



**Standard Specifications Type: MS3711**  
**Slim-shaped Plug-in isolated Dual Output Pulse Divider**

**MS3700**

**Overview**

This MS3711 performs Shaping, Level Conversion and Frequency Division for pulse string signal to generate No.1 – and No.2 (dual) outputs. (RoHS-conformed)

**Ordering Format**

**MS3711** - [ ] - [ ] - [ ] - [ ]

Type \_\_\_\_\_

Power Supply \_\_\_\_\_  
 A : AC 85~264V D : DC 24V  
 P : DC 85~264V

Input Signal \_\_\_\_\_  
 O : No-voltage contact, open-collector  
 (Detection P.S : approx. 13V, 3.3kΩ)  
 A : VAC pulse (Threshold Voltage: approx. 0.06V<sub>p-p</sub>)  
 D : VDC pulse (Threshold Voltage: approx. 2V)  
 I : 4~20mA DC pulse (Threshold Current: approx. 8mA)  
 Y : Other designated input and threshold voltage

Output-1 \_\_\_\_\_  
 1 : TTL level  
 2 : Open Collector  
 3 : Voltage Pulse 10V ± 10%  
 4 : Voltage Pulse 12V ± 10%

Output-2 \_\_\_\_\_  
 No entry : None  
 Similar to Out-1

Option \_\_\_\_\_  
 No entry : None  
 / A : Sensor Power Supply: 24V DC (±10%) Two-wired  
 / B : ditto : 12V DC (do) do  
 / C : ditto : 24V DC (do) Three-wired  
 / D : ditto : 12V DC (do) do  
 / X : Special Order ..... +¥10,000

\*For special order, consult MTT.

**Items to be specified at ordering**

•Type of instrument  
 (Ex.)MS3711-A-O22

\* Factory setting will be for division ratio 1/1

Other items to be specified (example)

•For "Y" input : MS3711-A-Y22 (input : VDC pulse 0~12V,  
 TH=8.5V, TL=2.5V)

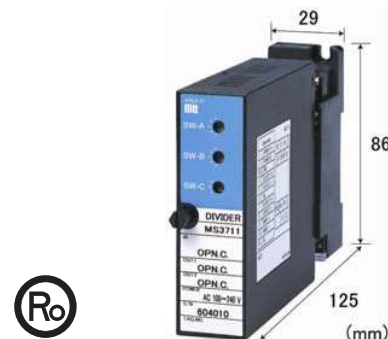
•For "Y" input : MS3711-A-Y22 (input : AC pulse 200V<sub>p-p</sub>  
 T=2V<sub>p-p</sub>)

\*For ADC pulse, the input range to be specified shall be between  
 0~100 μA and 0~100mA

\*TH=Threshold Level HI, TL=Threshold Level LO, T= Threshold

•To specify Division Ratio : MS3711-A-O22 (1/100)

•For more than one option, enter Option Codes in succession (/AX)



**SPECIFICATIONS**

**Power Supply Section**

Power Supply AC85~264V (Rating 100~240V) 47~63Hz  
 DC24V ± 10%  
 DC85~264V (Rating 100~240V)

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.	7.2W max.	
Dual Output	5.5VA max. / 2.2W max.	7.2W max.	

**Input Section**

**Input Resistance**

Voltage Input (DC) With Power: 1MΩ min. (Power OFF: 40kΩ min.)  
 Current Input (DC) 250Ω (4~20mA: Standard)

\* If Two-wired Power Supply for sensor is specified, the shunt resistor shall be 100Ω.

**Maximum Input Voltage**

VDC Input	30V DC max. continuous
ADC Input	40mA DC max. continuous
VAC Input	200V <sub>p-p</sub> AC (±100V with 0V as reference voltage) max. continuous

**Maximum Input Frequency**

50kHz

Input Pulse Width 20 μ sec min.

