



DATASHEET

Issue 1

**NEW
PRODUCT**



- Multifunction Meters
- Transducers & Isolators
- Temperature Controllers
- Converters & Recorders
- Digital Panel Meters
- Current Transformers
- kWh Energy Meters
- Analogue Panel Meters
- Shunts
- Digital Bargraphs
- Digital Multimeters
- Protection Relays
- Synchroscope Series
- Rotary Switches
- Power Supplies
- Test & Measurement

RE12S UNIVERSAL PID CONTROLLER

SUBJECT TO CHANGE WITHOUT NOTICE

This datasheet superseded all previous versions – please keep for future reference

Product Features:

- 4+4 Digits, (White+Green) LED display
- 4+4 Digits, (White+Green) LED display
- Capacitive touch keypad, Short depth
- Universal input
- Retransmission analog output 0/4 ... 20 mA
- Adaptive -Auto -Self tune PID/ ON -OFF Control
- Heat cool PID
- Profile controller up to 128 steps
- RS485 MODBUS RTU Communication

RE12S Universal PID Controller



The RE12S Universal PID Controller is an advanced and versatile device designed for precise process control in various industrial applications. With adaptive, auto, and self-tuning PID as well as ON-OFF control capabilities, the RE12S ensures optimal performance in maintaining desired setpoints. It features a dual LED display, capacitive touch keypad, and supports up to 128-step profiling for complex control requirements. The unit's robust communication options, including RS485 MODBUS RTU, allow seamless integration into existing systems, enhancing both functionality and connectivity.

Key Features

- Control Action: Adaptive, Auto, Self-tune PID, and ON-OFF
- Input Types: Thermocouple (J, K, T, R, S, C, E, B, N, L, U, W, Platinel II), RTD (PT100)
- Display: Dual LED display with 4+4 digits (White+Green)
- Profile Controller: Supports up to 128 steps for complex control requirements
- Communication: RS485 MODBUS RTU for seamless system integration
- Power Supply: 90 to 270 VAC/DC (50/60Hz)
- Alarm Outputs: Multiple settings including deviation high/low, absolute high/low, band, and sensor break
- Hysteresis: 0.1 to 99.9°
- Design: Compact with short depth for easy panel mounting
- Analog Output: Retransmission 0/4...20 mA
- Dimensions: 52 x 52 mm

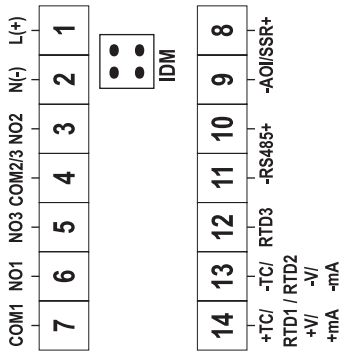
Benefits

- Enhanced Performance: Achieve precise control and maintain desired setpoints with advanced PID algorithms.
- User-Friendly: Easy to navigate with a capacitive touch keypad and intuitive display.
- Versatile Integration: Robust communication options ensure compatibility with existing systems.

Technical Specifications

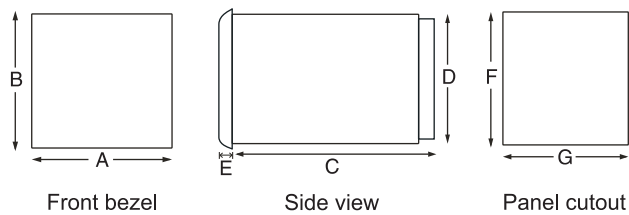
Display specifications	
Display	4+4 Digits, 7 Segment LED dual display
Height of display	Upper display: 15.3mm (White) , Lower display: 8mm (Green)
LED Indication	1: Main output T: Tune 2: Alarm output M: Manual output 3: Alarm output A: Adaptive tune
Input specifications	
Contact rating	Thermocouple (J, K, T, R, S, C, E, B, N, L, U, W, Platinell 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, Oto 10V, Oto 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: $\pm 0.5\%$, ± 1 digit (F. S. = Full scale)
Temperature unit	C/ $^{\circ}$ F Selectable
Input filter (FTC)	1 to 99sec, OFF
Sampling time	200 ms
Output specifications	
Contact rating	Relay 1, Relay 2: 7 A@250 VAC or 30 VDC; Life expectancy: 100000 cycles at maximum load rating Relay 3: 1 0A@277 VAC or 28 VDC
SSR Drive (Voltage pulse)	15VDC
Current	0-20mA DC, 4-20mA DC (Loop impedance: 5000 max)
Retransmission	
Current	Of 4 to 20mA DC (Loop impedance: 5000 max)
Update rate	100 ms
Functional specifications	
Control action	1: Adaptive -Auto - Self tune PIO, 2: ON-OFF
Proportional band (P)	0.0 to 400.0 $^{\circ}$ 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 $^{\circ}$
Manual reset value	- 19.9 to 19.9 $^{\circ}$
Heat-cool	
Control action	PIO/ON-OFF
Proportional band-cool	0.0 to 400.0 $^{\circ}$
Cycle time-cool	0.1 to 100 sec
Dead band	Programmable from set point low limit to set point high limit.

Terminal Connections



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 270 VAC / DC (50/60Hz)
Power consumption	6 VA Max @ 230 VAC
Environmental 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 grams
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 lime	100 ms (Max and independent of baud rate)

Dimensions (mm)



MODELS	DIM	A	B	C	D	E	F	G
RE12S		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
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 (CriteriaC) Interruptions : 0% residual voltage/ 250 cycles 50Hz / 300 cycles 60Hz (CriteriaC)
Conducted emission	CISPR-11	
Radiated emission	CISPR-11	
Electrical fast transient	IEC 61000-4-4	Level III

Ordering codes

Product code	Input	Supply voltage	Communication (RS485)
RE12S	Universal	90 - 270 VAC / DC	YES

Contact



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