Universal PID Controller

PID500-U

SELEC
PID500U
500.0
PV
500.0
SV
1
2
3
T
M
A

48 x 48mm

Features :

- **4+4 Digits, (White + Green) LED display**
- **Capacitive touch keypad, Short depth**
- **Universal input / output**
- **Retransmission analog output**
- **Adaptive - Auto - Self tune PID / ON - OFF Control**
- **Heat cool PID**
- **Profile controller up to 128 steps**
- **RS485 MODBUS RTU communication (optional)**
- **IDM applicable**

Certifications : CE cULus , IP65

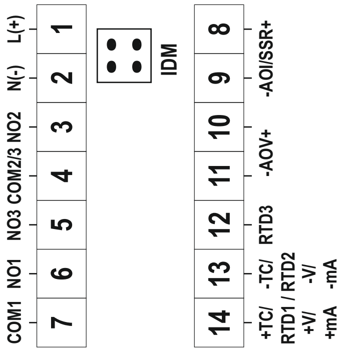
Technical specifications

Display specifications	
Display	4+4 digits, 7 segment LED dual display
Height of display	Upper display : 15.3mm (white), Lower display : 8mm (green)
LED indication	1 : Main output T : Tune 2 : Alarm output M : Manual output 3 : Alarm output A : Adaptive tune
Input specifications	
Contact rating	Thermocouple (J, K, T, R, S, C, E, B, N, L, U, W, Platinel II), RTD (PT100)
Signal input	- 5 to 56mV, 0 to 10V, 0 to 20mA DC (programmable scale type)
Accuracy / Resolution	
Resolution (decimal point position)	1/ 0.1 for TC/ RTD ; 1/ 0.1/ 0.01/ 0.001 for analog input
Signal input	- 5 to 56mV, 0 to 10V, 0 to 20mA DC (programmable scale type)
Indication accuracy	For TC inputs : 0.25% of F.S. ±1; For R & S type TC inputs : 0.5% of F. S. ±2 (20 min of warm up time for TC inputs); For RTD input : 0.1% of F. S. ±1; For analog input : ±0.5%, ±1 digit (F. S. = Full scale)
Temperature unit	°C / °F selectable
Input filter (FTC)	1 to 99 sec, OFF
Sampling time	200 ms
Output specifications	
Contact rating	Relay 1, Relay 2: 7A@250 VAC or 30 VDC; Life expectancy: 100000 cycles at maximum load rating Relay 3: 10A@277 VAC or 28 VDC
SSR drive (voltage pulse)	15 VDC
Current	0-20mA DC, 4-20mA DC (Loop impedance: 500Ω max)
Voltage (optional)	0-5 VDC, 0-10 VDC (Load resistance: 10KΩ min)
Retransmission	
Current	0/ 4 to 20mA DC (loop impedance : 500Ω max)
Voltage (for PID500-U-0-1)	0 to 5/ 10 VDC (load resistance : 10KΩ min)
Update rate	100 ms
Functional specifications	
Control action	1 : Adaptive - Auto - Self tune PID, 2 : ON-OFF
Proportional band (P)	0.0 to 400.0 °C
Integral time (I)	0 to 3600 sec
Derivative time (D)	0 to 200 sec
Cycle time	0.1 to 100.0 sec
Hysteresis width	0.1 to 99.9°
Manual reset value	- 19.9 to 19.9°
Heat-cool	
Control action	PID/ ON-OFF
Proportional band-cool	0.0 to 400.0°
Cycle time-cool	0.1 to 100 sec
Dead band	Programmable from set point low limit to set point high limit.

