549 W	96 l/h
2600 - 2799 mm	613 W	107 l/h
2800 - 2999 mm	678 W	118 l/h
3000 - 3199 mm	743 W	130 l/h
3200 - 3399 mm	808 W	141 l/h
3400 - 3500 mm	873 W	152 l/h

<b>Temperature set: 60/50/20 °C</b>		(Fan speed: 1500 RPM)
Panel length	Heat output	Flow
1000 - 1199 mm	120 W	10 l/h
1200 - 1399 mm	198 W	17 l/h
1400 - 1599 mm	278 W	24 l/h
1600 - 1799 mm	359 W	31 l/h
1800 - 1999 mm	440 W	39 l/h
2000 - 2199 mm	522 W	46 l/h
2200 - 2399 mm	605 W	53 l/h
2400 - 2599 mm	688 W	60 l/h
2600 - 2799 mm	771 W	67 l/h
2800 - 2999 mm	854 W	75 l/h
3000 - 3199 mm	937 W	82 l/h
3200 - 3399 mm	1021 W	89 l/h
3400 - 3500 mm	1105 W	97 l/h

## Heat output II

Temperature set: 70/40/20 °C		(Fan speed: 1500 RPM)
Panel length	Heat output	Flow
1000 - 1199 mm	76 W	2 l/h
1200 - 1399 mm	145 W	4 l/h
1400 - 1599 mm	219 W	6 l/h
1600 - 1799 mm	296 W	9 l/h
1800 - 1999 mm	374 W	11 l/h
2000 - 2199 mm	454 W	13 l/h
2200 - 2399 mm	535 W	16 l/h
2400 - 2599 mm	618 W	18 l/h
2600 - 2799 mm	700 W	21 l/h
2800 - 2999 mm	783 W	23 l/h
3000 - 3199 mm	866 W	25 l/h
3200 - 3399 mm	949 W	28 l/h
3400 - 3500 mm	1033 W	30 l/h

Temperature set: 75/65/20 °C		(Fan speed: 1500 RPM)
Panel length	Heat output	Flow
1000 - 1199 mm	183 W	16 l/h
1200 - 1399 mm	296 W	26 l/h
1400 - 1599 mm	410 W	36 l/h
1600 - 1799 mm	526 W	46 l/h
1800 - 1999 mm	642 W	57 l/h
2000 - 2199 mm	759 W	67 l/h
2200 - 2399 mm	876 W	77 l/h
2400 - 2599 mm	994 W	88 l/h
2600 - 2799 mm	1113 W	98 l/h
2800 - 2999 mm	1231 W	109 l/h
3000 - 3199 mm	1349 W	119 l/h
3200 - 3399 mm	1468 W	130 l/h
3400 - 3500 mm	1586 W	140 l/h

## Heat output III

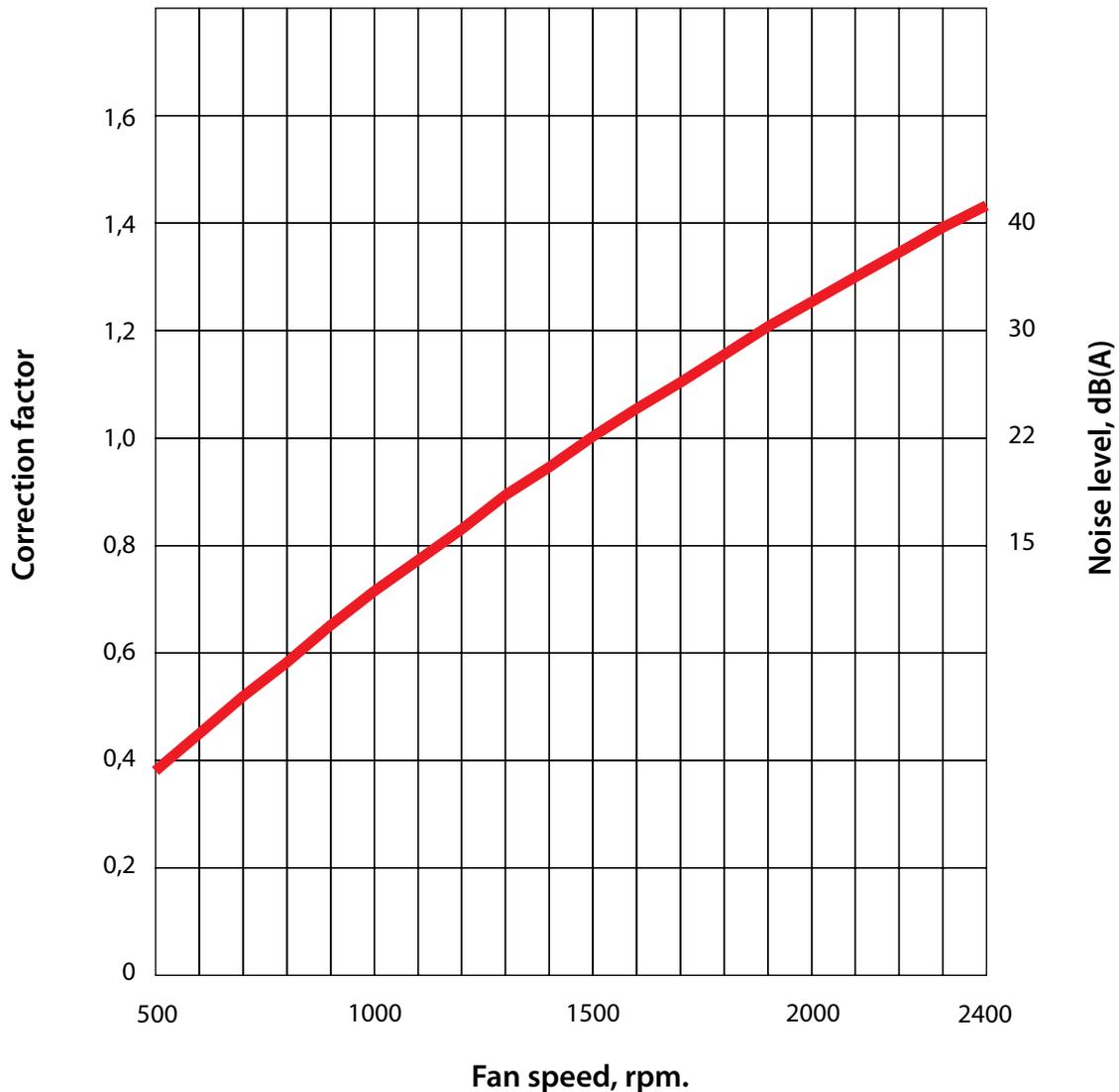
Temperature set: 70/50/20 °C		(Fan speed: 1500 RPM)
Panel length	Heat output	Flow
1000 - 1199 mm	116 W	5 l/h
1200 - 1399 mm	202 W	9 l/h
1400 - 1599 mm	292 W	13 l/h
1600 - 1799 mm	384 W	17 l/h
1800 - 1999 mm	477 W	21 l/h
2000 - 2199 mm	571 W	25 l/h
2200 - 2399 mm	666 W	29 l/h
2400 - 2599 mm	761 W	33 l/h
2600 - 2799 mm	857 W	38 l/h
2800 - 2999 mm	953 W	42 l/h
3000 - 3199 mm	1049 W	46 l/h
3200 - 3399 mm	1145 W	50 l/h
3400 - 3500 mm	1242 W	55 l/h

