Advanced PID Temperature Controller
Series PR 69

• Universal Input
• Flush Mounting Version 48x48 mm
  with Dual Line Digital Seven Segment Display
• Configurable Output combination
• Configurable: Band, Deviation,
  Sensor break & Loop break alarms
• Single/Dual acting PID controllers with 4 Control modes
• Auto-tuning PID with provision for Soft-Start
• 6 Segment (3 Ramp & 3 Soak)
  with Power Failure resumption modes
• RS 485 Communication
• IP 20 (for Terminals & Enclosure)
  IP 40 (for Front Panel only)
• Timer functionality with settable time
  from 1min to 9999 min

Ordering Information

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>151A13B</td>
<td>2 Relays (SPST 5A each), SSR (12 VDC, 24 mA)</td>
</tr>
</tbody>
</table>
| 151B13B  | 1 Relay (SPST 5A), Analog output (0-10V, 4-20 mA),
  SSR (12 VDC, 24 mA)                              |
| 151C13B  | 2 Relays (SPST 5A each), Analog output (0-10V, 4-20 mA) |
| 151D13B  | 3 Relays (SPST 5A each)                          |
| 151A13B1 | 2 Relays (SPST 5A each), SSR (12 VDC, 24 mA) with RS485 |
| 151B13B1 | 1 Relay (SPST 5A), Analog output (0-10V, 4-20 mA),
  SSR (12 VDC, 24 mA) with RS485                   |
| 151C13B1 | 2 Relays (SPST 5A each), Analog output (0-10V, 4-20 mA) with RS485 |
| 151D13B1 | 3 Relays (SPST 5A each) with RS485               |
## Advanced PID Temperature Controller
### Series PR 69

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>151A13B1</th>
<th>151B13B1</th>
<th>151C13B1</th>
<th>151D13B1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Parameters</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply Voltage (Φ)</td>
<td>110 - 240 VAC/DC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply Variation</td>
<td>-20% to +10% (of Φ)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>50/60 Hz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control Action</td>
<td>ON/OFF (Symmetric/ Asymmetric), PID (Single/ Dual Acting) (Neutral zone only for dual acting)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuning Method</td>
<td>Auto Tuning / Manual Tuning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature sensors / Inputs</td>
<td>Thermocouple: J, K, E, S, B, R; RTD: PT100 - 3 wire compensation; Analog Signal DC: (0-50 mV, 0-60 mV, 12-60 mV)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Measurement Range</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensor J: 0 to 700°C/32 to 1292°F, Sensor K: 0 to 1300°C/32 to 2372°F, Sensor E: 0 to 600°C/32 to 1112°F, Sensor R: 0 to 1750°C/32 to 3182°F, Sensor S: 0 to 1750°C/32 to 3182°F, Sensor B: 250 to 1820°C/482 to 3308°F, Sensor PT100 3 wire: -200 to 700°C/328 to 1292°F</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Measurement Accuracy</strong></td>
<td>+/-0.5% of full scale of PT100, +/-1% of full scale for TC &amp; mV signals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Resolution</strong></td>
<td>0.1°C for RTD, J, E &amp; 1° for S, B, K, R &amp; 0.001°C for mV signals</td>
<td></td>
<td></td>
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<tr>
<td><strong>Configurable Set Points</strong></td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Display</strong></td>
<td>Dual row 7 segment display with LED indications, 4-digit process value, 4 digit set value</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Keypad</strong></td>
<td>4-Keys: - Exit / Configurable Key, - Down, - Up, - Enter / Select</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Output 1</strong></td>
<td>Relay: SPST 5A @ 240 VAC / 28 VDC</td>
<td>Analog: 0 - 10V DC / 4 - 20 mA Configurable Retransmission Output</td>
<td>Relay: SPST 5A @ 240 VAC / 28 VDC</td>
<td></td>
</tr>
<tr>
<td><strong>Output 2</strong></td>
<td>Relay: SPST 5A @ 240 VAC / 24 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Output 3</strong></td>
<td>SSR: 12 VDC, 24 mA Short Circuit Protection</td>
<td>Relay: SPST 5A @ 240 VAC / 24 VDC</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Analog Output Update Rate</strong></td>
<td>N A</td>
<td>150ms to 5s</td>
<td>N A</td>
<td></td>
</tr>
<tr>
<td><strong>Alarm Types</strong></td>
<td>Absolute (High/Low/Band), Deviation (High/Low/Band), Sensor Break, Loop Break,</td>
<td></td>
<td></td>
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<tr>
<td><strong>Soft Start Feature</strong></td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Ramp Soak Feature</strong></td>
<td>3 Ramp &amp; 3 Soak</td>
<td></td>
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<tr>
<td><strong>RS 485 Communication</strong></td>
<td>RS 485 Communication</td>
<td></td>
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<tr>
<td><strong>Transmission Speed &amp; Type</strong></td>
<td>300 to 19200 BPS (Half Duplex)</td>
<td></td>
<td></td>
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<tr>
<td><strong>Transmission Protocol</strong></td>
<td>Modbus RTU</td>
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<tr>
<td><strong>Operating Temperature</strong></td>
<td>0°C to +50°C</td>
<td></td>
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<tr>
<td><strong>Storage Temperature</strong></td>
<td>-20°C to +60°C</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Humidity (Non Condensing)</strong></td>
<td>80% (Rh)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Enclosure</strong></td>
<td>Flame Retardant UL94V0</td>
<td></td>
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</tr>
<tr>
<td><strong>Dimensions (W x H x D) (in mm)</strong></td>
<td>48 x 48 x 107.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Weight (unpacked)</strong></td>
<td>160 g</td>
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<td></td>
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</tr>
<tr>
<td><strong>Mounting</strong></td>
<td>Flush</td>
<td></td>
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</tr>
<tr>
<td><strong>Certification</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Degree of Protection</strong></td>
<td>IP 20 Terminal &amp; Enclosure, IP 40 (For Front Panel only)</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

