

# PDI 420 PID Controller

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- 48x48 mm case, for flush-in panel mounting
- °C/°F unit selectable for temperature probe
- 4 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 point switching function
- Protection compressor function for Neutral Zone control
- Current Transformer Input for Heater Break Alarm
- RS485 serial communication (MODBUS RTU protocol)

## Product Description

Digital microprocessor based controller with dual display, 4 red + 4 green digits and 4 operation buttons, 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 4 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 PDI420 H O O R R S H

Model \_\_\_\_\_  
Power Supply \_\_\_\_\_  
Main Output OUT1 \_\_\_\_\_  
Second Output OUT2 \_\_\_\_\_  
Third Output OUT3 \_\_\_\_\_  
Fourth Output OUT4 \_\_\_\_\_  
Serial Communication RS485 \_\_\_\_\_  
Heater Break Alarm HB \_\_\_\_\_

## Approvals



## Type Selection

Power Supply	Main output OUT1	Second output OUT2	Third output OUT3	Fourth output OUT4	Serial Communication RS485	Heater Break Alarm HB
H: 100...240VAC L: 24VAC/DC	R: 5A-AC1, 2A-AC3 / 250VAC Relay O: 7mA/14VDC for SSR	X: No R: 5A-AC1, 2A-AC3 / 250VAC Relay O: 7mA/14VDC for SSR	X: No R: 5A-AC1, 2A-AC3 / 250VAC Relay O: 7mA/14VDC for SSR	X: No R: 5A-AC1, 2A-AC3 / 250VAC Relay O: 7mA/14VDC for SSR	X: No S: RS485	X: No H: CT input

## Input Data

One Universal 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 $\Omega$ at 25°C) NTC 103AT-2 (10k $\Omega$ at 25°C)
Normalized analogue signals	0-50 mV, 0-60mV, 12-60 mV 0/4-20 mA 0/1-5 V, 0/2-10 V
Normalized signals input impedance	for 0/4...20 mA input: 51 $\Omega$ for mV and V input: 1M $\Omega$
Current Transformer input	CT (50mA max.)

## Output Data

Up to four Outputs Relay	SPST-NO (5A-AC1, 2A-AC3 / 250VAC)
Relay electric life	100000 operations
Voltage SSR driving for all both outputs	7mA at 14VDC protected against short circuits
Auxiliary power supply Output Note 1:	12VDC / 20mA max OUT1 for SSR can provide 20mA/14VDC if auxiliary output is not used.
Note 2:	OUT3 and OUT4 have to be the same type.
Note 3:	If HB function is available, have to be a relay or SSR output.

Specifications are subject to change without notice. Pictures are just an example. For special features and/or customization, please ask to our sales network.

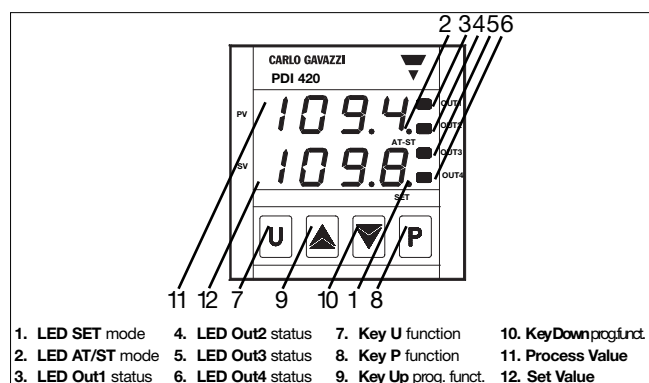
## Functional Data

<b>Control</b>	ON/OFF, Neutral Zone, PID single and double action programmable
<b>Multi Set Points</b>	Up to 4 programmable Set Points
<b>Overall accuracy</b>	±0.15% full scale
<b>Display resolution</b>	According to the used probe 1/0,1/0,01/0,001
<b>Input measurement range</b>	According to the used probe and to the measurement unit
<b>Max cold junction compensation drift</b>	0.04 °C/°C with operating temperature 0...50 °C after warm-up time of 20min.
<b>Sampling rate</b>	8 samples per second
<b>Display</b>	4 red + 4 green digits h=7 mm
<b>Parameter access</b>	Protected by password
<b>Fast parameters programming</b>	By using programming PDI-KEY
<b>Operating temperature</b>	0-50 °C
<b>Operating humidity</b>	30-95 RH% without condensation
<b>Serial Communication</b>	RS485 with MODBUS-RTU (JBUS protocol)
<b>Communication Rate</b>	1200..38400 Baud, selectable

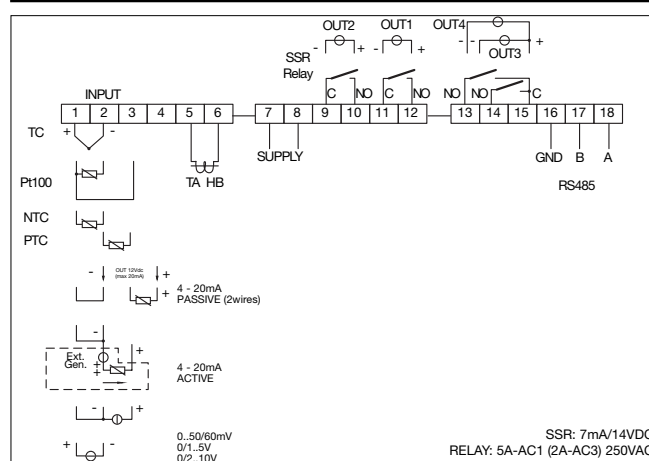
## General Data

<b>Mechanical Characteristics</b>	
<b>Housing</b>	Self-extinguishing plastic, UL94 V0
<b>Connections</b>	2x1mm <sup>2</sup> screw terminal block
<b>Mounting</b>	Flush in panel cut out 45x45mm
<b>Front panel protection</b>	IP54 mounted in panel with gasket
<b>Dimensions</b>	W 48 x H 48 x D 98mm
<b>Weight</b>	190g
<b>Storage temperature</b>	-10°C to +60°C
<b>Electrical Data</b>	
<b>Power Supply</b>	24VAC/VDC, 100-240VAC +/-10%
<b>AC Frequency</b>	50 / 60Hz
<b>Power consumption</b>	9VA approx.
<b>Installation category</b>	II
<b>Measurement category</b>	I
<b>Electric shock protection class</b>	Class II for Front panel
<b>Insulation</b>	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); SSR outputs optoisolated respect to the input. 50V insulation between RS485 and extra low voltage section.

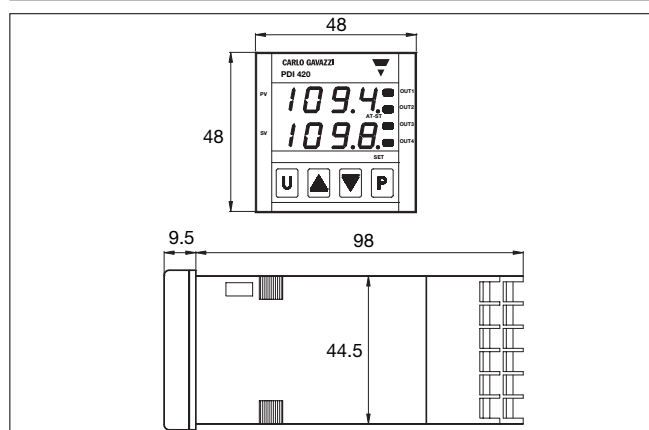
## Front Panel Description



## Connections



## Dimensions (mm)



## Panel Cut Out (mm)

