

UNICONT PM

UNIVERSAL CONTROLLERS

3 YEARS WARRANTY



UNICONT PMM-300



UNICONT PMG-500

nivalco

SIGNAL PROCESSING UNITS

UNICONT PMM-300

The UNICONT PMM-300 is a universal one or two channel process controller with relay and analog outputs and a PID algorithm that supports a wide range of functions. It can be used for standard to extraordinary temperature control tasks (*cooling, heating*). In addition to the usual inputs, practically all common temperature sensors can be connected. Thanks to the auto-tuning function, the controller can be successfully operated by technicians not used to process control. The 4-digit displays can be read from a distance. The UNICONT PMM-300 is highly accurate and easy to use, making it suitable for use as a panel instrument in both laboratory and industrial process control applications.

FEATURES

- Programmable inputs
- 4-digit LED display
- Heavy-duty relay contacts or analog output
- 4...20 mA output
- ON/OFF, PD or PID control algorithm
- Auto-tuning feature
- Relay outputs up to 4
- 32-point linearization
- Window comparator differential metering

APPLICATIONS

- Temperature display
- Switching, control or transmitting tasks
- Power valve control
- Sequence control
- Dual-channel display



PMM-300

TECHNICAL DATA

PMM-300			
Universal Inputs	Thermocouples	K, J, T, E, L, U, N, R, S, B, M, A, C	
	Resistive thermal devices (RTD)	Pt100, JPt100, Pt500, JPt500, Pt1000, JPt1000, Cu100, Ni100, KTY81	
	Current	4...20 mA, 0...20 mA	
	Voltage	-5+20 mV, 0...100 mV, 0...500 mV	
	Resistance	0...500 Ω, 0...2000 Ω	
	Current input	10 Ω, Voltage input > 10 MΩ	
Output	Control relays (2x)	SPDT 250 V AC 5 A AC11	
	Alarm relays (2x)	SPST (NO/NC programmable) 30 V DC / 250 V AC 3 A AC11	
	Solid-state relay (SSR) drivers (2x)	12 V DC, 15 mA	
	Current outputs (2x)	0/4...20 mA DC (max. load: 600 Ω), galvanically isolated short circuit protected, programmable	
	Power Supply for transmitters	24 V DC, 100 mA, shot circuit protected	
	RS485 Modbus	Bit rate: 600...38,400 bps selectable, device address: 0...254 programmable	
Control	Features	Setting time	Setting unit
	Proportional band (P)	0...409.5%	0.1%
	Integral time (I)	0...4095 s	1 s
	Derivate time (D)	0...4095 s	1 s
	Cycle time(T)	0...255 s	1 s
	Dead band	0...255	in PV resolution
	Hysteresis		
Display	PV (upper display), red, 4 digits, 7 segments, digit height: 10 mm SV (lower display), green, 4 digits, 7 segments, digit height: 10 mm		
Programming PV	Digital, by front panel keys		
Accuracy of setting and displaying	±0.2%FS ±1 digit		
Sensor wire-break alarm	"Er 11." on SV display (only if the controller is on)		
Cold junction compensation	External temperature sensor to be connected to terminal block. The function can be disabled		
Wire resistance compensation	3-wire, automatic		
Ambient humidity	Up to 85% (relative) non-condensing		
Ambient temperature	Operational: 0...+55 °C, storage: -20...+60 °C		
Supply voltage	85...265 V AC, 50/60 Hz, 8 VA, 120 V 375 V DC 8 VA 16...32 V DC, 8 W, 13...30 V AC, 8 VA		
Electrical connection	Plug-in terminal blocks (recommended wire cross section: 0.5...2.5 mm ²)		
Electrical protection	Class II		
Ingress protection	Front: IP54, back: IP20		
Memory protection	Data stored in EEPROM		
Dimensions	101.5 × 48 × 156 mm		
Weight	300 g		

UNICONT PMG-500

The UNICONT PMG-500 series universal controllers are 1/16 DIN (48 × 48 mm [1.9 × 1.9"]) process controllers with relay and analog outputs or a PID algorithm supporting versatile functions. The universal analog PID controllers can be used with popular RTD (*Pt*, *JPt*, *Cu*) resistance thermometers and various thermocouples for temperature measurement, control and processing of signals from transmitters with 0...20 mA, 4...20 mA and 0...10 V DC, 0...5 V DC, 1...5 V DC, 0...100 mV DC output. The controller's output signal can be a relay, a continuous 4...20 mA process current signal, or an SSR driver. An additional alarm relay is provided for limit monitoring. The unit is microprocessor based, has auto-tuning software and its PID controller can find the optimum PID constants. The PMG-500 Series is capable of RS485 communication and has an input to receive the output signal from a current transformer (CT). The large two-color display is easy to read even from a distance.