### EMI / EMC
- ESD: IEC 61000-4-2
- Radiated Susceptibility: IEC 61000-4-3
- Electrical Fast Transients: IEC 61000-4-4
- Surge: IEC 61000-4-5
- Conducted Susceptibility: IEC 61000-4-6
- Voltage Dips & Interruptions (AC): IEC 61000-4-11
- Conducted Emission: CISPR 11
- Radiated Emission: CISPR 11

### Environmental
- Cold Heat: IEC 60068-2-1
- Dry Heat: IEC 60068-2-2
- Vibration: IEC 60068-2-6
### Ordering Information

**Single Acting PID Controller**  
*Advanced PID Series PR 69*

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<thead>
<tr>
<th>Cat. No.</th>
<th>Description</th>
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<tr>
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<td>2 Relays (SPST 5A each), SSR (12 VDC, 24 mA)</td>
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<tr>
<td>151B12B</td>
<td>1 Relay (SPST 5A), Analog output (0-10V, 4-20 mA), SSR (12 VDC, 24 mA)</td>
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<tr>
<td>151C12B</td>
<td>2 Relays (SPST 5A each), Analog output (0-10V, 4-20 mA)</td>
</tr>
<tr>
<td>151D12B</td>
<td>3 Relays (SPST 5A each)</td>
</tr>
<tr>
<td>151E12B</td>
<td>1 Relay (1 C/O 10A), SSR (12VDC, 24 mA)</td>
</tr>
</tbody>
</table>
## Advanced PID Temperature Controller
### Series PR 69

