



Standard Specifications Type: MS3709

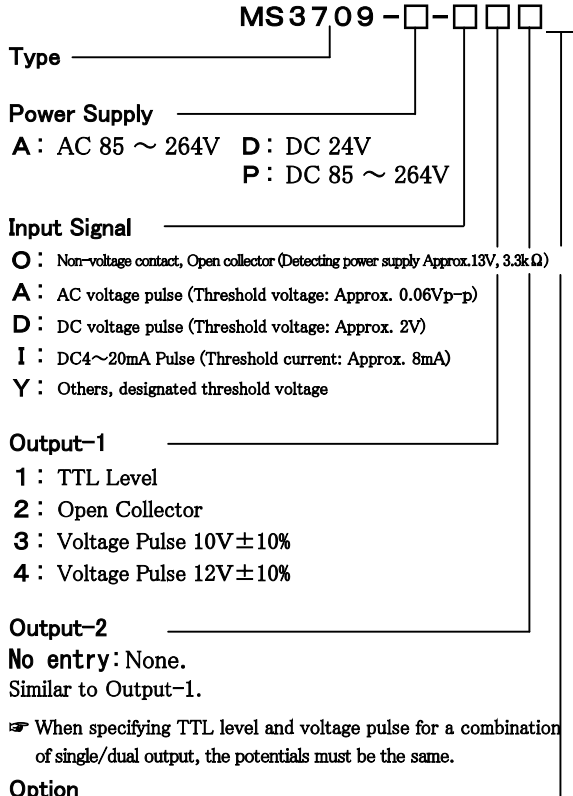
MS3700

Slim-shaped Plug-in Pulse Shaper with Isolated Single/Dual Output
 (Pulse Isolator)

Overview

MS3709 is a slim-shaped plug-in pulse shaper with isolated single/dual output (pulse isolator) to reshape or convert the level of pulse train signals for output. (RoHS-conformed)

Ordering Format



- / A : Sensor power supply: 24V DC (±10%) 2-wire
- / B : Sensor power supply: 12V DC (±10%) 2-wire
- / C : Sensor power supply: 24V DC (±10%) 3-wire
- / D : Sensor power supply: 12V DC (±10%) 3-wire
- / T : With Pulse Hold function
- / X : Custom Order..... + ¥10,000

*Contact us for custom-order requirement.

Please specify upon ordering

•Product Model Number
 (Example) MS3709-A-D11

- Other items to be specified
- For input "Y": MS3709-A-Y11(Input DC voltage pulse 0~12V SH=8.5V,SL=2.5V)
 - For input "Y": MS3709-A-Y11(Input AC pulse 200Vp-p/S=2Vp-p)
 - For option "T": MS3709-A-D11/AT(Pulse Hold 200msec)
 - *For DC pulse, specify the pulse width in the range between 0~100μA and 0~100mA.
 - *SH=High threshold level, SL=Low threshold level, S=Threshold level
 - *Specify the pulse width in the range of 200μsec~500msec.
 - For more than one option: Enter Option Codes in succession (/AX)



Specifications

●Power Supply Section

Power Supply	AC85~264V (Rating100~240V) 47~63Hz DC24V±10% DC85~264V (Rating100~240V)
--------------	---

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	5.0VA max. / 2.1W max. / 7.2Wmax.		
Dual Output	5.5VAmax. / 2.2Wmax. / 7.2Wmax.		

●Input Section

Input Resistance

Voltage Input (DC) 1MΩ min. with excitation
 (40kΩ min. without excitation)

Current Input (DC) 250Ω (4~20mA: Standard)
 *When specifying 2-wired power supply for sensor, the input resistance becomes 100Ω.

Input Voltage Allowable

DC voltage input	30V DC max. continuous
DC current input	40mA DC max. continuous
AC voltage input	200Vp-p AC (±100V with reference value of 0V) max. continuous

Input Pulse Width 10 μ sec. min. (for both ON/OFF)

Sensor Power Supply Max.current30mA (2-wire or 3-wire system)

Range of Products Available

	AC Voltage Pulse	DC Voltage Pulse
Input Range	-300~300V	0~300V
Input Voltage Span	0.1~600Vp-p	1~300V
Input Bias	—	0~+300%
Threshold Voltage	50mVp-p min.	Hi-Lo width 0.2Vmin.

(e.g.) DC Voltage pulse 10~15V⇒Input voltage span 5V, Bias 200%

●Output Section

Maximum Output Load

TTL Level	(Max. Output 10mA@3.5V)
Voltage pulse 10V	(Max. Output 7mA@±10%)
Voltage pulse 12V	(Max. Output 7mA @±10%)

Max. Rating Open Collector (Max. Rating 30V 100mA)

● Output Section

Without Pulse Hold Function

Maximum Output Frequency

Voltage pulse output: 50kHz @Duty 40~60%

Open collector output: 20kHz @Duty40~60%

(For both cases, input duty ratio is 50% (standard threshold).)

