

# PDI 430 PID Controller



- 48x48 mm case, for flush-in panel mounting
- °C/°F/Reamur 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
- Soft Start, Loop-Break Alarm and Split Range 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)
- Motorized actuators control
- "Control Power" and "Speed Power Variation" limitation
- Analogue signal re-transmission, programmable Digital Input

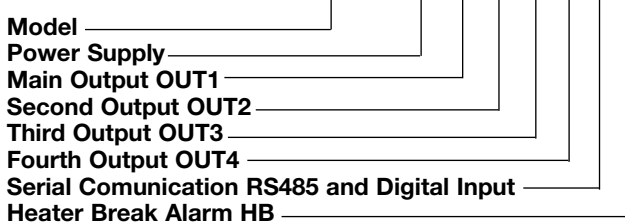
## Product Description

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 also up to 2 analogue (mA-V) outputs. 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. PID for motorized actuators with time positioning 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 **PDI430 L V V R X I X**



## 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 C: 0/4-20mA V: 0/2-10V	X: No R: 5A-AC1, 2A-AC3 / 250VAC Relay O: 7mA/14VDC for SSR C: 0/4-20mA V: 0/2-10V	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 I: RS485 + Digital Input	X: No H: CT Input

## Input Data

**One Universal Input**  
Thermocouples

TC J, K, S, B, C, E, L, N, R, T -  
According to IEC 584-2,  
accuracy class 1 or 2

Infrared Thermocouples  
Thermoresistance

IRS J and K  
RTD Pt100 - According to  
IEC 751, accuracy class A or B  
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  
0/1-5 V, 0/2-10 V

Normalized signals  
input impedance

for 0/4...20 mA input: 51 Ω  
for mV and V input: 1MΩ

1 Current Transformer input

CT (50mA max.)

1 Digital Input

Optoisolated digital input  
for free voltage contact

## Output Data

<b>Up to four Outputs</b>	
Relay (for every outputs)	SPST-NO (5A-AC1, 2A-AC3 / 250VAC)
Relay electric life	100000 operations
Voltage SSR driving (for every outputs)	7mA at 14VDC protected against short circuits
Analogue Output (only OUT1 and OUT2)	0/4..20mA 0/2..10V
Auxiliary power supply Output	12VDC / 20mA max

Note 1:

Note 2:

Note 3:

Note 4:

Note 5:

OUT1 for SSR can provide 20mA/14VDC if auxiliary output is not used.  
OUT3 and OUT4 have to be the same type.  
OUT4 not available if digit input is used.  
If HB function is available, have to be a relay or SSR output.  
HB function not available if analogue control output is used.

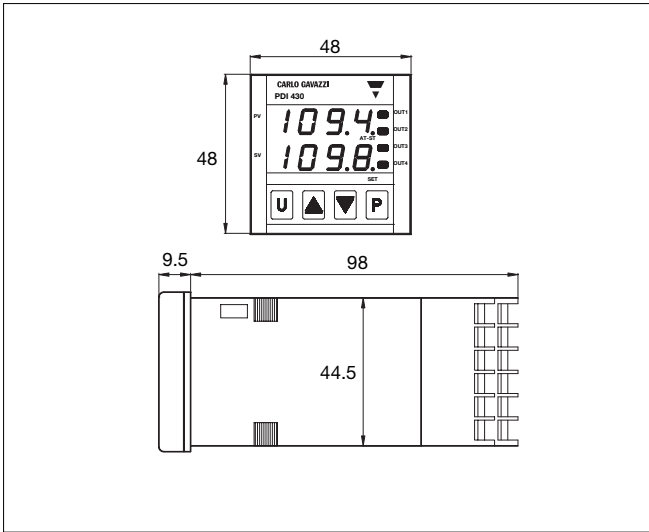
## Functional Data

<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

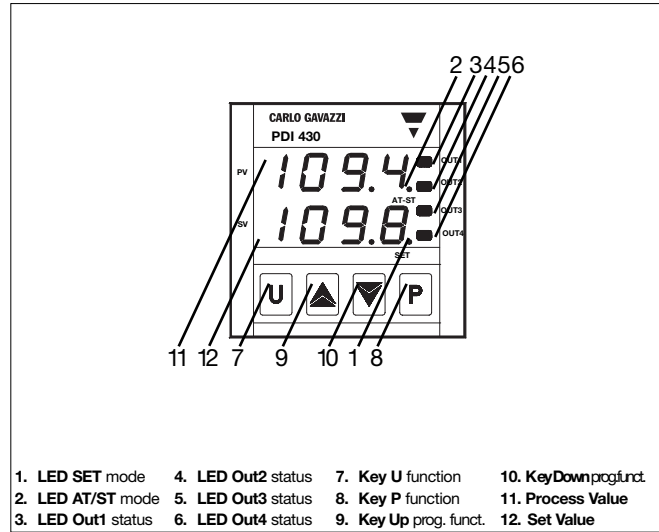
## General Data

<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>	10VA 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.

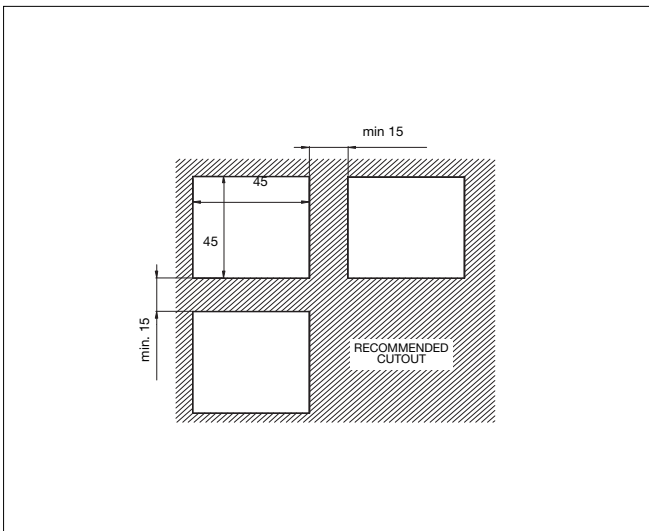
## Dimensions (mm)



## Front Panel Description



## Panel Cut Out (mm)



## Connections

