

HD SIGNAL CONDITIONER SERIES

THERMOCOUPLE TRANSMITTER

MODEL
HD-TC

MODEL & SUFFIX CODE SELECTION

MODEL HD-TC

Input signal

1:K 2:E 3:J 4:T 5:B
6:R 7:S O:Others

Output1 signal

1	0-10mVDC	A	4-20mADC
2	0-100mVDC	B	1-5mADC
3	0-1VDC	C	0-20mADC
4	0-10VDC	D	0-1mADC
5	0-5VDC	O	Spec Order
6	1-5VDC		

Output2 signal

Availability as Output1
N:None

Display

A:Percent
B:Input signal
C:Output signal
O:Others
N:None

Power

X:110V AC Y:220V AC
Z:24V DC O:Others

ORDERING INFORMATION

Specify code number and variables.

- Code number: ex) HD-TC-1ANNY
- Temperature range (e.g. 0 - 800 °C)
- Special input and output ranges : code:0
A : -10 ~ 20mA
V : 0 ~ ±15V

GENERAL SPECIFICATIONS

Construction : plug-in

Connection : M3.5 screw terminals

Housing material : flame-resistant resin (black)

Isolation : input to output to power

LCD meter : indicating input; 0.1% increments

Overrange output : approx. -10 - +120% at 1 - 5V

Front adjustments : zero and span ; ±5%

Burnout protection : upscale standard; downscale or no burnout optional



Linearization : standard

Cold junction compensation : CJC sensor attached to the input terminals

INPUT & OUTPUT

• INPUT : thermocouples

Minimum span : 3mV

Zero suppression/elevation : max. 1.5 times span

Input resistance : 30KΩ minimum

Burnout sensing : 0.1 μA

Temperature range

T/C	USABLE RANGE		MIN.SPAN	
	°C	°F	°C	°F
(PR)	0 to 1760	32 to 3200	370	670
K (CA)	-270 to +1370	-450 to +2500	75	140
E (CRC)	-270 to +1000	-450 to +1830	50	100
J (IC)	-210 to +1200	-350 to +210	60	110
T (CC)	-270 to +400	-450 to +750	75	140
B (RH)	0 to 1820	32 to 3300	780	1440
R	-50 to +1760	-50 to +3200	360	680
S	-50 to +1760	-50 to +3200	380	700
N	-270 to +1300	-450 to +2370	110	200

*Approximate values to obtain 3mV e.m.f. for your reference. Consult thermocouple reference tables, factory or representatives for confirmation.

■ OUTPUT

• DC Current : 0 – 20mA DC

Minimum span : 1mA

Zero suppression/elevation : max. 1.5 times span

Load resistance

Output	Load Resistance
4 – 20mA	: 750 (Ω maximum)
2 – 10mA	: 1500
1 – 5mA	: 3000
0 – 20mA	: 750
0 – 16mA	: 900
0 – 10mA	: 1500
0 – 1mA	: 15k

•DC Voltage : -10 – +12V DC

Minimum span : 5mV

Zero suppression/elevation : max. 1.5 times span

Load resistance : output drive 10mA maximum;

5mA for negative voltage output; at $\geq 0.5V$

Output	Load Resistance
0 – 10mV	: 10k (Ω minimum)
0 – 100mV	: 100k
0 – 1V	: 100
0 – 10V	: 1000
0 – 5V	: 500
1 – 5V	: 500

INSTALLATION

Power input

AC : rating $\pm 10\%$, 50/60 ± 2 Hz, approx. 2VA

DC : rating $\pm 10\%$, or 85 – 150V for 110V rating
(ripple 10% p-p max.)
approx. 2.6W (110mA at 24V)

Operating temperature : -5 to +60°C (23 to 140°F)

Operating humidity : 30 to 90% RH (non-condensing)

Mounting : surface or DIN rail

Dimensions : W50 x H87 x D123 mm

See General Spec. Sheet Page B-1.

Weight :

Terminal assignment : See General Spec. Sheet Page B-1.

PERFORMANCE in percentage of span

Accuracy : $\pm 0.1\%$

Cold junction compensation error

(at 20°C $\pm 10^\circ\text{C}$ or 68°F $\pm 18^\circ\text{F}$)

K, E, J, T & N : $\pm 5^\circ\text{C}$ or 0.98°F maximum

S, R & PR : $\pm 1^\circ\text{C}$ or 1.8°F maximum

Temp. coefficient : $\pm 0.015\%/^\circ\text{C}$ ($\pm 0.008\%/^\circ\text{F}$)

(at over 400°C or 750°F for R, S and PR;
over 770°C or 1420°F for B)

Ripple : 0.25% p-p max. (100/120Hz)

Response time : $\leq 0.4(400\text{ms})$ seconds (0 – 90%)

approx. 25 milliseconds with option

Burnout response : ≤ 10 seconds

Line voltage effect : $\pm 0.1\%$ over voltage range

Insulation resistance : $\geq 100\text{M}\Omega$ with 500V DC

Dielectric strength : 1500V AC @1 minute

(input to output to power to ground)

Common mode voltage : 30V RMS (CSA)

Surge withstand Voltage : 1.2/50 μsec , $\pm 5\text{KV}$

(INPUT to OUTPUT to GROUND)

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

