masibus®

40005E

Bargraph Indicator

Dual Channel
Bargraph Indicator

Single Channel
Bargraph Indicator

The 40005E is an Enhanced version of our Legacy model 40005 Bargraph indicators, additional capabilities have been added by way of multi-serial ports, Ethernet port, scanning speed, and Relay outputs. The model is available in single channel and dual channel format.

Configuration

40005E is configured using the front keyboard and display or PC based mbGRAPH Configuration Software supplied with unit. The unit has a 4 digit numeric and 101 segment Bars to display process Value, Alarm/Trip and communication status are displayed by discrete LEDs on front fascia.

Communication

40005E comes with one RS485 port as a standard, a second RS485 port and/or a Ethernet Port are options to enhance the communication capabilities of the unit and use it as an RTU, controller or protection device for parameters like Level, Vibration, Gas detection, etc.

Control or Alarm

The optional 4 or 8 Relay outputs can be freely mapped to any channel set points and configured as control, Alarm or Trip functionality with Fail-Safe or Normal Logic. Any one relay can also be configured as a watchdog output.

Analog Output

An isolated 4-20mA Re-Transmission output option is available for onward transmission to PLC/DCS/Recorder/SCADA

Enclosure

40005E is housed in a 144X72 mm extruded Aluminum enclosure with an IP54 front fascia. All field inputs are wired to a detachable back plate for ease of wiring and reduce down time during replacement

Features

- Microcontroller based
- Full 4 digit numeric & 101 segment bar display
- Universal Input
- Square root extractor
- Fully configurable & programmable by front keypad or PC based mbGRAPH Configuration Software
- Digital calibration
- Watchdog output
- Power Supply, Input & Output Isolated for 1500VAC
- Options :
    - Analog output (Isolated)
    - Redundant RS485 serial port
    - Ethernet (Modnet) port
    - 4 / 8 Relay Output
    - Built-in Transmitter Supply

Applications

- Monitoring of Level, Vibration, Flow, etc
- Alarm/Trip Unit
- On/off Controller
- Digital Switch
- Gas Detection
- Marine-Utility Monitoring on Ships

TECHNICAL SPECIFICATIONS

Input

No of Inputs	1 or 2
Input Type & Measurement Range	Refer Table-1
Accuracy	±(0.1% of FS ± 1 count)
ADC Resolution	17 bits
Display Resolution	0.1 / 1.0 °C for temperature input
Sampling Rate	T/C & Voltage/Current: 50mSec/Ch RTD: 100mSec/Ch
CJC	Automatic for thermocouple input
CJC Error	± 2 °C maximum
Sensor open	All inputs except 0-5V / 0-20 mA
Sensor Burnout current	0.4µA
RTD Excitation current	250µA (Approx.)
NMRR	> 40dB
CMRR	> 120dB
Temp-co	< 100ppm/°C
Input Impedance	> 1 MΩ
Max Input Voltage	20VDC

Display & keys

Process Value display *(one per channel)*	4- digit 7- segment Red LED (0.3")
Status indicating LED	Red LED's Tx/Rx, Relay status
Keys	Up/Down, MENU/ENTER, ESC

Bar Display (one per channel)

LED Bar	101
Resolution	1%
1st Bottom Bar Display	Under range

Output

Relay Output (Optional)

Relays	4 or 8 Nos
Type	C-NO-NC
Rating	2A @ 250 V AC / 30V DC
Connector Type	25 D-Sub

Analog Output (Optional)

No. of outputs	One per channel
Output Signal	0/4 to 20 mA (Isolated)
Load Resistance	500Ω or less
Output accuracy	± 0.25 % of span
Resolution	16 bits

Communication Output
RS485-1 (Standard) & RS485-2 (Optional)

Interface	2 Wire, EIA RS485
Protocol	Modbus-RTU Slave
Baud Rate	9600 or 19200

Ethernet (Optional)

Interface	RJ45
Protocol	Modbus - TCP/IP(Modnet) Slave
Baud Rate	10 Mbps
Transmitter Power Supply (Optional)	24 VDC ± 5% @ 30 mA (one per channel)

Power Supply

Power Supply	85 to 265VAC, 50/60 Hz 18-36V DC (optional)
Power Consumption	16VA (Max) [85-265V AC] 8VA (Max) [18-36VDC]

Isolation (Withstanding voltage)
Between primary terminals* and secondary terminals**: **At least 1500 V AC for 1 minute**
Between primary terminals* and grounding terminal: **At least 1500 V AC for 1 minute**
Between grounding terminal and secondary terminals**: **At least 1500 V AC for 1 minute**
Between secondary terminals**: **At least 500 V AC for 1 minute**
* Primary terminals indicate power terminals and relay output terminals.
** Secondary terminals indicate I/O signal and Communication O/P.
Insulation resistance: 20MΩ @ 500V DC or more between power terminals and grounding terminal.

Physical

Dimensions (mm)	144(H) x 72(W) x 165(D)
Front Bezel (mm)	144(H) x 72(W)
Panel Cutout (mm)	137(H) x 68.5(W)
Depth behind Panel (mm)	155
Mounting	Panel Mount (Standard)
Weight	1.25 Kg
Enclosure Material	Extruded Aluminum
Protection	IP20 (Overall) IP54 (Front fascia)

Environmental

Operating Temperature	-10 to 55 °C
Storage Temperature	0 to 80 °C
Humidity	20 to 95% RH non condensing

Table 1: Display Range

Input Type		Range
Thermocouple	E	-200 °C to 1000 °C
	J	-200 °C to 1200 °C
	K	-200 °C to 1372 °C
	T	-200 °C to 400 °C
	B	450 °C to 1820 °C
	R	0 to 1768 °C
	S	0 to 1768 °C
	N	-200 °C to 1300 °C
RTD	Pt-100	-199.9 to 850.0° C
	Cu-53	-210.0 °C to 210.0 °C
	NI-120	-70.0 °C to 210.0 °C
Linear	0/1 to 5V	-1999 to 9999
	0/4 to 20mA (Ext. 250Ω)	-1999 to 9999
	-10 to 20 mV DC	-1999 to 9999
	0 to 100 mV DC	-1999 to 9999
	0 to 10V DC	-1999 to 9999

ORDERING CODE

Model	No of Input Channel		Input Type		Ch1 Display				Ch2 Display				Aux Power Supply		Mounting		Communication		Analog output		Relay output		TPS output	
40005E	X		X		PV		Bar		PV		Bar		XX		XX		XX		X		X		X	
	S	Single	1	E	X		X		X		X		U1	85-265VAC	P0	Panel	1X	1 X RS485	N	None	N	None	N	No
	D	Dual	2	J	R	Red	R	Red	N	Not Applicable	N	Not Applicable	U2	18-36VDC	W1	Wall-IP65	2X	2 X RS485	Y1	Single o/p	4	4 Relays	Y	Yes
			3	K	G	Green	G	Green	R	Red	R	Red					1E	1 X RS485+ 1X RJ45	Y2	Dual o/p	8	8 Relays		
			4	T					G	Green	G	Green					2E	2 X RS485+ 1 X RJ45						
			5	B																				
			6	R																				
			7	S																				
			8	N																				
			9	Pt-100, 3W																				
			A	Cu53																				
			B	NI -120																				
			C	4-20mA																				
			D	0-20mA																				
			E	1-5VDC																				
			F	0-5VDC																				
			G	-10 to 20 mV																				
			H	0 to 100 mV																				
			I	0 to 10V DC																				