Temperature set: 65/45/20 °C		(Fan speed: 1500 RPM)
Panel length	Heat output	Flow
1000 - 1199 mm	96 W	4 l/h
1200 - 1399 mm	170 W	7 l/h
1400 - 1599 mm	248 W	11 l/h
1600 - 1799 mm	328 W	14 l/h
1800 - 1999 mm	409 W	18 l/h
2000 - 2199 mm	491 W	22 l/h
2200 - 2399 mm	574 W	25 l/h
2400 - 2599 mm	658 W	29 l/h
2600 - 2799 mm	742 W	33 l/h
2800 - 2999 mm	826 W	36 l/h
3000 - 3199 mm	910 W	40 l/h
3200 - 3399 mm	995 W	44 l/h
3400 - 3500 mm	1079 W	47 l/h

## Output/Fan speed - correction factors

If the required panel length for achieving sufficient heat cannot be installed, the heat output can be increased by raising fan speed above the nominal 1500 rpm. As shown below, the heat output increases almost proportional to the speed of the fan.

Please take into consideration when raising the fan speed that both the panel noise and the power supply load will increase. Make sure the noise level remains acceptable and the power supply is not overloaded.



**Example:**

A Floorline panel 3000 mm provides, at a flow of 25 l/h, fan speed at 1500 rpm and a temperature set of 70/40/20° an output of 866 W.

Increasing the output to 1050 W will result in a correction factor of  $1050/866 = 1.21$ . The diagram shows that the fan speed has to be 1900 rpm, creating a noise level of approximately 30 dB(A).

*Table is based upon actual measurements of the FloorLine panel's heat output.*

*Measurements are performed in accordance with the standard EN 442.*

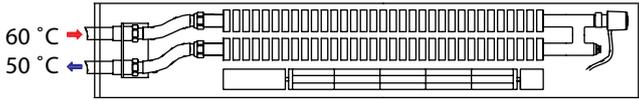
## Calculating pressure loss

This example is only valid for panels with a nominal fan speed (1500 rpm).

$K_V$  values for each panel variant are calculated based on a 3500 mm panel.

### Example: Stand-alone panel

*Stand-alone panel (ST)*



Conditions:

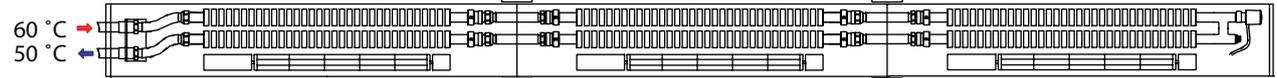
Temperature set:	60/50/20 °C
Panel length:	3450 mm
Heat output (see table, page 12):	1105 W
Flow (see table, page 12):	97 l/h
$K_V$ values (see pages 8-9):	0.9

Pressure loss  $\Delta p$  is calculated using the formula  $\Delta p = (q/K_V)^2$  where  $q$  is given as  $m^3/h$ .

