mtt

Standard Specifications Type MS3766H
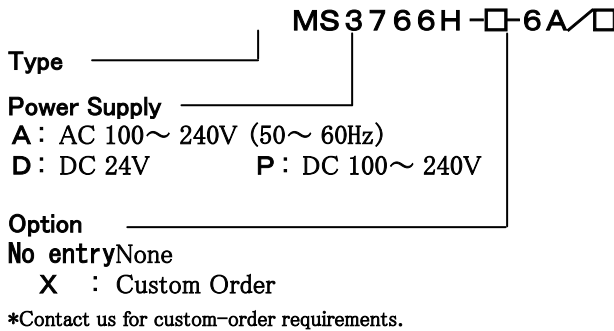### Slim-shaped Plug-in Analog Memory Conditioner with Isolated Single Output

MS3700

Overview

MS3766H is a slim-shaped plug-in analog memory conditioner with isolated single output to retain input signals using an external contact signal.

Ordering Format

MS3766H-☐-6A／☐

Type

Power Supply
A：AC 100〜240V (50〜60Hz)
D：DC 24V   P：DC 100〜240V

Option
No entry None
　X　：　Custom Order
＊Contact us for custom-order requirements.

Please specify upon ordering

Product Model Number
（e.g.) MS3766-A-6A

Specifications

●Power Supply Section

Range of allowable voltages	AC100〜240V:AC85〜264V(47〜63Hz)
	DC24V:DC24V±10% DC100〜240V:DC85〜264V
Power Sensitivity	Within ±0.1% of Span for each power supply voltage
Power Supply	160mA fuse
Maximum Power Supply	AC100-240 DC24V DC100-240 approx. 6.5VA / approx. 1.8W / approx.7.2W

●Input Section

Input Signal	1〜5V DC
Input Resistance Voltage input (DC)	1MΩmin. with/without excitation
Input Voltage	30V DC max. continuous
Control Input	No-voltage contact point internal voltage supply
Hold Signal	With short-circuit between terminal ⑦ and ⑧
	During normal operation (following I/O)
	Open between terminal ⑦ and ⑧
	Hold operation (Hold output value)
UP Signal	Output decrement due to short-circuit between terminal ⑪ and ⑧.
DOWN Signal	Output decrement due to short-circuit between terminal ⑥ and ⑧.
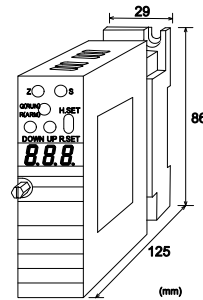
●Output Section

Output signal	4〜20mA
Maximum output load	750Ω 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 Range	0〜100%
	*The input signals of less than or equal to 0% will deliver 0% output, and those of 100% or more will deliver 100% output

●Standard Performance

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Conversion Accuracy	Within ±0.2%/F.S.　(25℃±5℃)
Temp. Characteristics	Within ±0.2% of Span with every 10℃
Response Time	400 m sec max. (0-90%) @100% step input
I/O Tracking Time	At normal operation, Capable of setting by 1 sec unit over the range of 0-30 sec/F.S.
Memory Back-up Function	The Hold Command serves to store Hold Values in embedded flash memory
Hold Value Change Function	During Hold operation, the output can be changed as ±5%/F.S./1 push over output range of 6-100% via UP/DOWN switch on the main body or control signal input (UP/DOWN) to the terminal block. *Changeable 20 sec/F.S. by keeping pressing
CMRR	100dB min.(500V AC,50/60Hz)
Signal Isolation	Input－Hold input, UP Terminal and DOWN Terminal]－Output－P.S.－GRD
Isolation Resistance	100MΩ min.(@500V DC) Between Input－[Hold Input, Up Terminal, Down Terminal]－Output－Power Supply－Ground
Dielectric Strength	Between Input－[Output, Hold Input, Up Terminal, Down Terminal]－[Power Supply, Ground]: 2000V AC Shut Down Current 0.5 mA for 1 minute Between Power Supply – Ground: 2000V AC Shut Down Current 5mA for 1 minute Between Output－[Hold Input, UP Terminal, Down Terminal]: 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℃ Humidity: 5〜90%RH (No Condensation)
Storage Temperature	－10〜60℃

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●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	0.8～1[N・m] recommendable
Outer Dimension	W29×H86×D125mm (incl. set screws and terminal block)
Mass	Main Body 130g max, Terminal Block 80g max

