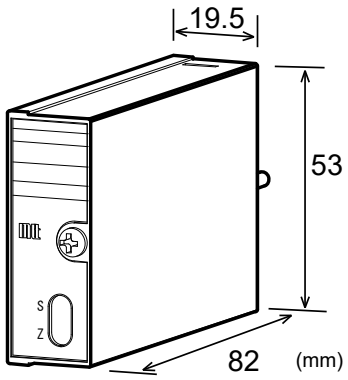
Product Specification Sheet **Model: MS3908** **MS3900**

Chassis-Mount Frequency/Analog Converter with Isolated Dual Output

DESCRIPTION

The MS3908 is a chassis-mount frequency to analog converter that converts pulse train signals from flow sensors and the like into mutually isolated dual channel DC analog output signals.

- ▽ A multi-slot chassis provides ease of maintenance and high-density mounting.
- ▽ Input, output 1, output 2, and power circuits are all isolated from each other.
- ▽ Equipped with a fuse on the DC power line as standard.



ORDERING INFORMATION

Ordering Code
MS3908-1☐☐(☐–☐)-8☐☐_ [1] └[2]┘ [3] [4]

SPECIFICATIONS

POWER SECTION

Power Requirement	24V DC±10%
Power Sensitivity	Better than ±0.1% of span per 10% change in supply voltage
Power Line Fuse	300mA fuse
Current Consumption	55mA max. at 24V DC

INPUT SECTION

Input (Specify a code in the field [1].)	■ Dry contact or open collector ····· OP (Pull-up: Approx. 12V, 3.3kΩ) ■ AC voltage pulse (0.1 to 100Vp-p) ····· AP (☐☐☐) (Threshold voltage: Approx. 0.06Vp-p) Specify the peak-to-peak value of input voltage in parentheses. ■ DC voltage pulse ····· ·····DP (☐–☐ / SH☐ SL☐) (Standard threshold voltage: Approx. 2V) Specify a voltage range in parentheses. If you need non-standard threshold voltage, also specify high threshold SH and low threshold SL in parentheses. ■ 4–20mA DC pulse ·····IP (Threshold current: Approx. 8mA) ■ Other current pulses ····· ····· IP (☐–☐ / SH ☐ SL ☐) Specify a current range between 0–100μA and 0–100mA in parentheses. If you need non-standard threshold current, also specify high threshold SH and low threshold SL in parentheses.
Measuring Frequency Range (Specify a range in the field [2].)	Specify a measuring frequency range between 0–20Hz and 0–20kHz.
Input Resistance	Voltage input: 1MΩ min. with power (Standard, 5V input); 30kΩ min. without power. Current input: 250Ω (Standard for 4–20mA)
Allowable Input Voltage	DC voltage input: 30V DC max., continuous. DC current input: 40mA DC max., continuous. AC voltage input: 200Vp-p AC max., continuous (up to ±100V with reference to 0V)
Input Pulse Width	20μs min.
Duty Ratio	40 to 60%

OUTPUT SECTION

Output (Specify a code in the field [3].)	Output 1 / Output 2 ····· Code ■ 1–5V DC / 1–5V DC·····V1 ■ 0–5V DC / 0–5V DC·····V5 ■ 0–10V DC / 0–10V DC·····V6 ■ ±5V DC / ±5V DC····· W5 ■ ±10V DC / ±10V DC····· W6 ■ 1–5V DC / 4–20mA DC ·····C1 Note: Combinations of two outputs are only available as shown above.
Allowable Output Load	Voltage output: 2mA max. Current output: 300Ω max.
Zero Adjustment	Approx. ±2% of span. (Adjustable by front-accessible trimmer)
Span Adjustment	Approx. ±2% of span. (Adjustable by front-accessible trimmer)

ADDITIONAL

Option [4]	■ Polyurethane conformal coating···· /H

PERFORMANCE

Accuracy Rating	Better than ±0.3% of span. Ripple: 0.2%p-p or less of span. (for at least 10% input) (at 25°C±5°C)	
Temperature Effect	Better than ±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	4-way isolation between input, output 1, output 2, and power.	
Insulation Resistance	100MΩ min. (@ 500V DC) between input, output 1, output 2, and power.	
Dielectric Strength	Input / [Output 1, Output 2, Power]: 1500V AC for 1 minute (Cutoff current: 0.5mA) Output 1 / Output 2 / Power: 500V AC for 1 minute (Cutoff current: 0.5mA)	
Surge Withstand Capability	Tested as per ANSI/IEEE C37.90.1-1989.	
Operating Environment	Ambient temperature: 0 to 55°C Humidity: 5 to 90% RH (non-condensing)	
Storage Temperature	−10 to 60°C	

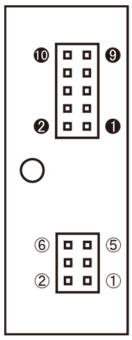
PHYSICAL

Installation	Mounted in an optional chassis (RC3900A-☐☐AI or RS3900-01TB).
Wiring	Wired to an optional chassis (RC3900A-☐☐AI or RS3900-01TB).
External Dimensions	W19.5 × H53 × D82 mm
Weight	70g max.

MATERIAL

Housing	ABS resin
PC Board	Glass fabric, epoxy resin (FR-4: UL 94V-0)

PIN ASSIGNMENTS



PIN	SIGNAL	PIN	SIGNAL
①	+ INPUT	❶	+ OUTPUT 1
②	− INPUT	❷	− OUTPUT 1
③	N. C.	❸	+ OUTPUT 2
④	N. C.	❹	− OUTPUT 2
⑤	N. C.	❺	+ POWER DC24V
⑥	N. C.	❻	−
		❼	N. C.
		❽	N. C.
		❾	F. G.
		❿	N. C.

BLOCK DIAGRAM