Pressure loss in this example is therefore:  $\Delta p = (0.097/0.9)^2 = \mathbf{0.01 \text{ bar}}$

### Example: Panels in series

<i>Connection panel (C)</i> 3500 mm	<i>Extension panel (E)</i> 2500 mm	<i>Return panel (RT)</i> 3500 mm
--	---------------------------------------	-------------------------------------



Output:	1105 W	688 W	1105 W
Flow:	97 l/h	60 l/h	97 l/h
$K_V$ value:	1.4	1.4	0.9

*Information on output and flow can be found in the table, page 12-14.  $K_V$  values for each panel variant can be found on pages 8-9.*

Total output:  $\Sigma P = P_1 + P_2 + P_3$       1105 + 688 + 1105 = 2898 W

Total flow:  $\Sigma q = q_1 + q_2 + q_3$       97 + 60 + 97 = 254 l/h

Total  $K_V$  value:  $K_V = \sqrt{\frac{1}{K_{v1}^2} + \frac{1}{K_{v2}^2} + \frac{1}{K_{v3}^2}}$        $K_V = \sqrt{\frac{1}{1.4^2} + \frac{1}{1.4^2} + \frac{1}{0.9^2}} = \mathbf{0.67}$

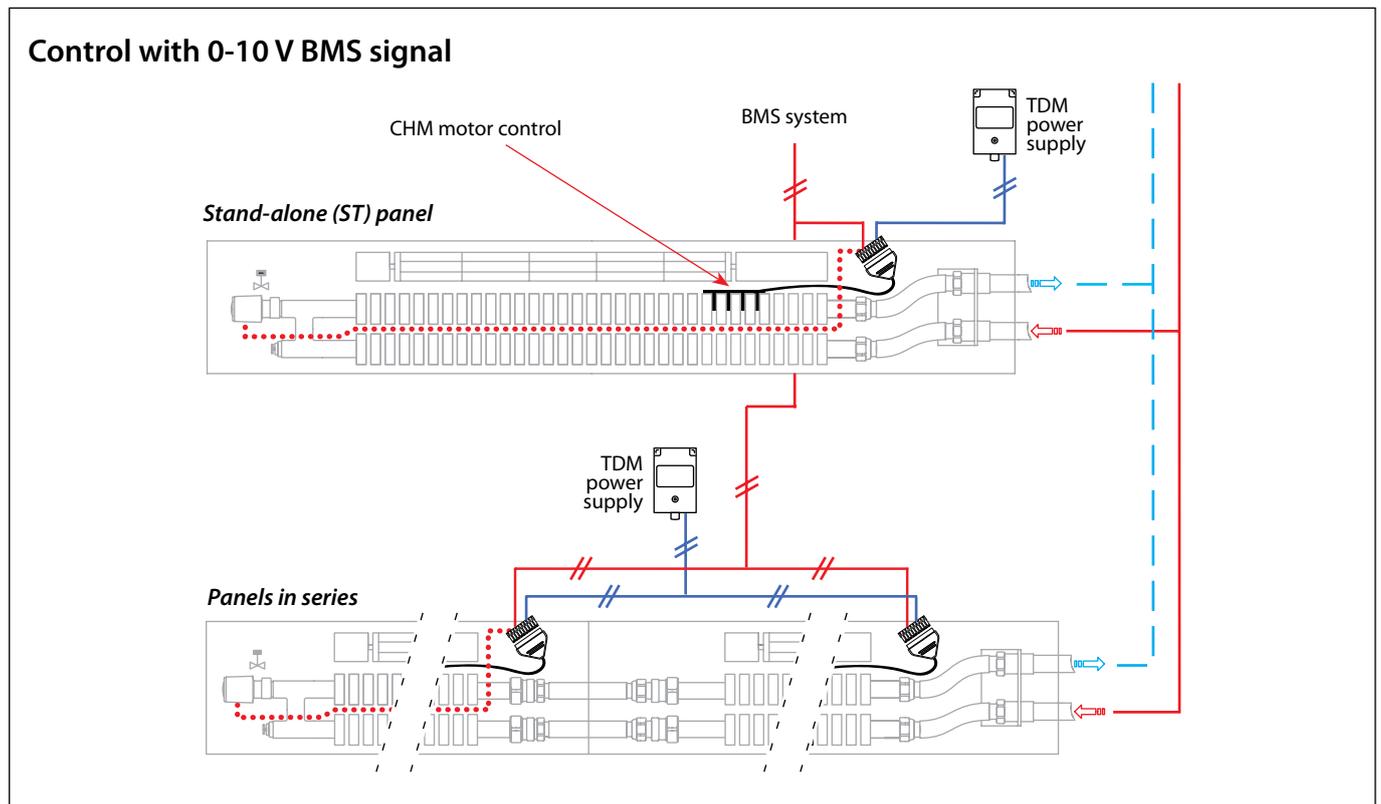
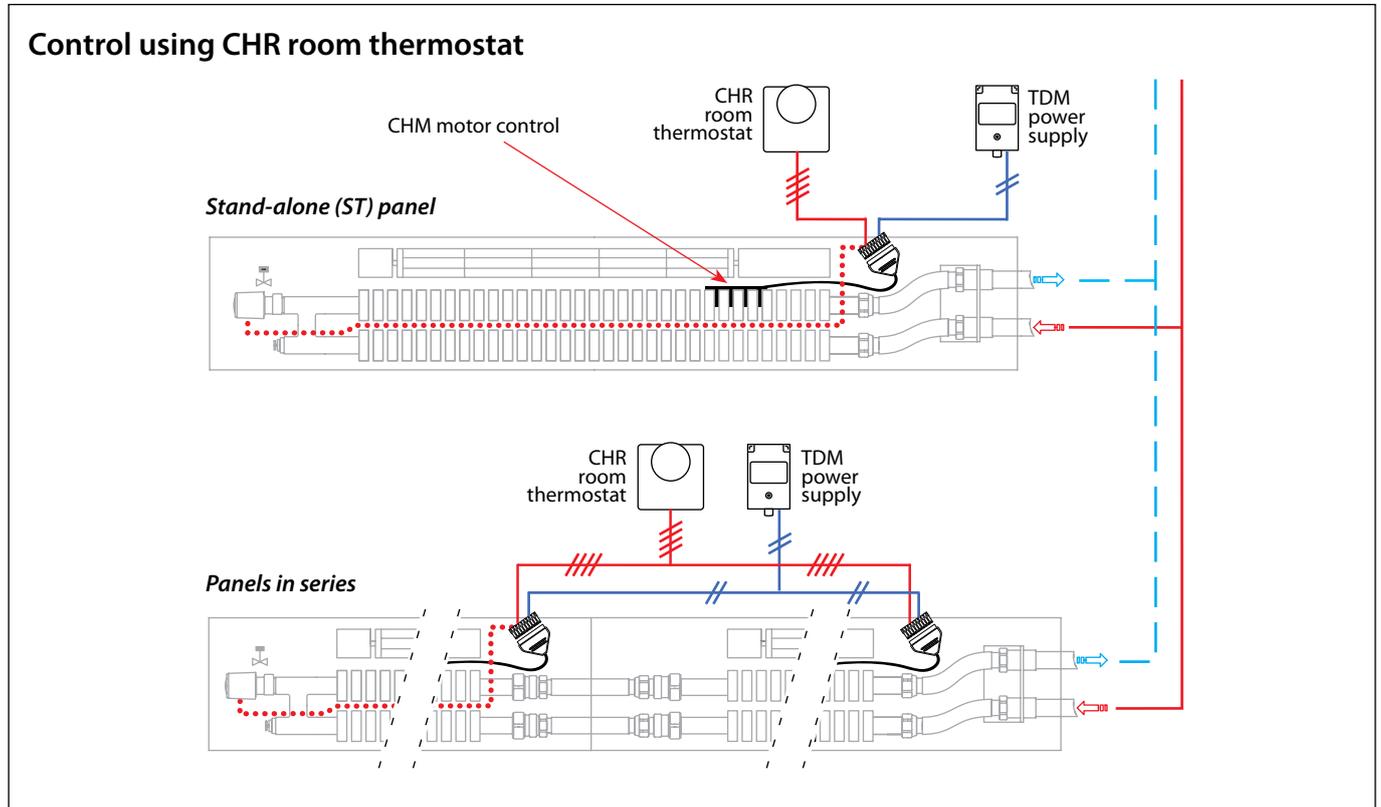
Pressure loss  $\Delta p$  is calculated using the formula  $\Delta p = (q/K_V)^2$  where  $q$  is given as  $m^3/h$ .

