

**DESCRIPTION**

The MS5508 is a plug-in frequency to analog converter that converts pulse train signals from flow sensors and the like into commonly used DC signals and provides an isolated single output.

**ORDERING CODE**

**Model** \_\_\_\_\_ **MS5508** - □ - □ □

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

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

**Input** \_\_\_\_\_

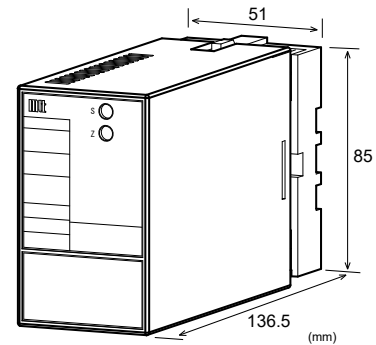
**O:** Dry contact or open collector  
(Pull-up: Approx. 13V, 3.3kΩ)  
**A:** AC voltage pulse  
(Threshold voltage: Approx. 0.06Vp-p)  
**D:** DC voltage pulse  
(Threshold voltage: Approx. 2V)  
**I:** 4 to 20mA DC pulse  
(Threshold current: Approx. 8mA)  
**Y:** Other input signal and/or threshold voltage

**Output** \_\_\_\_\_

**A:** 4 to 20mA DC                    **1:** 0 to 10mV DC  
**D:** 0 to 20mA DC                    **2:** 0 to 100mV DC  
**Z:** Other DC current signal       **3:** 0 to 1V DC  
                                                 **4:** 0 to 10V DC  
                                                 **5:** 0 to 5V DC  
                                                 **6:** 1 to 5V DC  
                                                 **3W:** ±1V DC  
                                                 **4W:** ±10V DC  
                                                 **5W:** ±5V DC  
                                                 **0:** Other DC voltage signal

**Options** \_\_\_\_\_

**No code:** None  
**/A:** Sensor power supply: 24V DC (±10%), 2-wire type  
**/B:** Sensor power supply: 12V DC (±10%), 2-wire type  
**/C:** Sensor power supply: 24V DC (±10%), 3-wire type  
**/D:** Sensor power supply: 12V DC (±10%), 3-wire type  
**/E:** Sensor power supply: 5V DC (±10%), 2-wire type  
**/F:** Sensor power supply: 5V DC (±10%), 3-wire type  
**/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 frequency range.  
(e.g.) MS5508-A-AA (0 to 850Hz)

**Other Ordering Examples:**  
For an input code of "Y": MS5508-A-YA (0 to 500Hz / Input DC voltage pulse: 0 to 12V / SH = 8.5V, SL = 2.5V)  
For an input code of "Y": MS5508-A-YA (0 to 500Hz / Input AC voltage pulse: 200Vp-p / S = 2Vp-p)  
\* SH = Threshold level HI, SL = Threshold level LO,  
S = Threshold level  
Note: For DC current pulse input, the range should be specified between 0-100µA and 0-100mA.

**SPECIFICATIONS**
**POWER SECTION**

<b>Power Requirements</b>	100 to 240V AC: 85 to 264V AC (47 to 63Hz) 24V DC: 24V DC±10%
<b>Power Sensitivity</b>	Better than ±0.1% of span for each power supply range.
<b>Power Line Fuse</b>	160mA fuse
<b>Maximum Power Consumption</b>	
Power	100-240V AC    24V DC    100-240V DC
	Approx. 8.3VA    Approx. 2.6W    Approx. 8.3W

**INPUT SECTION**

<b>Input Resistance</b>	
Voltage Input Model (DC)	With power: 1MΩ min. (Standard, 5V input) Without power: 30kΩ min.
Current Input Model (DC)	250Ω (Standard for 4 to 20mA)
	Note: When a 2-wire type sensor power supply is specified, a shunt resistor of 100Ω is used.

