PARTLOW™ brand

Data Sheet

Controllers



MIC 1166

Small Size - Maximum Functions

1/16 DIN Profile Controller

DESCRIPTION

The Partlow brand MIC 1166 1/16 DIN profiler may seem small, but it packs a punch with holding up to 4 programs of 16 free-format segments each and includes an event output. The controller can be configured from the front of the instrument or by a PC through a configuration port. The configuration port has a dual purpose; first it can be used to modify the controller setups and secondly, it can be used to transfer programs or profiles.

This control has RaPID, Response Assisted PID, a fuzzy logic algorithm plus a pre-tune algorithm, that when combined provide shorter start-up times and reduced overshoot.

The Partlow brand MIC 1166 contains many of the features of larger more expensive profilers such as: guaranteed soak, delayed start, profile active output, profile recovery features, profile cycling, plus an optional digital input for remote run/hold. RS-485 communications is also available with convenient, full access to all profile data.

Modular I/O options allow for field upgrades by adding or replacing boards.

APPLICATIONS:

Programmable profile device stores and implements temperature control sequences including ramp/soak profiles using exclusive PID techniques.

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

- Dual, 4-digit, LED displays
- 1/16 DIN panel mount
- Universal Input for thermocouple, RTD, DC linear mA/V/mV user-selectable
- Up to 3 outputs; relay, 4-20mA, SSR driver, Triac
- Alarm, control, retransmit, event output functions
- PID, ON/OFF, profile (ramp/soak) control
- Optional RS-485 serial communications
- Program security

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SPECIFICATIONS*

STANDARD FEATURES

Dual Display for fast view of process and control parameters

Full PID capability

Universal input for voltage, current, thermocouple and RTD

Profile Cycling

Program loading via communications port

ENVIRONMENTAL CHARACTERISTICS

Operating Temperature: 0 to 55°C, 32 to 131°F

Storage Temperature: -20 to 80°C, -4 to 176°F

Humidity: 20 to 95% RH, non condensing

ELECTRICAL

Line Voltage: 90 - 264VAC, 50/60 Hz

Power Consumption: 4 Watts

Common Mode Rej.: 120 db at 50/60 Hz

Series Mode Rej.: > 500% of span 50/60 Hz

INPUTS

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

RTD: Three-wire PT100, DIN 43760

Volts (VDC): 0 to 5, 1 to 5, 0 to 10, 2 to 10

Millivolts: 0 to 50mVDC, 10 to 50mVDC

Milliamps: 0 to 20 or 4 to 20mADC

Sample Rate: 250 ms

OUTPUTS

Relay: SPDT rated at 2 amps resistive at 120/240 VAC

SSR Driver: > 4.3 VDC into 250Ω minimum

Triac Output: 1 amp @ 40°C derated to 1/2 amp @ 80°C

Current Output: 0 - 20 mA, 4 - 20 mA, eight bit resolution

Volts DC Output: 0 - 10 V, 0 - 5 V, eight bit resolution

CONTROL

Control Types: RaPID, PID, PID/on-off, on-off

RaPID: Response Assisted PID is a fuzzy logic mixing/weighting of P, I, and D terms to provide dramatic performance improvements as compared to conventional PID techniques.

Auto Tune Types: Pre-Tune

Proportional Bands: 0 (OFF), 0.5% to 999.9% of input span @ 0.1% increments

Auto Reset: 1s-99min 59sec and OFF

Rate: 0 (OFF) - 99min 59sec

Manual Reset: Adjustable in the range 0-100% of output power (single output) or -100% to +100% of output power (dual output)

Deadband/Overlap: -20% to +20% of proportional band 1 + proportional band 2

ON/OFF Hysteresis: 0.1% to 10.0% of input span

Auto/Manual Control: User-selectable with "bumpless" transfer into and out of Manual control.

Cycle Times: Selectable for 0.5sec to 512sec in binary steps

Setpoint Range: Limited by Setpoint Upper and Setpoint Lower Limits

Setpoint Ramp: Ramp rate selectable 1-9999 LSDs per hour and infinite. Number displayed is decimal point aligned with selected range.