Pressure loss in this example is therefore:  $\Delta p = (0.254/0.67)^2 = \mathbf{0.14 \text{ bar}}$

## Controls

FloorLine panels can either be controlled by a CHR room thermostat or via an external 0-10 V BMS signal. When using a CHR room thermostat, panel and thermostat

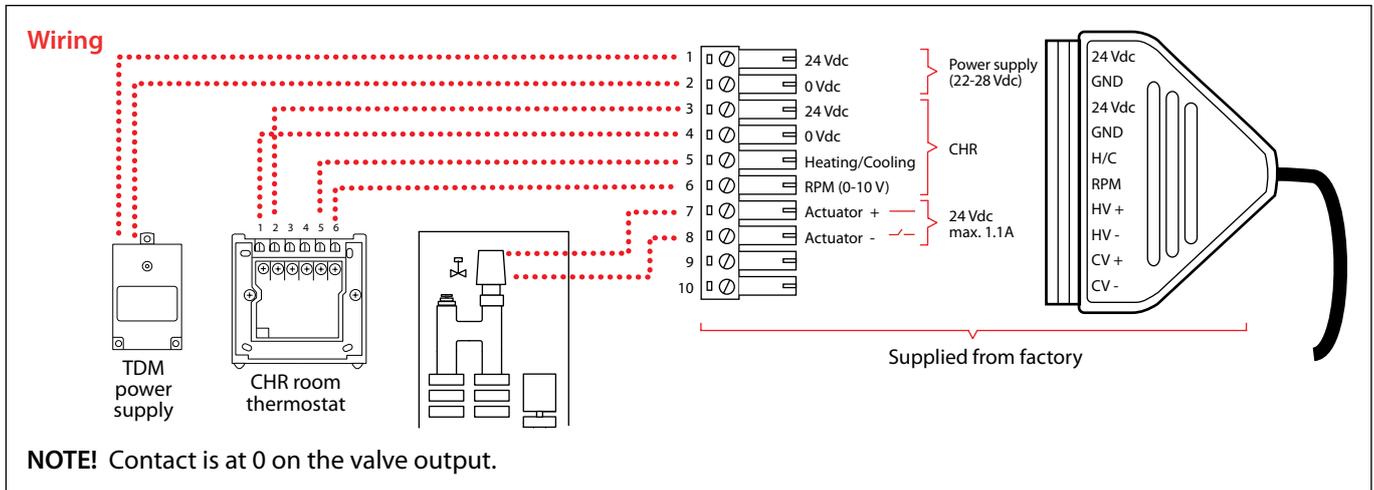
are connected with a 4-lead cable. When using a 0-10 V BMS signal the BMS system and the panel is connected with a 2-lead cable.



## CHR room thermostat

The CHR is the electronic room thermostat for Convec panels. A single CHR can control up to 10 Convec panels in the same room.

The CHR is a PI-regulator with a small P-band. It measures the room temperature and controls the output of the panel by transmitting a 0-10 V control signal to the motor control.



