SP. No.

Yamatake Corporation

製品仕様書
SPECIFICATIONS

1. GENERAL DESCRIPTION:

IntellpaK IP50TCA / IP50TCC are compact signal converter which transmit DC voltage or current proportional to thermocouple input.
Non- isolation (between input and output) type (IP50TCA) and isolation type (IP50TCC) are provided.

2. MODEL NUMBERING SYSTEM:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
I	P	5	*	*	*	*	*	*	*	*	*	0	*	*	*	*
I							II		III	IV	V		VI			

I Basic Model No.	II Input Type	III Output Type	IV Power Voltage	V Additional Processing	VI Input Range Specification	Contents
IP50TCA IP50TCC						Non-isolation type Isolation type
	Table 2-1					
		Table 2-3				
			A B D			AC100/110/120V 50/60Hz AC200/220/240V 50/60Hz DC24V
				0 T D B Y		None Tropical processing provided Test data are attached Tropical processing provided, and test data are attached Calibration certificate available
					Table 2-2	

Note: In case of the standard range, the relevant Type No. shall be entered in II, but nothing need be entered in VI.
For the semi-standard range, the relevent Type No. including the temperature range shall b entered in II, and furhter the Type No. for specifying the temperature range, which is configured from Table 2-2, shall be entered in VI.

頁	改番
10	01
9	00
8	00
7	00
6	00
5	00
4	00
3	00
2	00

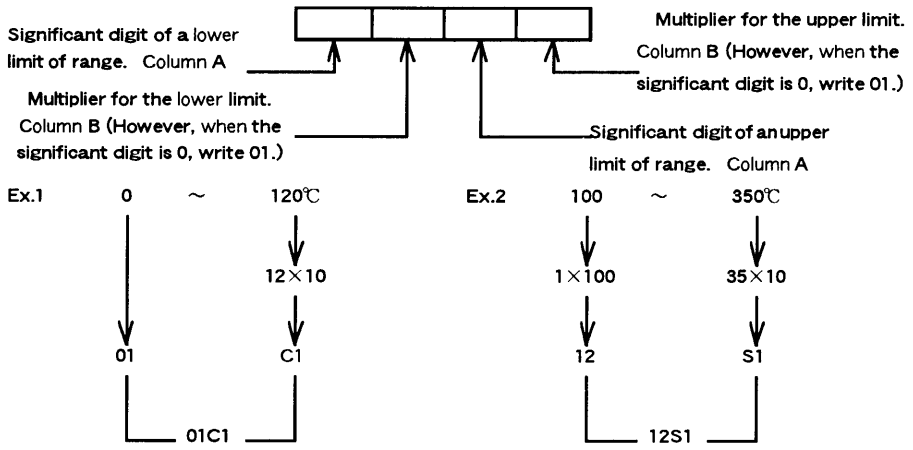
改番 REV.	来歴 RECORD	:	日付 DATE	担当 BY	検閲 APPD.
01	JEO01-0599		8-20-01	Harada	Okazawa

作成 DR. I.Harada		尺度 SCALE	記入のない公差 TOL. UNLESS NOTED
検図 CHK. U.Date	形番 MODEL	IP50TCA/TCC	
認可 APPD Kiikuniya	名称 NAME	mV-I Converter (Thermocouple)	
日付 DATE 2-8-99	図番 NO.	AD12765E	改番 REV. 01

Table 2-1 Input (JIS C 1602 1981)

