



Standard Specifications Type: MS3762

MS3700

Slim-shaped Plug-in Subtractor with Isolated Single/Dual Output

Overview

MS3762 is a slim-shaped plug-in subtractor with isolated single/dual output to receive two DC current/voltage signals and convert them into a signal proportional to the difference of those signals. (RoHS-conformed)

Ordering Format

MS3762 -  -  -  -

Type \_\_\_\_\_

Power Supply \_\_\_\_\_  
 A: AC 85 ~ 264V D: DC 24V  
 P: DC 85 ~ 264V

Input Signal \_\_\_\_\_  
 A: 4 ~ 20mA DC 3 : 0 ~ 1V DC  
 B: 2 ~ 10mA DC 4 : 0 ~ 10V DC  
 C: 1 ~ 5mA DC 5 : 0 ~ 5V DC  
 D: 0 ~ 20mA DC 6 : 1 ~ 5V DC  
 E: 4 ~ 20mA DC\*1 4W: ±10V DC  
 H: 10 ~ 50mA DC 5W: ±5V DC  
 Z: Designated DC 0 : Designated VDC

\*1 Input Resistance 50 Ω

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: ±1V DC  
 4W: ±10V DC  
 5W: ±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 Ω, and that of Out-2 will be 350 Ω.

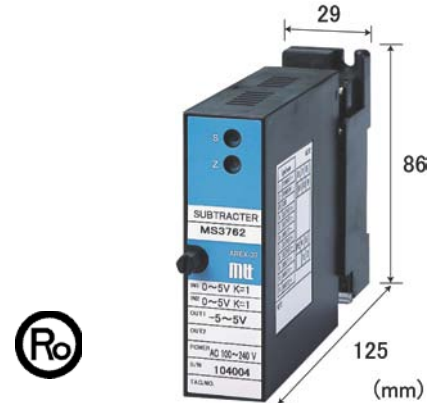
Option \_\_\_\_\_  
 No entry: None.  
 /D : Downscale Burnout Protection  
 /K : Fast Response (Faster than 10msec:0~90%)  
 /X : Custom Order ..... Additional cost required.

\*Contact us for custom-order requirement.

Please specify upon ordering

- Product Model Number (Input-1 factor/Input-2 factor)  
 (Example) MS3762-A-6A6(K1=1.0/K2=1.0)
- Please specify Input-1 factor (K1) and Input-2 factor (K2) from the following range: K1=0.4~2.0, K2=0.1~2.0

- Other items to be specified:
- For input "0": MS3762-A-0AA (K1=1.0/K2=1.0/Input 0.2~1V)
  - For output "0": MS3762-A-A60 (K1=1.0/K2=1.0/Output 2~5V)
  - For option "X": MS3762-A-66/X (K1=1.0/K2=1.0/Response Frequency 50Hz)
  - For more than one option: Enter Option Codes in succession(/KX)



Specifications

●Power Supply Section

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

Maximum Power Consumption			
Power Supply	AC85~264V	DC24V	DC85~264V
Single Output	4.5VA max. / 1.4W max. / 4.8W max.		
Dual Output	5.5VA max. / 1.7W max. / 6.0W max.		

●Input Section

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

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 μA*1~200mA	200mV*2~600V
Input Bias	-100~100%	-100~100%
	*When negative input is contained, the span becomes *1200 μA~, *2400mV~ (e.g.1) 3~8V⇒Input span 5V, Bias 60% (e.g.2) -5~0V⇒Input span 5V, Bias -100%	

●Output Section

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

Zero Adjustment Range	Approx. ±5% of Span (Adjustable by Trimmer on front panel)
Span Adjustment Range	Approx. ±5% of Span (Adjustable by Trimmer on front panel)

● **Output Section**

**Output Range** 0~120% Approx.

**Arithmetic Expression**

$$\text{Output}(\%) = \text{IN1}(\%) \times \text{K1} - \text{IN2}(\%) \times \text{K2}$$

\*IN1, IN2: 0~120%

IN1: Input-1 (%)                      K1: Input-1 Factor  
 IN2: Input-2 (%)                      K2: Input-2 Factor

(Example) Input 1 ~5V/Output 0~10V K1:0.7, K2:0.3  
 Input-1 3V (50%), Input-2 2V (25%)  
 $\Rightarrow 50\% \times 0.7 - 25\% \times 0.3 = 27.5\%$  (2.75V)

**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.

● **Standard Specifications**

<b>Conversion Accuracy</b>	Within $\pm 0.1\%$ /F.S.(@25°C $\pm 5^\circ\text{C}$ )
<b>Temp Characteristics</b>	Within $\pm 0.2\%$ of Span with every 10°C variation
<b>Response Time</b>	85msec max. (0~90%) @100% step input
<b>CMRR</b>	100dB min. (500V AC, 50/60Hz)
<b>Signal Isolation</b>	Between Input - Out1-Out2-Power Supply-Ground
<b>Isolation Resistance</b>	100M $\Omega$ min. (@500V DC)
<b>Dielectric Strength</b>	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
<b>Measures against SWC</b>	Conform to ANSI/IEEE C37.90.1-1989
<b>Operating Temperature</b>	Temperature: -5~55°C
<b>Environment</b>	Humidity : 5~90%RH (Non-Condensing)
<b>Storage Temp.</b>	-10~60°C

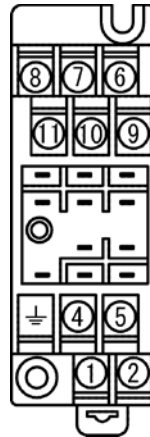
● **Installation / Physical Specifications**

<b>Installation</b>	Wall mounting &/or DIN-rail mounting
<b>Wiring</b>	M3.5 screw terminal connection (with P.S. terminal cover & screw drop-protection)
<b>Screw Tightening Torque</b>	0.8~1[N·m] Recommendable
<b>Outer Dimension</b>	W29×H86×D125mm (incl. set screws & terminal block)
<b>Mass</b>	Main body 120g max., Terminal Block 80g max.

● **Materials**

<b>Housing</b>	ABS Resin (UL-94V-0)
<b>Terminal Block</b>	ABS Resin (UL-94V-0)
<b>Terminal Screws</b>	Iron/Nickel-plated
<b>Terminal Surface Treatment</b>	0.2 $\mu\text{m}$ / Gold plated
<b>P.C. Board</b>	Glass-Epoxy (FR-4:UL-94V-0)
<b>Moisture-proof Coating</b>	HumiSeal Coating :HumiSeal 1A27NS(Polyurethane Resin)

**Terminal Arrangement / Signal Assignment**



①	P(+)	POWER
②	N(-)	
⊥	GND	
④	+ OUTPUT 1	
⑤	- OUTPUT 1	
⑥	- INPUT 2	
⑦	+ OUTPUT 2	
⑧	- OUTPUT 2	
⑨	+ INPUT 1	
⑩	- INPUT 1	
⑪	+ INPUT 2	

**Block Diagram**

