



# TC5396 TC5348 Auto-Tune PID Controller

Large & Bright Display Advanced. Efficient. Economical



Masibus PID Controller series TC5396 and TC5348 are designed to offer advanced performance at a competitive price, the controller comes with a Large White LED display plus 10 segment bargraph for display of MV, universal input, multiple output options, ideally suited for a wide range of applications such as plastic processing machines, packaging machinery and food processing applications. The controller has four relay outputs which can be configured as control, auxiliary and alarm.

PID Controller series TC5396 and TC5348 improve process efficiency and quality, input is truly universal, configurable for any thermocouple, RTD or mA/Volt. All inputs and outputs parameters are accessible over modbus communication interface option, retransmission option can be used for recording/datalogging.

PID Controller series TC5396 and TC5348 have an advanced auto-tuning function and can be set-up in different control modes from on-off, PID and valve position control without feedback, control output type options include relay, SSR and analog, manual mode override allows operator to manually control the process.

PID Controller series TC5396 and TC5348 have extended alarm capability, 15 different alarm modes are possible for each alarm output, the four relays can be configured for control output or alarm based on the actuator type.

The unit is easy to configure, operate and password protected, parameters that require frequent changes can be user selected and grouped in first level of access for quick parameterization.

### Features

- Advanced Auto-tune PID algorithm
- Universal input (TC, RTD, Volts, mA)
- 15 Alarm configurations
- RS-485 Modbus communication (Optional)
- Variety of retransmission output (Optional)
- Relay or SSR control output option
- User customized configuration level for quick access
- Auto/Manual selection with bump less transfer
- Auto-tune PID, On-Off or valve position control
- PV bias for input correction
- Programmable digital filter
- Manual reset to prevent overshoot
- Selectable ramp and 1 soak

## Applications

- Injection molding machines
- Packaging machines
- Food and beverages
- Industrial ovens
- Plastic industry
- Hot stamping machines