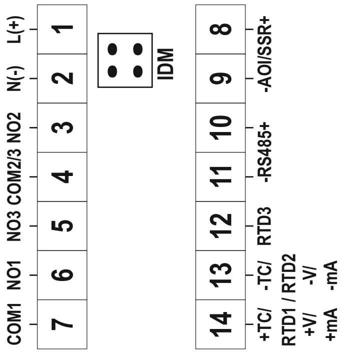
Settings for alarm output	
Modes	Deviation high / low, Absolute high / low, Band, Sensor break
Hysteresis	0.1 to 99.9°
No. of profile program	8
No. of steps in each program	16
Program other profile parameters	Link profiles, Programmable repeat cycles, Power down resume / restart options, Deviation hold, Alarm at each step with configurable alarm duration
Auxiliary supply specifications	
Supply voltage	90 to 270V AC / DC (50/60Hz), 24V AC / DC (optional)
Power consumption	6VA max @230V AC
Environment specifications	
Temperature	Operating : 0 °C to 50 °C (32 to 122 °F); Storage : 20 °C to 75 °C (- 4 to 167 °F)
Humidity (non - condensing)	85% RH
Mechanical specifications	
Mounting	Panel
Weight	101 gms
Optional specifications	
Serial communication	
Interface standard	RS485
Communication address	1 to 99, Maximum of 32 units per line
Transmission mode	Half duplex
Transmission protocol	MODBUS RTU
Transmission distance	500m maximum
Transmission speed	115200, 57600, 38400, 9600, 4800, 2400 bits/ sec
Parity	None, Odd, Even
Stop bits	1 or 2
Response time	100 ms (max and independent of baud rate)

Terminal connections

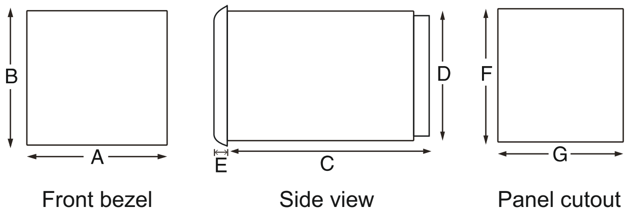
PID500-U-0-X-CU


L(+)
N(-)
NO3 COM2/3 NO2
COM1 NO1
1
2
3
4
5
6
7
IDM
8
9
10
11
12
13
14
-AOI/SSR+
-AOV+
RTD3
+TC/ -TC/
RTD1 / RTD2
+V/ -V/
+mA -mA

PID500-U-C-X-CU


L(+)
N(-)
NO3 COM2/3 NO2
COM1 NO1
1
2
3
4
5
6
7
IDM
8
9
10
11
12
13
14
-AOI/SSR+
-RS485+
RTD3
+TC/ -TC/
RTD1 / RTD2
+V/ -V/
+mA -mA

Dimensions (All are in mm)


B
A
Front bezel
E
C
D
Side view
F
G
Panel cutout

MODELS / DIM	A	B	C	D	E	F	G
PID500-U	52	52	76	45	4	46	46

Compliance

Applicable EMI / EMC Standards		
Product standard : IEC 61326-1		
Category		**Standard compliance**
ESD Immunity	IEC 61000-4-2	Level III
Surge Immunity	IEC 61000-4-5	+/- 2 kV common mode, +/- 1 kV differential mode
Radiated susceptibility	IEC 61000-4-3	Level III, 80 to 1000MHz Level II, 1.4GHz to 2GHz Level I, 2GHz to 2.7GHz
Conducted susceptibility	IEC 61000-4-6	Level II

Applicable EMI / EMC Standards		
Product Standard : IEC 61326-1		
Category		**Standards Compliance**
Voltage dips and interruptions	IEC 61000-4-11	**Dips** : 0% residual voltage / 1 cycle (Criteria B), 40% residual voltage / 10 cycles 50Hz / 12 cycles 60Hz (Criteria C)70% residual voltage / 25 cycles50Hz / 30 cycles 60Hz (Criteria C) **Interruptions** : 0% residual voltage / 250 cycles 50Hz / 300 cycles 60Hz (Criteria C)
Conducted emission	CISPR-11	
Radiated emission	CISPR-11	
Electrical fast transient	IEC 61000-4-4	Level III

Ordering information

Product code	Input	Supply voltage	Communication (RS485)	Certification
PID500-U-0-1-CU	Universal	90 - 270 VAC / DC	- - -	CE cULus
PID500-U-C-1-CU	Universal	90 - 270 VAC / DC	YES	CE cULus