PDI 409
PID Controller

PDI 409

- **48x48 mm case, for flush-in panel mounting**
- **°C/°F unit selectable for temperature probe**
- **3 outputs status LEDs**
- **Automatic Control, Bumpless Manual Control or Control OFF mode**
- **FAST AUTOTUNING, SELFTUNING**
- **FUZZY OVERSHOOT CONTROL parameter function for PID mode**
- **Soft Start, Loop-Break Alarm function enable**
- **Reaching of the set point at controlled speed, rump and dwell function and automatic set points switching function**
- **Protection compressor function for Neutral Zone control**

Product Description

Digital microprocessor based controller with dual display, 4 red + 4 green digits and 4 operation bottons , designed for different application such as Plastics Industries, Thermal Equipment, Packaging Machinery, Textile/die processing machinery, generic cooling/heating process, water chillers, eat recovery system, Chemical, etc. Up to 4 configurable set points, a configurable multi input and up to 3 configurable outputs for relay or solid state relay (SSR) driving. Different alarm output configuration available.

The device incorporates different control modes: ON/OFF, single or double (direct and reverse) action PID or NEUTRAL ZONE control. Particular PID control algorithm with TWO DEGREES OF FREEDOM for optimizing instrument's features independently of the event of process disturbances and Set Point variations.

Multi-level parameters programming protected by password. Easy parameters configuration and storage by KEY.

Ordering Key

PDI409 H C O R X

Model
Power Supply
Input Signal
Main output OUT1
Second output OUT2
Third output OUT3

Approvals

Type Selection

Power Supply		Input Signal		Main output OUT1		Second output OUT2		Third output OUT3	
H:	100...240VAC	**V:**	0/1-5 0/2-10 VDC	**R:**	8A-AC1, 3A-AC3 / 250VAC Relay	**X:**	No	**X:**	No
L:	24VAC/DC	**I :**	0/4-20 mA	**O:**	8mA/8VDC for SSR	**R:**	8A-AC1, 3A-AC3 / 250VAC Relay	**R:**	5A-AC1, 2A-AC3 / 250VAC Relay
		E:	TC (J, K, S, I R), PTC, NTC, mV			**O:**	8mA/8VDC for SSR	**O:**	8mA/8VDC for SSR
		C:	TC (J, K, S, I R), Pt100, mV						

Input Data

One multi-configurable Input	
Thermocouples	TC J, K, S - According to IEC 584-2, accuracy class 1 or 2
Infrared Thermocouples	IRS J and K
Thermoresistance	RTD Pt100 According to IEC 751, accuracy class A or B
Thermistors	PTC KTY81-121 (990 Ω at 25°C) NTC 103AT-2 (10kΩ at 25°C)
Normalized analogue signals	0-50 mV, 0-60mV, 12-60 mV 0/4-20 mA 0/1V, 0/1-5 V, 0/2-10 V
Normalized signals input impedance	for 0/4...20 mA input: 51Ω for mV and V input: 1MΩ

Output Data

Up to three Outputs	
Relay	OUT1 and OUT2 up to 2xSPST-NO (8A-AC1, 3A-AC3 / 250VAC) OUT3 1x SPST-NO 5A-AC1,2A-AC3 / 250VAC
Relay electric life	100000 operations
Voltage SSR driving	8mA at 8VDC protected against short circuits
Auxiliary power supply Output	10VDC / 20mA max

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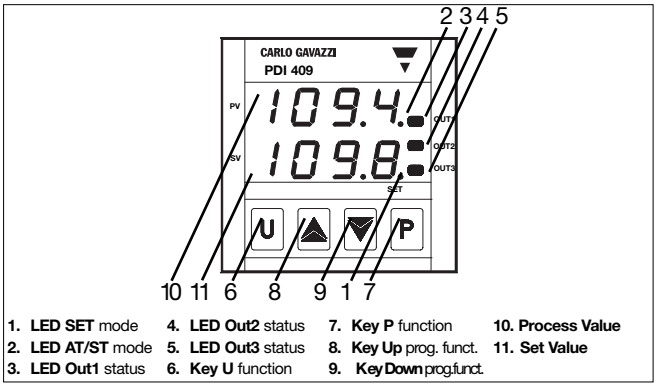
Functional Data

