

DESCRIPTION

The MS3759 is a slim, plug-in pulse to relay contact converter that converts dry contact signals including open collector or wet contact signals into relay contact (form A or C contact) signals and provides an isolated dual output.

ORDERING CODE
MS3759 - -
Model
Power Supply
A: 100 to 240V AC (50 to 60Hz)

D: 24V DC

P: 100 to 240V DC

Input
O1: Switch-selectable between dry contact / open collector and wet contact (Pull-up: Approx. 13V, 3.3kΩ)

O2: Switch-selectable between dry contact / open collector and wet contact (Pull-up: Approx. 24V, 6.2kΩ)

Outputs 1&2
5: Form A contact (Photo MOS FET relay)

No code: Form C contact (Mechanical relay)

Options
No code: None

/H: Polyurethane conformal coating

/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 above.

(e.g.) MS3759-A-O15

* The default settings are as follows:

Input: Wet contact, Relay activation: NORMAL

Other Ordering Examples:

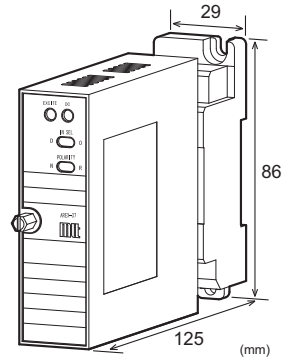
For an option code of "X": MS3759-D-O25/X (Relay start-up limitation: 5 sec.)

For a specific input setting: MS3759-A-O15 (Input: Dry contact or open collector)

For a specific relay activation: MS3759-D-O15 (Relay activation: REVERSE)

SPECIFICATIONS
POWER SECTION

Power Requirements	100 to 240V AC: 85 to 264V AC (47 to 63Hz) 24V DC: 24V DC±10% 100 to 240V DC: 85 to 264V DC
Power Sensitivity	Better than ±0.1% of span for each power supply range.



Power Line Fuse	160mA fuse is installed (standard).		
Power Consumption			
Power	100-240V AC	24V DC	100-240V DC
	4.5VA max	1.5W max	2.0W max

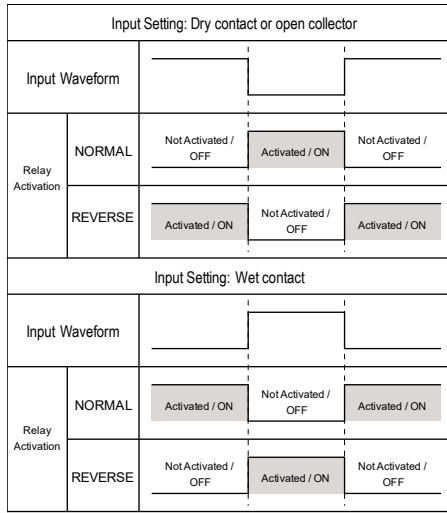
INPUT SECTION

Input Signal	Dry contact or open collector: Pull-up: Input code "O1": Approx. 13V, 3.3kΩ Input code "O2": Approx. 24V, 6.2kΩ Wet contact: High voltage level: 5 to 30V DC Low voltage level: 0 to 1V DC (Input is selectable between the dry contact and wet contact using the front-accessible switch.)
Input Setting Indicator LED	Green LED is ON when the wet contact is selected.
Input Resistance	With power: 1MΩ min. (5V DC input) Without power: 10kΩ min.
Allowable Input Voltage	30V DC max., continuous.
Threshold Voltage	Approx. 2V
Maximum Frequency	1Hz
Input Pulse Width	30ms min.

OUTPUT SECTION

Output Signal	Two independent relay contact closure signals: Form A contact (Photo MOS FET relay) Form C contact (Mechanical relay)
Output Indicator	Red LED is ON when the relay is activated.
Relay Activation without Power	Form A contact: OFF Form C contact: NC and COM are closed; NO and COM are open.
Relay Start-up Limitation	The relay gets ready for action about 2 seconds after power-up.