Input Type	Type No.	Input Type and Range	Type No.	Input Type and Range	Type No.	Input Type and Range
Standard range	K1	K 0～ 100℃	E1	E 0～100℃	R4	R 0～ 400℃
	K2	K 0～ 150℃	E2	E 0～150℃	R5	R 0～ 500℃
	K3	K 0～ 200℃	ED	E 0～200℃	R6	R 0～ 600℃
	KE	K 0～ 250℃	EE	E 0～250℃	R7	R 0～ 800℃
	KF	K 0～ 300℃	EF	E 0～300℃	RM	R 0～1000℃
	KH	K 0～ 400℃	EH	E 0～400℃	RN	R 0～1200℃
	KJ	K 0～ 500℃	EJ	E 0～500℃	RP	R 0～1300℃
	KK	K 0～ 600℃	EK	E 0～600℃	RQ	R 0～1400℃
	KL	K 0～ 800℃	T1	T 0～100℃	RR	R 0～1600℃
	KM	K 0～1000℃	T2	T 0～150℃	WK	WRe5-26 0～ 600℃
	KN	K 0～1200℃	T3	T 0～200℃	WL	WRe5-26 0～ 800℃
	J1	J 0～ 100℃	TE	T 0～250℃	WM	WRe5-26 0～1000℃
	J2	J 0～ 150℃	TF	T 0～300℃	WN	WRe5-26 0～1200℃
	JD	J 0～ 200℃	—	—	WP	WRe5-26 0～1300℃
	JE	J 0～ 250℃	—	—	WQ	WRe5-26 0～1400℃
	JF	J 0～ 300℃	—	—	WR	WRe5-26 0～1600℃
	JH	J 0～ 400℃	—	—	WS	WRe5-26 0～1800℃
	JJ	J 0～ 500℃	—	—	WT	WRe5-26 0～2000℃
	JK	J 0～ 600℃	—	—	WU	WRe5-26 0～2300℃
Semi-standard range (Span specification)	0K	Temperature range span: 100°C or more within K 0～1200℃			• Configure the type No. of the temperature range specification according to Table 2-2, and enter the result in VI. • The lower limit value of the range shall be the span value ×1.5 or less.	
	0J	Temperature range span: 100°C or more within J 0～ 600℃				
	0E	Temperature range span: 100°C or more within E 0～ 600℃				
	0T	Temperature range span: 100°C or more within T 0～ 300℃				
	0R	Temperature range span: 400°C or more within R 0～1600℃				
	0W	Temperature range span: 600°C or more within WRe5-26 0～2300℃				

Table 2-2 Temperature Range Specification



A						B	
Type No.	Significant Digit	Type No.	Significant Digit	Type No.	Significant Digit	Type No.	Multiplier
0	0	B	11	P	23	1	×10
1	1	C	12	Q	24	2	×100
2	2	D	13	R	25	3	×1000
3	3	E	14	S	35	8	×1
4	4	F	15	T	45	A	×(−10)
5	5	G	16	U	55	B	×(−100)
6	6	J	17	V	65	Y	×(−1)
7	7	K	18	W	75	—	—
8	8	L	19	X	85	—	—
9	9	M	21	Y	95	—	—
—	—	N	22	—	—	—	—

Table 2-3 Output

Type No.	Output Type	Allowable Load Resistance	Output Range
A	4~20mA	750 Ω max.	0~Approx. 25mA
B	1~5mA	3k Ω max.	0~ Approx.6.5mA
C	2~10mA	1.5k Ω max.	0~ Approx.13mA
D	0~1mA	15k Ω max.	0~ Approx.1.3mA
E	0~10mA	1.5k Ω max.	0~ Approx.13mA
F	0~16mA	937 Ω max.	0~ Approx.20mA
G	0~20mA	750 Ω以 max.	0~ Approx.25mA
H	1~5V	2.5k Ω min.	Approx. ±6.5V
J	0~10mV	10k Ω min.	Approx. ±13mV
K	0~100mV	100k Ω min.	Approx. ±130mV
L	0~1V	500 Ω min.	Approx. ±1.3V
N	0~5V	2.5k Ω min.	Approx. ±6.5V
P	0~10V	5k Ω min.	Approx. ±13V
R	-10~10V	5k Ω min.	Approx. ±13V

3. SPECIFICATIONS:

Accuracy:	±0.4%FS (at reference temperature 23°C)
Response time:	25ms (90% response)
Zero and span adjustment:	About ±10%FS
Temperature characteristics:	±0.15%FS/10°C
Influence of power supply voltage variance:	±0.1%FS (at operating conditions)
Burnout:	Up-scale (at input disconnection)
Cold junction compensation accuracy:	±0.5°C (J, E, T, K)
	±1.0°C (R, W)

3.1 Input

Input type:	Thermocouple (Refer to Table 2-2)
Input bias current:	±0.1μA max.
Input impedance:	1MΩ min.
Allowable load resistance:	1kΩ max.

