

DESCRIPTION

The MS3772 is a slim, plug-in programmable RTD temperature transmitter that converts input signals from an RTD into commonly used DC signals and provides isolated single or dual output. The input and/or output settings of the unit can be easily configured using configuration software running on a personal computer.

ORDERING CODE

MS3772 - -

Model _____

Power Supply _____

A: 100 to 240V AC (50 to 60Hz)
D: 24V DC **P:** 100 to 240V DC

Input (Measuring Temperature Range) _____

P1: Pt 100Ω (ITS-90) --- (-200 to 660°C)
P2: Pt 100Ω (IPTS-68) --- (-200 to 660°C)
J: JPt 100Ω (JIS '89) --- (-200 to 510°C)
P5: Pt 50Ω (JIS '81) --- (-200 to 649°C)

* For any other special specifications, consult MTT.

Output _____

Single Output Model

A: 4 to 20mA DC (Output load 750Ω)*¹
4: 0 to 10V DC *²
5: 0 to 5V DC *²
6: 1 to 5V DC *²

Dual Output Model

A1: 4 to 20mA DC / 1 to 5V DC *¹
A2: 4 to 20mA DC / 4 to 20mA DC *¹
4W: 0 to 10V DC / 0 to 10V DC *²
5W: 0 to 5V DC / 0 to 5V DC *²
6W: 1 to 5V DC / 1 to 5V DC *²

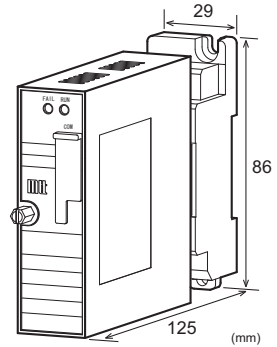
*¹: Fixed output(s). The output range cannot be changed.
*²: The output range can be changed.

Options _____

No code: None
(Upscale burnout protection will apply if no option is specified.)

/U: Upscale burnout protection
/D: Downscale burnout protection
/L: Dual current output with high output load
(OUT-1: 750Ω / OUT-2: 550Ω)
/H: Polyurethane conformal coating
/X: Others (Special order)

* For non-standard options, ask MTT for availability.


ORDERING INFORMATION

To place an order, please use the ordering code format as shown on the left. Also specify a measuring temperature range*.
(e.g.) MS3772-D-P16W (0 to 150°C)

* Note that the temperature range should be specified in °C within the range listed below.

Input	Measuring Temperature Range	Code shown on Configuration Window
Pt 100Ω (ITS-90)	-200 to 660°C	Pt 100Ω (ITS-90)
Pt 100Ω (IPTS-68)	-200 to 660°C	Pt 100Ω (IPTS-68)
JPt 100Ω (JIS '89)	-200 to 510°C	JPt 100Ω
Pt 50Ω (JIS '81)	-200 to 649°C	Pt 50Ω

Note: Minimum input span should be 25°C.

SPECIFICATIONS
POWER SECTION

Power Requirements	100 to 240V AC: 85 to 264V AC (47 to 63Hz) 24V DC: 24V DC±10% 100 to 240V DC: 85 to 264V DC		
Power Sensitivity	Better than ±0.1% of span for each power supply range.		
Power Line Fuse	160mA fuse is installed (standard).		
Power Consumption			
Power	100-240V AC	24V DC	100-240V DC
Single Output	5.0VA max	1.1W max	4.8W max
Dual Output	5.0VA max	1.5W max	6.0W max

INPUT SECTION

Input Signal	3-wire RTD input (JIS standard, etc.)
Excitation Current	Approx. 1mA
Burnout Protection	Selectable from upscale, downscale (even if any of the three wires, A, B, and B' is opened), and no burnout protection.
Burnout Drive Time	10s max.
Allowable Lead Wire Resistance	200Ω max. per wire.

Factory Default Settings	The factory default settings are as follows: Input: Pt 100Ω (ITS-90) Measuring temperature range: 0 to 100°C Burnout protection: Upscale
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● OUTPUT SECTION

Allowable Output Load	
Voltage Output (DC)	2mA max.
Current Output (DC)	4-20mA single output 750Ω max. 4-20mA dual output Output 1: 550Ω max. Output 2: 350Ω max.

