Data Sheet

Controllers

MIC 6000

Eight Ramp/Soak Profiles

1/4 DIN Profile Controller

DESCRIPTION

The MIC 6000 is a 1/4 DIN, microprocessor based, single loop, profiling, process controller. It can function either as a basic process controller, utilizing manual setpoint changes or it can also execute any one of eight setpoint profiles; each profile can have six ramp and six soak segments.

Access to configuration parameters and setpoint may be restricted by using the instrument's security-access mode.

The MIC 6000 can provide single or dual control outputs and up to three event outputs. The unit can include two 4-20mA current outputs which can be used for control or optional process value retransmission.

APPLICATIONS:

Programmable profile device stores and implements temperature control sequences including ramp/soak profiles.

INDUSTRIES

- Industrial and lab ovens/furnaces, plastics and thermal forming
- Form/fill and seal
- Packaging applications
- And any others where low costs, smaller size and unmatched connectivity are critical requirements.

FEATURES/BENEFITS

- 4-digit, 0.56″ high, LED display
- 1/4 DIN panel mount
- Input options for thermocouple, RTD, DC linear mA/V/mV
- Sensor fault detection
- Up to 5 outputs; relay, 4-20mA, SSR driver
- Process, deviation, deviation band alarms
- Eight Ramp/Soak profiles
- Optional RS-485 serial communications
- Program security

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SPECIFICATIONS*

STANDARD FEATURES

Up to 5 outputs via relay, 4-20 mA current or SSR driver

Alarm or Event output

Available inputs for T/C, RTD, Voltage or Current

Sensor fault detection

Optional remote Run/Hold, Position Proportioning or RS-485 Communications

ENVIRONMENTAL CHARACTERISTICS

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

Vibration: 0.5 to 100Hz at 0.5g

ELECTRICAL

Line Voltage: 115/230VAC +/- 10% 50/60 Hz

Power Consumption: 15VA maximum

Transmitter Power Supply: Provides up to 40mA @ 24 VDC.

INPUTS

Thermocouple types: J, K, T, R, S, E, B, N, and C.

RTD: 100 ohm platinum (.00385 Ohm/Ohm/C)

Volts: 0 to 5VDC, 1 to 5 VDC

Millivolts: 0 to 25mVDC, 0 to 50mVDC, 10 to 50mVDC

Milliamps: 0 to 20 or 4 to 20mADC, accommodated via the addition of a shunt resistor

Remote Run/Hold: Dry contact-closure

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 or 0 to 20mADC.

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: 0-20 or 4-20 mADC into 650 ohms maximum

DISPLAY

Digital Display: Four 7 segment LEDs each 0.56 inches. Individual LED indicators for Setpoint, Out 1, Out 2, Manual, Alarm, Degrees F, Degrees C, or Engineering Units, and minus sign for negative values, Segment 1 – 6, ramp and soak

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: -1000 to 1000 units
(Second Output Position)

Profile Time Base:

Selectable for ramp time and soak time as:

HHH.T (hrs. & tenths)
HH.MM (hrs. & min.)
MM.SS (min. & sec.)

Selectable for ramp rate (EO option only) as:

XXX.X (units per hour)
XXX.X (units per minute)

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, plus 1 least-significant-digit 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 ±8 VDC maximum peak for RTD input, 115VAC maximum for other inputs.

PHYSICAL DIMENSIONS

Dimensions: 1/4 DIN front panel, 5.8" deep

Weight: 3 pounds maximum

COMMUNICATIONS

Type: RS-485 serial communication port

Protocol: Partlow ASCII

RATINGS/AGENCY APPROVALS

UL & cUL recognized (E67237),
CSA (LR39885)

WARRANTY

3 years

Made in USA

* Specifications are for base models with standard features only unless otherwise noted. Specifications subject to change without notice in accordance with our DBS policy of continuous improvement. All product and brand names are trademarks of their respective owners. All rights reserved.

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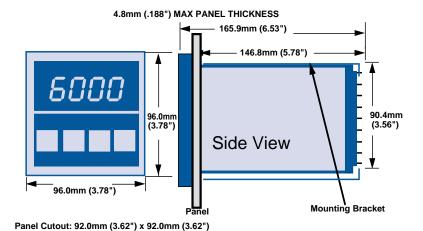
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MODELS

Code 1: Model #	Code 2: Input	Code 3: Output Group 1 Control Group 1 and/or Event	Code 4: Output Group 2 Control Output 2 or Event	Code 5: Output Group 3 Alarm or Event	Code 6: Remote	Code 7: Voltage	Code 8: Option Suffix
6	☐	☐	☐	☐	☐	☐	☐
I/4 DIN Profile Controller	**1** T/C or mV **2** Volts/mA **3** RTD **4** All Inputs	**1** Relay **2** SSR Driver **3** 4-20mA and Relay **4** 4-20mA and SSR Driver	**0** None **1** Relay **2** SSR Driver **3** 4-20mA **4** 4-20mA and Relay **5** 4-20mA and SSR Driver	**0** None **1** Relay **2** SSR Driver	**0** None **1** Position Proportioning* **2** Remote Run/Hold **3** RS-485 Standard Com.** **4** RS-485 Standard Com.*** **5** RS-485 Total Access Com.** **6** RS-485 Total Access Com.***	**1** 115 VAC Input & Relays **2** 230 VAC Input & Relays **3** 115 VAC Input & 230 VAC Relays	**(Blank)** None **BA** Remote Keypad **EO** Extended Feature Software **XP** 24VDC Transmitter Power Supply **XA** 24VDC Power Supply†† **AI** 40 Profiles†

DIMENSIONS - 1/4 DIN

4.8mm (.188") MAX PANEL THICKNESS

165.9mm (6.53")

146.8mm (5.78")

96.0mm (3.78")

96.0mm (3.78")

90.4mm (3.56")

Side View

Panel

Mounting Bracket

Panel Cutout: 92.0mm (3.62") x 92.0mm (3.62")

* Limited to Model 6X11X1X or 6X22X1X.

** Output Group 2 cannot be 3, 4, or 5.

*** Output Group 3 cannot be 1 or 2.

† If com is required, only Total Access Com. is available.

†† ALARM not available when XA suffix is ordered.

Note: RS-485 Total Access Com. includes Option EO. Option E

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