# **TECHNICAL SPECIFICATIONS**

	Input 1 PV input		SSR Output								
Input Type	t Type Thermocouple (E, J, K, T, B, R, S), RTD (Pt100),				Function Control						
1 31	current, voltage		Rating		11V DC@20m	A					
Display Range	Refer table-1		Analog Output 1-A	01 (Option)							
Accuracy	cy ±0.25% of FS ±1 count for TC, RTD input				Function Control, retransmission						
,	±0.1% of FS ±1 digit for li	near input	Current			mA @500Ω Max.					
ADC Resolution	16 bits		Voltage 0-5V/ 1-5V/ 0-10V @3 KΩ Min.								
Display Resolution	0.1 / 1.0 °C		Accuracy 0.25% FS								
Sampling Rate	5 Samples/Sec.		Analog Output 2-AO2 (Option)								
CJC Error	±2.0 °C		Function		Retransmissio	on					
Sensor Open Protection	All inputs except 0-5V / 0	Current 0-20mA/ 4-20mA@500Ω Max.									
Sensor Burnout Current	0.25uA	.25uA			Voltage 0-5V/ 1-5V/ 0-10V @3 KΩ Min.						
RTD Excitation Current	≈ 0.16mA		Accuracy		0.25% of FS						
NMRR	> 40dB		Communication O	utput-RS-48	35 (Option)						
CMRR	> 120dB		Function Read/Write all parameters								
Temp-co	< 100ppm/°C		Protocol Modbus RTU								
Input Impedance	> 1MΩ		Baud Rate		9600, 19200, 3						
Max Voltage	20VDC		Transmitter Supply		24V DC (+10%)	0%) @26mA (Current limited) For TC5396					
	Display & Keys			<u> </u>							
	TC5396	TC5348	Standard		Power Supp	0-60 Hz / 100-300VDC					
	0.8", 7 Segment,	0.4", 7 Segment,			18-36VDC	0-00 HZ / 100-300VDC					
Process Value	White LED, 4 digits	White LED, 4 digits	Optional								
	0.4", 7 Segment, Green	0.28", 7 Segment,	Power Consumption		8 VA Approx.						
Set Value	LED, 4 digits	Green LED, 4 digits	<ul> <li>Between primary term</li> </ul>	inals* and sec	ondary terminals*	*:At least 1500 V AC for 1 minute					
	10 segment bar	orcen EED, 4 digits	<ul> <li>Between primary terminals* and secondary terminals**:At least 1500 V AC for 1 minute</li> <li>Between secondary terminals**:At least 500 V AC for 1 minute</li> </ul>								
Manipulated Value	Orange LED	NA	* Primary terminals ind ** Secondary terminal	dicate power te	erminals and relay	output terminals.					
Kovo	0	Deerooo	Insulation resistance:			Communication O/F.					
Keys Chatua LEDa	Enter, A/M, Incre				Physical						
Status LEDs	For Relay, Communica	ation, A/IVI, Auto tune			Thysical						
	Output		1		T05206	TCE249					
	Output		Mounting Type		TC5396	TC5348 Papel					
Control Type			Mounting Type			Panel					
	On/Off, P, PI, Auto tune P		Dimension (in mm)		100 x 100 x 55	Panel 50 x 50 x 98					
Control Type	On/Off, P, PI, Auto tune P Valve position control (W		Dimension (in mm) Front Bezel (in mm	n) (H x W)	100 x 100 x 55 100 x 100	Panel 50 x 50 x 98 50 x 50					
Control Type Manual Offset	On/Off, P, PI, Auto tune P Valve position control (W ±50% of P band		Dimension (in mm) Front Bezel (in mm Panel Cutout (in m	n) (H x W) nm) (H x W)	100 x 100 x 55 100 x 100 92 x 92	Panel 50 x 50 x 98 50 x 50 45 x 45					
Control Type Manual Offset Proportional Band	On/Off, P, PI, Auto tune P Valve position control (W ±50% of P band 0.1 to 200.0 %		Dimension (in mm) Front Bezel (in mm Panel Cutout (in m Depth Behind Pane	n) (H x W) nm) (H x W)	100 x 100 x 55 100 x 100 92 x 92 52	Panel 50 x 50 x 98 50 x 50 45 x 45 95					
Control Type Manual Offset	On/Off, P, PI, Auto tune P Valve position control (W ±50% of P band 0.1 to 200.0 % 0 (off) to 1000 Sec.		Dimension (in mm) Front Bezel (in mm Panel Cutout (in m Depth Behind Pane Weight (Approx.)	n) (H x W) nm) (H x W) el (in mm)	100 x 100 x 55 100 x 100 92 x 92 52 300g	Panel 50 x 50 x 98 50 x 50 45 x 45 95 110g					