Pulse Hold Function Max. output frequency when setting the pulse width.

Max. Output Frequency $f = 1 / (T \times 1.2 + 10 \mu \text{ sec})$

*10 μ sec: Output pulse is in Low Level@TTL, voltage pulse output, or output pulse is ON@Open collector output

(e.g.) When setting 200 msec Hold $\Rightarrow 1 / (0.2 \times 1.2 + 0.0001) = 4.166\text{Hz}$

Polarity reversion switch See Output Logic table.

● Output Logic

Input Waveform	Between input terminals	Polarity reversion switch	Voltage Pulse Output	Open Collector Output
Voltage pulse		NORMAL		
		REVERSE		
Open collector		NORMAL		
		REVERSE		

● Standard Performance

Pulse Hold	
Time Accuracy	Within ±20% of the specified value
Signal Isolation	Between Input - Out1-Out2-Power Supply-Ground
Isolation	100MΩ min. (@500V DC)
Resistance	Between Input-Out1-Out2-Power Supply-Ground
Dielectric Strength	Between Input-[Out1,Out2]-[Power Supply, Ground] :200V AC, Shut Down Current 0.5mA for 1 minute Between Power Supply - Ground :200V 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

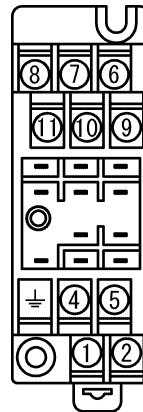
● Installation / Physical Specifications

Installation	Wall mounting &/or DIN-rail mounting
Wiring	M3.5 screw terminal connection (with P.S. terminal cover & screw crop-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

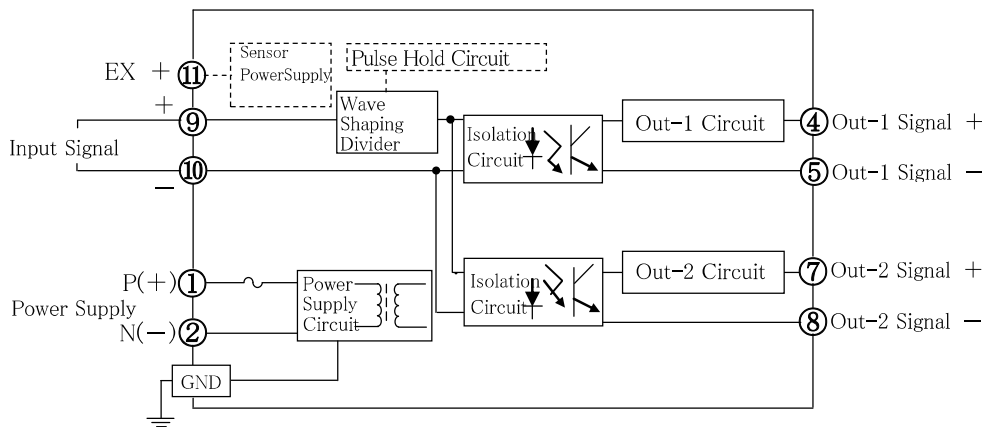
Housing	ABS Resin (UL-94V-0)
Terminal Block	ABS Resin (UL-94V-0)
Terminal Screws	Iron/Nickel-plated
Terminal Surface Treatment	0.2 μ m / Gold plated
P.C. Board	Glass-Epoxy (FR-4:UL-94V-0)
Moisture-proof Coating	HumiSeal Coating :HumiSeal 1A27NS(Polyurethane Resin)

Terminal Arrangement / Signal Assignment



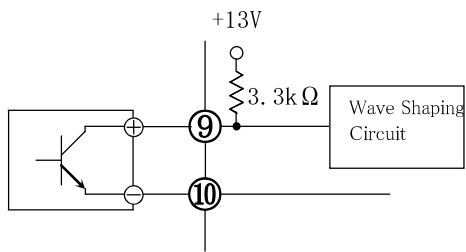
①	P(+)	POWER
②	N(-)	
⊥	GND	
④	+ OUTPUT 1	
⑤	- OUTPUT 1	
⑥	N. C	
⑦	+ OUTPUT 2	
⑧	- OUTPUT 2	
⑨	+ INPUT	
⑩	- INPUT	
⑪	EX	

Block Diagram

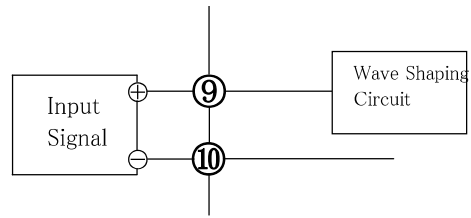


Block Diagram

* In case of non-voltage contact, open collector input



*In case of voltage pulse input



*When using a 2-wire sensor:

☞ Connection may be different depending on the type of sensor.