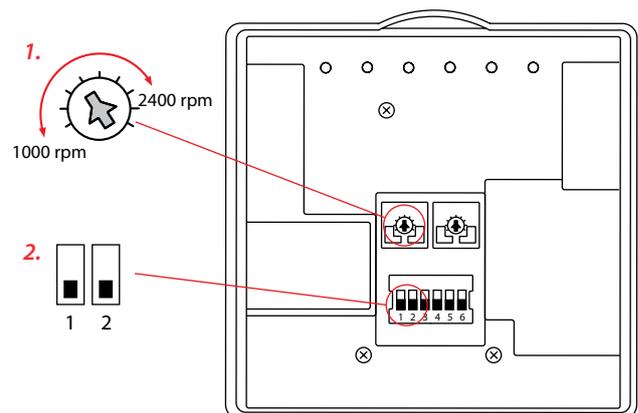
### System adjustments

System adjustments are performed on the rear of the CHR room thermostat.

Possible adjustments are:

1. Max. rpm of the fan motor is adjusted by turning the potentiometer (factory setting: 1500 rpm).
2. Program set for Heat (set from factory).

*Remaining contacts and potentiometers are not employed.*



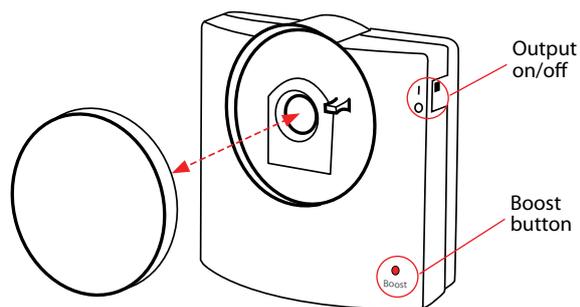
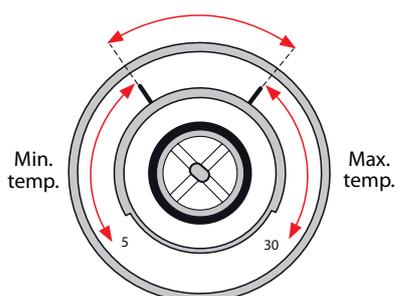
### Temperature adjustments

The room temperature is adjusted by turning the setting disc on the CHR room thermostat.

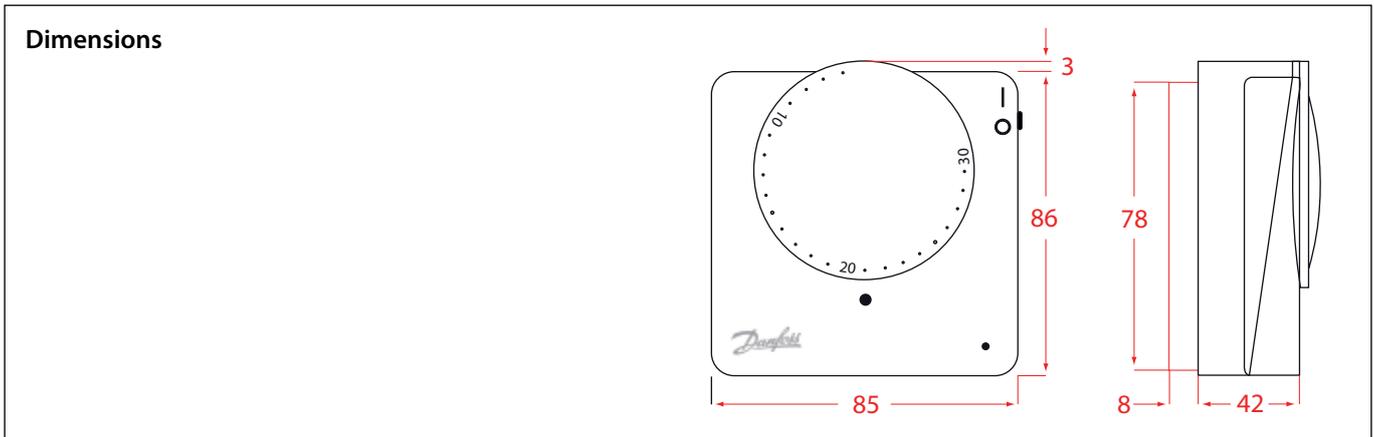
Max. and min. temperature can be limited by using the metal springs behind the setting disc (factory settings: min. 5 °C, max. 30 °C).

A boost function increases the fan speed temporarily to ensure quick heating.

The panel output is turned off by setting the output switch at O. The installation will remain frost protected.