Output Operation



*Relay Activation: Form C / A contact

PERFORMANCE

Response Time	30ms max.
Isolation	4-way isolation between input, output 1, output 2, and power.
Insulation Resistance	100MΩ min. between input, output 1, output 2, power, and ground.
Dielectric Strength	Input / [Output 1, Output 2] / [Power, Ground]: 2000V AC for 1 minute (Cutoff current: 0.5mA) Power / Ground: 2000V AC for 1 minute (Cutoff current: 5.0mA) Output 1 / Output 2: 500V AC for 1 minute (Cutoff current: 0.5mA)
Relay Contact	
Form A contact:	
Maximum Load Voltage	350V (Peak AC/DC)
Maximum Continuous Load Current	120mA (Peak AC/DC)
Off-state Leakage Current	1μA max.
ON resistance	50Ω max. (Load current 120mA)
Form C contact:	
Maximum Allowable Voltage	250V AC, 220V DC
Maximum Allowable Current	2A
Maximum Allowable Power	125VA, 30W
Minimum Applicable Load	10μA, 10mV DC
Electrical Life	0.1A, 50V DC (Resistive load): 10 ⁶ cycles at 85°C, 5Hz. 10mA, 10V DC (Resistive load): 10 ⁶ cycles at 85°C, 2Hz.
Mechanical Life	100 × 10 ⁶ cycles
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

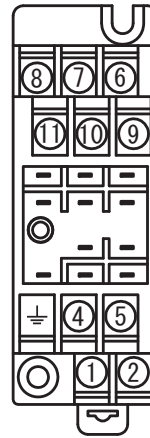
PHYSICAL

Installation	Wall/DIN rail mounting
Wiring	M3.5 screw terminal connection (with a power terminal block cover & drop-proof screws)
Screwing Torque	0.8 to 1.0 [Nm] * Recommended
External Dimensions	W29 × H86 × D125 mm (including the mounting screw and socket)
Weight	Main unit: 120g max. Socket: 80g max.

MATERIAL

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)
Screw Terminal	Nickel-plated steel
Contacts Material and Finish	Brass with 0.2μm gold plating
Printed Circuit Board	Glass fabric, epoxy resin (FR-4: UL 94V-0)

TERMINAL ASSIGNMENTS



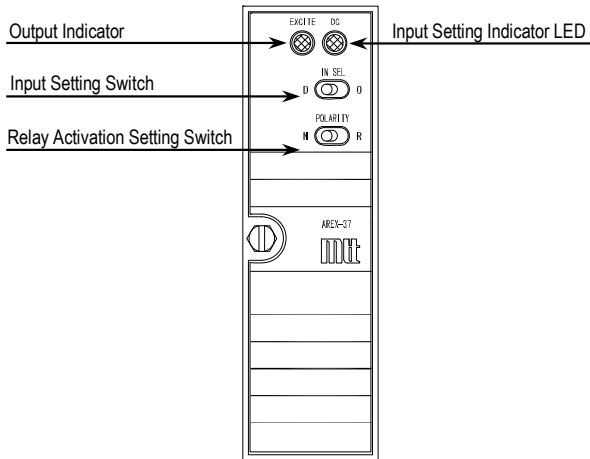
Form A Contact Output

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

Form C Contact Output

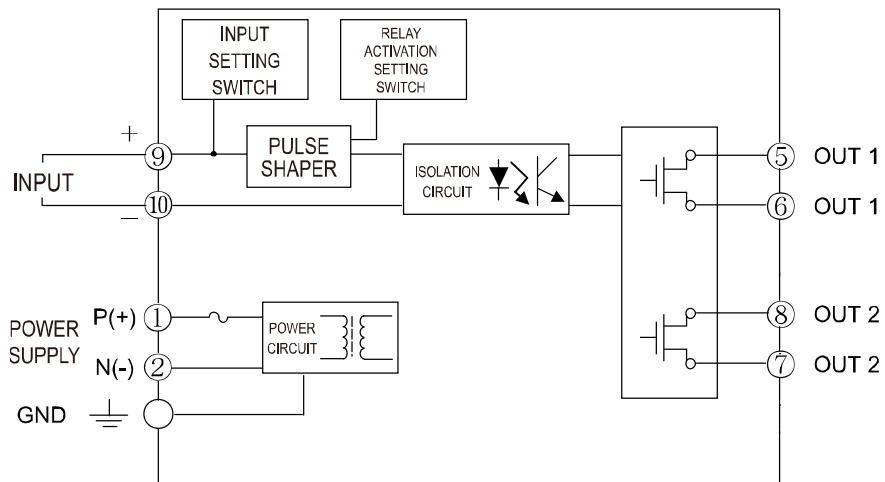
①	P (+)	POWER
②	N (-)	
⊥	GND	
④	NC OUT 1	
⑤	NO OUT 1	
⑥	COM OUT 1	
⑦	COM OUT 2	
⑧	NO OUT 2	
⑨	+ INPUT	
⑩	- INPUT	
⑪	NC OUT 2	

