

Temperature Controller - PR 69-96X96mm

- Flush Mounting Version **96x96** mm with Dual Line Digital Seven Segment Display
- Universal Input
- Configurable Output combination
- Configurable: Band, Deviation, Sensor break & Loop break alarms
- Single/Dual acting PID controllers with 4 Control modes
- Analog Voltage/Current Inputs (0-5V, 1-5V, 0-10V / 4-20mA) & Outputs (0-10V / 4-20mA)
- Auto-tuning PID with provision for Soft-Start
- 6 Segment Ramp & Soak profile with Power Failure resumption modes
- Rapid Set Point change feature
- RS485 Communication
- Bumpless Auto-Manual transfer
- IP 20 (for Terminals & Enclosure) IP 40 (for Front Panel only)
- Timer functionality with settable time from 1min to 9999 min
- CE and RoHS complied



Ordering Information

Dual Acting PID Controller

Cat. No.	Description
151F43B	2 Relays (SPST 5A each), SSR (12 VDC, 24mA)
151G43B	1 Relay (SPST 5A), Analog output (0-10V, 4-20mA), SSR (12 VDC, 24mA)
151H43B	2 Relays (SPST 5A each), Analog output (0-10V, 4-20mA)
151J43B	3 Relays (SPST 5A each)
151F43B1	2 Relays (SPST 5A each), SSR (12 VDC, 24mA) with RS485
151G43B1	1 Relay (SPST 5A), Analog output (0-10V, 4-20mA), SSR (12 VDC, 24mA) with RS485
151H43B1	2 Relays (SPST 5A each), Analog output (0-10V, 4-20mA) with RS485
151J43B1	3 Relays (SPST 5A each) with RS485

Temperature Controller - PR 69-96X96mm



Cat. No.	151F43B1	151G43B1	151H43B1	151J43B1
Parameters				
Supply Voltage (ϕ)	110 - 240 VAC/DC			
Supply Variation	-20% to +20%(of ϕ)			
Frequency	50/60 Hz			
Control Action	ON/OFF (Symmetric/ Asymmetric), PID (Single/ Dual Acting) (Neutral zone only for dual 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)			
Analog Input	0-5 V, 1-5 V, 0-10 V / 4-20 mA			
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, for j, K +/-1% & for other thermocouple it is +/- 3%, For Tc and mV signals +/- 0.2 % at 25°C (for DC analog input)			
Resolution	0.1°C for RTD, J,E & 1° for S,B,K,R & 0.001°C for mV signals, +/-1 Digit (For DC Analog Input)			
Configurable Set Points	4			
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@240VAC/24VDC	Analog: 0 - 10V DC / 4 - 20 mA Configurable Retransmission Output		Relay: SPST 5A @ 240 VAC / 24 VDC
Output 2				Relay: SPST 5A @ 240 VAC / 24 VDC
Output 3		SSR: 12 VDC, 24 mA Short Circuit Protection		Relay: SPST 5A @ 240 VAC / 24 VDC
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	3 Ramp & 3 Soak			
RS 485 Communication	RS 485 Communication			
Transmission Speed & Type	300 to 19200 BPS (Half Duplex)			
Transmission Protocol	Modbus RTU			
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)	96 x 96 x 69.1			
Weight (unpacked)	280 g			
Mounting	Flush			
Certification				
Degree of Protection	IP 20 Terminal & Enclosure, IP 40 (For Front Panel only)			

EMI / EMC

Harmonic Current Emissions	IEC 61000-3-2
ESD	IEC 61000-4-2
Radiated Susceptibility	IEC 61000-4-3
Electrical Fast Transients	IEC 61000-4-4
Surges	IEC 61000-4-5
Conducted Susceptibility	IEC 61000-4-6
Voltage Dips Immunity Test (DC)	IEC 61000-4-29
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
Repetitive Shock	IEC 60068-2-27
Non-Repetitive Shock	IEC 60068-2-27

Temperature Controller - PR 69-96X96mm



Ordering Information

Single Acting PID Controller

Advanced PID Series PR 69

Cat. No.	Description
151F42B	2 Relays (SPST 5A each), SSR driving output (12 VDC, 24 mA)
151G42B	1 Relay (SPST 5A), Analog output (0-10V, 4-20 mA), SSR driving output (12 VDC, 24mA)
151H42B	2 Relays (SPST 5A each), Analog output (0-10V, 4-20 mA)
151J42B	3 Relays (SPST 5A each)
151K42B	1 Relay (1 C/O 10A), SSR driving output (12 VDC, 24 mA)
151L42B	2 Relays (1 C/O 10A & SPST 5A), SSR driving output (12 VDC, 24 mA) without Analog Input