Zero Adjustment	Approx. ±4% of span. (Adjustable by PC via RS-232C.)
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Span Adjustment	Approx. ±4% of span. (Adjustable by PC via RS-232C.)
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Factory Default Settings	The factory default settings for voltage output models are as follows: Single output model: Output code: 6 (1 to 5V DC) Dual output model: Output code: 6W (1 to 5V DC / 1 to 5V DC)
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● SOFTWARE CONFIGURATION PARAMETERS

Configurable Parameters	- RTD type - ADC range (Input range) - Measuring temperature range - Burnout protection - Output range - Zero/Span adjustment (Approx. ±4% of span) - PAUSE status (All of the above are configurable by PC via RS-232C.)
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Note: Any ADC range setting should satisfy:
Excitation current (Approx. 1mA) × Resistance value* < ADC range
(Example)

For Pt 100Ω (0 to 100°C):
0.001(A) × 138.51(Ω) = 0.13851 (mV) × 1.1 = 0.152361 (= Approx. 153mV)
Therefore, the ADC range selection should be set to “160mV”.

* For the resistance values of RTD’s, refer to the JIS Resistance Value Table.

● PERFORMANCE

Accuracy Rating	(Input accuracy + Output accuracy)
Input Accuracy (inversely proportional to input span)	
Pt 100Ω (ITS-90)	Factor 0.01%
Pt 100Ω (IPTS-68)	Factor 0.01%
JPt 100Ω (JIS '89)	Factor 0.01%
Pt 50Ω (JIS '81)	Factor 0.02%

Input Accuracy List

RTD	Input Accuracy
Pt 100Ω (JIS '97)	860°C / Input span (measuring temperature) × ±0.01%
Pt 100Ω (JIS '89)	860°C / Input span (measuring temperature) × ±0.01%
JPt 100Ω (JIS '89)	710°C / Input span (measuring temperature) × ±0.01%
Pt 50Ω (JIS '81)	849°C / Input span (measuring temperature) × ±0.02%

Note: Minimum input span should be 25°C.

Output Accuracy	±0.04% max.
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Temperature Effect	100ppm/°C max.
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Response Time	260ms max. (0 to 90%) with a step input at 100%.
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CMRR	100dB min. (500V AC, 50/60Hz)
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Isolation	4-way isolation between input, output 1, output 2, and power.
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Insulation Resistance	100MΩ min. (@ 500V DC) between input, output 1, output 2, power, and ground.
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Dielectric Strength	[Input, RS-232C Port] / [Output 1, Output 2] / [Power, Ground]: 2000V AC for 1 minute (Cutoff current: 0.5mA) Power / Ground: 2000V AC for 1 minute (Cutoff current: 5mA) Output 1 / Output 2: 500V AC for 1 minute (Cutoff current: 0.5mA) Input / RS-232C Port: 50V DC for 1 minute (Cutoff current: 1.0mA)
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Surge Withstand Capability	Tested as per ANSI/IEEE C37.90.1-1989
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Operating Environment	Ambient temperature: -5 to 55°C Humidity: 5 to 90% RH (non-condensing)
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Storage Temperature	-10 to 60°C
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● PHYSICAL

Installation	Wall/DIN rail mounting
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Wiring	M3.5 screw terminal connection (with a power terminal block cover & drop-proof screws)
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Screwing Torque	0.8 to 1.0 [Nm] * Recommended
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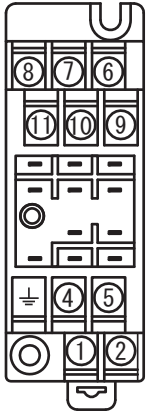
External Dimensions	W29 × H86 × D125 mm (including the mounting screw and socket)
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Weight	Main unit: 120g max. Socket: 80g max.
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MATERIAL