Control Type Manual Offset Proportional Band	On/Off, P, PI, Auto tune P Valve position control (W ±50% of P band 0.1 to 200.0 %		Dimension (in mm) Front Bezel (in mm Panel Cutout (in m Depth Behind Pane Weight (Approx.) Enclosure Materia	n) (H x W) nm) (H x W) el (in mm) I	100 x 100 x 55 100 x 100 92 x 92 52 300g	Panel 50 x 50 x 98 50 x 50 45 x 45 95 110g S (Front: Polycarbonate)					
Control Type Manual Offset Proportional Band Integral Time	On/Off, P, PI, Auto tune P Valve position control (W ±50% of P band 0.1 to 200.0 % 0 (off) to 1000 Sec. 0 (off) to 180 Sec.		Dimension (in mm) Front Bezel (in mm Panel Cutout (in m Depth Behind Pane Weight (Approx.) Enclosure Materia Enclosure Protecti	n) (H x W) nm) (H x W) el (in mm) I on	100 x 100 x 55 100 x 100 92 x 92 52 300g AB	Panel 50 x 50 x 98 50 x 50 45 x 45 95 110g S (Front: Polycarbonate) IP20					
Control Type Manual Offset Proportional Band Integral Time Derivative Time Cycle Time For SSR	On/Off, P, PI, Auto tune P Valve position control (W ±50% of P band 0.1 to 200.0 % 0 (off) to 1000 Sec. 0 (off) to 180 Sec. 1 to 60 Sec.	/ithout feedback)	Dimension (in mm) Front Bezel (in mm Panel Cutout (in m Depth Behind Pane Weight (Approx.) Enclosure Materia	n) (H x W) nm) (H x W) el (in mm) I on	100 x 100 x 55 100 x 100 92 x 92 52 300g AB: Barr	Panel 50 x 50 x 98 50 x 50 45 x 45 95 110g S (Front: Polycarbonate) IP20 ier type terminal 2.5mm <sup>2</sup>					
Control Type Manual Offset Proportional Band Integral Time Derivative Time Cycle Time For SSR For Relay	On/Off, P, PI, Auto tune P Valve position control (W ±50% of P band 0.1 to 200.0 % 0 (off) to 1000 Sec. 0 (off) to 180 Sec. 1 to 60 Sec. 10 to 300 Sec. (Hyst in o	vithout feedback) n/off mode)	Dimension (in mm) Front Bezel (in mm Panel Cutout (in m Depth Behind Pane Weight (Approx.) Enclosure Materia Enclosure Protecti Terminal & Cable S	n) (H x W) Im) (H x W) el (in mm) I on Size	100 x 100 x 55 100 x 100 92 x 92 52 300g AB: Barr Environment	Panel 50 x 50 x 98 50 x 50 45 x 45 95 110g S (Front: Polycarbonate) IP20 ier type terminal 2.5mm <sup>2</sup>					
Control Type Manual Offset Proportional Band Integral Time Derivative Time Cycle Time For SSR For Relay <b>Output Type</b>	On/Off, P, PI, Auto tune P Valve position control (W ±50% of P band 0.1 to 200.0 % 0 (off) to 1000 Sec. 0 (off) to 180 Sec. 1 to 60 Sec. 10 to 300 Sec. (Hyst in o <b>TC5396</b>	vithout feedback) n/off mode) TC5348	Dimension (in mm) Front Bezel (in mm Panel Cutout (in m Depth Behind Pane Weight (Approx.) Enclosure Materia Enclosure Protecti Terminal & Cable S	n) (H x W) mm) (H x W) el (in mm) l on Size ature	100 x 100 x 55 100 x 100 92 x 92 52 300g AB: Barr	Panel 50 x 50 x 98 50 x 50 45 x 45 95 110g S (Front: Polycarbonate) IP20 ier type terminal 2.5mm <sup>2</sup>					
Control Type Manual Offset Proportional Band Integral Time Derivative Time Cycle Time For SSR For Relay <b>Output Type</b> Relay-1	On/Off, P, PI, Auto tune P Valve position control (W ±50% of P band 0.1 to 200.0 % 0 (off) to 1000 Sec. 0 (off) to 180 Sec. 1 to 60 Sec. 10 to 300 Sec. (Hyst in o <b>TC5396</b> 10A @ 230VAC/28VDC	vithout feedback) n/off mode) TC5348 5A@230VAC/30VDC	Dimension (in mm) Front Bezel (in mm Panel Cutout (in m Depth Behind Pane Weight (Approx.) Enclosure Materia Enclosure Protecti Terminal & Cable S	n) (H x W) mm) (H x W) el (in mm) l on Size ature	100 x 100 x 55 100 x 100 92 x 92 52 300g AB: Barr Environment	Panel 50 x 50 x 98 50 x 50 45 x 45 95 110g S (Front: Polycarbonate) IP20 ier type terminal 2.5mm <sup>2</sup>					