FRONT VIEW

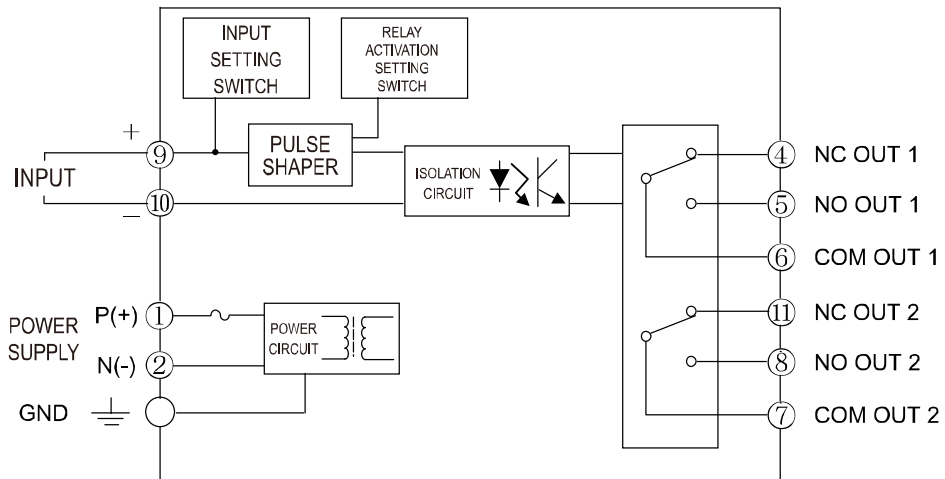


BLOCK DIAGRAM

FORM A CONTACT

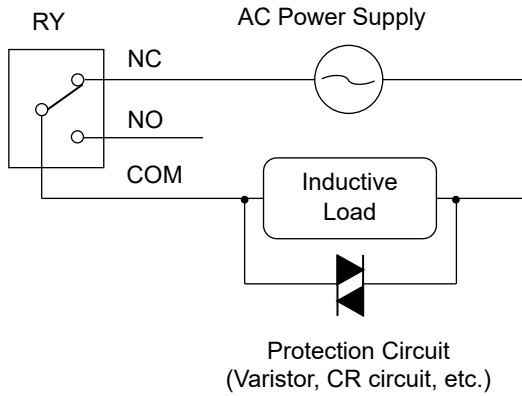


FORM C CONTACT

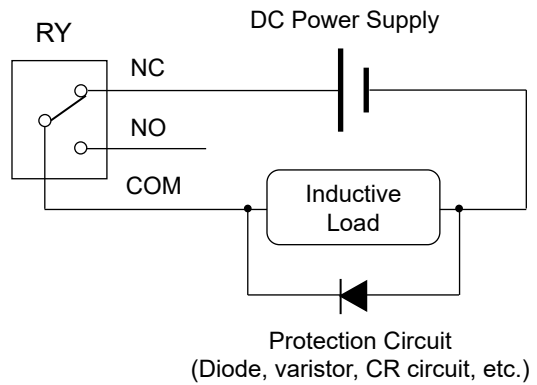


Note: When an inductive load, such as an electric motor, is connected to the output, a relay contact protection circuit must be connected across the load.