3.2 Output

Output type:	DC voltage/DC current (Refer to Table 2-3)
Allowable load resistance:	Refer to Table 2-3

4. ENVIRONMENTAL CONDITIONS:

4.1 Reference Operating Conditions

Ambient temperature:	23±2°C
Ambient humidity:	60±5%RH (Non-condensing)
Power supply voltage:	AC100/110/120V ±1%
	AC200/220/240V ±1%
	DC24V ±1%
Power supply frequency:	50Hz±1Hz (at 50Hz power supply)
	60Hz±1Hz (at 60Hz power supply)
Vibration resistance:	0m/s²
Shock resistance:	0m/s²
Mounting angle:	±3° from the reference plane

4.2 Operating Condition

Ambient temperature:	-5 to +55°C
Ambient humidity:	90%RH max. (Non-condensing)
Power supply voltage:	AC80 to 132V AC170 to 264V DC24V±10%
Power supply frequency:	45 to 65Hz
Vibration resistance:	0 to 2m/s² 10 to 60Hz in X, Y and Z directions for 2 hours each (with a vibration absorbing bracket, except DIN rail mounting)
Shock resistance:	0 to 9.8m/s² (except DIN rail mounting)
Mounting angle:	±10° from the reference plane

4.3 Shipping/Storage Conditions

Ambient temperature:	-20 to +70°C
Ambient humidity:	90%RH max. (Non-condensing)
Vibration resistance:	0 to 4.9m/s² 10 to 60Hz in X, Y and Z directions for 2 hours each (with a vibration absorbing bracket, except DIN rail mounting)
Shock resistance:	0 to 490m/s² 5 times each in vertical direction (except DIN rail mounting)
Shipping drop:	Drop height; 60cm (1 corner and 3 edges radiating from the corner and all 6 sides free drop)

4.4 Others

Power consumption:	Approx. 5.5VA (AC power supply)
	Approx. 2.7VA (DC power supply)
Inrush current at application of power supply:	
	10A max., 1ms (AC power supply)
	5A max., 1ms (DC power supply)
Insulation resistance:	Higher than 100MΩ by a 500V DC megger between input/output terminals and power terminals and also between mutual input/output terminals (isolation type)
Dielectric strength:	2000VAC, 1 min. between input/output terminals and power terminals and also between mutual input/output terminals (isolation type)
Case material:	Heat-resisting ABS resin
Case color:	Gray, Munsell code 2.5PB3.5/1
Wiring terminal screw:	M3.5
Tightening torque:	0.78 to 0.98N•m
Installation:	Installed on a wall or DIN rails
Weight (Mass):	Approx. 200g.
Accessories:	Base socket (QN719A)
	Cold junction compensating sensor
Option:	Vibration-absorbing bracket (QN718A)

5. CIRCUIT BLOCK DIAGRAM:

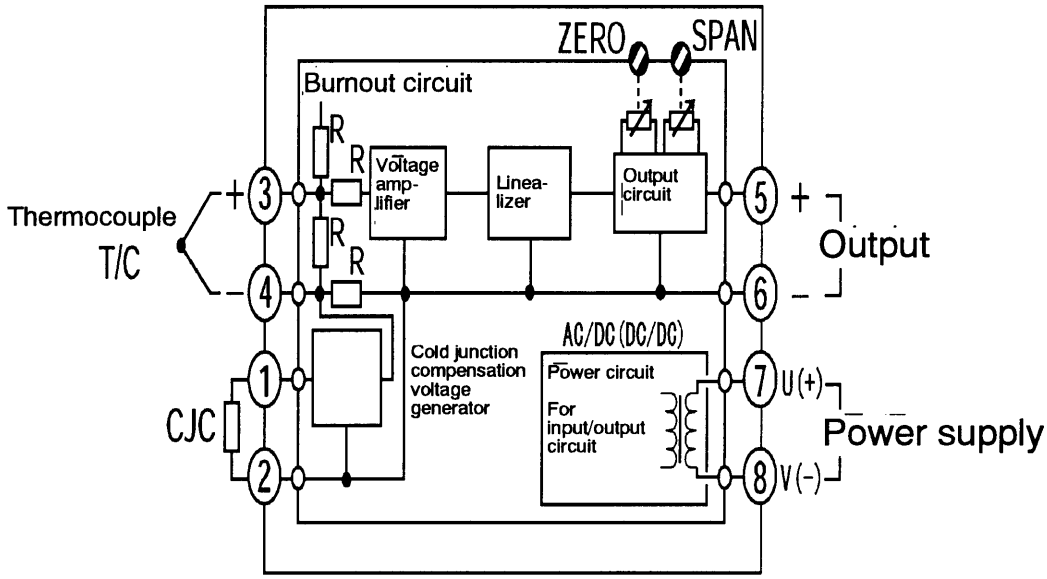


Fig.5-1 IP50TCA (Non-isolation)