Control Type Manual Offset Proportional Band Integral Time Derivative Time Cycle Time For SSR For Relay <b>Output Type</b> Relay-1 Relay-2	On/Off, P, PI, Auto tune P Valve position control (W ±50% of P band 0.1 to 200.0 % 0 (off) to 1000 Sec. 0 (off) to 180 Sec. 1 to 60 Sec. 10 to 300 Sec. (Hyst in o <b>TC5396</b> 10A @ 230VAC/28VDC 5A@230VAC/30VDC	vithout feedback) n/off mode) TC5348	Dimension (in mm) Front Bezel (in mm Panel Cutout (in m Depth Behind Pane Weight (Approx.) Enclosure Materia Enclosure Protecti Terminal & Cable S	n) (H x W) mm) (H x W) el (in mm) l on Size ature	100 x 100 x 55 100 x 100 92 x 92 52 300g AB: Barr Environment 0-55 °C	Panel $50 \times 50 \times 98$ $50 \times 50$ $45 \times 45$ 95 110g S (Front: Polycarbonate) IP20 ier type terminal 2.5mm <sup>2</sup> tal					
Control Type Manual Offset Proportional Band Integral Time Derivative Time Cycle Time For SSR For Relay <b>Output Type</b> Relay-1 Relay-2 Relay-3,4	On/Off, P, PI, Auto tune P Valve position control (W ±50% of P band 0.1 to 200.0 % 0 (off) to 1000 Sec. 0 (off) to 180 Sec. 1 to 60 Sec. 10 to 300 Sec. (Hyst in o <b>TC5396</b> 10A @ 230VAC/28VDC 5A@230VAC/30VDC	vithout feedback) n/off mode) TC5348 5A@230VAC/30VDC 5A@230VAC/30VDC NA	Dimension (in mm) Front Bezel (in mm Panel Cutout (in m Depth Behind Pane Weight (Approx.) Enclosure Materia Enclosure Protecti Terminal & Cable S Operating Temperati	n) (H x W) nm) (H x W) el (in mm) I on Size ature ure	100 x 100 x 55 100 x 100 92 x 92 52 300g Barr Environment 0-55 °C 0-80 °C 30-95% RH nc	Panel 50 x 50 x 98 50 x 50 45 x 45 95 110g S (Front: Polycarbonate) IP20 ier type terminal 2.5mm <sup>2</sup> tal					
Control Type Manual Offset Proportional Band Integral Time Derivative Time Cycle Time For SSR For Relay <b>Output Type</b> Relay-1 Relay-2 Relay-3,4 SSR	On/Off, P, PI, Auto tune P Valve position control (W ±50% of P band 0.1 to 200.0 % 0 (off) to 1000 Sec. 0 (off) to 180 Sec. 1 to 60 Sec. 10 to 300 Sec. (Hyst in o <b>TC5396</b> 10A @ 230VAC/28VDC 5A@230VAC/30VDC 5A@230VAC/30VDC Optional (In lieu of RL1)	vithout feedback) n/off mode) TC5348 5A@230VAC/30VDC 5A@230VAC/30VDC NA Yes# (Std.)	Dimension (in mm) Front Bezel (in mm Panel Cutout (in m Depth Behind Pane Weight (Approx.) Enclosure Materia Enclosure Protecti Terminal & Cable S Operating Tempera Storage Temperatu Humidity	n) (H x W) Im) (H x W) el (in mm) I on Size ature ure Ta	100 x 100 x 55 100 x 100 92 x 92 52 300g AB: Barr Environment 0-55 °C 0-80 °C 30-95% RH nc ble-1: Display	Panel 50 x 50 x 98 50 x 50 45 x 45 95 110g S (Front: Polycarbonate) IP20 ier type terminal 2.5mm <sup>2</sup> tal					
Control Type Manual Offset Proportional Band Integral Time Derivative Time Cycle Time For SSR For Relay <b>Output Type</b> Relay-1 Relay-2 Relay-3,4 SSR #If SSR is selected as a Control	On/Off, P, PI, Auto tune P Valve position control (W ±50% of P band 0.1 to 200.0 % 0 (off) to 1000 Sec. 0 (off) to 180 Sec. 1 to 60 Sec. 10 to 300 Sec. (Hyst in o <b>TC5396</b> 10A @ 230VAC/28VDC 5A@230VAC/30VDC 5A@230VAC/30VDC Optional (In lieu of RL1)	vithout feedback) n/off mode) TC5348 5A@230VAC/30VDC 5A@230VAC/30VDC NA Yes# (Std.)	Dimension (in mm) Front Bezel (in mm Panel Cutout (in m Depth Behind Pane Weight (Approx.) Enclosure Materia Enclosure Protecti Terminal & Cable S Operating Temperati	n) (H x W) hm) (H x W) el (in mm) l on Size ature ure Ta Input Typ	100 x 100 x 55 100 x 100 92 x 92 52 300g AB: Barr Environment 0-55 °C 0-80 °C 30-95% RH nc ble-1: Display	Panel 50 x 50 x 98 50 x 50 45 x 45 95 110g S (Front: Polycarbonate) IP20 ier type terminal 2.5mm <sup>2</sup> tal					
