masibus®

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 RS485 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)
- RS485 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

Input 1: PV Input

Input Type	Thermocouple (E, J, K, T, B, R, S, N,C,G) RTD (Pt 100), Current, Voltage
Input Range	Refer Table-1
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
ADC Resolution	17 bits
Display Resolution	0.1°C / 1 Count
Sampling Rate	250 msec
CJC Error	±2.0 °C Max
Sensor Burnout current	0.25uA
RTD excitation current	1mA Max
NMRR	> 40dB
CMRR	> 120dB
Temp-co	< 100ppm/°C
Input Impedance	> 1MΩ
Max Voltage	20VDC

Display & Keys

Process Value	0.56" Four-digit 7 segment Red LED
Set Value	0.4" Four-digit 7 segment Green LED
Status Indication	Four Red LED's for Relays, alarm, set point selection, Green LEDs for Communication
Keys	Menu, Escape, Shift, Increment, ACK

Output

Control Output (Field Programmable)

Output type	ON/OFF or Proportional
Proportional band	0.1 to 999.9
Cycle time	1 to 250Sec
MR(Manual Reset)	-50% to 50%
Hysteresis	1 to 250 (on/off mode)

Relay/Alarm Output

Relays	4 (Configurable for control/Alarm)
Type & Rating	1 Change over (C, NO, NC), 5A @ 230V AC / 30V DC
Mode	Proportional* or ON/OFF control (field selectable)

Note: *proportional control settable for relay No.1 only.

Retransmission Output (Optional)

Number of output	1
Output Signal	0/4-20mA @ 500 ohm Max 0/ 1-5VDC, 0-10 V DC @ 3 K ohms min
Output accuracy	±0.25% of span

Communication Output (Optional)

Interface	RS485 (2 Wire)
Protocol	Modbus-RTU
Baud rate (bps)	9600, 19200

Transmitter Power Supply	24V DC (±1V) @30 mA

Power Supply

Standard	85-265V AC/110-300V DC
Optional	18-36V DC
Power consumption	<12 VA

Isolation (Withstanding voltage)
Betⁿ primary terminals* and secondary terminals**: **At least 1500V AC for 1 minute**
Betⁿ primary terminals* and grounding terminal: **At least 1500 V AC for 1 minute**
Betⁿ grounding terminal and secondary terminals**: **At least 1500 V AC for 1 minute**
Betⁿ secondary terminals**: **At least 500 V AC for 1 minute**
* Primary terminals indicate power terminals and relay output terminals.
** Secondary terminals indicate analog I/O signal and Communication O/P.
Insulation resistance: 50MΩ or more at 500 V DC between power terminals and grounding terminal

Physical

Dimension (in mm)	96(H) x 96(W) x 110(D)
Panel cut out (in mm)	92.5(H) x 92.5(W)
Weight (gms)	500 (Approx)
Enclosure Material	Molded ABS
Enclosure Protection	IP20
Terminal Cable Size	2.5mm²
Accessories	Two mounting clamps, 100 Ohms Ext. Resistor

Environmental

Operating temperature	0 to 55 °C
Storage temperature	0 to 80 °C
Humidity	20 to 95% RH non-condensing

Table 1: Display Range

Input Type		Ranges
Thermocouples	E	-200 to 1000 °C
	J	-200 to 1200 °C
	K	-200 to 1370 °C
	T	-200 to 400 °C
	B	450 to 1800 °C
	R	0 to 1750 °C
	S	0 to 1750 °C
	N	-200 to 1300 °C
	C	0 to 2310 °C
	G	0 to 2310 °C
RTD	Pt-100	-199.9 to 850.0 °C
Linear	-10 to 20mV	-1999 to 9999
	0 to 75mV	
	0 to 100mV	
	0.4 to 2V, 0 to 2V	
	4 to 20mA, 0 to 20mA (Ext.100 Ω)	
	0 to 5 V	
	1 to 5 V	
	0 to 10 V	

Ordering Code

Model	Inputs		Power Supply		Retransmission O/P		Communication o/p	
5002U-P	X		X		X		X	
	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

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