PMG-500

FEATURES

- Universal input
- 4...20 mA output, relay outputs
- SSR driver output
- RS485 communication
- ON-OFF and PID control
- Auto tuning (AT) feature
- Current transformer (CT) input
- 48 × 48 mm front panel

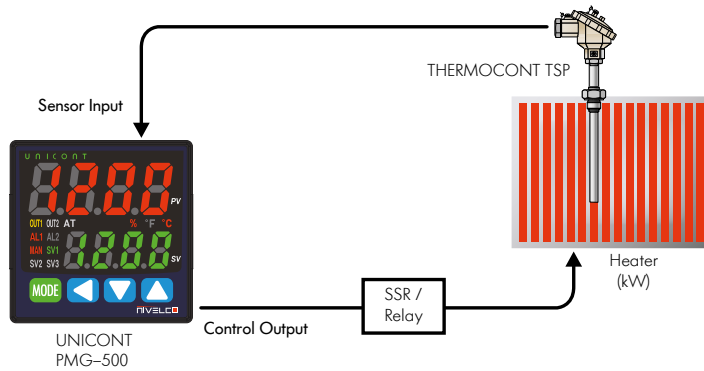
APPLICATIONS

- Temperature display
- Switching, control tasks
- Simultaneous cooling / heating control
- For automated manufacturing processes
- Alarm indication

TECHNICAL DATA

		PMG-51□	
Input	RTDs (3-wire, automatic wire-resistance comp.)	DPt100, DPt50, JPt100 (-199.9...+650 °C), Cu100, Cu50 (-199.9...+200 °C), Ni120 (-80...+200 °C)	
	Thermocouples (automatic cold junction compensation)	K (-200...+1350 °C); J (-200...+800 °C); E (-200...+800 °C)	
		T (-200...+400 °C); B (0...+1800 °C); R (0...+1750 °C)	
		S (0...+1750 °C); N (-200...+1300 °C); C (0...+2300 °C)	
		G (0...+2300 °C); L (-200...+900 °C); U (-200...+400 °C); Platinel II (0...+1390 °C)	
	Voltage	0...10 V DC; 0...5 V DC; 1...5 V DC; 0...100 mV DC	
Current	0...20 mA DC; 4...20 mA DC		
Current transformer (CT)	0.0...50.0 mA (1/1000 CT: 0.0...50.0 A)		
Output	PID	Proportional band (P)	0.1...999.9 °C / °F (%)
		Integral time (I)	0...9999 s
		Derivate time (D)	
		Cycle time(T)	Relay, SSR output: 0.1...120.0 s. Optional current or SSR output: 1.0...120.0 s
	Type of output	Relay	250 V AC 3 A AC1, closing contact
		SSR driver	11 V DC ±2 V, max. 20 mA
		Current	DC 0...20 mA or 4...20 mA (max. load: 500 Ω)
RS485	Modbus RTU		
Alarm output	1× SPST (NO/NC programmable) 250 V AC, 3 A 1a, AC1		
Accuracy of setting & displaying	±0.3% ±1 digit of full range or ±3 °C		
Display	PV (primary value)	Red, 4-digits, 7 segments; digit height: 14 mm	
	SV (secondary value)	Green, 4-digits, 7 segments; digit height: 10 mm	
Supply voltage	100...240 V AC 50/60 Hz, max. 8 VA, operational voltage 90...110%		
Ingress protection	Front: IP54, back: IP20		
Electrical protection	Class II		
Ambient temperature	Operational: -10...+50 °C, storage: -20...+60 °C		
Ambient humidity	35...85% (relative) non-condensing		
Dimensions	48 × 48 × 70.5 mm (front panel cut-out: 45 ^{+0.5} × 45 ^{+0.5} mm)		
Weight	105 g		

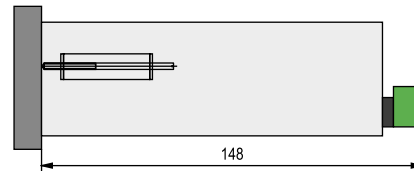
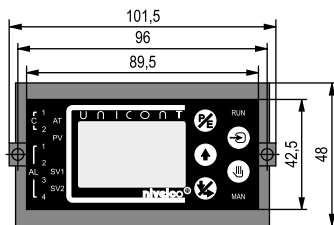
APPLICATION EXAMPLE – HEATING CONTROL



ORDER CODES (NOT ALL COMBINATIONS AVAILABLE)

UNICONT PMM-3

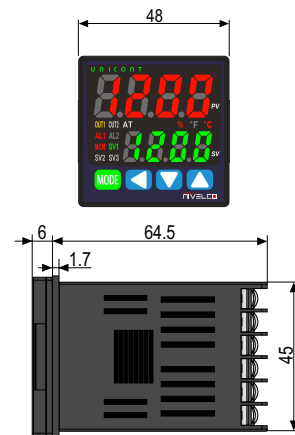
Input	Code	Output	Code	Supply voltage	Code
1 × universal input (IN1)	1	2 × relays (C1, C2), I _{out} 1	1	85...265 V AC, 120...375 V DC	1
2 × universal inputs (IN1, IN2)	2	2 × relays (C1, C2), I _{out} 1, U _{supply} / I _{out} 2	2	24 V AC/DC	2
1 × universal input (IN1) + linearization	3	4 × relays (C1, C2, AL3, AL4), I _{out} 1	3		
2 × universal inputs (IN1, IN2) + linearization	4	4 × relays (C1, C2, AL3, AL4), I _{out} 1, U _{supply} / I _{out} 2, RS485	4		



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Output	Code	Supply voltage	Code
3 × relays (R1, R2, AL1), I _{out} (input current repeater function)	1	100...240 V AC	1
2 × relays (R1, AL1), 1 × solid-state driver / 4...20 mA (control current output)	2	24 V AC / 24...48 V DC	2
2 × relays (R1, AL1), 1 × solid-state driver / 4...20 mA (control current output), RS485	3		
1 × SSR, 1 × SSR / 4...20 mA (control current output), AL1 relay ⁽¹⁾	4		
2 × SSR / 4...20 mA (control current output), AL1 relay	5		

⁽¹⁾ 24 V version not available



PMG-51□