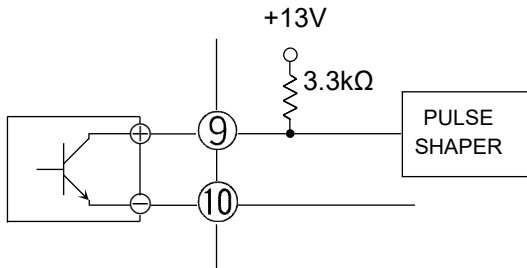
Example of AC Power Connection:



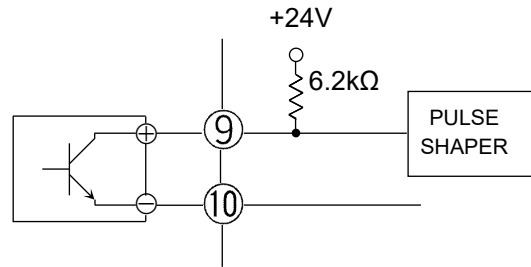
Example of DC Power Connection:



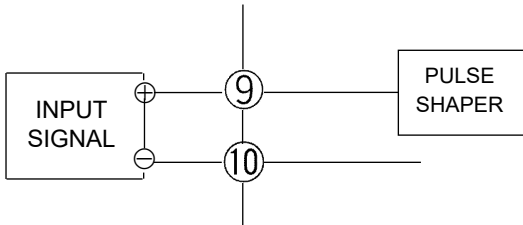
For dry contact or open collector input:
(Pull-up: Approx. 13V, 3.3kΩ)



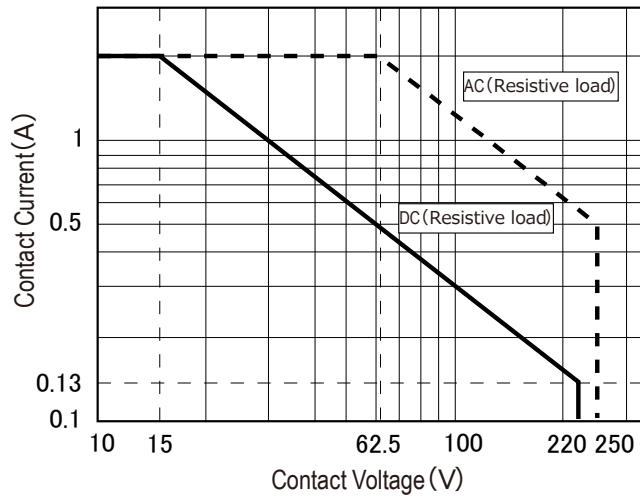
For dry contact or open collector input:
(Pull-up: Approx. 24V, 6.2kΩ)



For wet contact input:



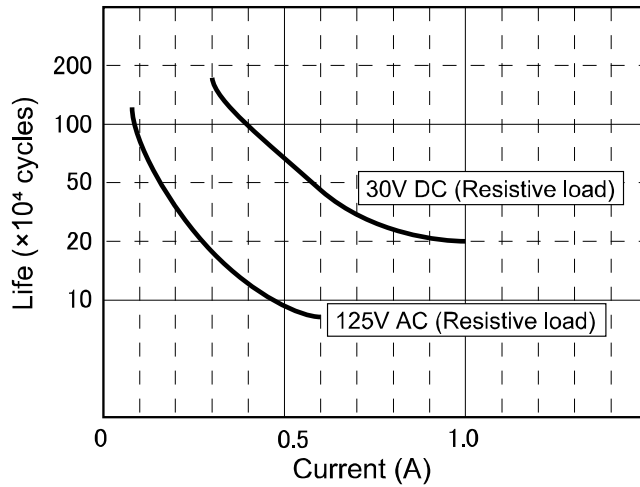
RATED LOAD CURVE FOR CONTACT (FORM C CONTACT)



Contact voltage 15V: Transition in DC (resistive load)
 Contact voltage 62.5V: Transition in AC (resistive load)

LIFE CURVE (FORM C CONTACT)

The data is for reference purposes only.



Inductive load life data (for reference): 100,000 cycles with inductive load 100V AC, 100mA, L/R = 1.4ms
 Form A contact relays (photo MOS relays) are recommended for applications involving a large number of opening and closing actions.