## CHR room thermostat



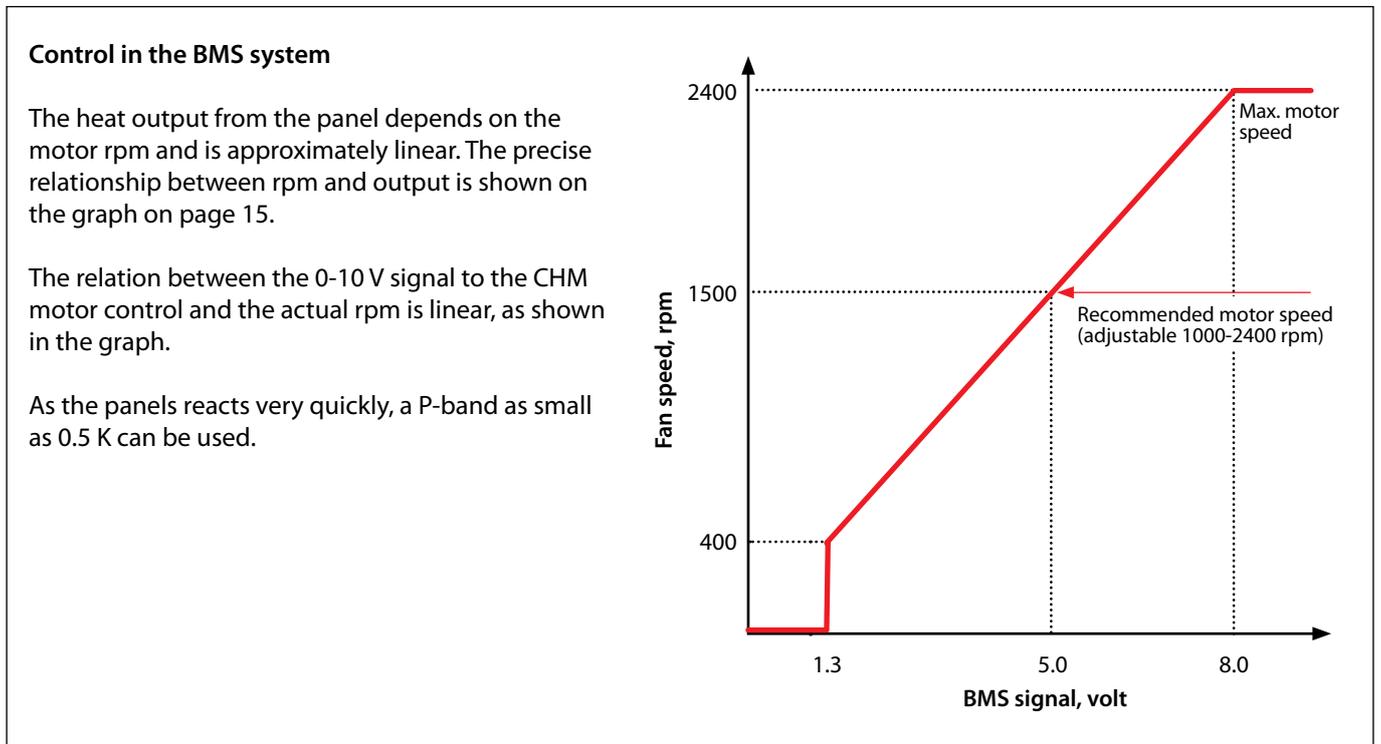
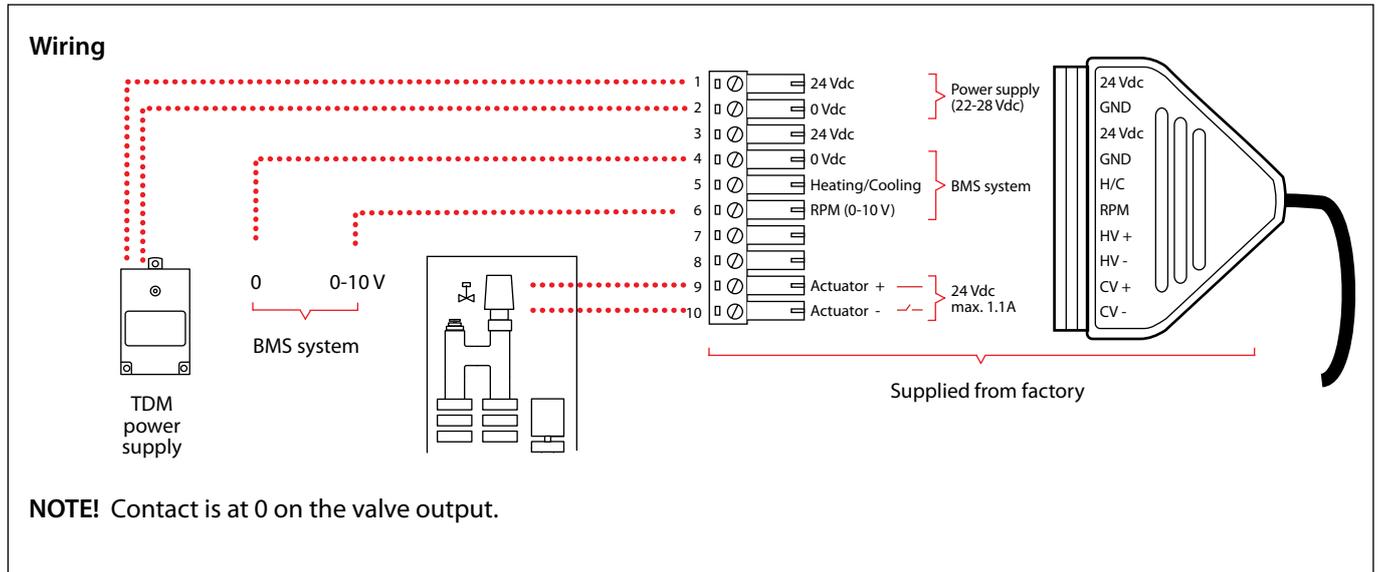
### Technical information - CHR room thermostat

Voltage supply	24 Vdc +4V, -2V
Power consumption	6 mA
Temperature adjustment	5 - 30 °C
P-band, xP	0.5 °C
Adjustment of the fan motor's max. rpm	1000 - 2400 rpm
Fan motor rpm in boost function	2400 rpm
Protection class	IP20
External temperature	0 - 50 °C
Transportation temperature	-20 -60 °C
Pollution level	Level 2
Ball test temperature	75 °C
Software classification	Class A
Dimensions (l x h x d)	85 x 86 x 42 mm
Weight	0.143 kg
Approvals	73/23/EEC, 89/336/EEC, EN60730-1, EN60730-2-9, EN61000-6-3, EN61000-6-1

## System with BMS control

The heat output from Convec panels can be controlled by a 0-10 V signal from a BMS system. While the BMS system is managing the min. and max. fan speed, the panel's built-in CHM motor control will continue

to perform the panel control, e.g. stopping the motor if the fan is blocked as well as the management of any connected valves.

