

3390 Multi-Loop PID Controller

- 10 PID Control Loops with Self-Tuning
- Universal Sensor Inputs
- Two Independent Alarms per Loop
- One Common Alarm
- RS-232, RS-422 and RS-485 Digital Communications
- Optical Isolation for Electrically Noisy Environments
- Relay, Triac, 4-20mA and SSR Drive Plug-In Output Modules
- Coded Security Levels



Description

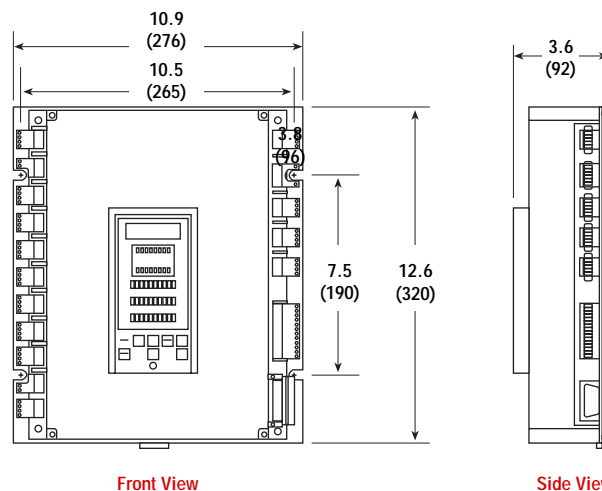
Compactly packaged, measuring only 3-3/4" deep, the 3390 Multi-Loop Controller packs the inputs, outputs, programmable features and sophisticated control techniques typically found only in much larger controllers. The 3390 requires only 30% of the mounting space required for 10 individual controllers.

Features

- Optical Isolation of inputs, outputs and digital communications eliminates ground loops, plus special protection firmware increase the 3390's noise immunity and make it tolerant of noisy industrial environments.
- DSP, Digital Signal Processing maintains the integrity of the sensor input signals, resulting in more stable control.

- Application flexibility is accomplished by universal inputs and plug-in output modules. For each control loop, select from thermocouple, RTD or scalable current input.
- RS-232, RS-422 and RS-485 Digital Communications are available for all 10 loops, and fully compatible with ChromaSoft™ remote operator interface software.
- Two alarm setpoints per loop (20 total) and an alarm LED for each loop. Any of these 20 setpoints may be connected to the Common Alarm output or one of ten optional alarm outputs.
- Each Output Module accommodates 2 control loops, so you may select 5 output modules in any combination: relay, triac, 4-20mA current (isolated or non-isolated) and solid state relay drive.
- Flexible Mounting Options allow remote mounting, panel door mounting or basic subpanel mounting.

Dimensions



All Dimensions in Inches (mm)

3390 Multi-Loop PID Controller *(cont'd.)*

Specifications

| | | |
|--|-----------------|--|
| Control Modes (Field Selectable) | Automatic | On/Off, Proportional, Proportional with automatic reset/integral and/or rate/derivative, (PID, PI, PD) |
| | Manual | Bumpless, balanceless transfer with Proportional Control |

| | | |
|--|-------------------------|-------------------------------------|
| Control Adjustments (Field Selectable) | Control Setpoint | Instrument sensor range (°F, °C, %) |
| | Deadband | 1-100°F or 0 to 25.00% |
| | Proportional Band | 0.1-999.9% of span |
| | Automatic Reset | 0-99.99 repeats/minute |
| | Rate | 0-1000 seconds |
| | Output Cycle Time | 0.1-60 seconds |
| | Output Limit | 0-100% ON |

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|--|--|---|
| Control Outputs (Field Changeable) | Total five (5) output modules, 2 control loops per output module | |
| | Relay | NO. contact rated 1 Amp at 120 Vac or 0.5 Amps at 230 Vac (resistive load) Not recommended for driving unsnubbed contactors |
| | Triac | 1 Amp continuous, 10 Amp in-rush current at 120 or 230 Vac (resistive load) |
| | Current/Voltage | Non-Isolated - 4 to 20 mA into 0 to 800 Ohm load Isolated - 4 to 20 mA into 0 to 400 Ohm load with 24 V power supply 4 to 20 mA into 800 Ohm load with 36V power supply |
| | Solid State Relay Drive | Transistor output of 20 Vdc nominal at 40 mA |

