Universal PID Controller

PID110-U



96 x 48mm

Features:

- 4+4 Digits, (White+Green) LED display
- Capacitive touch keypad
- Universal input / output
- Retransmission analog output
- Adaptive - Auto - Self tune PID / ON - OFF Control
- Heat cool PID
- Profile controller up to 128 steps
- 24V DC Inbuilt sensor supply
- RS485 MODBUS RTU Communication (Optional)
- IDM Applicable

Certifications: CE RoHS compliant, IP65

Technical specifications

Display specifications	
Display	4+4 Digits, 7 Segment LED dual display
Height of display	Upper display: 15.3 mm (White), Lower display: 8 mm (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	200ms
Output specifications	
Contact rating	Relay 1, Relay 2: 7A @250V AC or 28 VDC; Life expectancy: 100000 cycles at maximum load rating Relay 3: 10A @250V AC or 28V DC
SSR Drive (Voltage pulse)	15V DC
Sensor supply	24V DC / 100mA Inbuilt
Voltage (Optional)	0-5V DC, 0-10V DC (Load resistance : 10KΩ min)
Retransmission	
Current	0/ 4 to 20mA DC (Loop impedance: 500Ω max)
Voltage (For PID500-U-0-1)	0 to 5/10V DC (Load resistance: 10KΩ min)
Update rate	100m sec
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 (50/60 Hz)
Power consumption	5VA max @230V AC
Environment specifications	
Temperature	Operating: 0 °C to 50 °C (32 °F to 122 °F); Storage: 20 °C to 75 °C (-4 °F to 167 °F)
Humidity (Non - condensing)	85% RH
Mechanical specifications	
Mounting	Panel
Weight	170 gm
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, 1200 bits / sec
Parity	None, Odd, Even
Stop bits	1 or 2
Response time	100 ms (Max and independent of boud rate)

Terminal connections

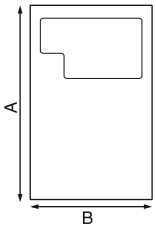
PID110-U-0-1

L(+)	10	20	TC+/RTD1
N(-)	9	19	TC-/RTD2/V-/I-
NO1	8	18	RTD3
COM1	7	17	AIV+
NO2	6	16	AII+
COM2/3	5	15	
NO3	4	14	AOI+/SSR+
	3	13	AOI-/SSR-
24V SS +	2	12	AOV+
24V SS -	1	11	AOV-

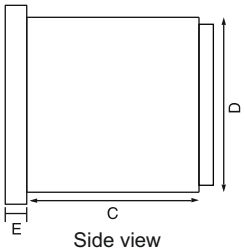
PID110-U-C-1

L(+)	10	20	TC+/RTD1
N(-)	9	19	TC-/RTD2/V-/I-
NO1	8	18	RTD3
COM1	7	17	AIV+
NO2	6	16	AII+
COM2/3	5	15	
NO3	4	14	AOI+/SSR+
	3	13	AOI-/SSR-
24V SS +	2	12	RS485 +
24V SS -	1	11	RS485 -

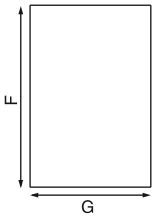
Dimensions (All are in mm)



Front bezel



Side view



Panel cutout

MODELS / DIM	A	B	C	D	E	F	G
PID110-U	96	48	74.5	90	10	92	45

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
PID110-U-0-1	Universal	90-270V AC/DC	- - -	CE
PID110-U-C-1	Universal	90-270V AC/DC	YES	CE