Temperature Controller - PR 69-96X96mm



Cat. No.	151F42B	151G42B	151H42B	151J42B
Parameters				
Supply Voltage (φ)	110 - 240 VAC/DC			
Supply Variation	-20% to +20% (of φ)			
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)			
Analog Input	0-5 V, 1-5 V, 0-10 V / 4-20 mA			
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, for j, K +/-1% & for other thermocouple it is +/- 3%, For Tc and mV signals +/- 0.2 % at 25°C (for DC analog input)			
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	Analog: 0 - 10V DC / 4 - 20 mA Configurable Retransmission Output		Relay: SPST 5A @ 240 VAC / 24 VDC
Output 2	Relay: SPST 5A @ 240 VAC / 24 VDC			
Output 3	SSR: 12 VDC, 24 mA Short Circuit Protection		Relay: SPST 5A @ 240 VAC / 24 VDC	
Analog Output Update Rate	N A		150ms to 5s	
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)	96 x 96 x 69.1			
Weight (unpacked)	280 g			
Mounting	Flush			
Certification				
Degree of Protection	IP 20 Terminal & Enclosure, IP 40 (For Front Panel only)			

EMI / EMC

ESD	IEC 61000-4-2
Radiated Susceptibility	IEC 61000-4-3
Electrical Fast Transients	IEC 61000-4-4
Surges	IEC 61000-4-5
Conducted Susceptibility	IEC 61000-4-6
Voltage dips Immunity test (DC)	IEC 61000-4-29
Conducted Emission	CISPR 11
Radiated Emission	CISPR 11