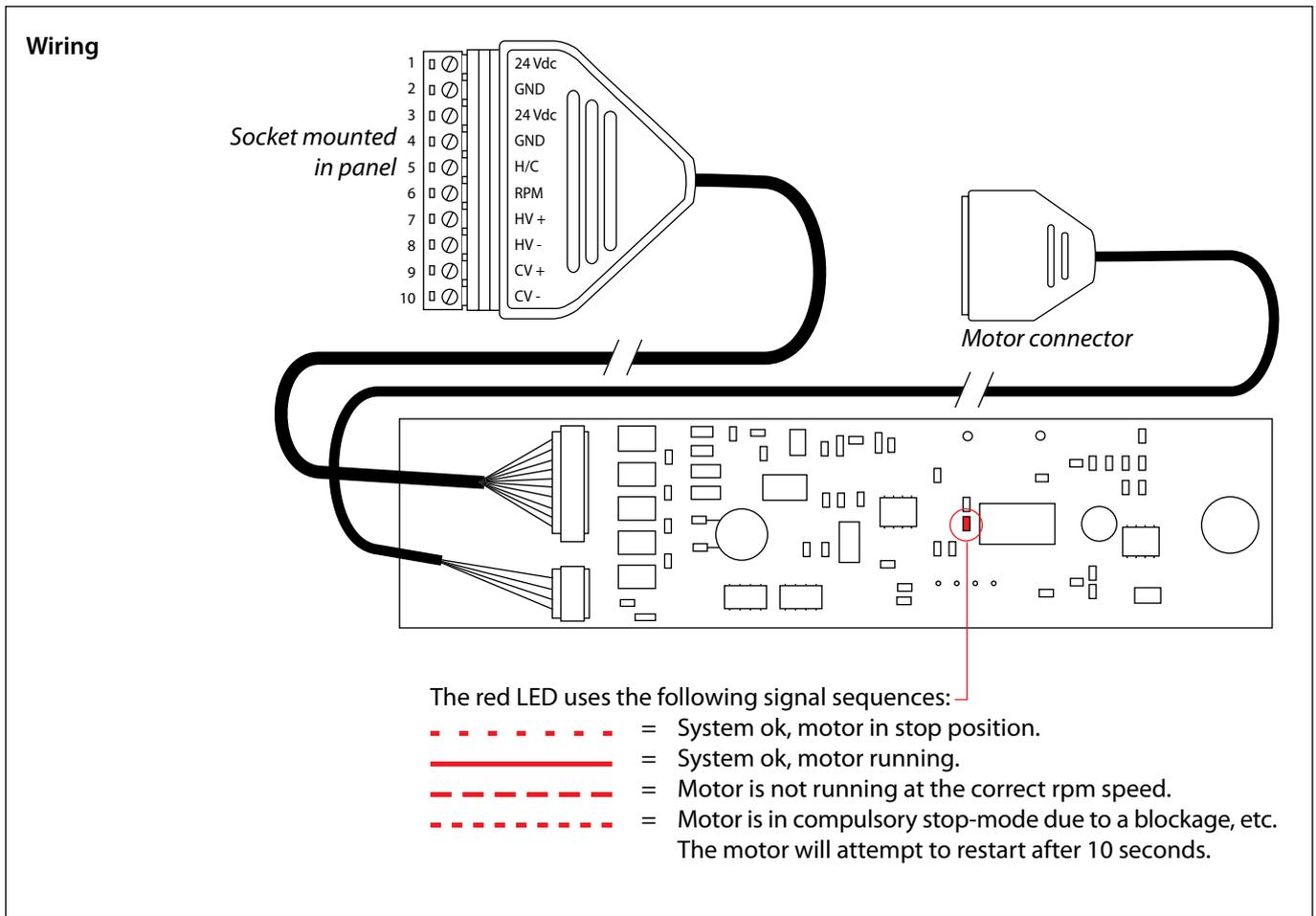


## CHM motor control

The CHM motor control is integrated into the Convec panel and controls the fan motor speed using a 0-10 V signal from a CHR room thermostat or from a BMS system. The CHM monitors and controls the fan motor via a 4-lead

cable. If the motor is blocked, it will stop and then attempt to restart after 10 seconds.

CHM motor control can also activate a thermal actuator (e.g. TWA-A (NC)) to supply water to the Convec panel.



### Technical data - CHM motor control

Power supply	24 Vdc (+4 V / -2 V)
Power consumption	11 mA
Actuator output	24 Vdc, max. 1.1 mA
Protection class	IP54
External temperature	0 - 50 °C
Transportation temperature	-20 - 60 °C
Pollution level	Level 2
Software classification	Class A
Dimensions (l x h x d)	120 x 29 x 9 mm
Weight	140 g
Approvals	73/23/EEC, 89/336/EEC, EN60730-1, EN60730-2-9, EN61000-6-3, EN61000-6-1

## TDM power supply

The TDM power supply supplies 24 Vdc to the Convec panels.

The TDM is available in two versions with a maximum load of 1A and 3 A respectively.

The TDM is mounted directly onto a wall or ceiling.

The TDM is double isolated and meets the EN 61558-2-6 standard.