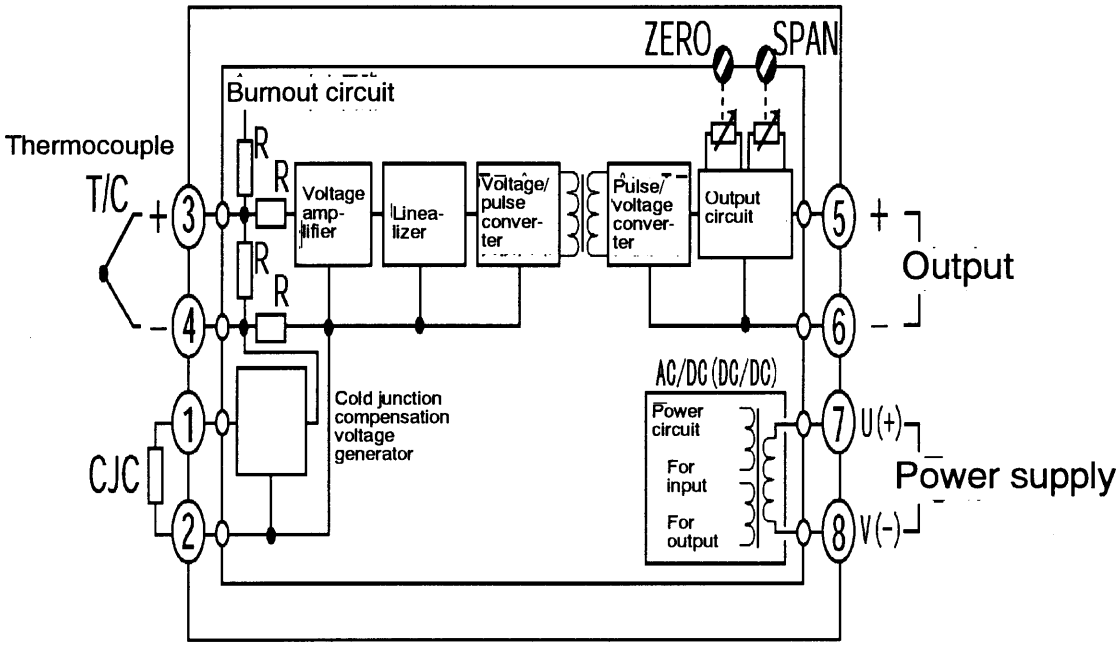


Fig.5-2 IP50TCC (Isolation)

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作成 DR. I.Harada		尺度 SCALE	記入のない公差 TOL. UNLESS NOTED
検図 CHK. U.Date	形番 MODEL	IP50TCA/TCC	
認可 APPD Kiikuniya	名称 NAME	mV-I Converter (Thermocouple)	
日付 DATE 2-8-99	図番 NO.	AD12765E	改番 REV. 00

6. WIRING:

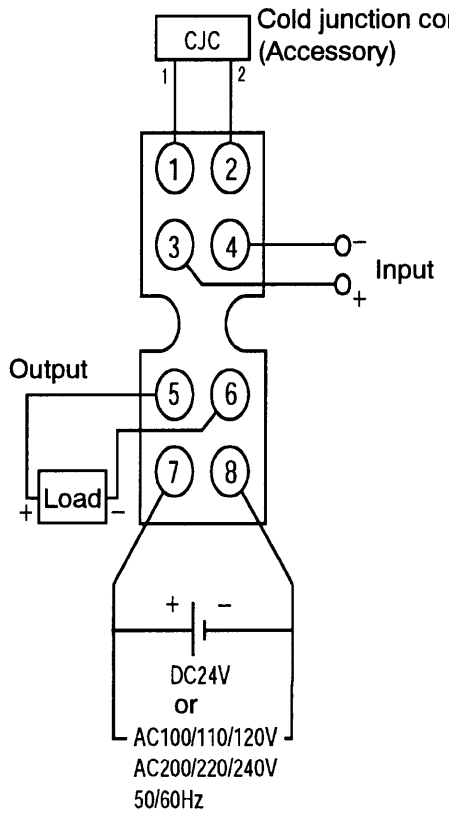

Table 6-1 Terminal arrangement

Terminal No.	Connection		Contents
1	CJC	1	Mount the cold junction compensating sensor. (CJC)
2		2	
3	Input	+	Connect the specified input signal.
4		-	
5	Output	+	The signal based on the I/O specification is output.
6		-	
7	Power supply	+	Connect the power supply of the rated voltage.
8		-	