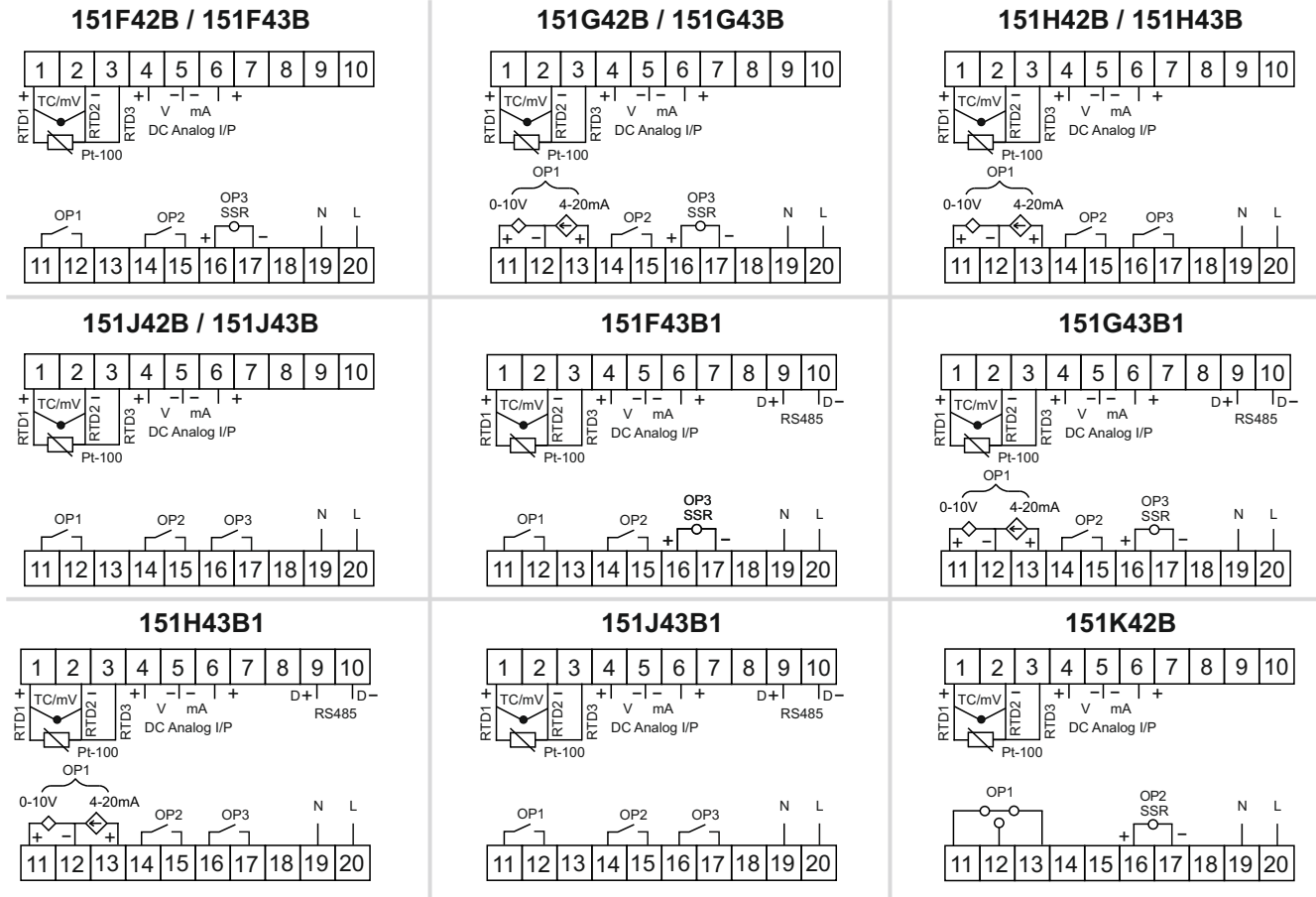
Environmental

Cold Heat	IEC 60068-2-1
Dry Heat	IEC 60068-2-2
Vibration	IEC 60068-2-6

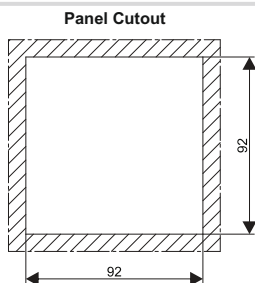
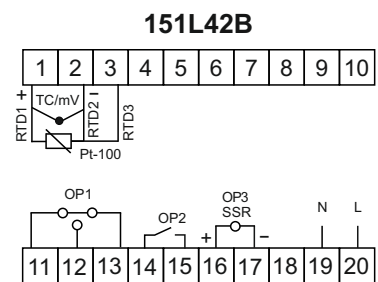
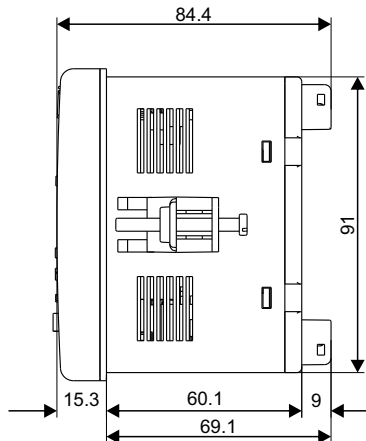
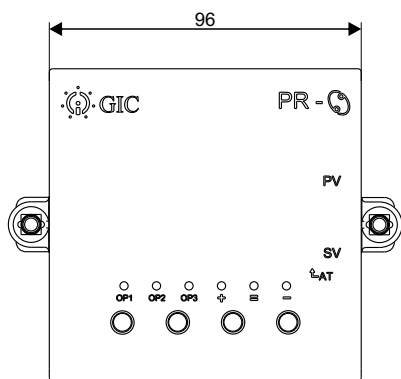
Temperature Controller - PR 69-96X96mm





CONNECTION DIAGRAM



MOUNTING DIMENSION (mm)



TERMINAL TORQUE & CAPACITY

 Ø 4 5.0mm Combi Head Bit./Flat	0.5 N.m (4.4 Lb.in) to 0.7 N.m (6.2 Lb. in)
 AWG	2 x 2.5 mm ² Solid/Stranded Wire 1 x 20 to 12

Temperature Controller - PR 69-96X96mm

- Flush Mounting **96x96** mm
- Highly Accurate Performance
- Wide supply range: 110-240 VAC/DC , -20 to +10% of Un.
- Thermocouple (J, K & T), RTD 3-wire (Pt-100) sensor inputs.
- Control Modes: Proportional, ON-OFF Asymmetric, ON-OFF Symmetric.
- Control Output: Relay or SSR Drive
- CE and RoHS complied



Ordering Information

Basic PID Temperature Controller

Cat. No.	Description
151M42B	Relay Output (SPDT 10A) & SSR driving output (12 VDC, 24mA max), One Relay Output (SPDT 5A)
151N42B	Relay Output (SPDT 10A) & SSR driving output (12 VDC, 24mA max)