### Dimensioning - TDM power supply

Panel length	Max. power consumption
1000 - 1199 mm	0.04 A
1200 - 1399 mm	0.06 A
1400 - 1599 mm	0.10 A
1600 - 1799 mm	0.13 A
1800 - 1999 mm	0.17 A
2000 - 2199 mm	0.22 A
2200 - 2399 mm	0.25 A
2400 - 2599 mm	0.30 A
2600 - 2799 mm	0.36 A
2800 - 2999 mm	0.39 A
3000 - 3199 mm	0.42 A
3200 - 3399 mm	0.45 A
3400 - 3500 mm	0.49 A

For panel variants ST and RT 0.25 A must be added to cover the power consumption for the TWA-A actuator.

#### Example:

Panel 1, 1450 mm . . . . . 0.10 A  
 Panel 2, 2550 mm . . . . . 0.30 A  
 Panel 3 (type RT), 3500 mm . . . . 0.25 A + 0.49 A  
 Panel 4, 3500 mm . . . . . 0.49 A  
 Panel 5, 3500 mm . . . . . 0.49 A

**Total power consumption . . . . . 2.12 A**

The power supply can be chosen as 1 x TDM - 3A (088H4541) or 3 x TDM - 1A (088H4394).

If TDM - 1A are chosen, they must all carry loads below 1A.

### Technical data - TDM power supply

	1A	3A
Voltage input	230 Vac, 50/60 Hz	230 Vac, 50/60 Hz
Voltage output	24 Vdc	24 Vdc
Power	24 VA	75 VA
Efficiency	> 77%	> 77%
Ripple	< 5% RMS	< 5% RMS
External temperature	Max. 40 °C	Max. 40 °C
Protection class	IP 44	IP 44
Dimensions (l x w x d)	124 x 73 x 61 mm	153 x 106 x 98 mm

*If any other power supply is used for Convec comfort panels, make sure the output is within a range of 22 V - 28 V and the ripple is <5% RMS.*

## Wiring

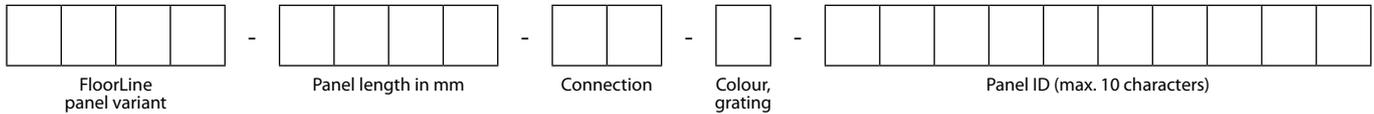
	from CHM motor control to CHR room thermostat / BMS system	from CHM motor control to TDM 1A power supply	from CHM motor control to TDM 3A power supply
Cable 0.25 mm <sup>2</sup>	max. 50 m	max. 14 m	max. 5 m
Cable 0.50 mm <sup>2</sup>	max. 50 m	max. 28 m	max. 10 m
Cable 0.75 mm <sup>2</sup>	max. 50 m	max. 42 m	max. 14 m
Cable 1.0 mm <sup>2</sup>	max. 50 m	max. 56 m	max. 19 m

## Ordering FloorLine Panels

FloorLine panel is ordered using a unique panel job number, which defines panel variant, length, colour, etc.

The panel order number is created simply and easily using the panel codes below.

### Creating a panel order number



### Panel order number codes

**FloorLine panel variants**

- FLS ..... FloorLine, stand-alone panel
- FLST..... FloorLine, stand-alone panel with TWA-A thermal actuator
- FLC..... FloorLine, connection panel
- FLE..... FloorLine, panel extension
- FLR..... FloorLine, return panel
- FLRT..... FloorLine, return panel with TWA-A thermal actuator
- FLL..... FloorLine, series connection panel
- FLF..... FloorLine, end panel

**Connection**

- L ..... Left connection
- R ..... Right connection
- EL ..... Empty panel without tubing or power, left connection
- ER ..... Empty panel without tubing or power, right connection

**Colour, grating**

- B ..... Black anodized
- A ..... Aluminium anodized

**Panel ID**                    XXXX .... Choose your own unique panel description , e.g. HALL002 or ROOM232-03

**Example**

A FloorLine connection panel with a length of 2750 mm, right connection and black grating to be used in room 23 as panel number 1 can be defined with the following panel order number:

**FLC-2750-R-B-ROOM23POS1**

### Accessories

Description	Code number
FloorLine Corner-B (black grating), no tubing, can be used as both internal and external corner	088H4022
FloorLine Corner-A (alu. grating), no tubing, can be used as both internal and external corner	088H4023
CHR room thermostat	088H4050
TDM power supply, 24 Vdc , 1 A, class 2 transformer	088H4394
TDM power supply, 24 Vdc , 3 A, class 2 transformer	088H4541
Opener	088H4820
Open ring spanner, 24 mm	088H4821
Fan	088H4803
Bearing block	088H4802
Motor, right	088H4800
Motor, left	088H4801
CHM motor control	088H4051

## Placing orders

In order to comply with your request for Convec FloorLine panels we need to have the following information:

- Customer's (person placing order) name and address.
- Delivery address.
- Requisition number and billing address.
- Desired date of delivery.
- Panel order number.

For further information on Convec FloorLine panels please contact:

MEINERTZ A/S  
Sverigesvej 11  
DK-8660 Skanderborg  
Phone +45 8652 1811  
Fax +45 8652 1515  
[www.meinertz.com](http://www.meinertz.com)