Control	ON/OFF, Neutral Zone, PID single and double action programmable
Multi Set Points	Up to 4 programmable Set Points
Overall accuracy	±0.5% full scale, ±1%TC-S
Display resolution	According to the used probe 1/0,1/0,01/0,001
Input measurement range	According to the used probe and to the measurement unit
Max cold junction compensation drift	0.04 °C/°C with operating temperature 0...50 °C after warm-up time of 20min.
Sampling rate	8 samples per second
Display	4 red + 4 green digits h=7 mm
Parameter access	Protected by password
Fast parameters programming	By using programming PDI-KEY
Operating temperature	0-50 °C
Operating humidity	30-95 RH% without condensation

General Data

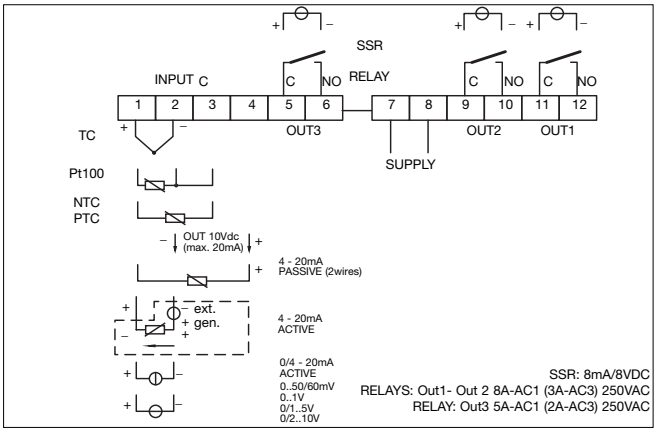
Mechanical Charactistics	
Housing	Self-extinguishing plastic, UL94 V0
Connections	2x1mm² screw terminal block
Mounting	Flush in panel cut out 45x45mm
Front panel protection	IP54 mounted in panel with gasket
Dimensions	W 48 x H 48 x D 98mm
Weight	150g
Storage temperature	-10°C to +60°C
Electrical Data	
Power Supply	24VAC/VDC, 100-240VAC +/-10%
AC Frequency	50 / 60Hz
Power consumption	5VA approx.
Installation category	II
Measurement category	I
Electric shock protection class	Class II for Front panel
Insulation	Reinforced insulation between the low voltage section (power supply and relay outputs) and the front panel or between the low voltage section (power supply and relay outputs) and the extra low voltage section (inputs and SSR outputs); no insulation between SSR outputs and input.

Front Panel Description

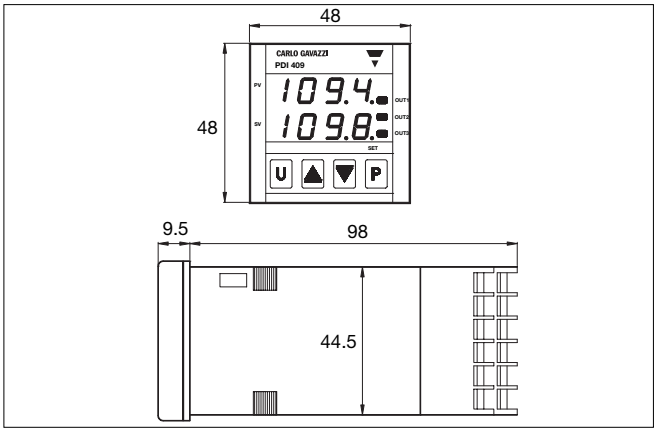


1. **LED SET** mode
2. **LED AT/ST** mode
3. **LED Out1** status
4. **LED Out2** status
5. **LED Out3** status
6. **Key U** function
7. **Key P** function
8. **Key Up** prog. funct.
9. **Key Down** prog.funct.
10. **Process Value**
11. **Set Value**

Connections



Dimensions (mm)



Panel Cut Out (mm)