**Allowable Input Voltage**

DC Voltage Input Model	30V DC max., continuous.
DC Current Input Model	40mA DC max., continuous.
AC Voltage Input Model	200Vp-p AC max., continuous (up to ±100V with reference to 0V).

Input Pulse Width	20 $\mu$ s min.	
Duty Ratio	40 to 60%	
Sensor Supply Current	30mA max.	
Ranges Available		
	AC Voltage Pulse	DC Voltage Pulse
Input Range	-300 to 300V	0 to 300V
Input Voltage Span	0.1 to 600V <sub>p-p</sub>	1 to 300V
Input Bias	N/A	0 to +300%
Threshold Voltage	50mV <sub>p-p</sub> min.	Hi-Lo voltage: 0.2V min.
Input Frequency	Within the range between 0-20Hz and 0-20kHz.	

Input Spec. Ex.: For 10 to 15V DC voltage pulse input, the input voltage span is 5V and the bias +200%.

### ● OUTPUT SECTION

Allowable Output Load		
Voltage Output (DC)	1V span and up 10mV 100mV	2mA max. 10k $\Omega$ min. 100k $\Omega$ min.
Current Output (DC)	4 to 20mA	750 $\Omega$ max.
Zero Adjustment	Approx. $\pm$ 5% of span. (Adjustable by the front-accessible trimmer.)	
Span Adjustment	Approx. $\pm$ 5% of span. (Adjustable by the front-accessible trimmer.)	
Ranges Available		
	Current Signal	Voltage Signal
Output Range (DC)	0 to 20mA	-10 to 10V
Output Span (DC)	4 to 20mA	10mV to 20V
Output Bias	0 to 100%	-100 to 100%
* For current output signals, the accuracy of any current output smaller than 0.1mA is not guaranteed.		
Output Spec. Ex. 1: For 4 to 20mA output, the output span is 16mA and the bias +25%.		
Output Spec. Ex. 2: For -1 to 4V output, the output span is 5V and the bias -20%.		

### ● PERFORMANCE

Accuracy Rating	Better than $\pm$ 0.3% of span. Ripple: 0.2%p-p or less of span. (for at least 10% input) (at 25°C $\pm$ 5°C)
Temperature Effect	Better than $\pm$ 0.2% of span per 10°C change in ambient.
Response Time	
Input Frequency	0 to 90% with a step input at 100%
20Hz	8s max.
200Hz	1s max.
2kHz	500ms max.
20kHz	500ms max.
CMRR	100dB min. (500V AC, 50/60Hz)
Isolation	3-way isolation between input, output, and power.
Insulation Resistance	100M $\Omega$ min. (@ 500V DC) between input, output, and power.
Dielectric Strength	Input / Output / Power: 2000V AC for 1 minute (Cutoff current: 0.5mA)
Surge Withstand Capability	Tested as per ANSI/IEEE C37.90.1-1989.
Operating Environment	Ambient temperature: -5 to 55°C Humidity: 5 to 90% RH (non-condensing)
Storage Temperature	-10 to 60°C

### ● PHYSICAL

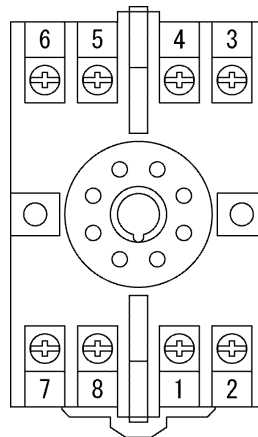
Installation	Wall/DIN rail mounting
Mounting Orientation	Vertical
Screwing Torque	0.78 to 1.18 [Nm] * Recommended
Wiring	M3.5 screw terminal connection
External Dimensions	W51 $\times$ H85 $\times$ D136.5mm (including the socket)
Weight	Main unit: 200g max. Socket: 60g max.

