MIC 2000 SERIES
1/4 DIN PID CONTROLLER

ORDERING

2 □ □ □ □ □ □ □

INPUT
1 T/C or mV
2 Volts/mA
3 RTD
4 All Inputs

OUTPUT 1
1 Relay
2 SSR Driver
3 4-20mA

OUTPUT 2
0 None
1 Relay
2 SSR Driver
3 4-20mA

ALARM
0 None
1 Relay
2 SSR Driver

REMOTE
0 None
1 Position Proportioning*
2 Remote Setpoint
3 RS-485 Standard Com.**
5 RS-485 Total Access Com.**

VOLTAGE
1 115 VAC Input & Relays
2 230 VAC Input & Relays
3 115 VAC Input & 230 VAC Relays

OPTION SUFFIX
(See Appendix for explanation/ specifications)
(Blank) None
EA Extended Feature Software
EB Extended Feature Software*** †
XP 24VDC Transmitter Power Supply
XA 24VDC Power Supply††
BA Remote Keypad

THE LIFEGUARD WATER-TIGHT PROTECTION ACCESSORY
To order the LifeGuard, specify Part # 64417801.

LR39885

* Limited to Model 2X11X1X or 2X22X1X.
** Cannot be included when Output 2 selection is 3.
*** Suffix Option EB includes the EA features.
† Not available with RS-485 Standard Com.
†† ALARM not available when XA suffix is ordered.

Note: RS-485 Total Access Com. includes Options EA and EB at no charge.

WARRANTY
This instrument is backed by the Partlow comprehensive 3 year warranty. A complete warranty statement is published in the back of the product instruction manual. If you have further questions about warranties, please contact the Partlow factory.

ORDERING INFORMATION
For pricing and additional ordering information, refer to Form 3265, Electronic Price Book, Page 27.



DESCRIPTION

The MIC 2000 is a 1/4 DIN microprocessor based, single loop process controller capable of controlling a variety of processes including those requiring simple on-off to dual 4-20mA output with full PID. Inputs include thermocouple, RTD, millivolt, volt, and milliamp.

Standard features include: isolated process input, setpoint and output limits, and .56 inch high LEDs. It will display programming of process deviation and setpoint, of percent output, and scaling with decimal point positioning.

Options include single or dual 4-20mA output, up to three relay outputs, three types of alarms, remote setpoint input, electric motor modulation, and RS-485 communications.

Process value retransmission output is also available. Access to configuration parameters and setpoint may be restricted by using the instrument's security-access mode.

SPECIFICATIONS

Input

Thermocouple types	J, K, T, R, S, E, B, N, and C.
RTD	100 ohm (.00385 Ohm/Ohm/C)
Volts	0 to 5VDC, 1 to 5 VDC
Millivolts	0 to 25mVDC, 0 to 50mVDC, 10 to 50mVDC
Milliamps	4 to 20mADC, accommodated via the addition of a shunt resistor
Remote Setpoint	0 to 5VDC, 1 to 5 VDC
Sensor Fault Detection	Displays Hi or Lo for thermocouple or RTD inputs (10% above or below range) and sensor break, SnSr. On/Off outputs go off, proportional outputs go to 0%. Sensor fault detection is not functional for 0 to 5VDC.

Outputs

Relay	SPST 115VAC: 5.0 A Resistive; 1/8HP or 250VA 230VAC: 2.5 A Resistive; 1/8HP or 250VA
SSR Driver	Open collector output Short circuit protected at 100mA maximum Provides 4VDC at 20mA or 3VDC at 40mA
Current Output	4-20mADC into 650 ohms maximum

Display

Digital Display	Four 7 segment LEDs each .56 inches high.
Status Indicators	Individual LED indictors for Setpoint, Out 1, Out 2, Manual, Alarm, Degrees F, Degrees C, or Engineering Units, and minus sign for negative values.

Alarm Adjustment

Process Alarm	-9999 to 9999 units
Deviation Alarm	-3000 to 3000 units
Deviation Band Alarm	1 to 3000 units

Control Adjustments

On/Off Hysteresis	0 to 300 units
Proportional Band	1 to 3000 units
Manual Reset	-1500 to 1500 units
Auto Reset	0.0 to 100.0 repeats/minute
Rate	0.0 to 10.0 minutes
Cycle Time	1 to 240 seconds
Position Prop. Sensitivity	0.0 to 50.0%
First Output Position	-1000 to 1000 units
Spread (Second Output Position)	-1000 to 1000 units

Performance

Measurement Error Limit	• Type J, K, T, E, N, C thermocouples and RTD +/- 0.25% of reading plus 1 degree at 25 C • Type R, S, B thermocouple +/- 0.25% of span at 25 C • mVDC, mADC and VDC +/- 0.25% of span at 25 C
Ambient Temperature Error	0.01% of span per degree C deviation from 25 C
Scan Rate	1 scan per second (3 scans per second available on EA option)
Display Resolution	T/C & RTD: 0.1 or 1 degree mV & VDC: 0.001, 0.01, 0.1, or 1.0
Auto Reset Windup Inhibit	Auto reset is disabled when the process is outside of the proportional band
Cold Junction Compensation	Self compensation for ambient temperature. All calibration values are stored in memory.
Noise Rejection	Normal mode, 85dB minimum @ 60Hz or greater. Common mode, 90dB minimum –24VDC maximum for RTD input, 115VAC maximum for other inputs.
Line Voltage	115/230VAC +/- 10% 50/60 Hz
Power Consumption	15VA maximum
Operating Temperature	0 to 55 C, 32 to 131 F
Storage Temperature	-40 to 65 C, -40 to 149 F
Humidity	0 to 90% RH, non condensing
Dimensions	1/4 DIN front panel, 5.8" deep
Weight	3 pounds maximum
Vibration	0.5 to 100Hz at 0.5g

Agency Approvals

UL and CSA

Transmitter Power Supply

Provides up to 40mA @ 24 VDC.

Digital Communications

Type	RS-485 serial communication port: Half-Duplex bi-directional comm.
Character Format	ASCII
Protocol	Per ANSI X3.28 subcategories 2.5 A4
Configuration	User configuration to "Monitor" (read only) or "Normal" (read and write)
Bit Rate	User configurable to 300, 600, 1200, 2400, 4800, 9600 bits per second
Address	User configurable 0 to 99