ALARMS

Maximum Number: Two "soft" alarms

Maximum # Outputs: Up to 2 outputs can be used for alarm purposes

Combination Alarms: Logical OR or AND of alarms to an individual hardware output is available.

DISPLAY

Digital Display: Dual 7 segment LED; Top: .36" high, Bottom .28" high.

Status Indicators: Individual LED indictors for OUT, Exceed, ALM, and when in Setup

PROGRAM/PROFILE SPECIFICATIONS

Programs: Four with 16 free form steps each

Length of program: 16 steps per program

Step Types: Ramp, dwell (soak), or end

Program cycling: 1 to 9999 cycles, or infinite

Delayed start: 0 to 99:59 hours:minutes or minutes seconds, depending on the time base selected.

Control: Start, Run, Hold and Abort from keypad if remote run/hold is not used. Remote start, run, and hold if the option is turned on.

Start From: Current process value or setpoint.

At End: Controlls at the last setpoint.

Guaranteed Soak: During dwells (soak) the controller can be programmed to stop advancing the dwell time while the process value is outside a specific band around setpoint. This capability can be disabled or the controller can be set to wait until instructed to "run" after the soak time has expired.

Time Base: Hours:Minutes or Minutes:Seconds.

Step Time: 0 to 99:59 hours:minutes or minutes seconds,depending on the time base selected.

Ramp Rate: 0 to 9999 least significant digits per hour or minute, depending on the time base. (this applies only when the program mode is set to Rate.)

Event Output: Programmable to ON or OFF at the beginning of each step. Output 2 or 3 can be used as the event output.

Profile Active: Output 2 or 3 can be set to be energized or de-energized whenever a profile/program is running.

Power Loss Recovery: If power is removed and applied while a profile is running, the unit can be programmed to re-start or continue the profile.

REMOTE RUN/HOLD INPUT (OPTION)

Type: Voltage free or TTL compatible

ON - Currently selected program will run or (if currently held) resuming running.

OFF - Currently running program will be held.

Voltage free Operation: Connection of contacts to external switch or relay; contacts open = OFF (minimum contact resistance = 5000Ω), contacts closed = ON (maximum contact resistance = 50Ω)

TTL levels: ON: -0.6V to 0.8V

OFF: 2.0V to 24V

Maximum Input Delay (OFF-ON): 1 Second

Minimum Input Delay (ON-OFF): 1 Second

PHYSICAL DIMENSIONS

Dimensions: 1/16 DIN front panel, 110mm (4.3") deep

Front Panel Rating: NEMA 4X/IP65

Weight: 227 g. (8 oz.) maximum

COMMUNICATIONS

Type: RS-485 serial communication port

Protocol: MODBUS/RTU

RATINGS/AGENCY APPROVALS

CE, UL & cUL recognized (E67237),

WARRANTY

3 years

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Partlow Brand MIC 1166 Data Sheet (7/05)

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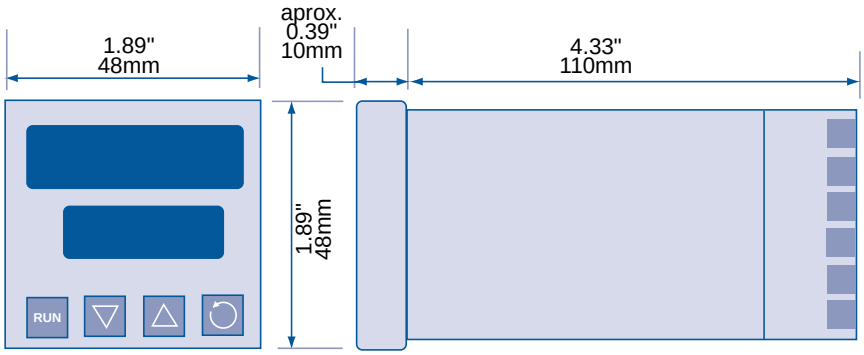
Small Size - Maximum Functions

MODELS

Code 1: Model #	Code 2: Output 1	Code 3: Output 2	Code 4: Output 3	Code 5: Options	Code 6: Options
1166	☐	☐	☐	☐	☐ ☐
1/16 DIN Profile Controller	**1** Relay **2** SSR Driver **3** 4-20mA* **8** Triac†	**0** None **1** Relay **2** SSR Driver **3** 4-20mA* **8** Triac†	**0** None **1** Relay **2** SSR Driver **3** 4-20mA** **8** Triac†	**0** None **1** RS-485 Communications **2** Remote Run/Hold	(Blank) None **02** Line Voltage 24 V AC/DC

* For control output only
** For retransmission only
† Two Triac Outputs, max.