### ● MATERIALS

Housing	ABS resin (UL 94V-0)
Socket	ABS resin (UL 94V-0)
Screw Terminal	Galvanized steel with trivalent chromate finish
Printed Circuit Board	Glass fabric epoxy resin (FR-4: UL 94V-0)
Conformal Coating	HumiSeal <sup>®</sup> 1A27NS (Polyurethane)

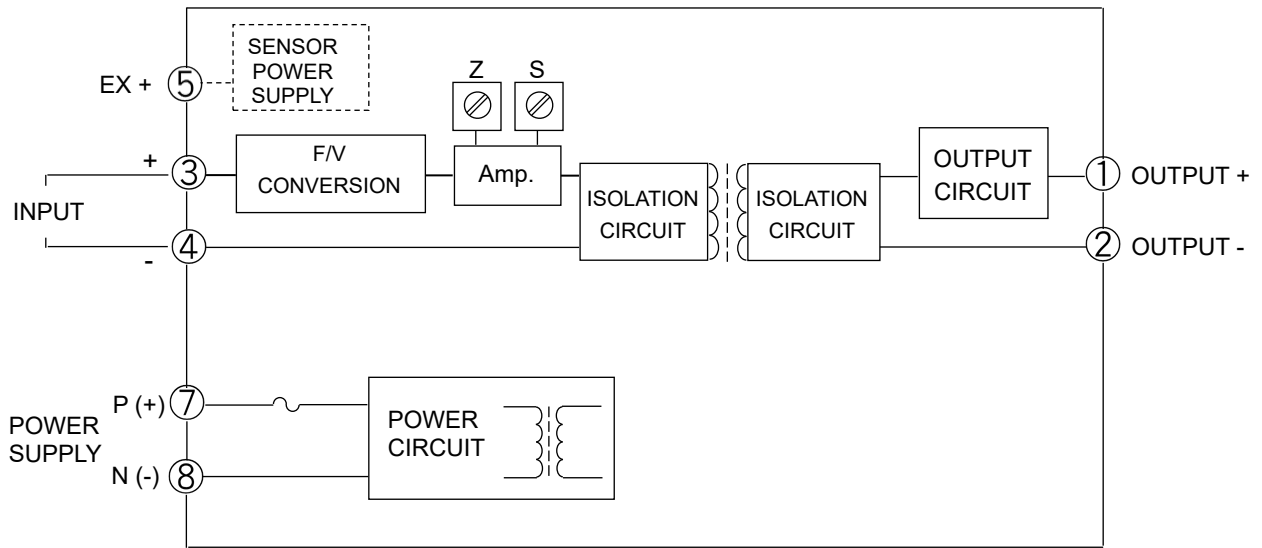
\* HumiSeal<sup>®</sup> is a registered trademark of Chase Corporation.

### TERMINAL ASSIGNMENT

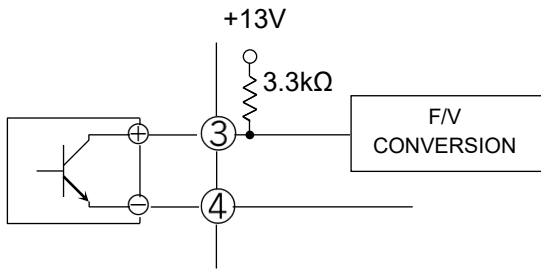


①	+ OUTPUT	
②	- OUTPUT	
③	+ INPUT	
④	- INPUT	
⑤	EX +	
⑥	N.C.	
⑦	P (+)	POWER
⑧	N (-)	

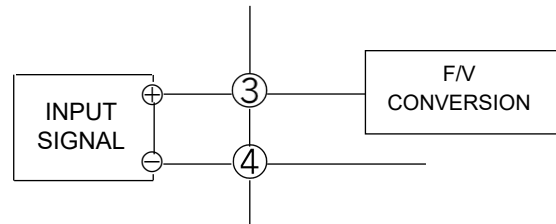
**BLOCK DIAGRAM**



For dry contact or open collector input:



For voltage pulse input:



When a 2-wire sensor is used:

Note: The connections may vary depending on the type of the sensor used.

