## PDI 410 PID Controller





- 48x48 mm case, for flush-in panel mounting
- °C/°F unit selectable for temperature probe
- 4 outputs status LEDs, 3 shift index 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 single display, 4 red 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 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 with algorithm **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

# Ordering Key PDI410 H O O R R S H

Model —	
Power Supply————	
Main Output OUT1	
Second Output OUT2	
Third Output OUT3	
Fourth Output OUT4 —	
Serial Comunication RS485 -	
Heater Break Alarm HB ——	

## **Approvals**



## **Type Selection**

Power Supply	Main output OUT1	Second output OUT2	Third output OUT3	Fourth output OUT4	Serial Comunication RS485	Heater Break Alarm HB
H: 100240VAC 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 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 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	for 0/420 mA input: 51Ω
input impedance	for mV and V input: 1MΩ
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	7mA at 14VDC protected
all both outputs	against short circuits
Auxiliary power supply Output	12VDC / 20mA max
Note 1:	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.



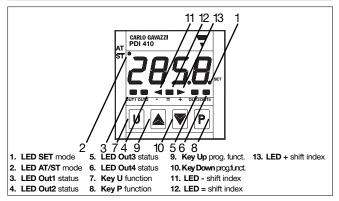
#### **Functional Data**

Control	ON/OFF, Neutral Zone, PID single and double action programmable
Multi Set Points	Up to 4 programmable Set Points
Overall accuracy	±0.15% full scale
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	0.04 °C/°C with operating
compensation drift	temperature 050 °C
	after warm-up time of
	20min.
Sampling rate	8 samples per second
Display	4 red digits h=12mm
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
Serial Communication	RS485 with MODBUS-RTU
	(JBUS protocol)
Communication Rate	120038400 Baud, selectable

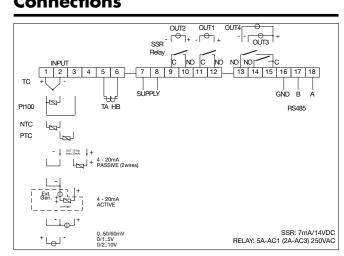
## **General Data**

Mechanical Charactistics	0 16 17 111
Housing	Self-extinguishing plastic,
Commontions	UL94 V0
Connections	2x1mm² screw terminal block
Mounting	Flush in panel
Fuent nend nucleation	cut out 45x45mm
Front panel protection	IP54 mounted in panel
Dimensions	with gasket
Dimensions	W 48 x H 48 x D 98mm
Weight	190g
Storage temperature	-10°C to +60°C
Electrical Data	0.4)/4.0.4/D.0
Power Supply	24VAC/VDC,
10.5	100-240VAC +/-10%
AC Frequency	50 / 60Hz
Power consumption	9VA approx.
Installation category	II
Measurement category	<u> </u>
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); SSR outputs
	optoisolated respect to the
	input. 50V insulation
	between RS485 and extra
	low voltage section.

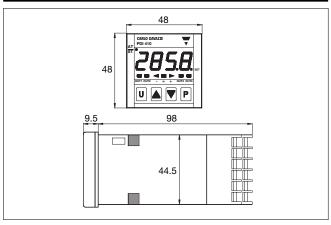
## **Front Panel Description**



#### **Connections**



## **Dimensions (mm)**



# Panel Cut Out (mm)

