



DPC III Standard
DPC III Monitor

The DPC III temperature controller series consists of two standardised temperature controllers which are suited to (trace) heating applications. The digital controller monitors measuring circuits for sensor failures, interruption or short circuit and under-range and over-range measurements in order to ensure process reliability. The DPC III can be used universally as an ON/OFF or PID controller. The integrated wide-range voltage input allows the devices to be used practically anywhere in the world.

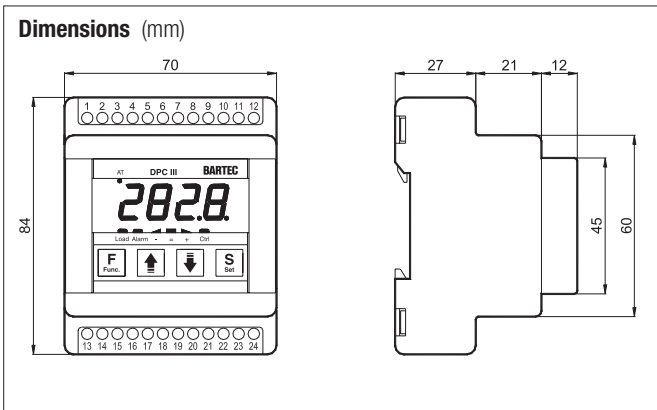
- Optimised for trace heating applications
- Universal power supply
- Sensor monitoring
- Programmable with CodeKey
- Can be used in conjunction with Pt100 Ex for temperature regulation in explosion-protected heating circuits

Assembly

The DPC III is integrated in a snap-on housing for TS 35 DIN rail mounting. Pt100 resistance thermometers and thermocouples are connected at the measuring input. The controller is equipped with a 16 A load relay for ON/OFF control, an 8 A group error message relay, a logical voltage output for the PID control and two programmable digital inputs. The voltage for the controller is supplied through an integrated power pack with universal power supply. The electrical connection is established with terminal screws operating on the screw cage clamp principle.

Function

Changes in temperature at the Pt100 sensor are evaluated in the DPC III and are visible as temperature readings on the LED display. If a deviation from the preset level is detected, the device regulates the heating circuit of the trace heating in accordance with the pre-selected control characteristic (ON/OFF or PID). An auto-tuning function, available for the PID control, analyses the control path (heating circuit) and automatically determines and saves the PID control parameters. The control's output power can be displayed at the touch of a button. One of the benefits of this function is the possibility of evaluating the quality of the heating circuit. In addition to the control parameters, customized high- and low-temperature alarms can be set by the operators. For servicing purposes, the heating circuit can be switched off on the device or through digital input. The temperature alarms can also be disabled. The process reliability is further enhanced by the control circuit's additional monitoring functions and the connected measurement sensor. The programming interface allows the device parameters to be read out with a code key and transferred to other controllers. For effective parameter protection a multi-stage password management system can be activated. Furthermore, the manual control or soft start functions can be activated for the system start-up.





- Pre-defined parameters for two-position controller
- Easy setup, fast commissioning
- Load relay/alarm relay/logic output for semi-conductor relay

The DPC III Standard Temperature Controller is a basic controller, which in the factory setting can be used as a two-position controller with two-relay outputs for control and alarm signalling for standard applications. Due to the default basic setting only the setpoint and the alarm level(s) need to be set. The easy start-up function makes this extremely user-friendly. As an alternative, the same device can also be used as a controller with PID control characteristics and an external semi-conductor relay.

Technical data

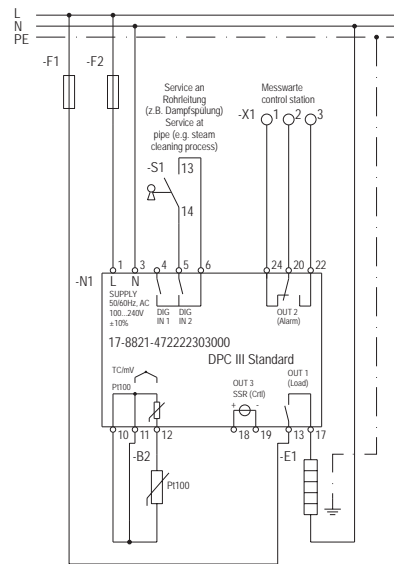
Control characteristic	ON/OFF, PID
Sensor input	Pt100, mV Standard signals Thermocouple J, K, S
Inputs impedance	at mV: 1 MΩ
Measuring ranges	depending on the sensor version
Measuring accuracy with resistance thermometers	(±0.5 % of the actual level or ±1 °C; the higher level applies) ±1 digit
with thermocouples	(±0.5 % of the actual level or ±1 °C; the higher level applies) ±1 digit (see additional reference junction accuracy)
Accuracy of the reference junction with thermocouple measurement	0.04 °C for each °C of the controller's operating temperature (after 20 min. of controller operating time)
Sampling frequency at the sensor input	7.5 Hz
Ambient temperature range	0 °C to +50 °C
Weight	0.2 kg
Digital input	two, non-floating, i. e. floating contact(s) required (contact loadability minimum 5 V, 5 mA)
Output 1	Relay output 1 normally open contact (16 A - AC 1, 250 V)
Output 2	Relay output 1 change-over contact (8 A - AC 1, 250 V)
Output 3	Logic output for SSR control (DC 11 V/20 mA)
Electrical service life of the relay outputs	At least 100,000 switching cycles
Protection class	II
Power consumption	max. 5 VA (depending on the output connection)

