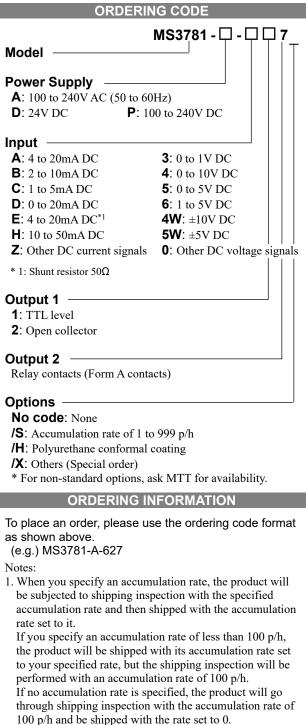


# Product Specification SheetModel: MS3781Slim Plug-In Accumulator with Isolated Dual Output

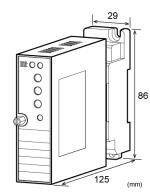
# DESCRIPTION

The MS3781 is a slim, plug-in accumulator that converts DC current or voltage signals into pulse train signals. The unit provides an isolated dual output.



- 2. If not specified, the dropout level will be 5% of input span.
- The accumulation rate and dropout level should be specified as shown in the example below.

(Example) Accumulation rate: 200 p/h Dropout level: 1%



#### Continued:

Other Ordering Examples: For an input code of "Z": MS3781-A-Z27 (Input: 8 to 20mA) For an input code of "0": MS3781-A-017 (Input: 0 to 8V)

#### SPECIFICATIONS

POWER SECTION				
Power	100 to 240V AC: 85 to 264V AC (47			
Requirements	to 63Hz)	to 63Hz)		
	24V DC: 2	24V DC: 24V DC±10%		
	100 to 240	V DC: 85 to	264V DC	
Power Sensitivity	Better than $\pm 0.1\%$ of span for each			
-	power supply range.			
Power Line Fuse	160mA fuse is installed (standard).			
Power Indicator	Green LED is ON when the power			
LED	supply is c	supply is on.		
Power Consumption				
Power 10	00-240VAC	24V DC	100-240V DC	
5	.0VA max	1.5W max	2.5W max	

Input Resistance		
Voltage Input (DC)	With or without power: $1M\Omega$ min.	
Current Input (DC)	4 to 20mA (std.) $250\Omega$	
	2 to 10mA	250Ω
	1 to 5 mA	$100\Omega$
	0 to 20mA	250Ω
	10 to 50mA	10Ω
Allowable Input Vol	tage	
Voltage Input Model	30V DC max., cont	inuous. (Standard
	for a span up to 10V	7)
Current Input Model	40mA DC max., continuous.	
	(Standard for 4 to 2	0mA)
Ranges Available		
	Current Signal	Voltage Signal
Input Range (DC)	-100 to 100mA	-10 to 10V
Input Span (DC)	100µA*1 to 200mA	200mV*2 to 20V
Input Bias	-100 to 100%	-100 to 100%
Note: For any input range including negative input signals,		
the input spans for current and voltage signals range		
from $(^{(*1)}200\mu$ A to 200mA and $(^{(*2)}400mV$ to 20V,		
respectively.		
Input Spec. Ex. 1: For 3 to 8V input, the input span is 5V		
and the bias $+60\%$ .		
Input Spec. Ex. 2: For -5 to 0V input, the input span is 5V		
and the bias -100%.		

OUTPUT SECTIONMaximum OutputTTL level: Maximum output 10mA at Load3.5VMaximum RatingOpen collector: 40V DC, 50mAPulse Width125ms±20%Output IndicatorGreen LED is ON while pulses are output.Relay ContactsRated LoadRated Load125V AC 0.5A, 30V DC 2A (Resistive load) 125V AC 0.3A, 30V DC 1A (Inductive load)Maximum2A (Resistive load) Contact VoltageMaximum2A (Resistive load) Contact VoltageMaximum2A (Resistive load) (Contact VoltageMechanical Life500 × 10 <sup>3</sup> cycles min. (Frequency at rated load: 1,800 cycles/h)Mechanical Life100 × 10 <sup>6</sup> cycles min. (Frequency: 36,000 cycles/h) <b>PERFORMANCE</b> Accuracy Rating Better than ±0.2% of span (at 25°C±5°C).Temperature EffectEtter than ±0.2% of span per 10°C change in ambient.Response TimeTime to the first pulse with a 0 to 100% step input = (50ms + Pulse interval*) s max. * Pulse inter		TION
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$\begin{tabular}{ c c c c c } \hline \textbf{OPERFORMANCE} \\ \hline Accuracy Rating & Better than \pm 0.5\% of span (at 25°C±5°C). \\ \hline \hline Temperature & Better than \pm 0.2\% of span per 10°C change in ambient. \\ \hline \hline Response Time & Time to the first pulse with a 0 to 100% step input = (50ms + Pulse interval*) s max.  * Pulse interval: 60 p/h setting: 60s 10 p/h setting: 360s \\\hline \hline Accumulation & Standard: 10 to 9990 p/h (in steps of 10 p/h) \\\hline Option: 1 to 9990 p/h (in steps of 1 p/h) (Adjustable by the front-accessible rotary switches.) \\\hline \hline Dropout Level & 0 to 20%* (Specify when ordering) \\& * It can be specified in steps of 1%. \\\hline Accuracy & Better than \pm 0.5% of span. \\\hline Hysteresis & 1% of span, max. \\\hline Response Time & 150ms max. \\\hline during Dropout & (with a 1% set value, 100 to 0% step input) \\& Note: \\\hline If an input value is lower than or equal to the dropout level, the output will be 0 p/h and the red LED on the front panel will turn on. \\\hline The accumulation is suspended during dropout and resumed upon return to normal operation. \\\hline Isolation & Io0M\Omega min. (@ 500V DC) between input, output, and power. \\\hline Insulation & I00M\Omega min. (@ 500V DC) between input, output, cutput, cutput, power, and ground. \\\hline Dielectric & Input / Output / [Power, Ground]: 2000V AC for 1 minute (Cutoff current: 5mA) \\\hline Surge Withstand & Tested as per ANSI/IEEE \\\hline \end{tabular}$	meenameal Life	
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Surge Withstand Tested as per ANSI/IEEE		
Capability C37.90.1-1989.		
	Capability	C3/.90.1-1989.

Operating	Ambient temperature: -5 to 55°C	
Environment	Humidity: 5 to 90% RH	
	(non-condensing)	
Storage	-10 to 60°C	
Temperature		
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	$W29 \times H86 \times D125 mm$	
Dimensions	(including the mounting screw and	
	socket)	
Weight	Main unit: 120g max.	
	Socket: 80g max.	
Housing	ABS resin (UL 94V-0)	
Terminal Block	PBT resin (UL 94V-0)	
Terminal Block	PC resin (UL 94V-2)	
Cover		
DIN Rail Stopper	PP resin (UL 94HB)	
Screw Terminal	Nickel-plated steel	
Contacts Material	Brass with 0.2µm gold plating	
and Finish		
Printed Circuit	Glass fabric, epoxy resin	

## TERMINAL ASSIGNMENTS

$\square$	
±45	

(1)	P(+)	OWFR
2	N(-) 「	OWER
1	GND	
(4)	+ OUTPU	Г1
(5)	- OUTPU	Г1
6	N.C.	
$\bigcirc$	+ OUTPU	Г2
8	- OUTPU	Г2
9	+ INPUT	
10	- INPUT	
(1)	N.C.	

### **BLOCK DIAGRAM**

