



# 5002U-P

## Digital Process Controller

Advanced. Precise. Compact



Masibus 5002U-P is much more than a controller capable for complex and demanding process control applications. It has accessibility of both hardware and software features in compact size making it a highly configurable product, offering many features found in costly programmable controllers.

5002U-P accepts all analog process inputs like thermocouple, RTD, current and voltage.

5002U-P offers field configurable control outputs comprising of ON-OFF or proportional. It has total 4 relay o/p providing a combination of alarm/control output based on application requirement. A comprehensive controlling can be implemented using four relays with any of required control algorithm like on-off or proportional control.

Using RS-485 interface desired parameters configuration and status can be communicated to SCADA/PLC/DCS applications. Using analog retransmission output important process values can be retransmitted as any standard current or voltage signal.

It has fail-safe design protecting the process in case of system malfunctioning

### Features

- Universal input selection
- Premium on/off or proportional controller
- Transmitter power supply
- Fast loop response time of 250msec.
- Up to 4 independent programmable relay output
- 22 Alarm types
- High accuracy of 0.1% FS
- Retransmission output (Optional)
- RS-485 port with modbus RTU protocol (Optional)
- Input scalability for linear input type
- Output scalability for all input type
- Square root extraction for linear input type
- Settable digital filter 0-60 Sec.
- Password protected menu to avoid unauthorized acces
- Unique one shot calibration method

### Applications

- Heat treatment furnaces
- Reheat furnaces
- Ceramic kilns
- Glass industry
- Flow/ pressure control
- Distillation and reactor control in chemical plants
- Water and waste water control

# TECHNICAL SPECIFICATIONS

Input		Transmitter Power Supply	24V DC (±1V) @30 mA
<b>Input 1: PV Input</b>		<b>Power Supply</b>	
Input Type	Thermocouple ( E, J, K, T, B, R, S, N,C,G) RTD (Pt 100), current, voltage	Standard	85-265V AC/110-300V DC
Input Range	Refer table-1	Optional	18-36V DC
Accuracy	TC (E,J,K,T,C,J,N,C,G), RTD: ± 0.1% of F.S ± 1 °C TC (B,R,S): ± 0.2% of F.S ± 1 °C Current, voltage: ± 0.1% of F.S ± 1 count	Power Consumption	<12 VA
ADC Resolution	17 bits	<b>Isolation (Withstanding voltage)</b> Bet* primary terminals* and secondary terminals**: <b>At least 1500V AC for 1 minute</b> Bet* primary terminals* and grounding terminal: <b>At least 1500 V AC for 1 minute</b> Bet* grounding terminal and secondary terminals**: <b>At least 1500 V AC for 1 minute</b> Bet* secondary terminals**: <b>At least 500 V AC for 1 minute</b> * Primary terminals indicate power terminals and relay output terminals. ** Secondary terminals indicate analog I/O signal and communication O/P. <b>Insulation resistance:</b> 50MΩ or more at 500 V DC between power terminals and grounding terminal	
Display Resolution	0.1°C / 1 count	<b>Physical</b>	
Sampling Rate	250 msec.	Dimension (in mm)	96(H) x 96(W) x 110(D)
CJC Error	±2.0 °C max.	Panel Cut Out (in mm)	92.5(H) x 92.5(W)
Sensor Burnout Current	0.25uA	Weight (gms)	500 (Approx.)
RTD Excitation Current	1mA max.	Enclosure Material	Molded ABS
NMRR	> 40dB	Enclosure Protection	IP20
CMRR	> 120dB	Terminal Cable Size	2.5mm <sup>2</sup>
Temp-co	< 100ppm/°C	Accessories	Two mounting clamps, 100 Ohms Ext. Resistor
Input Impedance	> 1MΩ	<b>Environmental</b>	
Max Voltage	20VDC	Operating temperature	0 to 55 °C
<b>Display &amp; Keys</b>		Storage temperature	0 to 80 °C
Process Value	0.56" Four-digit 7 segment red LED	Humidity	20 to 95% RH Non-condensing
Set Value	0.4" Four-digit 7 segment green LED	<b>Table 1: Display Range</b>	
Status Indication	Four Red LED's for relays, alarm, set point selection, green LEDs for communication	<b>Input Type</b>	
Keys	Menu, escape, shift, increment, ACK	<b>Ranges</b>	
<b>Output</b>		E -200 to 1000 °C	
<b>Control Output (Field Programmable)</b>		J -200 to 1200 °C	
Output Type	ON/OFF or proportional	K -200 to 1370 °C	
Proportional Band	0.1 to 999.9	T -200 to 400 °C	
CycleTime	1 to 250sec.	B 450 to 1800 °C	
MR (Manual Reset)	-50% to 50%	R 0 to 1750 °C	
Hysteresis	1 to 250 (on/off mode)	S 0 to 1750 °C	
<b>Relay/Alarm Output</b>		N -200 to 1300 °C	
Relays	4 (Configurable for control/alarm)	C 0 to 2310 °C	
Type & Rating	1 Change over (C, NO, NC), 5A @ 230V AC / 30V DC	G 0 to 2310 °C	
Mode	Proportional* or ON/OFF control (Field selectable)	RTD Pt-100 -199.9 to 850.0 °C	
<b>Note: *proportional control settable for relay No.1 only.</b>		-10 to 20mV	
<b>Retransmission Output (Optional)</b>		0 to 75mV	
Number of Output	1	0 to 100mV	
Output Signal	0/4-20mA @ 500 ohm max. 0/ 1-5VDC, 0-10 V DC @ 3 K ohms min.	0.4 to 2V, 0 to 2V	
Output Accuracy	±0.25% of span	4 to 20mA, 0 to 20mA (Ext.100 Ω)	
<b>Communication Output (Optional)</b>		Linear -1999 to 9999	
Interface	RS-485 (2 Wire)	0 to 5 V	
Protocol	Modbus-RTU	1 to 5 V	
Baud Rate (bps)	9600, 19200	0 to 10 V	

## Ordering Code

Model	Inputs	Power Supply	Retransmission O/P	Communication o/p
<b>5002U-P</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
	1 E	U1 85-265VAC / 125-300 VDC	N None	N None
	2 J	U2 18-36VDC	1 4-20 mA	Y RS 485
	3 K		2 0-20 mA	
	4 T		3 1-5V	
	5 B		4 0-5V	
	6 R		5 0-10V	
	7 S			
	8 N			
	P C			
	Q G			
	9 Pt-100			
	A -10 to 20 mV			
	B 0 to 75mV			
	C 0 to 100 mV			
	D 0.4 to 2V			
	E 0 to 2V			
	F 0 to 5V			
	G 1 to 5V			
	H 0 to 10 V			
	S Special*			

+: Consult Factory