Control Type Manual Offset Proportional Band Integral Time Derivative Time Cycle Time For SSR For Relay <b>Output Type</b> Relay-1 Relay-2 Relay-3,4 SSR	On/Off, P, PI, Auto tune P Valve position control (W ±50% of P band 0.1 to 200.0 % 0 (off) to 1000 Sec. 0 (off) to 180 Sec. 1 to 60 Sec. 10 to 300 Sec. (Hyst in o <b>TC5396</b> 10A @ 230VAC/28VDC 5A@230VAC/30VDC 5A@230VAC/30VDC Optional (In lieu of RL1)	vithout feedback) n/off mode) TC5348 5A@230VAC/30VDC 5A@230VAC/30VDC NA Yes# (Std.)	Dimension (in mm) Front Bezel (in mm Panel Cutout (in m Depth Behind Pane Weight (Approx.) Enclosure Materia Enclosure Protecti Terminal & Cable S Operating Tempera Storage Temperatu Humidity	n) (H x W) Im) (H x W) el (in mm) I on Size ature ure Ta	100 x 100 x 55 100 x 100 92 x 92 52 300g AB: Barr Environment 0-55 °C 0-80 °C 30-95% RH nc ble-1: Display	Panel 50 x 50 x 98 50 x 50 45 x 45 95 110g S (Front: Polycarbonate) IP20 ier type terminal 2.5mm <sup>2</sup> tal on-condensing Range -200 to 1000 °C*					
Control Type Manual Offset Proportional Band Integral Time Derivative Time Cycle Time For SSR For Relay <b>Output Type</b> Relay-1 Relay-2 Relay-3,4 SSR #If SSR is selected as a Control	On/Off, P, PI, Auto tune P Valve position control (W ±50% of P band 0.1 to 200.0 % 0 (off) to 1000 Sec. 0 (off) to 180 Sec. 1 to 60 Sec. 10 to 300 Sec. (Hyst in o <b>TC5396</b> 10A @ 230VAC/28VDC 5A@230VAC/30VDC 5A@230VAC/30VDC Optional (In lieu of RL1) of o/p then RL1 will function	vithout feedback) n/off mode) TC5348 5A@230VAC/30VDC 5A@230VAC/30VDC NA Yes# (Std.) as an Alarm o/p	Dimension (in mm) Front Bezel (in mm Panel Cutout (in m Depth Behind Pane Weight (Approx.) Enclosure Materia Enclosure Protecti Terminal & Cable S Operating Tempera Storage Temperatu Humidity	n) (H x W) nm) (H x W) el (in mm) I on Size ature ure Ta Input Typ E J	100 x 100 x 55 100 x 100 92 x 92 52 300g AB: Barr Environment 0-55 °C 0-80 °C 30-95% RH nc ble-1: Display	Panel 50 x 50 x 98 50 x 50 45 x 45 95 110g S (Front: Polycarbonate) IP20 ier type terminal 2.5mm <sup>2</sup> tal on-condensing Range -200 to 1000 °C* -200 to 1200 °C*					
Control Type Manual Offset Proportional Band Integral Time Derivative Time Cycle Time For SSR For Relay <b>Output Type</b> Relay-1 Relay-2 Relay-3,4 SSR *If SSR is selected as a Control <b>Relay Output (RL1)</b>	On/Off, P, PI, Auto tune P Valve position control (W ±50% of P band 0.1 to 200.0 % 0 (off) to 1000 Sec. 0 (off) to 180 Sec. 1 to 60 Sec. 10 to 300 Sec. (Hyst in o <b>TC5396</b> 10A @ 230VAC/28VDC 5A@230VAC/30VDC 5A@230VAC/30VDC Optional (In lieu of RL1) of o/p then RL1 will function	vithout feedback) n/off mode) TC5348 5A@230VAC/30VDC 5A@230VAC/30VDC NA Yes# (Std.) as an Alarm o/p	Dimension (in mm) Front Bezel (in mm Panel Cutout (in m Depth Behind Pane Weight (Approx.) Enclosure Materia Enclosure Protecti Terminal & Cable S Operating Temperati Humidity	n) (H x W) nm) (H x W) el (in mm) I on Size ature ure Ta Input Typ E J K	100 x 100 x 55 100 x 100 92 x 92 52 300g AB: Barr Environment 0-55 °C 0-80 °C 30-95% RH nc ble-1: Display	Panel 50 x 50 x 98 50 x 50 45 x 45 95 110g S (Front: Polycarbonate) IP20 ier type terminal 2.5mm <sup>2</sup> tal pon-condensing Range -200 to 1000 °C* -200 to 1200 °C* -200 to 1372 °C*					