●Materials

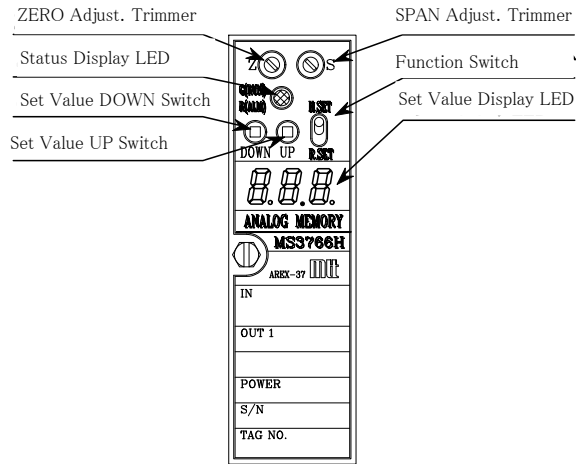|	
Housing	ABS resin(UL-94V-0)
Terminal Block	PBT resin (UL-94V-0)
Terminal Block cover	PC resin (UL-94V-2)
DIN Rail Stopper	PP resin (UL-94HB)
Terminal Screws	Iron / Nickel-plated
Plug-in Terminal Block. Terminal Surface	0.2μm gold-plated
P.C. Board	Glass-Epoxy (FR-4:UL-94V-0)
Moisture-proof Coating	HumiSeal 1A27NS (Polyurethane Resin)

