

Process Controller (Model 5006)



Masibus' Model 5006 is a simple, tough, reliable, cost effective yet a high performance indicating On/Off controller with single or dual programmable relay output version design to meet OEM / Panel manufacturers requirement. Relays can be configured either for alarm or control purpose. Model 5006 has one 4 digit display for process variable.

Control and programming of the unit is performed via the front panel tactile push buttons which click when operated. All the programme functions are contained in easy to understand menus. Programming and configuration modes are protected. The front panel is robust, easy to clean, non reflective membrane that provides an IP54 seal.

Model 5006 optionally provides transmitter power supply eliminating the need for an additional power supply to excite field transmitters. Retransmission output can be provided for recording purpose or can work as cost effective signal converter. Serial communication option makes it a smart controller that can communicate with PC either for remote configuration or data acquisition application.

Model 5006 is truly smart. While many programmable instruments do require hardware access for input type selection and calibration, Model 5006 totally eliminates any hardware access or switch settings by its unique single shot digital calibration technique - all it requires is just a few key strokes at the front panel keyboard. This unique feature enhances maintenance and operational reliability of the instrument.

This model is packaged in 96mm x 96mm x 120mm plastic enclosure and can also be packaged in weather proof IP 55 or flame proof enclosures in wall mounted.

Features

- *Micro-controller based cost-effective indicator/controller*
- *High performance*
- *Digital calibration*
- *Single / Dual relay output*
- *Dust protected tactile keys*
- *On-site configurable and universal*
- *Options :*
 - *Transmitter power supply*
 - *Retransmission output (Isolated)*
 - *RS 485 serial communication*
 - *Weather proof/ flame proof enclosure*

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5006

TECHNICAL SPECIFICATIONS 5006

Number of Inputs	1
Input Type, Measurement Range & accuracy	As per table 1
Sampling Period	500 mS
Burn out detection	Available
Input Impedance	J, K, T TC : 77K ohms R, S TC : 37K ohms Voltage : 1.2 M ohms
Allowable Input Voltage	TC/RTD: $\pm 10V$ DC, Linear: $\pm 20V$ DC
Noise Rejection Ratio	
Common Mode	> 120 dB (50 Hz)
Normal Mode	> 40 dB (50 Hz)
Reference-junction compensation error	± 2 °C (10 to 55 °C)
Response time	
Input to relay o/p	<4 sec
Input to Analog o/p	3.5 second or less, 63% (10 - 90%)
Resolution	14½ bits
Outputs	
24V DC Loop Power Supply for sensor	Optional (24 VDC $\pm 5\%$ @ 30 mA)
Linear output signal (optional)	Isolated 4 to 20 mA (load > 450 Ω)
Output accuracy	$\pm 0.25\%$ FS (12 bits resolution)
Output regulation	0.02% for full load change
Relay output (usage)	Control /Alarm
Number of relay contact outputs	1 (one) or 2 (two)
Control type	ON-OFF control , Below ON set point / Above ON set point For heating / cooling
Alarm Types	Below ON set point/Above ON set point
Relay contact rating	230 Vac / 2Amp. (NO, NC, Common)
Serial communication	RS 485 MODBUS, on terminal
Baud rate	4800, 9600, 19200 bps, selectable
Data pattern	N, 8, 1 (distance max. 1200m)
Display Specification	
Process Value display	4- digit 7- segment Red LED (0.56")
Set Value / parameter display	Same PV display
Status Indicating lamp	Red LED's
Operation keys	INC, DEC (increase / decrease set points or various parameters) SET 1 (sets setpoint data or switches various parameters.)
Construction/Installation/Wiring	
Enclosure	General purpose
Body construction	Poly-carbonet Plastic
Case color	Dark Grey
Weight	Less than 1 Kg
Dimensions	96W X 96H X 120D (all in mm)
Panel Cut-out	92(W) X 92(H) (all in mm)
Wiring	2.5 sq.mm
Standard Accessories	2 mounting clamp
Power supply/Isolation	
Power supply	110/230 VAC $\pm 10\%$, 50Hz
Power consumption	< 8 VA

TECHNICAL SPECIFICATIONS 5006

Memory backup	EEPROM
Isolation resistance	Between power supply terminal and ground terminal, 500V DC, 200 M Ω
Environmental Conditions	
Ambient Temperature:	0 to 55 °C
Ambient humidity	< 95 % RH (Non-condensing)
Effect of Ambient temperature	For T/C input, $\pm 0.015\%$ of FS/ °C For linear input, $\pm 0.021\%$ of FS/ °C For RTD input, $\pm 0.025\%$ of FS/ °C For analog output, $\pm 0.02\%$ of FS/ °C
Effect on power supply fluctuation (within rated voltage range)	For analog input, within $\pm 0.005\%$ of FS/ 10V For analog output, $\pm 0.01\%$ of FS/ 10V

TABLE 1

Input Type	Range	Measurement Accuracy
Thermocouples	J -100 to 1200 °C	$\pm (0.25\%$ of FS ± 1 count)
	K -100 to 1372 °C	$\pm (0.25\%$ of FS ± 1 count)
	T -100 to 400 °C	$\pm (0.25\%$ of FS ± 1 count)
	R 0 to 1768 °C	$\pm (0.25\%$ of FS ± 1 count)
	S 0 to 1768 °C	$\pm (0.25\%$ of FS ± 1 count)
RTD	Pt-100 -200 to 850 °C	$\pm (0.25\%$ of FS ± 1 count)
	-100.0 to 300.0 °C	$\pm (0.25\%$ of FS ± 1 count)
Linear	0/1-5V -1999 to 9999	$\pm (0.1\%$ of FS ± 1 count)
	0/4-20mA -1999 to 9999	$\pm (0.1\%$ of FS ± 1 count)

ORDERING CODE

Model 5006								
Input Type	APS		Mounting		Aux output		Relay	
X	XX		XX		X		X	
1 E	A1	110VAC	P0	Panel	N	None	S	One
2 J	A2	230VAC	W1	Wall-IP55	1	4-20 mA DC	D	Two
3 K	A3	24VDC	FP	Wall-FLP	2	TPS - 24VDC		
4 B					3	RS485		
5 T								
6 R								
7 S								
9 Pt-100, 3W								
C 4-20mA								
D 0-20mA								
E 1-5VDC								
F 0-5VDC								

X - Specify from table