Control Type Manual Offset Proportional Band Integral Time Derivative Time Cycle Time For SSR For Relay <b>Output Type</b> Relay-1 Relay-2 Relay-3,4 SSR "If SSR is selected as a Control <b>Relay Output (RL1)</b> Function	On/Off, P, PI, Auto tune P Valve position control (W ±50% of P band 0.1 to 200.0 % 0 (off) to 1000 Sec. 0 (off) to 180 Sec. 1 to 60 Sec. 10 to 300 Sec. (Hyst in o <b>TC5396</b> 10A @ 230VAC/28VDC 5A@230VAC/30VDC 5A@230VAC/30VDC Optional (In lieu of RL1) of o/p then RL1 will function	vithout feedback) n/off mode) TC5348 5A@230VAC/30VDC 5A@230VAC/30VDC NA Yes# (Std.) as an Alarm o/p	Dimension (in mm) Front Bezel (in mm Panel Cutout (in m Depth Behind Pane Weight (Approx.) Enclosure Materia Enclosure Protecti Terminal & Cable S Operating Tempera Storage Temperatu Humidity	n) (H x W) nm) (H x W) el (in mm) I on Size ature ure Ta Input Typ E J K T	100 x 100 x 55 100 x 100 92 x 92 52 300g AB: Barr Environment 0-55 °C 0-80 °C 30-95% RH nc ble-1: Display	Panel 50 x 50 x 98 50 x 50 45 x 45 95 110g S (Front: Polycarbonate) IP20 ier type terminal 2.5mm <sup>2</sup> tal pon-condensing Range -200 to 1000 °C* -200 to 1200 °C* -200 to 1372 °C* -200 to 400 °C*					
Control Type Manual Offset Proportional Band Integral Time Derivative Time Cycle Time For SSR For Relay <b>Output Type</b> Relay-1 Relay-2 Relay-3,4 SSR *If SSR is selected as a Control <b>Relay Output (RL1)</b> Function Type	On/Off, P, PI, Auto tune P Valve position control (W ±50% of P band 0.1 to 200.0 % 0 (off) to 1000 Sec. 0 (off) to 180 Sec. 1 to 60 Sec. 10 to 300 Sec. (Hyst in o <b>TC5396</b> 10A @ 230VAC/28VDC 5A@230VAC/30VDC 5A@230VAC/30VDC 0ptional (In lieu of RL1) of o/p then RL1 will function Control Single Change over (C, NO	vithout feedback) n/off mode) TC5348 5A@230VAC/30VDC 5A@230VAC/30VDC NA Yes <sup>#</sup> (Std.) as an Alarm o/p	Dimension (in mm) Front Bezel (in mm Panel Cutout (in m Depth Behind Pane Weight (Approx.) Enclosure Materia Enclosure Protecti Terminal & Cable S Operating Temperati Humidity	n) (H x W) nm) (H x W) el (in mm) I on Size ature ure Ta Input Typ E J K T B	100 x 100 x 55 100 x 100 92 x 92 52 300g AB: Barr Environment 0-55 °C 0-80 °C 30-95% RH nc ble-1: Display	Panel 50 x 50 x 98 50 x 50 45 x 45 95 110g S (Front: Polycarbonate) IP20 ier type terminal 2.5mm <sup>2</sup> tal pon-condensing Range -200 to 1000 °C* -200 to 1200 °C* -200 to 1372 °C* -200 to 1800 °C					
Control Type Manual Offset Proportional Band Integral Time Derivative Time Cycle Time For SSR For Relay <b>Output Type</b> Relay-1 Relay-2 Relay-3,4 SSR *If SSR is selected as a Control <b>Relay Output (RL1)</b> Function Type	On/Off, P, PI, Auto tune P Valve position control (W ±50% of P band 0.1 to 200.0 % 0 (off) to 1000 Sec. 0 (off) to 180 Sec. 1 to 60 Sec. 10 to 300 Sec. (Hyst in o <b>TC5396</b> 10A @ 230VAC/28VDC 5A@230VAC/30VDC 5A@230VAC/30VDC Optional (In lieu of RL1) of o/p then RL1 will function	vithout feedback) n/off mode) TC5348 5A@230VAC/30VDC 5A@230VAC/30VDC NA Yes <sup>#</sup> (Std.) as an Alarm o/p D, NC) TC5348	Dimension (in mm) Front Bezel (in mm Panel Cutout (in m Depth Behind Pane Weight (Approx.) Enclosure Materia Enclosure Protecti Terminal & Cable S Operating Temperati Humidity	n) (H x W) nm) (H x W) el (in mm) l on Size ature ure Ta Input Typ E J K T B R	100 x 100 x 55 100 x 100 92 x 92 52 300g AB: Barr Environment 0-55 °C 0-80 °C 30-95% RH nc ble-1: Display	Panel 50 x 50 x 98 50 x 50 45 x 45 95 110g S (Front: Polycarbonate) IP20 ier type terminal 2.5mm <sup>2</sup> tal pon-condensing Range -200 to 1000 °C* -200 to 1200 °C* -200 to 1372 °C* -200 to 1372 °C* -200 to 1800 °C 0 to 1768 °C					