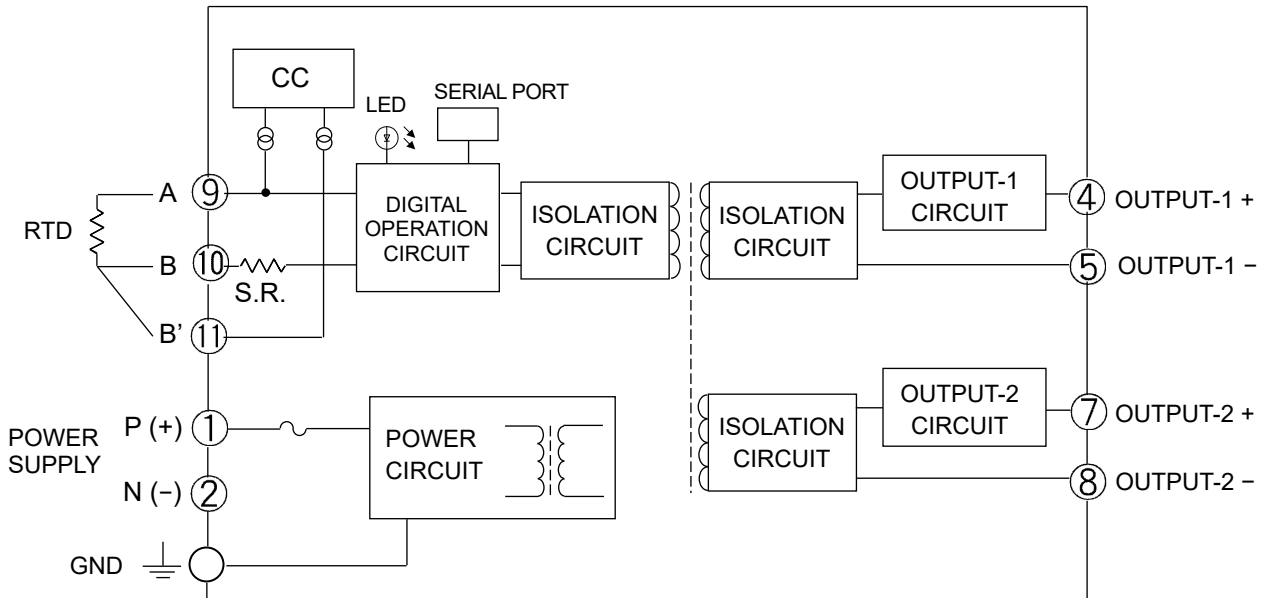
Housing	ABS resin (UL 94V-0)
Terminal Block	PBT resin (UL 94V-0)
Terminal Block	PC resin (UL 94V-2)
Cover	
DIN Rail Stopper	PP resin (UL 94HB)
Screw Terminal	Nickel-plated steel
Contacts Material and Finish	Brass with 0.2µm gold plating
Printed Circuit Board	Glass fabric, epoxy resin (FR-4: UL 94V-0)

TERMINAL ASSIGNMENTS

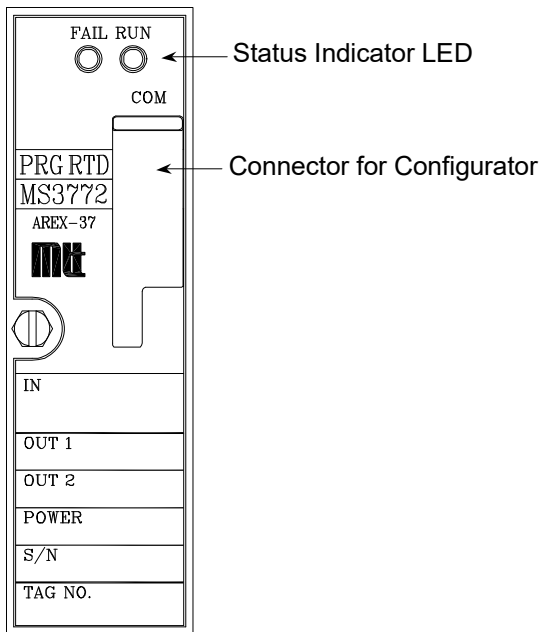


①	P (+)	POWER
②	N (-)	
	⊥	GND
④		+ OUTPUT 1
⑤		- OUTPUT 1
⑥		N.C.
⑦		+ OUTPUT 2
⑧		- OUTPUT 2
⑨		RTD A
⑩		RTD B
⑪		RTD B'

BLOCK DIAGRAM



FRONT VIEW



CONNECTOR

COM (CONNECTOR FOR CONFIGURATOR)

The COM port is used to connect the transmitter to a personal computer through serial communication (RS-232C). An optional communication cable, MTT's MS-CBL01 (with a 9-pin D-subminiature female connector for PC connection) is required for the connection. If the USB port is used, it is recommended that a USB conversion adapter, REX-USB60F (made by RATOC Systems) be used with the MS-CBL01.

Connector Pin Assignments

Pin No.	Signal Name
1	DVdd
2	SHDN
3	N.C.
4	N.C.
5	TX
6	RX
7	ISOCOM
8	ISOCOM

LED STATUS INDICATORS

INDICATOR PATTERNS

Module Status	Description	LED		Remarks
		Blue (RUN)	Red (FAIL)	
INIT		●	●	
RUN		●	-	
PAUSE	Common to all commands	◎	-	Blink pattern: ●●●●○○○○
ERROR	ADC fault	-	◎	Blink pattern: ●●●●○○○○●●
	DA output error	-	◎	Blink pattern: ●●●●○○○○●●●●
	Burnout	-	◎	Blink pattern: ●●●●○○○○●●●●●●
	Power error	-	◎	Blink pattern: ●●●●○○○○
HALT	WDT	-	●	May fail to turn ON.
	Memory	-	●	May fail to turn ON.
	Power error	-	●	May fail to turn ON.

Notes:

1. OFF: - or ○, ON: ●, Blink: ◎
2. Each of the circle symbols (○, ●) shown in the Remarks column indicates a duration of 0.25s.