Pulzon

Temperature controller

User manual

PULZON 12 ZONE 10A230V per zone 2x24 PIN sensor type J / K

Contents:

Safety instructions

Read the operating instructions carefully before use.

Install on a flat, stable surface in a well-ventilated area. Avoid humid, dusty, or hot environments to prevent malfunctions or fire risk.

Operating on the device may only be carried out by qualified personnel
Ensure the device is disconnected from the power supply, before opening the housing.

Before turning on the main power switch, make sure that the system ground (FG) is properly connected. Improper grounding may lead to electrocution of personnel or damage to equipment.

The manufacturer is not liable for damage caused by use of the equipment.

Service instructions

Ensure the device is disconnected from the power supply before replacing the fuse. (Switch off the power and disconnect the plug from the wall outlet.)
Use only a fuse of the same type and rating.

Check that the controller and Mold cable connection type are compatible with each other before connecting. Incompatible connection type poses an electrocution hazard and will damage equipment.

Check the mains cable and the tool cable regularly for damage, if it is damaged,use new connecting cable.

Terms of use

Pay attention to connect all wires according to the Drawing
(See page 5)
Use a stranded cable for connecting line for heaters.
A special compensation cable is required for thermocouple! Cables and hybrid cables (Load + probe combined) are available as original accessories.

Description

The temperature controller is designed for 400V power supply and comes with a CEE16A plug.

The temperature controller allows for sensor selection between Type J / K input, offering flexibility for different application requirements.

The main power switch is located on the front panel, ensuring complete disconnection from the power supply when turned off. A 16-pin connector is located on the rear side of the controller.

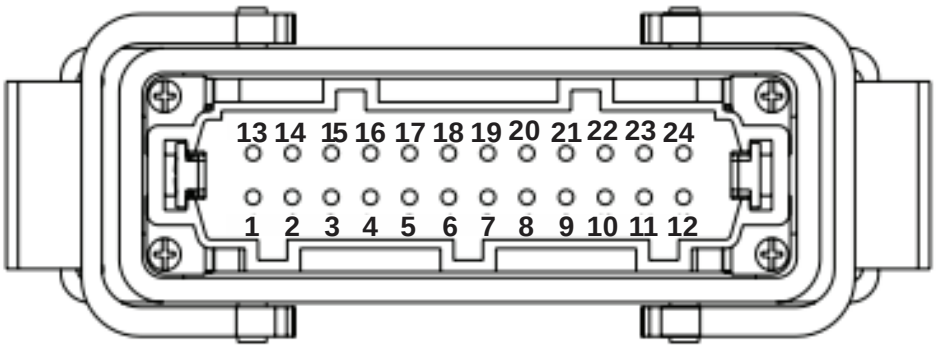
The controller is preconfigured with an autotuning function, which automatically calculates the optimal PID parameters to ensure precise temperature control.

In the event of a sensor failure during automatic operation, the controller automatically switches to Manual mode while maintaining the most recent PID-generated output percentage, ensuring continued process stability.

Power and Thermocuple connector

24 pin ILME Connector CNEF 24 / CHI 24
Thermocouple type J / K

1-6 zones

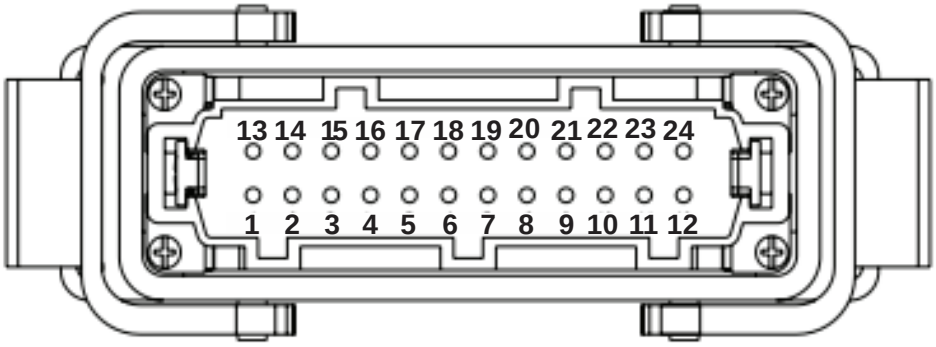


Zones	Heaters		Thermocouples	
	Pin L	Pin N	Pin+	Pin-
1	1	2	13	14
2	3	4	15	16
3	5	6	17	18
4	7	8	18	20
5	9	10	21	22
6	11	12	23	24