7. INSTALLATION:

Socket can be mounted directly or through DIN rail. Following drawing shows direct mounting by screws.

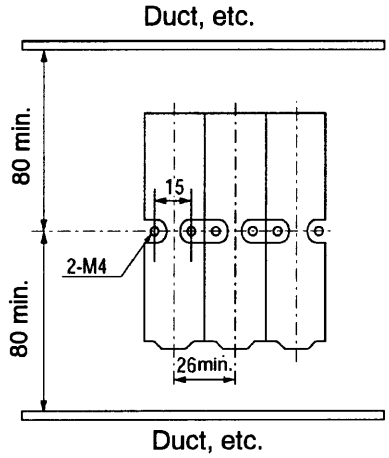

Fig. 7-1 Lateral installation and vertical space required

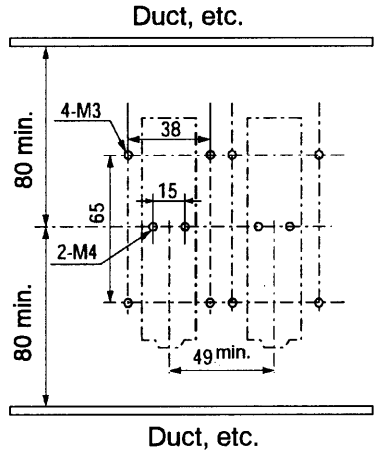

Fig. 7-2 Installation on vibration-absorbing bracket and vertical space required

SP. No.

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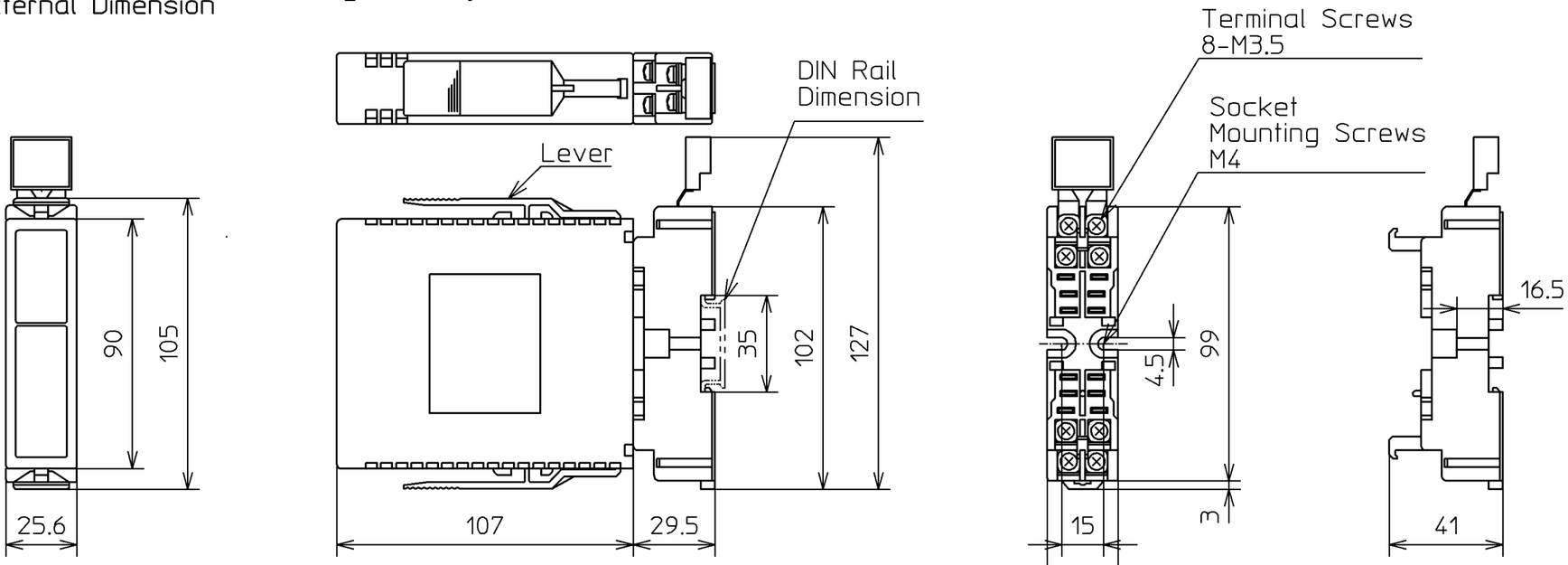
製品仕様書
SPECIFICATIONS