DIMENSIONS - 1/16 DIN



Process Automation Worldwide Brands:

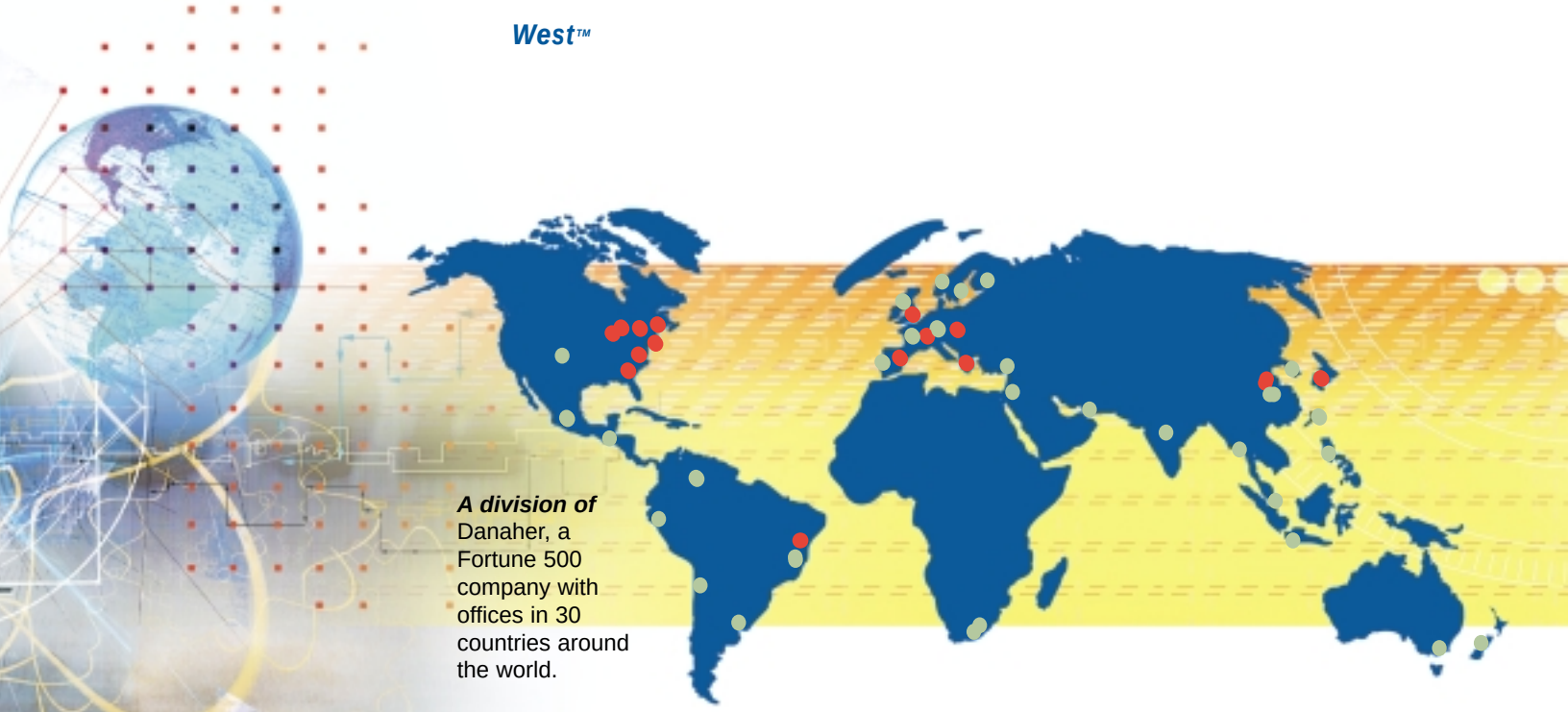
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