Power and Thermocuple connector

24 pin ILME Connector CNEF 24 / CHI 24
Thermocouple type J / K

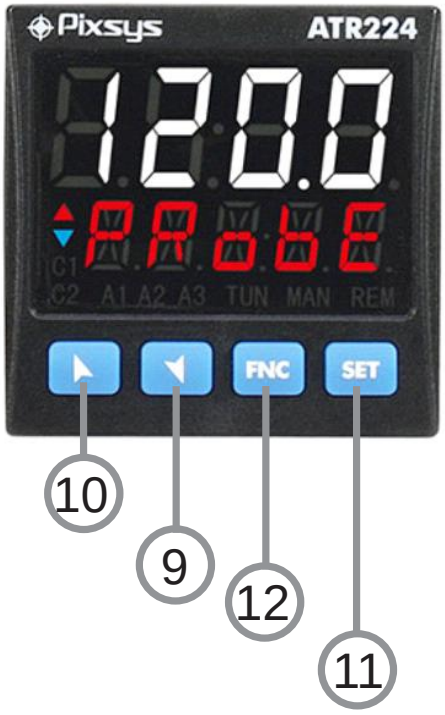
7-12 zones



Zones	Heaters		Thermocouples	
	Pin L	Pin N	Pin+	Pin-
7	1	2	13	14
8	3	4	15	16
9	5	6	17	18
10	7	8	18	20
11	9	10	21	22
12	11	12	23	24

Display and key function

	Display	Description
1	Display1	Actual value display in WHITE digits. During configuration, it shows the active parameter
2	Display2	Setpoint display in RED digits. During setup, the controller shows the value being entered
3	C1	ON when the output is switched.
4	A1	ON when Alarm 1 is switched on.
5	A2	ON when Alarm 2 is switched on.
6	TUN	ON when the controller is running in the "autotuning" cycle.
7	MAN	ON when the "Manual" function is active
8	REM	ON when the controller communicates via interface.



	Keys	Description
9		Adjustment (decrease) of setpoint. During configuration, pressing the button will advance to the next parameter.
10		Adjustment (increase) of the setpoint. During configuration, pressing the button advances to the next parameter.
11		Allows to display the alarm setpoint and runs the autotuning function
12		Allows to run the Autotuning and to select Manual / Automatic mode

Thermocouple Settings

The temperature sensor can be adjusted using the buttons as follows:

	Keys	Display	Function
1	FNC for 3 sec	Display 1: PASS Display 2: 0000	Enter the password
2		Enter password: 1234	With  enter number, with SET jump one digit further. Finally with FNC confirm
3	1 time SET	Display: Sen_ Display 2: tc.K	
4	Press SET and  or 	Display 1: Sen1 Display 2: "e.g." tc. K flashes	Select the temperature sensor using the arrow keys.
	Press SET		To confirm selection of thermocouple
5	Press FNC 2x		Exit the menu

Sensor type:		Range:
tc. K	Type K / NiChNi	-260 to 1360 °C
tcJ	Type J / FeCuNi	-200 to 1200 °C

Modifying Main Setpoint

The setpoint value can be changed from the keyboard as follows:

	Press:	Display	Do:
1	 or 	Change the value on Display 2	Increases or decreases the main setpoint

Autotuning

The controller is equipped with an automatic tuning feature that enables precise regulation without requiring in-depth knowledge of PID control algorithms.

It analyzes process oscillations and automatically optimizes the PID parameters for improved performance.

*Led **TUN** flashes when Autotuning function is active*

Automatic/manual settings for the % output

The procedure can be activated by keyboard

This function allows to select Automatic functioning or Manual command of the output percentage.

Pressing the FNC key, Display 1 shows *P.----*, while display 2 shows »AutoM«

Press the button SET to set “MAN” mode; now it's possible to change the output power percentage value using the keys  or  .

MAN *LED goes on and the function switches to Manual mode*

To return to automatic mode, use the same procedure, press FNC key then press SET to select »AutoM« on Display 2.

MAN *LED goes out and the function switches to Automatic mode.*

If the sensor breaks during Automatic functioning, controller moves to Manual mode while maintaining the output percentage command unchanged as generated by the PID immediately before breakage. If there is a temporary power failure or after switch-off ,manual functioning as well as the previous output percentage value will be maintained at restarting

Error messages

In case of malfunctioning of the system, the controller switches off the regulation output and displays the type of problem

#	Cause	What to do
E-02 SYSTEM Error	Cold junction Temperature sensor failure or environment temperature out of range	Call Assistance
E-04 eeprom Error	Incorrect configuration data. Possible loss of instrument calibration	Verify that configuration parameters are correct.
E-05 PRobe 1 Error	Sensor broken or temperature out of range	Control connection with probes and their integrity.
E-08 SYSTEM Error	Missing calibration	Call Assistance
E-80 rfid Error	Tag rfid malfunctioning	Call Assistance

Technical data

Housing: Metal enclosure, powder-coated Dimensions (W x H x D) in mm: 330x360x190

Temperature Controller: ATR224 Microprocessor-controlled controller in 48x48mm, modular design, with fully automatic system, individual setpoint and actual value with two 4-digit LED display, status alarm LEDs, and FNC key for switch-over to manual mode

Thermocouple Input: J / K

Power Outputs: 230V, max. 2000W per zone, with built in 50A solid state relay

Maximum output power: 24,0 kW

Fuse: fast FF 10A, 6.3 x 32 mm

Heater & TC Connection: 2x24 PIN connector plug ILME/HARTING

Mains Supply: 400 VAC, 50Hz, 3P / N / PE

Mains Connection: Mains cable with 3 m shock-proof connector CEE32

Ambient Temperature: Operation: 0...+55°C

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