

# Slim-shaped Plug-in DC Signal Conditioner with Isolated Single/Dual Output (Fast Response Model)

## Overview

MS3744 is a slim-shaped plug-in DC signal conditioner with isolated single/dual output to convert DC current/voltage signals into various DC signals as selected at high speed. This is a fast response model with the following response time: 80  $\mu$  sec (0~90%) for both outputs in case of voltage output; 150  $\mu$  sec (0~90%) for both outputs in case of current output for Out-1. (RoHS-conformed)

## Ordering Format

MS3744----

Type \_\_\_\_\_

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

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

Input Signal \_\_\_\_\_

B: 2 ~ 10mA DC 3: 0 ~ 1V DC  
C: 1 ~ 5mA DC 4: 0 ~ 10V DC  
D: 0 ~ 20mA DC 5: 0 ~ 5V DC  
E: 4 ~ 20mA DC\*1 6: 1 ~ 5V DC  
H: 10 ~ 50mA DC 4W:  $\pm$ 10V DC  
Z: Designated DC 5W:  $\pm$ 5V DC  
0: Designated VDC

\*1 Input Resistance 50  $\Omega$

Output-1 \_\_\_\_\_

A: 4 ~ 20mA DC 1: 0 ~ 10mV DC  
D: 0 ~ 20mA DC 2: 0 ~ 100mV DC  
Z: Designated DC 3: 0 ~ 1V DC  
4: 0 ~ 10V DC  
5: 0 ~ 5V DC  
6: 1 ~ 5V DC  
3W:  $\pm$ 1V DC  
4W:  $\pm$ 10V DC  
5W:  $\pm$ 5V DC  
0: Designated VDC

Output-2 \_\_\_\_\_

No entry: None.  
Similar to Output-1.

☞ When Out-1 is set for Voltage, Out-2 cannot be designated for Current.  
☞ When both outputs are set for 4~20mA, the Output Load of Out-1 will be less than 550  $\Omega$ , and that of Out-2 will be 350  $\Omega$ .

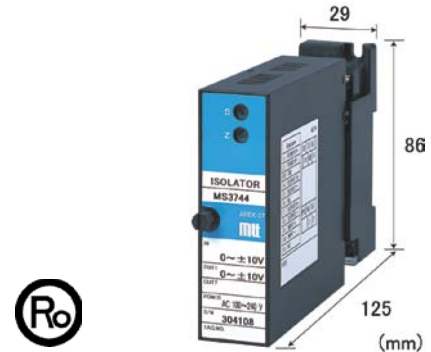
Option \_\_\_\_\_

No entry: None.  
/X: Custom Order ..... Additional cost required.  
\*Contact us for custom-order requirement.

## Please specify upon ordering

•Product Model Number  
(Example) MS3744-A-4W4W4W

Other items to be specified:  
•For input "Z": MS3744-A-066 (Input 0.2~1V)  
•For output "0": MS3744-A-AZ0 (Output 8~20mA)  
•For option "X": MS3744-A-66/X  
(Response time 100  $\mu$  sec. max: 0~90%)



## Specifications

### Power Supply Section

Power Supply	AC85~264V (Rating 100~240V) 47~63Hz DC24V $\pm$ 10% DC85~264V (Rating 100~240V)
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Power Sensitivity	Within $\pm$ 0.1% of Span for each power supply voltage.
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Power Supply Fuse	160mA Fuse
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### Maximum Power Consumption

Power Supply	AC85~264V	Power	AC85~264V
Single Output	4.0VA max. / 1.2W max. / 4.8W max.		
Dual Output	5.0VA max. / 1.6W max. / 6.0W max.		

### Input Section

#### Input Resistance

Voltage Input (DC)	With excitation	1M $\Omega$ min.
	Without excitation	1M $\Omega$ min.
Current Input (DC)	4~20mA (Standard)	50 $\Omega$
	2~10mA	250 $\Omega$
	1~5mA	100 $\Omega$
	0~20mA	50 $\Omega$
	10~50mA	10 $\Omega$

#### Input Voltage Allowable

Voltage Input	30V DC max. continuous (Span 10V max.)
Current Input	40mA DC max. continuous (4~20mA)

#### Range of Products Available

	Current Signal	Voltage Signal
Input Range (DC)	-100~100mA	-300~300V
Input Span (DC)	-100 $\mu$ A*1~200mA	200mV*2~600V
Input Bias	-100~100%	-100~100%

\*When negative input is contained, the span becomes \*1 200  $\mu$  A~, \*2 400mV~.  
(e.g.) -5~0V  $\Rightarrow$  Input span 5V, Bias -100%

### Output Section

#### Maximum Output Load

Voltage Output (DC)	1V Span min. 10mV 100mV	2mA max. 10k $\Omega$ min. 100k $\Omega$ min.
Current Output (DC)	4~20mA Single output 4~20mA Dual output	750 $\Omega$ max. Out-1 550 $\Omega$ Out-2 350 $\Omega$

Zero Adjustment Range	Approx. $\pm$ 5% of Span (Adjustable by Trimmer on front panel)
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Span Adjustment Range	Approx. $\pm$ 5% of Span (Adjustable by Trimmer on front panel)
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### ● Output Section

Range of Products Available		
	Current Signal	Voltage Signal
Output Range (DC)	0~20mA	-10 ~10V
Output Span(DC)	4~20mA	10mV~20V
Output Bias	0~100%	-100~100%

\*For current output smaller than 0.1mA, the accuracy is not guaranteed.  
 (e.g.1) 4~20mA⇒Output Span 16mA, Bias 25%  
 (e.g.2) -1~4V⇒Output Span 5V, Bias -20%

### ● Standard Performance

Conversion Accuracy	Within $\pm 0.1\%$ /F.S.(@25°C±5°C)
Temp Characteristics	Within $\pm 0.2\%$ of Span with every 10°C variation
Response Time	In case of voltage input for Out-1: 80 $\mu$ sec max.(0~90%)@100% step input (Frequency characteristic: 10kHz-3dB)  In case of current input for Out-1: 150 $\mu$ sec max.(0~90%)@100% step input (Frequency characteristic: 3kHz-3dB)
CMRR	100dB min. (500V AC, 50/60Hz)
Signal Isolation	Between Input - Out1-Out2-Power Supply-Ground
Isolation	100M $\Omega$ min. (@500V DC) Between Input-Out1-Out2-Power Supply-Ground
Dielectric Strength	Between Input-[Out1,Out2]-[Power Supply, Ground] :2000V AC, Shut Down Current 0.5mA for 1 minute Between Power Supply - Ground :2000V AC, Shut Down Current 5mA for 1 minute Between Out1 - Out2 :500V AC, Shut Down Current 0.5mA for 1 minute
Measures against SWC	Conform to ANSI/IEEE C37.90.1-1989
Operating Environment	Temperature: -5~55°C Humidity : 5~90%RH(Non-Condensing)
Storage Temp.	-10~60°C

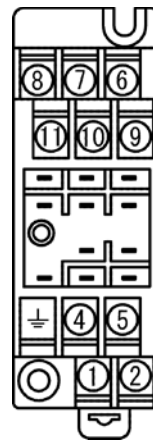
### ● Installation / Physical Specifications

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 & 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 $\mu$ m / 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(-)	
③	GND	
④	+ OUTPUT 1	
⑤	- OUTPUT 1	
⑥	N. C	
⑦	+ OUTPUT 2	
⑧	- OUTPUT 2	
⑨	+ INPUT	
⑩	- INPUT	
⑪	N. C	

### Block Diagram