Control Type Manual Offset Proportional Band Integral Time Derivative Time Cycle Time For SSR For Relay <b>Output Type</b> Relay-1 Relay-2 Relay-3,4 SSR #If SSR is selected as a Control <b>Relay Output (RL1)</b> Function Type <b>Relay Output (RL2)</b>	On/Off, P, PI, Auto tune P Valve position control (W ±50% of P band 0.1 to 200.0 % 0 (off) to 1000 Sec. 0 (off) to 180 Sec. 1 to 60 Sec. 10 to 300 Sec. (Hyst in o <b>TC5396</b> 10A @ 230VAC/28VDC 5A@230VAC/28VDC 5A@230VAC/30VDC 0ptional (In lieu of RL1) of o/p then RL1 will function Control Single Change over (C, NO <b>TC5396</b> Ala	vithout feedback) n/off mode) TC5348 5A@230VAC/30VDC 5A@230VAC/30VDC NA Yes <sup>#</sup> (Std.) as an Alarm o/p D, NC) TC5348 rm	Dimension (in mm) Front Bezel (in mm Panel Cutout (in m Depth Behind Pane Weight (Approx.) Enclosure Materia Enclosure Protecti Terminal & Cable S Operating Temperat Storage Temperatu Humidity Input Thermocouple	n) (H x W) nm) (H x W) el (in mm) l on Size ature ure Ta Input Typ E J K T B R R S	100 x 100 x 55 100 x 100 92 x 92 52 300g Barr Environment 0-55 °C 0-80 °C 30-95% RH nc ble-1: Display e	Panel 50 x 50 x 98 50 x 50 45 x 45 95 110g S (Front: Polycarbonate) IP20 ier type terminal 2.5mm <sup>2</sup> tal pn-condensing Range -200 to 1000 °C* -200 to 1200 °C* -200 to 1372 °C* -200 to 1372 °C* -200 to 1800 °C 0 to 1768 °C 0 to 1768 °C					
Control Type Manual Offset Proportional Band Integral Time Derivative Time Cycle Time For SSR For Relay <b>Output Type</b> Relay-1 Relay-2 Relay-3,4 SSR #If SSR is selected as a Control <b>Relay Output (RL1)</b> Function Type <b>Relay Output (RL2)</b>	On/Off, P, PI, Auto tune P Valve position control (W ±50% of P band 0.1 to 200.0 % 0 (off) to 1000 Sec. 0 (off) to 180 Sec. 1 to 60 Sec. 10 to 300 Sec. (Hyst in o <b>TC5396</b> 10A @ 230VAC/28VDC 5A@230VAC/30VDC 5A@230VAC/30VDC Optional (In lieu of RL1) of o/p then RL1 will function Control Single Change over (C, NO	vithout feedback) n/off mode) TC5348 5A@230VAC/30VDC 5A@230VAC/30VDC NA Yes <sup>#</sup> (Std.) as an Alarm o/p D, NC) TC5348	Dimension (in mm) Front Bezel (in mm Panel Cutout (in m Depth Behind Pane Weight (Approx.) Enclosure Materia Enclosure Protecti Terminal & Cable S Operating Temperati Humidity	n) (H x W) nm) (H x W) el (in mm) l on Size ature ure Ta Input Typ E J K T B R S PT-100 (3	100 x 100 x 55 100 x 100 92 x 92 52 300g Barr Environment 0-55 °C 0-80 °C 30-95% RH nc ble-1: Display e	Panel 50 x 50 x 98 50 x 50 45 x 45 95 110g S (Front: Polycarbonate) IP20 ier type terminal 2.5mm <sup>2</sup> tal pon-condensing Range -200 to 1000 °C* -200 to 1200 °C* -200 to 1372 °C* -200 to 1372 °C* -200 to 1800 °C 0 to 1768 °C					
