



Standard Specifications Type: MS3772 (Dual Output)

MS3700

Slim-shaped Plug-in RTD Temperature Converter with Isolated Dual Output (Programmable Model)

Overview

MS3772 is a slim-shaped plug-in RTD temperature converter with isolated dual output to detect variation of RTD resistance and convert it into various DC signals as selected. This is a programmable model which allows a user to set the input and output signal levels from his/her PC.

Ordering Format

MS3772 -  -  -

Type \_\_\_\_\_

Power Supply \_\_\_\_\_

A : AC 85 ~ 264V D : DC 24V  
 P : DC 85 ~ 264V

Input Signal... (Measuring Temperature Range) \_\_\_\_\_

P 1 : Pt 100 Ω (ITS -90) ... (-200~660°C)  
 P 2 : Pt 100 Ω (IPTS-68) ... (-200~660°C)  
 J : JPt100 Ω (JIS' 89) ... (-200~510°C)  
 P 5 : Pt 50 Ω (JIS' 81) ... (-200~649°C)

\*Contact us for special spec. other than the above.

Output-1/Output-2 \_\_\_\_\_

A 1 : 4 ~ 20mA DC / 1 ~ 5V DC\*1  
 A 2 : 4 ~ 20mA DC / 4 ~ 20mA DC\*1  
 4W : 0 ~ 10V DC / 0 ~ 10V DC\*2  
 5W : 0 ~ 5V DC / 0 ~ 5V DC\*2  
 6W : 1 ~ 5V DC / 1 ~ 5V DC\*2

\*1 Fixed output. Output mode setting is not allowed.  
 To be specified upon ordering.  
 \*2 Output mode setting is allowed.

Option \_\_\_\_\_

No entry: None. (Burn-out: Upscale unless otherwise specified.)  
 / U : Burn-out Protection = Upscale  
 / D : Burn-out Protection = Downscale  
 / X : Custom Order. .... Additional cost required.

\*Contact us for special spec. other than the above.

Please specify upon ordering

•Product Model Number (Measuring Temperature Range)  
 (Example) MS3772-D-P16W(0~150°C)

\*Please specify the temp. range in °C from the followings:

Input Signal Code	Measuring Temp. Range	Unique Name for Software
Pt100 Ω (ITS -90)	-200 ~ 660 °C	「Pt 100 Ω (ITS -90)」
Pt100 Ω (IPTS-68)	-200 ~ 660 °C	「Pt 100 Ω (IPTS-68)」
JPt100 Ω (JIS' 89)	-200 ~ 510 °C	「JPt 100 Ω」
Pt 50 Ω (JIS' 81)	-200 ~ 649 °C	「Pt 50 Ω」

\*Minimum input span 25°C min.



Specifications

●Power Supply Section

Power Supply	AC85~264V (Rating100V~240V) 47~63Hz DC24V±10% DC85~264V (Rating100V~240V)
--------------	---

Power Sensitivity Within ±0.1% of Span for each power supply voltage.

Power Supply Fuse 160mA Fuse

Maximum Power Consumption	DC24V DC85~264V 5.0VA max. / 1.5W max. / 6.0W max
---------------------------	--

●Input Section

Input Signal	3-wire RTD input (JIS, etc.)
Exciting Current	Approx. 1mA
Input Resistance	200 Ω max. per wire
Factory Default Setting	Input Signal Code: Pt100 (ITS-90), Measuring Temperature Range: 0~100°C, Upscale Burnout unless otherwise specified.

●Output Section

Maximum Output Load	
Voltage Output (DC)	2mA max.
Current Output (DC)	4~20mA Out-1 750 Ω max. Out-1 550 Ω max. Out-2 350 Ω max.
Burn-out Protection	Selectable Upscale, Downscale or Not Specified.
Burnout Time	10 sec. max.
Factory Default Setting	Output Code: 6W(1~5V DC/1~5V DC), Burn-out Protection is upscale for voltage output type unless otherwise specified.