8. External Dimension

Fig.8-1 Body and Base Socket



When installed
(Reference)

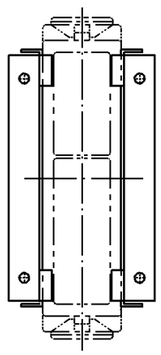
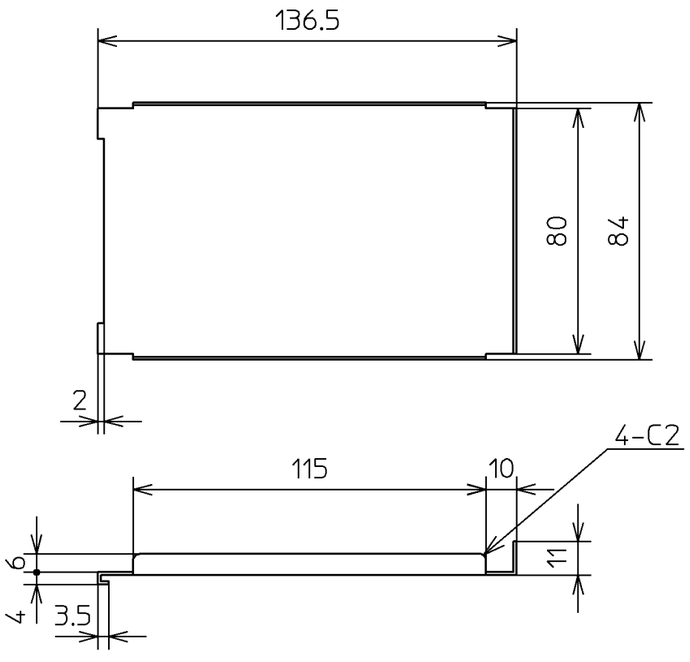
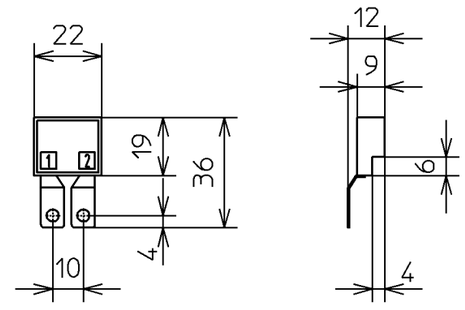


Fig.8-2 Vibration-absorbing Bracket



Material:
Cold-rolled steel plate SPCC t1
Zinc plated with chromate treatment

Fig.8-3 CJC Sensor



01	JE001-0599	8-20-01	I.Harada	M.Ogido
改番 REV.	来歴 RECORD	: 日付 DATE	担当 BY	検閲 APPD.

作成DR. I.Harada		尺度SCALE 1:2	記入のない公差 TOL. UNLESS NOTED
検図CHK. M.Ogido	形番 MODEL	IP50TCA/TCC	
認可APPD M.Ogido	名称 NAME	mV-I Converter (Thermocouple)	
日付DATE 8-20-01	図番 NO.	AD12765E	改番REV. 01

"RESTRICTIONS ON USE"

This product has been designed, developed and manufactured for general-purpose application in machinery and equipment.
Accordingly, when used in applications outlined below, special care should be taken to implement a fail-safe and/or redundant design concept as well as a periodic maintenance program.

- Safety devices for plant worker protection
- Start/stop control devices for transportation and material handling machines
- Aeronautical/aerospace machines
- Control devices for nuclear reactors

Never use this product in applications where human safety may be put at risk.