### Cat. No. | 151A12B | 151B12B | 151C12B | 151D12B
---|---|---|---|---
**Parameters**
Supply Voltage ($\Phi$) | 110 - 240 VAC/DC | 110 - 240 VAC/DC | 110 - 240 VAC/DC | 110 - 240 VAC/DC
Supply Variation | -20% to +10% (of $\Phi$) | -20% to +10% (of $\Phi$) | -20% to +10% (of $\Phi$) | -20% to +10% (of $\Phi$)
Frequency | 50/60 Hz | 50/60 Hz | 50/60 Hz | 50/60 Hz
Control Action | ON/OFF (Symmetric / Asymmetric), PID (Single Acting) | ON/OFF (Symmetric / Asymmetric), PID (Single Acting) | ON/OFF (Symmetric / Asymmetric), PID (Single Acting) | ON/OFF (Symmetric / Asymmetric), PID (Single Acting)
Tuning Method | Auto Tuning / Manual Tuning | Auto Tuning / Manual Tuning | Auto Tuning / Manual Tuning | Auto Tuning / Manual Tuning
**Temperature sensors / Inputs**
Thermocouple: J, K, E, S, B, R, RTD: PT100 - 3 wire compensation; Analog Signal DC: (0-50 mV, 0-60 mV, 12-60 mV)
**Supply Voltage (VAC/DC)**
110 - 240 VAC/DC
**Supply Variation**
-20% to +10% (of $\Phi$)
**Frequency**
50/60 Hz
**Control Action**
ON/OFF (Symmetric / Asymmetric), PID (Single Acting)
**Tuning Method**
Auto Tuning / Manual Tuning
**Temperature sensors / Inputs**
Thermocouple: J, K, E, S, B, R, RTD: PT100 - 3 wire compensation; Analog Signal DC: (0-50 mV, 0-60 mV, 12-60 mV)
**Measurement Range**
Sensor J: 0 to 700°C/32 to 1292°F, Sensor K: 0 to 1300°C/32 to 2372°F, Sensor E: 0 to 600°C/32 to 1112°F, Sensor R: 0 to 1750°C/32 to 3182°F, Sensor S: 0 to 1750°C/32 to 3182°F, Sensor B: 250 to 1820°C/482 to 3308°F, Sensor PT100 3 wire: - 200 to 700°C/-328 to 1292°F
**Measurement Accuracy**
± 0.5% of full scale of PT100, ± 1% of full scale for TC & mV signals
**Resolution**
0.1°C for RTD, J, E & 1° for S, B, K, R & 0.001°C for mV signals
**Configurable Set Points**
2
**Display**
Dual row 7 segment display with LED indications, 4-digit process value, 4 digit set value
**Keypad**
4-Keys: - Exit / Configurable Key, - Down, - Up, - Enter / Select
**Output 1**
Relay: SPST 5A @ 240 VAC / 24 VDC
**Output 2**
Relay: SPST 5A @ 240 VAC / 24 VDC
**Output 3**
SSR: 12 VDC, 24 mA
**Analog Output Update Rate**
N A 150ms to 5s N A
**Alarm Types**
Absolute (High/Low/Band), Deviation (High/Low/Band), Sensor Break, Loop Break,
**Soft Start Feature**
Yes
**Ramp Soak Feature**
No
**Operating Temperature**
0°C to +50°C
**Storage Temperature**
-20°C to +60°C
**Humidity (Non Condensing)**
80% (Rh)
**Enclosure**
Flame Retardant UL94V0
**Dimensions (W x H x D) (in mm)**
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**Weight (unpacked)**
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**Mounting**
Flush
**Certification**
IP 20 Terminal & Enclosure, IP 40 (For Front Panel only)
**EMI / EMC**
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- Radiated Susceptibility IEC 61000-4-3
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- Conducted Susceptibility IEC 61000-4-6
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**Environmental**
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- Dry Heat IEC 60068-2-2
- Vibration IEC 60068-2-6
Advanced PID Temperature Controller
Series PR 69

CONNECTION DIAGRAM

151A12B/151A13B

151B12B/151B13B

151C12B/151C13B

151D12B/151D13B

151A13B1

151B13B1

151C13B1

151D13B1

151E12B

MOUNTING DIMENSION (mm)

Terminal Connection: AWG 20 to 12, Ph1- 4...5.0 mm, Torque 0.5 N·m (4.4 lb.in)