Duty Ratio 40~60% (at standard threshold)

Power Supply for sensor 30mA max. (2- or 3-wired)

**Range of Product available**

	VAC pulse	VDC pulse
Input Range	-300~300V	0~300V
Input Voltage Span	0.1~600V <sub>p-p</sub>	1~300V
Input Bias	—	0~+300%
Threefold Voltage	50mV <sub>p-p</sub> min.	Hi-Lo width 0.2V min.
(Ex.) VDC pulse 10~15V ⇒ Input Voltage Span 5V, Bias 200%		

**Output Section**

**Maximum Output Load**

TTL Level	(Maximum Output 5mA @ 3.5V)
Voltage Pulse 10V	(Maximum Output 7mA @ ±10%)
Voltage Pulse 12V	(Maximum Output 7mA @ ±10%)

**Maximum Rating**

Open Collector (maximum rating 30V, 50mA)

● Output Section

**Maximum Output Frequency**

For Voltage Pulse Output : 50kHz @40~60% duty  
 For Open Collector Output : 20kHz @40~60% duty  
 (For either output, with 50% input waveform duty and standard threshold)

**Division Ratio**

Configurable as desired within a range of 1~1/3200 by the combination of switches mentioned below

**【Way of Configuration】**

1. Set either one of switches, A or B to 1 (N.C.) necessarily, and set the rest to any desired ratio.
2. If a setting of Input Frequency = Output Frequency (ratio 1/1) is required, set switch A to 2(TH) and switch B to 1 (N.C.).
3. The division ratio selected will be the product of switch setting A, B and C.

**【Example of Setting】**

\* Switch A = 1(N.C.), B = 4 (1/64), C = 2 (1/5)  
 The ratio is : 1/320 = 1/64×1/5

Switching Position	Switch A	Switch B	Switch C
1	N.C.	N.C.	1/1
2	TH	1/16	1/5
3	1/2	1/32	1/25
4	1/4	1/64	
5	1/8	1/128	

☞ If Switch A and B both were set to the same 1(N.C.) position, or similarly, the both set to the same position other than 1(N.C.), the division cannot properly be performed.

\*For selecting the ratio desired, refer to the table shown on the right.

● Stand Performance

<b>Signal Isolation</b>	Between Input—Out1—Out2—Power Supply—Ground, mutualby
<b>Isolation Resistance</b>	100MΩ以上 (@500V DC) Between Out1—Out2—Power Supply—Ground
<b>Dielectric Strength</b>	Between Input—[Out1,Out2]—[Power Supply, Ground] :2000V AC, Shut Down Cuuent 0.5mA for 1 minute Between Power Supply—Ground :2000V AC, Shut Down Cuuent 5mA for 1 minute Between Out1—Out2 :500V AC, Shut Down Cuuent 0.5mA for 1 minute
<b>S W C</b>	Conformed to ANSI/IEEE C37.90.1-1989
<b>Operation Environment</b>	Temperature: -5~55℃ Humidity: 5~90%RH (Non-Condensing)
<b>Storage Temperature</b>	-10~60℃

● Installation / Physical Specifications

<b>Installation</b>	Wall-mounting &/or DIN-rail mounting
<b>Wiring</b>	M3.5 screw terminal connection (With P.S. terminal cover/Screw drop-protection)
<b>Screw Tightening Torque</b>	0.8~1[N·m] recommendable
<b>Outer Dimensions</b>	W29×H86×D125mm (incl. set screws and terminal block)
<b>Mass</b>	Main Body 120g max, Terminal Block 80g max.

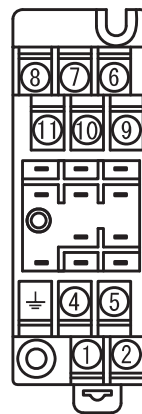
● Materials

<b>Housing</b>	ABS resin (UL-94V-0)
<b>Block</b>	ABS resin (UL-94V-0)
<b>Terminal Screws</b>	Iron / Nickel-plated
<b>Terminal Surface Treatment</b>	0.2 μm gold-plated
<b>P.C. Board</b>	Glass-Expoxy (FR-4:UL-94V-0)
<b>Moisture-proof Coating</b>	:HumiSeal 1A27NS (Polyurethane Resin)