Ordering information

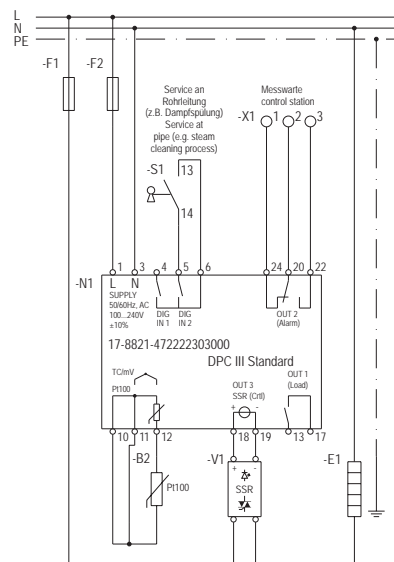
Supply voltage	Order no.
AC 100 to 240 V	17-8821-4722/22303000
AC/DC 24 V	17-8821-4C22/22303000

Technical data subject to change without notice.

Circuit diagram DPC III Standard as two-position controller



Circuit diagram DPC III Standard as PID controller





- Pre-defined parameters for two-position controller
- Easy setup, fast commissioning
- Load relay/alarm relay/logic output for semi-conductor relay
- RS 485 Modbus

The DPC III Monitor Temperature Controller is a basic controller which in the factory setting can be used as a ON/OFF controller with two relay outputs for control and alarm signalling for standard applications. Due to the default basic setting only the setpoint and the alarm level(s) need to be set. The easy start-up function makes this extremely user-friendly. As an alternative, the same device can also be used as a controller with PID control characteristics and an external semi-conductor relay. The monitor version is equipped with an RS485 interface and MODBUS protocol.

Technical data

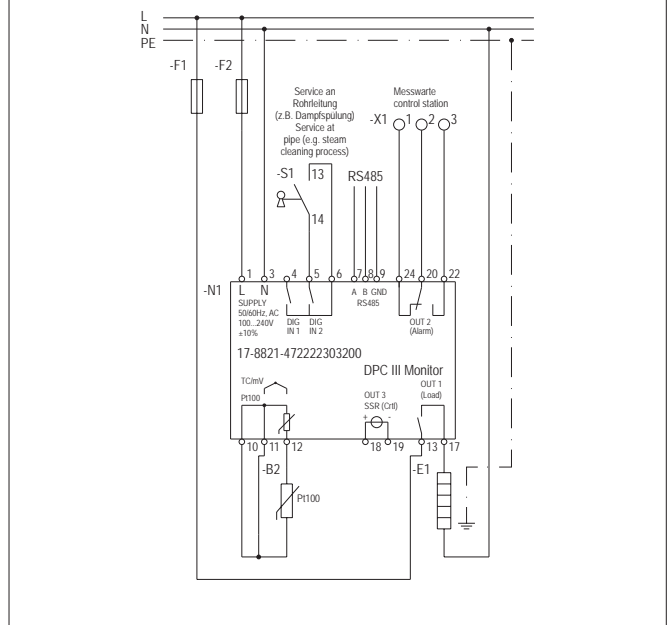
Control characteristic	ON/OFF, PID
Sensor input	Pt100, mV Standard signals Thermocouple J, K, S
Inputs impedance	at mV: 1 MΩ
Measuring ranges	depending on the sensor version
Measuring accuracy at resistance thermometers	(± 0.5 % of the actual level or ± 1 °C; the higher level applies) ± 1 digit
with thermocouples	(± 0.5 % of the actual level or ± 1 °C; the higher level applies) ± 1 digit (see additional reference junction accuracy)
Accuracy of the reference junction with thermocouple measuring	0.04 °C for each °C of the controller's operating temperature (after 20 min. of controller operating time)
Sampling frequency at the sensor input	7.5 Hz
Ambient temperature	0 °C to +50 °C
Weight	0.2 kg
Digital input	two, non-floating, i. e. floating contact(s) required (Contact loadability at least 5 V, 5 mA)
Output 1	Relay output 1 normally open contact (16 A - AC 1, 250 V)
Output 2	Relay output 1 change-over contact (8 A - AC 1, 250 V)
Output 3	Logic output for SSR control (DC 11 V/20 mA)
Electrical service life of the relay outputs	At least 100,000 switching cycles
Protection class	II
Power consumption	Max. 5 VA (depending on the connection of the outputs)
Interface	RS485 (optically isolated)
Communication protocol	Modbus RTU
Transmission speed	1200 to 38400 bauds

Ordering information

Supply voltage	Order no.
AC 100 to 240 V	17-8821-4722/22303200
AC/DC 24 V	17-8821-4C22/22303200

Technical data subject to change without notice.

Circuit diagram DPC III Monitor as two-position controller



Circuit diagram DPC III Monitor as PID Controller

