



DPC_{front} Temperature control device family

Features

- Dual display (setpoint/actual value display)
- Wide-range voltage input
- Sensor monitoring
- Programmable with CodeKey
- Can be used in conjunction with Pt100 Ex, for temperature regulation in explosion-protected heating circuits

DPC_{front} Standard

- Pre-parameterisation as two-position controller
- Also usable as a PID controller
- Pt100, mV standard signals, thermocouples

DPC_{front} Komfort

- Pre-parameterisation as a PID controller
- Also usable as a two-position controller
- Pt100, mV standard signals, thermocouples
- Process-value feedback through 4 - 20 mA analog output

DPC_{front} Monitor

- Pre-parameterisation as a PID controller
- Monitor version with heating current monitoring
- Universal measuring input
- Process-value feedback through 4 - 20 mA analog output
- RS485-interface/Modbus RTU

Description

The new DPC_{front} temperature control device series currently consists of three standardised temperature control devices that are adapted to the (trace) heating applications.

Thanks to the use of a dual display the two important temperature readings (setpoint and actual value) can be seen at a glance. At the touch of a button, the regulation's output power is displayed. This function allows an evaluation of the heating circuit quality.

The control devices can function as two-point ON/OFF control devices or PID control devices. If desired, the autotuning function in all devices will automatically determine the optimum (PID) adjusting parameters for the control path. In all models the regulation can be switched off for maintenance work by pressing a button.

On account of the wide-range voltage input the devices can be used almost everywhere in the world.

Assembly

The control device is fitted into the front panel. The compact dimensions of the front (48 x 48 mm) allow a space-saving control cabinet design. The electrical connection is set up through terminal screws on the rear.

Function

Temperature alterations in the sensor being used are evaluated in the DPC_{front} and shown as temperature readings on the top LED display. If the reading falls short of or exceeds the temperature value that can be seen in the bottom LED display, the output being used will automatically switch itself on or off or set the manipulated variable to the required value. To monitor the temperature, a high & low alarm function is pre-programmed.

The devices detect malfunctioning at the sensor and in the control circuit and report these as faults. Each type of alarm is signalled as a group alarm via a relay.

Technical data

Operating temperature range
0 °C up to +50 °C

Storage temperature
-10 °C up to +60 °C

Dimensions (length x width x depth)
48 mm x 48 mm x 108 mm

Installation
Front panel
(Cut-out 45.5 mm x 45.5 mm)

Weight
180 g

Protection class
IP 54 or IP 65 with installation sealing

Terminals
Terminal screws 2 x 1.5 mm²

Enclosure material
Plastic UL 94 V0

Electrical data

Nominal voltage
AC 100 V to AC 240 V +/- 10 %
50/60 Hz



DPC_{front} Komfort

Features

- Convenience version of the temperature control devices with process-value feedback over 4 to 20 mA analog output
- Logic output for SSR
- Universal measuring input
- Pre-parameterisation as PID control device
- Very good measuring accuracy

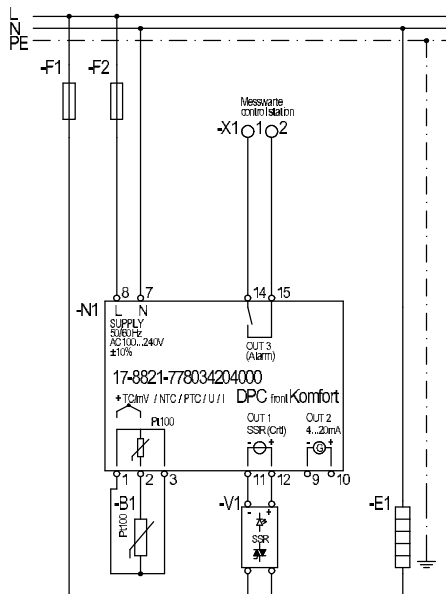
Description

The DPC_{front} Komfort temperature control device is designed with extra convenient features. In the factory setting it works as a PID Control device with a logic output and a relay output. As an alternative, the same device can also be used as a ON/OFF controller.

For regulation the device uses a logic output for solid state relays. The relay output is used for alarm signalling. The functions high and low alarm, sensor monitoring and heating circuit monitoring offer additional safety for the temperature regulation.

When using the device with the factory setting, a simple setup with just a few buttons is used to start operation for the first time. It is only necessary to set the setpoint, analog output limits, low alarm, and if required, high alarm.

Circuit diagram



Technical data

Control characteristics	PID; alternatively two-position (ON/OFF)	
Sensor input	Pt100, NTC, PTC Standard signals 4 to 20 mA; 0/1 to 5 V, 0/2 to 10 V Standard signals 0 to 50 mV, 0 to 60 mV, 12 to 60 mV Thermocouple J, K, S (etc.)	
Input impedance	at 4 to 20 mA	51 Ω
	at mV	1 MΩ
Measuring ranges	depending on the sensor version	
Measuring accuracy	with resistance thermometers ± 0.15 % of actual value or ± 1 °C; (the higher value applies) ± 1 digit	
	with thermocouples ± 0.15 % of actual value or ± 1 °C; (the higher value applies) ± 1 digit (see in addition reference junction accuracy)	
	with standard signals ± 0.15 % of actual value ± 1 digit	

Accuracy of reference junction with thermocouple measurements
0.04 °C for each °C of the control device's operating temperature (after 20 min. of the control device's operating time)

Sampling frequency at the sensor input
7.5 Hz

Output 1
Logic output for SSR control
(DC 20 V/20 mA)

Output 2
Analog output 4 to 20 mA,
maximum load: 300 Ω

Output 3
Relay output 1 normally open contact
(5 A - AC 1, 250 V)

Output auxiliary supply DC 12 V/max. 20 mA

Electrical service life of the relay outputs
at least 100.000 witching cycles

Protection class II

Power consumption max. 5 SS
(depending on connection of outputs)

Weight 0.2 kg

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