Table of Division

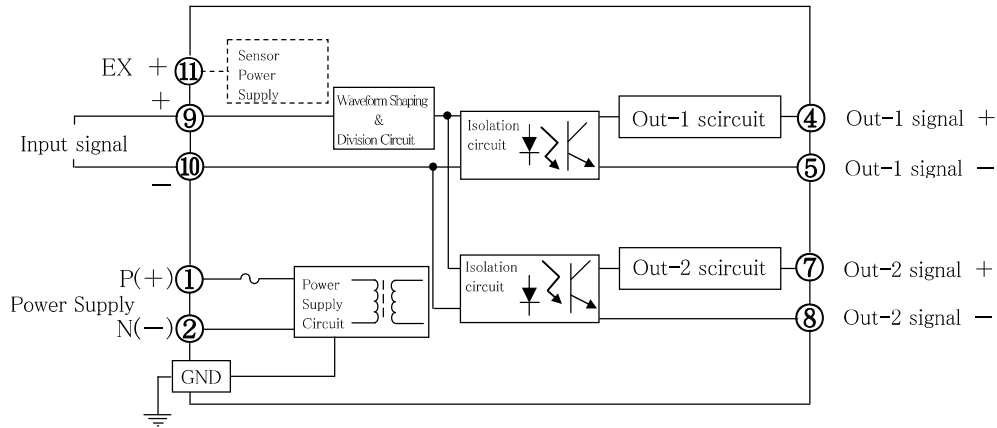
Division Ratio	Switch A		Switch B		Switch C	
	Switch Position	Function	Switch Position	Function	Switch Position	Function
1/1	2	TH	1	N.C	1	1/1
1/1	2	TH	1	N.C	2	1/5
1/1	2	TH	1	N.C	3	1/25
1/2	3	1/2	1	N.C	1	1/1
1/4	4	1/4	1	N.C	1	1/1
1/8	5	1/8	1	N.C	1	1/1
1/10	3	1/2	1	N.C	2	1/5
1/16	1	N.C	2	1/16	1	1/1
1/20	4	1/4	1	N.C	2	1/5
1/32	1	N.C	3	1/32	1	1/1
1/40	5	1/8	1	N.C	2	1/5
1/50	3	1/2	1	N.C	3	1/25
1/64	1	N.C	4	1/64	1	1/1
1/80	1	N.C	2	1/16	2	1/5
1/100	4	1/4	1	N.C	3	1/25
1/128	1	N.C	5	1/128	1	1/1
1/160	1	N.C	3	1/32	2	1/5
1/200	5	1/8	1	N.C	3	1/25
1/320	1	N.C	4	1/64	2	1/5
1/400	1	N.C	2	1/16	3	1/25
1/640	1	N.C	5	1/128	2	1/5
1/800	1	N.C	3	1/32	3	1/25
1/1600	1	N.C	4	1/64	3	1/25
1/3200	1	N.C	5	1/128	3	1/25

Terminal Arrangement / Signal Assignment

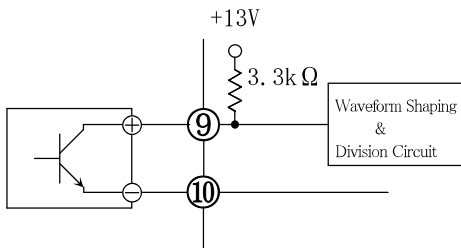


①	P (+)	POWER
②	N (-)	
⊥	GND	
④	+ OUTPUT 1	
⑤	- OUTPUT 1	
⑥	N. C	
⑦	+ OUTPUT	
⑧	- OUTPUT	
⑨	+ INPUT	
⑩	- INPUT	
⑪	EX	

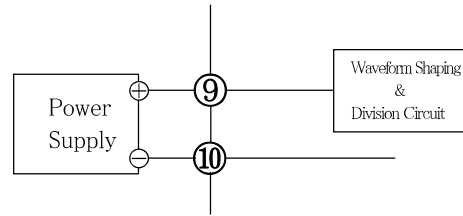
Block Diagram



\* For No-Voltage Contact Open Collector Input



\* For Voltage Pulse Input



\* For Two-wired Sensor

☞ The connection may differ depending on type of sensor.