Block Diagram
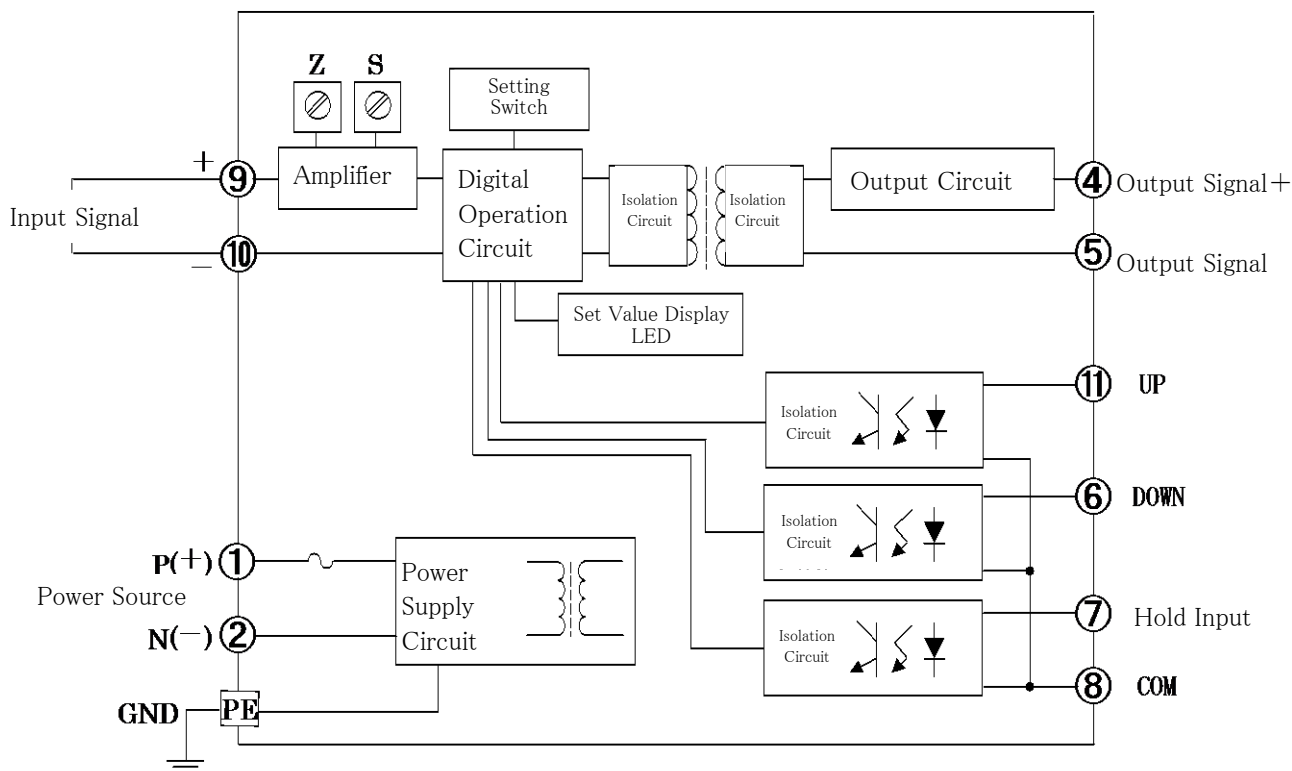
※When ⑪ and ⑧ are short-circuited, the operation will be identical to pressing the UP switch.
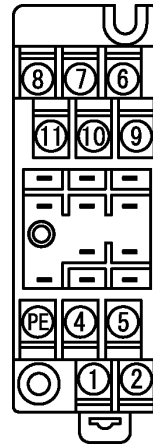   When ⑥ and⑧ are short-circuited, the operation will be identical to pressing the DOWN switch.
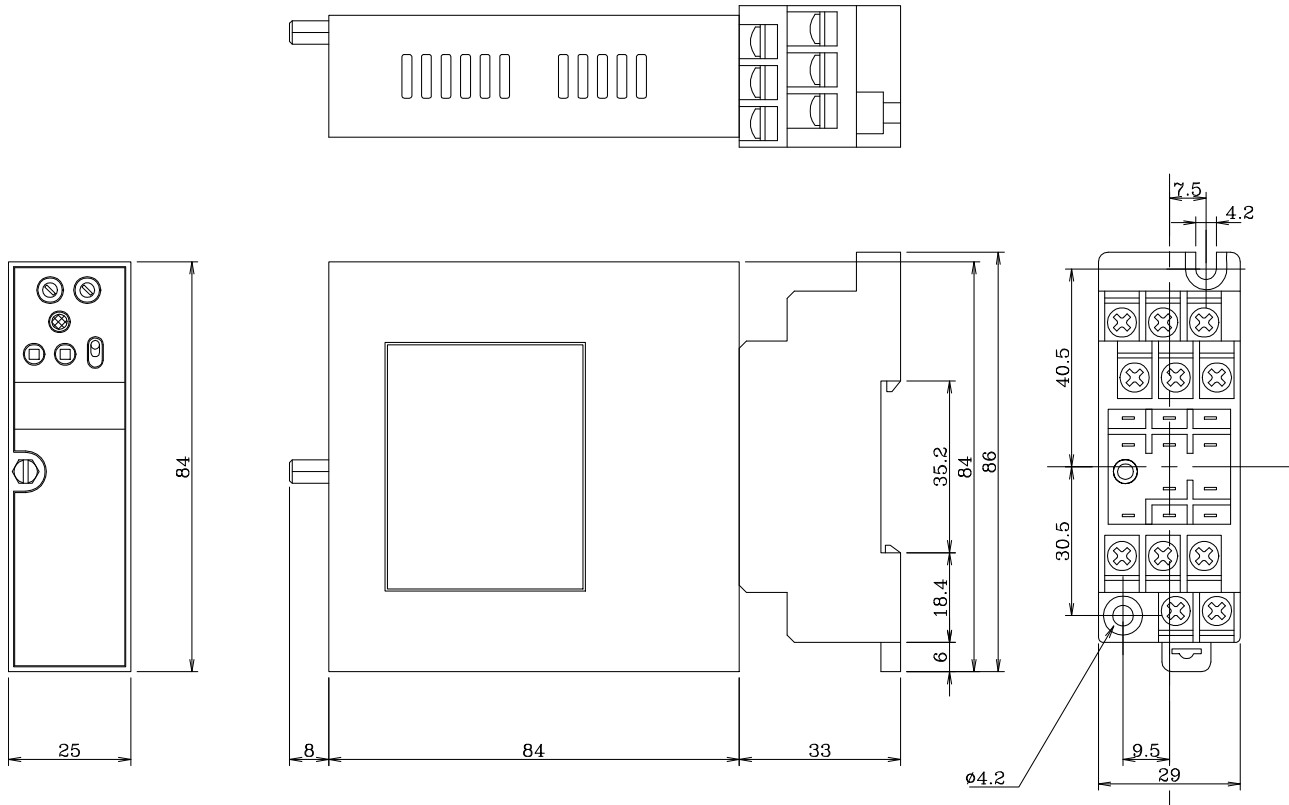   Note that concurrent short circuit between ⑪－⑧ and ⑥－⑧ should be carefully avoided.