Control Type Manual Offset Proportional Band Integral Time Derivative Time Cycle Time For SSR For Relay <b>Output Type</b> Relay-1 Relay-2 Relay-3,4 SSR #If SSR is selected as a Control <b>Relay Output (RL1)</b> Function Type <b>Relay Output (RL2)</b> Function Type (Single Change over) <b>Relay Output (RL3, RL4)</b> ##	On/Off, P, PI, Auto tune P Valve position control (W ±50% of P band 0.1 to 200.0 % 0 (off) to 1000 Sec. 0 (off) to 180 Sec. 1 to 60 Sec. 10 to 300 Sec. (Hyst in o <b>TC5396</b> 10A @ 230VAC/28VDC 5A@230VAC/28VDC 5A@230VAC/30VDC 0ptional (In lieu of RL1) of o/p then RL1 will function Control Single Change over (C, NO <b>TC5396</b> Alar C, NO, NC	vithout feedback) n/off mode) TC5348 5A@230VAC/30VDC 5A@230VAC/30VDC NA Yes <sup>#</sup> (Std.) as an Alarm o/p D, NC) TC5348 rm	Dimension (in mm) Front Bezel (in mm Panel Cutout (in m Depth Behind Pane Weight (Approx.) Enclosure Materia Enclosure Protecti Terminal & Cable S Operating Temperat Storage Temperatu Humidity Input Thermocouple	n) (H x W) nm) (H x W) el (in mm) l on Size ature ure Ta Input Typ E J K T B R S PT-100 (3 1-5V/0-5"	100 x 100 x 55 100 x 100 92 x 92 52 300g AB: <b>Environment</b> 0-55 °C 0-80 °C 30-95% RH nc ble-1: Display e	Panel 50 x 50 x 98 50 x 50 45 x 45 95 110g S (Front: Polycarbonate) IP20 ier type terminal 2.5mm <sup>2</sup> tal pn-condensing Range -200 to 1000 °C* -200 to 1200 °C* -200 to 1372 °C* -200 to 1372 °C* -200 to 1800 °C 0 to 1768 °C 0 to 1768 °C					
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Control Type Manual Offset Proportional Band Integral Time Derivative Time Cycle Time For SSR For Relay <b>Output Type</b> Relay-1 Relay-2 Relay-3,4 SSR #If SSR is selected as a Control <b>Relay Output (RL1)</b> Function Type <b>Relay Output (RL2)</b> Function Type (Single Change over) <b>Relay Output (RL3, RL4)</b> ##	On/Off, P, PI, Auto tune P Valve position control (W ±50% of P band 0.1 to 200.0 % 0 (off) to 1000 Sec. 0 (off) to 180 Sec. 1 to 60 Sec. 10 to 300 Sec. (Hyst in o <b>TC5396</b> 10A @ 230VAC/28VDC 5A@230VAC/28VDC 5A@230VAC/30VDC 0ptional (In lieu of RL1) of o/p then RL1 will function Control Single Change over (C, NO <b>TC5396</b> Alar C, NO, NC	virhout feedback) virhout feedback) TC5348 5A@230VAC/30VDC 5A@230VAC/30VDC NA Yes <sup>#</sup> (Std.) as an Alarm o/p D, NC) TC5348 rm C, NO	Dimension (in mm) Front Bezel (in mm Panel Cutout (in m Depth Behind Pane Weight (Approx.) Enclosure Materia Enclosure Protecti Terminal & Cable S Operating Temperation Humidity Input Thermocouple RTD	n) (H x W) nm) (H x W) el (in mm) l on Size ature ure Input Typ E J K T B R S PT-100 (3 1-5V/0-5' 0/4-20m/	100 x 100 x 55 100 x 100 92 x 92 52 300g Barr Environment 0-55 °C 0-80 °C 30-95% RH nc ble-1: Display be swire) V/0-10V DC Δ (Ext 250 Ω)	Panel 50 x 50 x 98 50 x 50 45 x 45 95 110g S (Front: Polycarbonate) IP20 ier type terminal 2.5mm <sup>2</sup> tal ph-condensing Range -200 to 1000 °C* -200 to 1200 °C* -200 to 1372 °C* -200 to 1372 °C* -200 to 1800 °C 0 to 1768 °C 0 to 1768 °C -200 to 850 °C*					

#### Ordering code

Model	Input		Power Supply		Option-1 (RL1/SSR)		Option-2 (AO1)		Option-3 (AO2/RS-485)	
TC5396	1	E		85-265VAC /	1	Relay	Ν	None	Ν	None
TC5348	2	J	U1	100-300VDC	2	SSR	1	4-20 mA	1	4-20 mA
	3	K	U2	18-36VDC			2	0-20 mA	2	0-20 mA
	4	Т					3	1-5V	3	1-5V
	5	В					4	0-5V	4	0-5V
	6	R					5	0-10V	5	0-10V
	7	S							6	RS-485
	9	Pt-100								
	Е	E (4-20mA**)		**Ext. 250 Ohm						
	F	0-5V (0-20mA**)								
	G	0-10V								

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All specifications are subject to change without notice due to continuous improvements. Doc. Ref. TC5396, TC5348/R1F/0424