●Software Settings

Software Configurable Items	<ul style="list-style-type: none"> <li>•Thermocouple type</li> <li>•ADC range (Input range)</li> <li>•Measuring temperature range</li> <li>•Burn-out Protection</li> <li>•Output signal range</li> <li>•Zero point/Span Adjustment (Approx. ±4% of Span)</li> <li>•PAUSE state</li> </ul>
-----------------------------	---

(The above can be configured with PC via RS-232C.)

☞ADC range setting (Excitation current approx. 1mA) × Resistance < ADC Range)

(e.g.) For Pt100 Ω 0~100°C  
 0.001(A) × 138.51(Ω) = 0.13851(mV) × 1.1 = 0.152361 (= Approx. 153mV)

Therefore, the setting for ADC range is "160mV."

\* Refer to JIS Resistance Table for RTD resistance.

**mt Slim-shaped Plug-in RTD Temperature Converter with Isolated Dual Output Programmable Model)****● Standard Performance****Conversion Accuracy** (Input accuracy + Output accuracy)

The input Accuracy (Inversely proportional to the input span.)

Pt100Ω (ITS-90) Factor 0.01%

Pt100Ω (IPTS-68) Factor 0.01%

JPt100Ω (JIS' 89) Factor 0.01%

Pt50Ω (JIS' 81) Factor 0.02%

Input Accuracy List

RTD	Input Accuracy
Pt100 (JIS' 97)	$860^{\circ}\text{C} \div \text{Input Span (Measuring temp.)} \times \pm 0.01\%$
Pt100 (JIS' 89)	$860^{\circ}\text{C} \div \text{Input Span (Measuring temp.)} \times \pm 0.01\%$
JPt100 (JIS' 89)	$710^{\circ}\text{C} \div \text{Input Span (Measuring temp.)} \times \pm 0.01\%$
Pt50 (JIS' 81)	$849^{\circ}\text{C} \div \text{Input Span (Measuring temp.)} \times \pm 0.02\%$

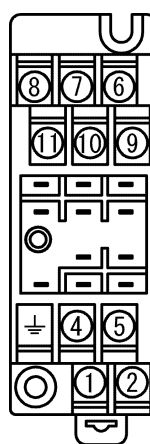
\*Min. input span: 25°C min.

Output Accuracy  $\pm 0.04\%$  max.**Temp. Characteristics** 100ppm/°C max.**Response Time** 260msec max.(0~90%)@100% step input**CMRR** 100dB min. (500V AC, 50/60Hz)**Signal Isolation** Between Input - Out1 - Out2 - Power Supply - Ground**Isolation Resistance** 100MΩ min. (@500V DC)**Resistance** Between Input - Out1 - Out2 - Power Supply - Ground**Dielectric Strength** Between [Input, RS-232C port for setting] - [Out1, Out2] - [Power Supply, Ground]  
:2000V AC Shut Down Current 0.5mA for 1min.Between Power Supply - Ground  
:2000V AC Shut Down Current 5mA for 1min.Between Out1 - Out2  
:500V AC Shut Down Current 0.5mA for 1min.Between Input - RS-232C port for setting  
:50V DC Shut Down Current 1.0mA for 1min.**Measures against SWC** Conform to ANSI/IEEE C37.90.1-1989**Operating Temperature:** -5~55°C**Environment Humidity :** 5~90%RH (Non-Condensing)**Storage Temp.** -10~60°C**● Installation / Physical Specifications****Installation** Wall mounting &/or DIN-rail mounting**Wiring** M3.5 screw terminal connection  
(with P.S. terminal cover & screw drop-protection)**Screw Tightening Torque** 0.8~1[N·m] Recommendable**Outer Dimension** W29×H86×D125mm