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Front View

ZERO Adjust. Trimmer

Status Display LED

Set Value DOWN Switch

Set Value UP Switch

SPAN Adjust. Trimmer

Function Switch

Set Value Display LED

Terminal Arrangement / Signal Assignment

①	P (+)	Power
②	N (−)	
(PE)	GND	
④	+ Output	
⑤	−Output	
⑥	Down	
⑦	+ Hold	
⑧	COM	
⑨	+ Input	
⑩	−Input	
⑪	Up	

External Dimension

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Operation and Setting

●Function Switch

When the Function Switch is set at the upper position, the Set Value UP/DOWN Switch, during signal holding, can change hold values at a speed of approx. 0.5% F.S. as a unit. During the same switch is kept pressed, the hold value will change at a speed of approx. 20 sec/F.S. When the Switch is set at the lower position, the Set Value Display LED shows the current I/O tracking time. This timing can be changed by the Set Value UP/DOWN Switch.

●Set Value UP/DOWN Switch

During the Set Value UP/DOWN Switch is kept pressed, the shift speed to set values will be accelerated. When both of UP and DOWN switches are pressed simultaneously, any change will not be achieved.

●Display

Set Value Display LED will be lighting in green for normal operations, and blinking in green for hold. The Set Value Display will be OFF in about 1 minute, but will be ON again by manipulating the switch.

How to set hold state during power outage

●How to set hold state during power outage

The hold status during outage can be set as follows:
① Activate power while keeping the Set Value DOWN Switch pressed.
② After the Operation Status Indicator LED blinks in red and green alternately, showing nothing on the Set Value Display, release the Set Value DOWN Switch within 5 seconds.
③ 0 or 1 will be displayed only in the center digit of the Set Value Display Indicator, but will not be so in the following cases:
　・The State Display LED does not alternately lights in red and green upon activating power supply.
　・The Set Value Down Switch is pressed continually for 5 seconds or longer.
④ The center digit values of the Set Value Display represent the present hold state setting.
　 Use the Set Value UP/DOWN Switch to change.
　 The displayed values show the following Hold State Settings;

Display Value	Hold State Setting
0	Retention mode: Retain value of before outage
1	Release mode: Output 0%

⑤ By shifting the Function Switch from upper to lower, or lower to upper, after setting hold status, the hold status setting will be recorded in the Conditioner.
　 *No recording is realized without the above switch operation.
　 No display in the Coefficient Display Indicator for about 0.5 seconds, upon manipulating the Hold State Setting Switch
⑤ After the power is turned ON, the operation will start on the pre-set hold setting.

Factory default setting

The factory default setting value, without specific prior requests, will be "lower" for the Function Switch, "0" for Input/Output Tracking Time and "Retain" for Hold State at power outage.

State display LED

●Display pattern

Item	Event	Set Value Display LED	Red LED	Green LED	Output Signal	Recovery
1	Power activation and SW operation	Blinking with 1 sec. ON and 0.5 sec. OFF, 3 times	Blinking with 1 sec. ON and 0.5 sec. OFF, 3 times	Blinking with 1 sec. ON and 0.5 sec. OFF, 3 times	Normal output	-
2	Normal operation	Light OFF	Light OFF	Light ON	Normal output	-
3	Setting Follow Time	Set value	Turning off	Light ON	Normal output	-
4	Hold Operation	Light OFF	Turning off	Blink at one cycle of second	Holding value output	-
5	DAC error detected	Error code 1	Blinking with one cycle of second	Light OFF	0% max	None
6	Internal correction value error detected	Error code 2	Blinking with one cycle of second	Light OFF	0% max	None
7	Holding mode error detected	Error code 4	Blinking with one cycle of second	Light OFF	0% max	Reset
8	Holding Data log error	Error code 6	Blinking with one cycle of second	Light OFF	0% max	Release hold
9	Follow Time log error	Error code 8	Blinking with one cycle of second	Light OFF	0% max	Reset
10	System error	Irregular	Light ON	Irregular	0% max	None

*Item 1 '888' and the dot light when 7SEG LED is on.
*Item 5 Output signals may be irregular.
*Item 9 Red LED may not be turned on.