Temperature Controller - PR 69-96X96mm



Cat. No.	151N42B	151M42B
Parameters		
Supply Voltage (ϕ)	110 - 240 VAC/DC	
Supply Variation	-20% to +10% (of ϕ)	
Frequency	50/60 Hz	
Control Action	ON/OFF (Symmetric / Asymmetric) & Proportional	
Power Consumption	8 VA @ 265 VAC	
Temperature sensors / Inputs	Thermocouple: J, K ; RTD: PT100 - 3 wire compensation;	
Measurement Range	TC (J-type): -50 to 1000°C OR -58 to 1832°F TC (K-type): -50 to 1350°C OR -58 to 1350°F TC (T-type): -50 to 400°C OR -58 to 752°F RTD (Pt-100): -100 to 650°C OR -148 to 1202°F	
Measurement Accuracy	± 0.5% of full scale	
Resolution	1°C Fixed	
Configurable Set Points	1	
Display	7 segment, 4 digit LED display	
Keypad	4-Keys: - ESC, - Down, - Up, - Enter / Select	
Contact Arrangement	Relay: 1 C/O (SPDT)	
Contact Rating	10A RES. @ 250VAC/30VDC	5A(NO), 3A(NC), RES. @ 250VAC/30VDC
Output 1	Relay 1C/O 10A OR SSR Drive, 12 VDC 30mA (Selectable)	
Output 2	NA	Relay 1C/O 5A
Error Indications		
	<i>SEn5</i>	Sensor open/break error
	<i>oUr9</i>	Over range error
	<i>Unr9</i>	Under range error
	<i>ErRt</i>	Error in auto-tuning
	<i>noRt</i>	Auto-tuning not finished within 10 hour
	<i>cbRt</i>	Loop break interrupted
Operating Temperature	0°C to +50°C	
Storage Temperature	-20°C to +60°C	
Humidity (Non Condensing)	5 to 80% RH	
Enclosure	Flame Retardant UL 94 - V0	
Dimensions (W x H x D) (in mm)	96 x 96 x 84.4	
Weight (unpacked)	250 g	
Mounting	Flush	
Certification		
Degree of Protection	IP 20 Terminal & Enclosure, IP 40 (For Front Panel only)	

EMI / EMC

Harmonic Current Emissions	IEC 61000-3-2 (Class A)
ESD	IEC 61000-4-2 (Level II)
Radiated Susceptibility	IEC 61000-4-3 (Level III)
Electrical Fast Transients	IEC 61000-4-4 (Level IV)
Surges	IEC 61000-4-5 (Level IV)
Conducted Susceptibility	IEC 61000-4-6 (Level III)
Voltage Dips & Interruptions (AC)	IEC 61000-4-11
Conducted Emission	CISPR 11 (Class A)
Radiated Emission	CISPR 11 (Class A)

Environmental

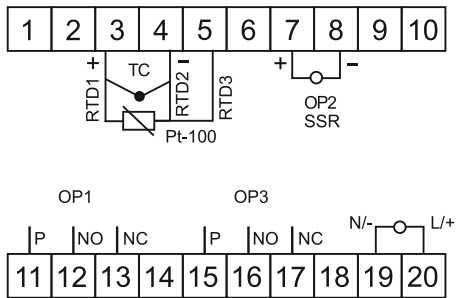
Cold Heat	IEC 60068-2-1
Dry Heat	IEC 60068-2-2
Vibration	IEC 60068-2-6 (5g)
Repetitive Shock	IEC 60068-2-27 (40g, 6ms)
Non-Repetitive Shock	IEC 60068-2-27 (30g, 15ms)

Temperature Controller -PR 69-96X96mm

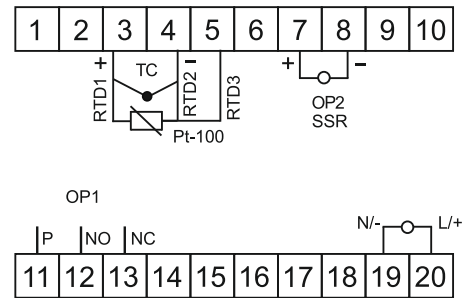


CONNECTION DIAGRAM

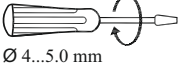

151M42B



151N42B



TERMINAL TORQUE & CAPACITY

 Ø 4...5.0 mm Combi Head Bit./Flat	0.5 N.m (4.4 lb.in) 0.7 N.m (6.2 lb.in)
	2 x 2.5 mm ² Solid/Stranded Wire
AWG	20 to 12

MOUNTING DIMENSION (mm)