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| Alarm Outputs | Two (2) field assignable alarm setpoints per loop | |
| | One (1) common latching alarm output, current limited, emitter follower transistor (Option) Ten (10) open collector transistor outputs, sink 40 mA at 50 Vdc | |
| | Alarm Modes | High, range 100% of span, non-latching Low, range 100% of span, non-latching +Deviation, 0-250°F above control setpoint -Deviation, 0-250°F below control setpoint ± Deviation, 0-250°F above/below control setpoint |
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| Alarm Relay Board (Option) | 10 Relays, rated 10 Amps at 120 Vac, form C contacts includes 24 Vdc power supply (unregulated) to power relay coils Requires 120 Vac or 240 Vac input |
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Input Specifications

| Sensor | Range | |
|------------------|-----------------------------|--------------|
| | °F | °C |
| Thermocouple | | |
| Type J | -100 to +1400 | -73 to +650 |
| Type K | -100 to +2100 | -73 to +1149 |
| Type E | -100 to +1100 | -73 to +593 |
| Type T | -350 to +750 | -212 to +399 |
| Type R | 50-3000 | 10-1649 |
| Type S | 50-3000 | 10-1649 |
| RTD, 100 Ohm Pt | -200 to +1000 | -128 to +538 |
| Current, 4-20 mA | Field Scalable -999 to 3000 | |

Digital Communications Option

| | |
|-----------------|---|
| RS-232C | Single-drop, isolated |
| RS-422A, RS-485 | Multi-drop, isolated |
| Baud Rate | 300, 600, 1200, 2400, 4800, 9600, 19200 |
| Data String | ASCII, Asynchronous, one start, one parity, seven data and one stop bit |

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|-------------------------|--|
| Instrument Power | 120-230 Vac, +10%, -15%, 50 to 60 Hz 7 VA nominal power consumption |
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| Operating Environment | 30-130°F (0-55°C) ambient temperature with relative humidity less than 95%, non-condensing |
|------------------------------|--|

3390

Multi-Loop PID Controller *(cont'd.)*

In Stock:

| Model | PCN |
|--------------|--------|
| 3390-22222-0 | 318502 |
| 3390-77777-0 | 318529 |

Ordering Information

Complete the Model Number using the Matrix provided.

| Model | Multi-Loop PID Temperature Controller | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 3390 | Ten Loop Controller with selectable PID or ON/OFF control mode for each loop—Sensor Input Type selectable for each Loop—J, K, T, E, R or S Thermocouple, RTD and 4-20mA Current—Two Alarm setpoints per Loop—Self-Tuning—Auto/Manual Control—Scale °F, °C, %, or none—Reverse or Direct acting—120/230 Vac Instrument Power | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3391 | Same as above, except without front control panel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 2 | Triac—1 Amp at 77°F (25°C), 120 or 230 Vac | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Analog—4-20 mA, non-isolated | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Analog—4-20 mA, isolated | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Solid State Relay Drive—20 Vdc at 40 mAdc | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Code | Control Outputs—Loops 3 & 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Relay—NO. Form A Contact, 1A at 120 Vac, 0.5A at 230 Vac | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Triac—1 Amp at 77°F (25°C), 120 or 230 Vac | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Code | Control Outputs—Loops 5 & 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Relay—NO. Form A Contact, 1A at 120 Vac, 0.5A at 230 Vac | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Triac—1 Amp at 77°F (25°C), 120 or 230 Vac | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 4 | Analog—4-20 mA, non-isolated | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 7 | Solid State Relay Drive—20 Vdc at 40 mAdc | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Code | Control Outputs—Loops 9 & 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Code | Auxiliary Input/Output Options | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | None | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Ten Transistor Alarm Outputs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | RS-232, RS-422, RS-485 Digital Communications | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Output Options 1 and 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3390 - 1 | 2 2 2 4 3 Typical Model Number | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Accessories

| Description | Part Number | PCN | Description | Part Number | PCN |
|---|-------------|--------|---------------------------------------|-------------|--------|
| Single Relay Alarm Output Board | 0145-64528 | — | ChromaSoft™ Remote Operator | | |
| Front Panel display (controller not included) | 0145-42612 | — | Interface Software | SOFT-12000 | — |
| Remote Mounting Cables: | | | Snubbers | | |
| 18" length | 0023-70096 | 319986 | (recommended for Triac/Relay outputs) | 0149-01305 | 314448 |
| 5' length | 0023-70094 | 309956 | 10-Relay Alarm Output Board | 0145-64527 | — |
| 15' length | 0023-70095 | 319994 | | | |

Multi-Loop Controllers