



**Universal input : 8 thermocouples, Pt100, 0/4~20 mA**

**1 / 2 setpoints**

**Isolated 0/4~20 mA or 0~10 V DC control / retransmission output**

**85~265 V AC SMPS or 20~35 V DC**

**Functions : PID / Time proportional / ONOFF control (Relay 1), ONOFF control (Relay 2)**

**Autotuning for PID parameters**

**Accuracy : 0.1% of full scale 1 C, typical**

**Sensor break indication**

**Plug-in design**

**SPECIFICATIONS**

All specifications at ambient of 25 C, unless specified otherwise

**INPUT**

**Input types**

- Thermocouple B, E, J, K, N, R, S, T
- RTD Pt100
- Linear input 4~20 mA, 0~20 mA
- Load resistance for 0/4~20 mA input 250 Ω, internally provided

**Transmitter supply**

22 V DC, nominal, 30 mA max

**Range limits**

See Table 1

**Accuracy**

See Table 1

**Cold junction compensation**

Automatic

**Temperature coefficient of accuracy**

0.5% of span / 25 °C

**Unit**

- Pt100, Thermocouple °C (For °F, contact us)
- Linear EU

**INDICATION**

**Display**

Upper : 4 digit, 7 segment 0.56" (14.2 mm) red LED display  
 Lower : 4 digit, 7 segment 0.56" (14.2 mm) green LED display  
 2 LEDs for relay status

**Status indication**

**OUTPUTS**

**No. of relays**

1/2 electromagnetic relays

**Relay contact type**

NO-C-NC

**Relay contact rating**

5A / 230 V AC, resistive  
 12 V DC drive signal for external SSR

**SSR drive**

**Control/Retransmission output**

Current or voltage

**Current output**

4~20 mA / 0~20 mA isolated from input  
 600 ohms

**Maximum load for current output**

**Voltage output**

0~10 V DC isolated from input

**Load for voltage output**

>10 Kohms

**Mutual isolation between input/output/supply**

1 KV AC / 1 minute

**PID CONTROL**

**PID parameter values**

Determined by 'Autotune' (value not available to user)  
 For 'Heat' type of applications (single output)

**PID control type**

**PROGRAMMABLE PARAMETERS**

**Setpoint Resolution**

Full range (See Table 1)  
 User selectable  
 0.1, 1

**High scale**

Full range (See Table 1)

**Low scale**

Full range (See Table 1)

**Hysteresis / Band**

0.1 to 99.9

**Bias**

-99.9 to 99.9

**Current output**

a) Retransmission b) Control

**Control functions**

PID / Time Proportional Control (TPC) / ONOFF Control (RLY1)

ONOFF Control (RLY2)

**Cycle time for TPC**

1 ~ 99 seconds

**Relay logic**

- a. Heat b. Cool
- c. Full scale high alarm
- d. Full scale low alarm

**OTHER**

**Keyboard**

Tactile, 3 keys

**Enclosure construction**

Plug-in (circuit removable without affecting terminal wiring)

**Dimensions (in mm)**

96(W) x 96(H) x 100(D)

**Mounting**

Panel mount

**Panel cutout**

92 x 92 mm

**Supply voltage**

- a) 85~265 V AC, 50/60 Hz
- b) 20~35 V DC

**Power consumption**

4 watts maximum

**Operating ambient temperature**

0 ~ 50°C

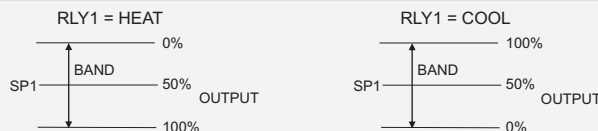
**Relative humidity**

Below 90%, non condensing

**RELAY LOGIC**



ONOFF CONTROL (Relay1, Relay2)



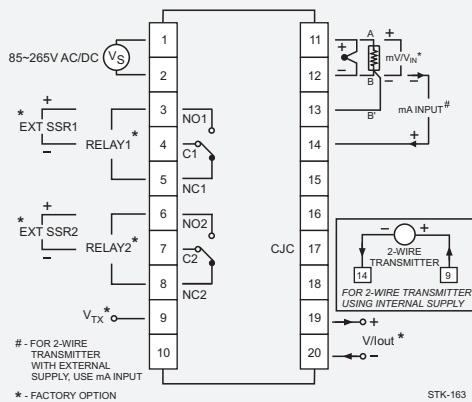
TIME PROPORTIONAL CONTROL (Relay1 only)

**TABLE 1**

SENSOR / INPUT	RANGE LIMITS (°C / EU)		RANGE IN WHICH ACCURACY IS SPECIFIED		TYPICAL ACCURACY AT 30 °C (°C / EU)	WORST CASE ACCURACY (°C / EU)
	LOW SCALE	HIGH SCALE	LOW SCALE	HIGH SCALE		
Iron / Constantan (J)	-99	760	0	760	± 1	± 3
Chromel / Alumel (K)	-99	1350	-50	1200	± 1	± 3
Pt / Pt - 13% Rh (R)	0	1760	0	1760	± 2	± 5
Pt / Pt - 10% Rh (S)	0	1760	0	1760	± 2	± 5
Copper / Constantan (T)	-99	400	-50	400	± 1	± 3
Nicrosil / Nisil (N)	-99	1300	-50	1200	± 1	± 3
Pt - 6% Rh / Pt - 30% Rh (B)	400	1820	400	1820	± 3	± 5
Chromel / Constantan (E)	-99	900	0	800	± 1	± 3
Pt100, 3-wire	-99	850	-50	850	± 0.5 *	± 2.0
Linear 0~20 mA, 4~20 mA	-1999	9999	-1999	9999	± 5 EU	± 20 EU

\* ± 0.1°C in the range -50 to +400 °C

### CONNECTION DIAGRAM



### ORDERING INFORMATION

2164 A

A	Configuration		
	SSR drive	Relay	Analog output
00	0	2	0
01	0	2	1
02	1	1	0

The following ordering options are available on request. Minimum order quantity and/or minimum order value may apply.

Option	Details
1. Analog output	0~10 V DC
2. Supply voltage	24 V DC
3. Supply voltage	24 V AC

## OTHER LOW COST PRODUCTS

### TEMPERATURE CONTROLLER EC48

48x48x100 2 SETPOINTS



### TEMPERATURE CONTROLLER TC48

48x48x100 2 SETPOINTS ANALOG OUTPUT



### TEMPERATURE CONTROLLER TC96

96x96x100 2 SETPOINTS ANALOG OUTPUT



### TEMPERATURE CONTROLLER EC96

96x96x100 2 SETPOINTS



### PID CONTROLLER P48

48x48x100 2 SETPOINTS



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