PDI 720
PID Controller

CARLO GAVAZZI

PDI 720

- 72x72 mm case, for flush-in panel mounting
- °C/°F unit selectable for temperature probe
- 3 shift programmable index LEDs
- 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, automatic set point switching function, rump and dwell function
- Protection compressor function for Neutral Zone control
- Programmable Digital Input
- RS485 serial communication with MODBUS RTU protocol and transmission speed up to 38.4Kband

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 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

PDI720 H C R R X X X

Model
Power Supply
Input Signal
Main Output OUT1
Second Output OUT2
Third Output OUT3
Serial Comunication RS485
Digital Input

Approvals

CE cULus

Type Selection

Power Supply	Input Signal	Main output OUT1	Second output OUT2	Third output OUT3	Serial Communication RS485	Digital Input
H: 100...240VAC	**V:** 0-1V, 0/1-5 0/2-10 VDC	**R:** 8A-AC1, 3A-AC3 / 250VAC Relay	**X:** No	**X:** No	**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:** 8A-AC1, 3A-AC3 / 250VAC Relay	**S:** RS485	**I:** Digital Input
	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
Digital Input	An optoisolated digital Input for free voltage contact

Output Data

Up to thre Outputs	
Relay	OUT1 SPDT (8A-AC1, 3A-AC3 / 250VAC) OUT2/3 SPST-NO (8A-AC1, 3A-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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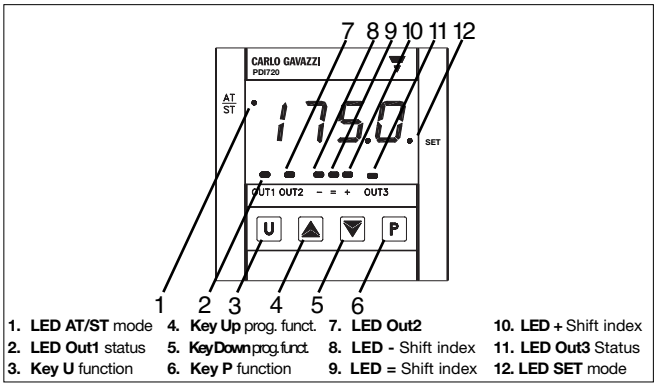
Functional Data

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	0.1 °C/°C with operating temperature 0...50 °C after warm-up time of 20min.
Sampling rate	8 samples per second
Display	4 red digits h=14mm
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	1200..38400 Baud, selectable

General Data

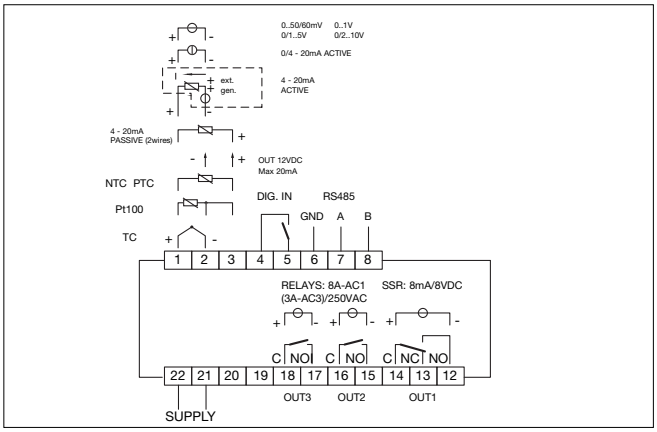
Mechanical Charactistics	
Housing	Self-extinguishing plastic, UL94 V0
Connections	2,5mm^2 screw terminal block
Mounting	Flush in panel cut out 66.5x66.5mm
Front panel protection	IP54 mounted in panel with gasket
Dimensions	W 72 x H 72 x D 97mm
Weight	215g
Storage temperature	-10°C to +60°C
Electrical 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); SSR outputs insulated respect to the input. 50V insulation between RS485 and extra low voltage section.

Front Panel Description

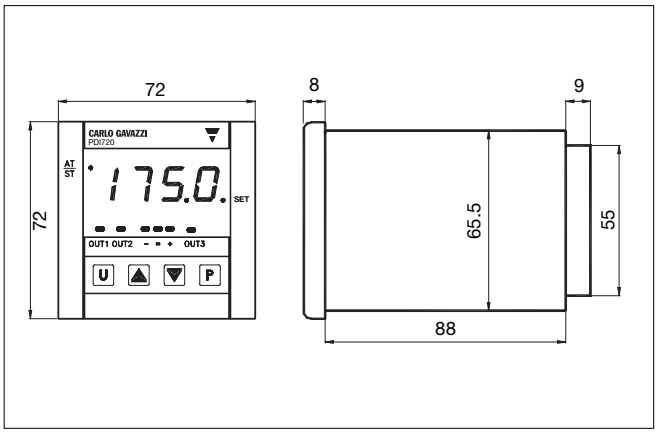


1. **LED AT/ST** mode
2. **LED Out1** status
3. **Key U** function
4. **Key Up** prog. funct.
5. **KeyDown** prog.funct.
6. **Key P** function
7. **LED Out2**
8. **LED -** Shift index
9. **LED =** Shift index
10. **LED +** Shift index
11. **LED Out3** Status
12. **LED SET** mode

Connections



Dimensions (mm)



Panel Cut Out and Mounting (mm)