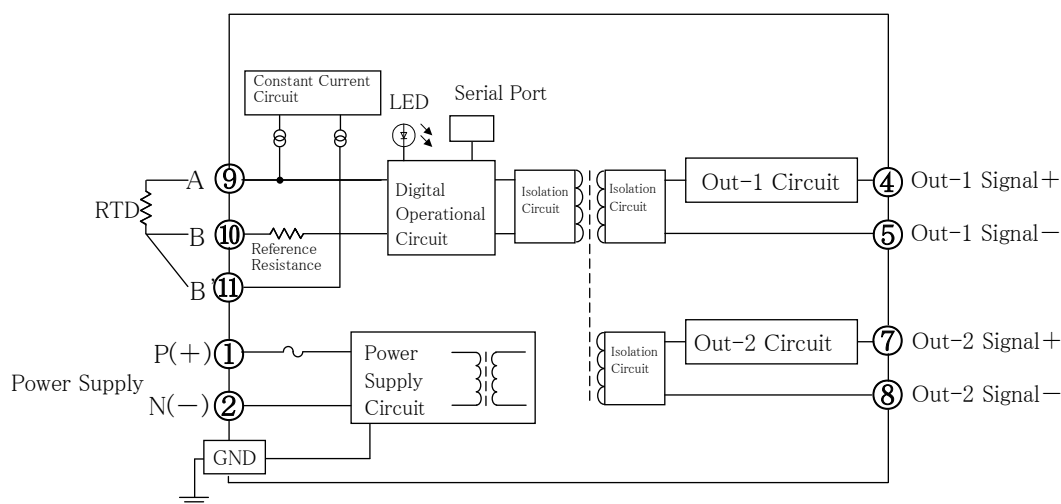
(incl. set screws &amp; terminal block)

**Mass** Main body 120g max., Terminal Block 80g max.**● Materials****Housing** ABS Resin (UL-94V-0)**Terminal Block** ABS Resin (UL-94V-0)**Terminal Screws** Iron/Nickel-plated**Terminal Surface Treatment** 0.2 μm / Gold plated**P.C. Board** Glass-Epoxy (FR-4:UL-94V-0)**Moisture-proof Coating** HumiSeal Coating

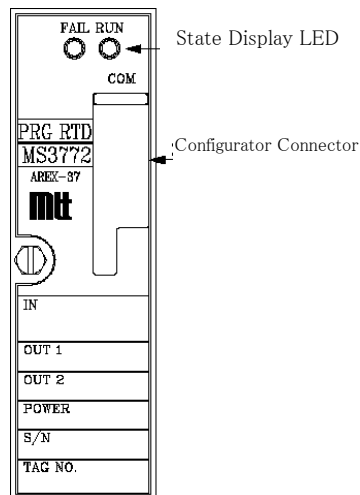
:HumiSeal 1A27NS(Polyurethane Resin)

**Terminal Arrangement / Signal Assignment**

①	P(+)	POWER
②	N(-)	
⊥	GND	
④	+ OUTPUT 1	
⑤	- OUTPUT 1	
⑥	N. C	
⑦	+ OUTPUT 2	
⑧	- OUTPUT 2	
⑨	A RTD	
⑩	B RTD	
⑪	B' RTD	

**Block Diagram**

## Front Drawing



## Connector, LED

## ●COM (Configurator Connector)

COM: Connect to PC via serial communication (RS-232C).

Dedicated cable model: MS-CBL01 (Manufacturer: MTT)

(PC side pin: DSub 9 Female)

## Connector Pin Assignment

Pin Number	Signal
1	DVdd
2	SHDN
3	N.C.
4	N.C.
5	TX
6	RX
7	ISOCOM
8	ISOCOM

## State Display LED

## ●Display Pattern

Module Status	Description	LED		Remarks
		BLUE (RUN)	RED (FAIL)	
INIT		●	●	
RUN		●	-	
PAUSE	Same for all commands	◎	-	Blinking pattern: ●●●●○○○○
ERROR	ADC error	-	◎	Blinking pattern: ●●●●○○○○●○
	DA output error	-	◎	Blinking pattern: ●●●●○○○○●●○○
	Burnout	-	◎	Blinking pattern: ●●●●○○○○●○○●○○
	Power supply error	-	◎	Blinking pattern: ●●●●○○○○
HALT	WDT	-	●	May light OFF
	Memory	-	●	May light OFF
	Power supply error	-	●	May light OFF

## [Notes]

1. Light OFF: - or ○ / Lighting: ● / Blinking: ◎

2. Circles (○, ●) in the Remarks column: Time length of a single circle is 0.25sec.