

General Specifications

MQ2 Pulse/Analog Converter (Free Range Type)

JUXTA

This μ P built-in type converter inputs pulse train signal and converts it into voltage or current signal proportional to its frequency.

- Power supply to supply 12V or 24V to pulse generator is internally built-in.
- As input pulse, this converter can receive either current pulse, voltage pulse, dry voltage contact or open collector contact.
- Change of input/output ranges, setting of input pulse width or low input cut point, adjustment of zero/span, monitoring of input/output can be done by Handy Terminal even in the field.
- If it receives chattering signals, filter can be set internally. [However, this can be done when input when input frequency range is up to 100Hz (pulse width more than 3ms)]

MQ2 - -

Model

Input Signal

- 1 : Transmitter power supply (12V DC $\pm 10\%$)
- 2 : Transmitter power supply (24V DC $\pm 10\%$)

Output Type

- A : 0~20mA DC (Span over 2mA)
- B : 0~5mA DC (Span over 1mA)
- 1 : 0~10V DC (Span over 0.5V)
- 2 : 0~100mV DC (Span over 10mV)
- 0 : (Custom Order) Voltage Signal Refer Table 1

Power Supply

- 3 : 24V DC $\pm 10\%$
- 4 : 85~132V AC/85~150V DC
- 5 : 170~264V AC

(Note) Please contact us for use by integrating analog output

ORDERING INFORMATION

- Model Code : (Example) MQ2-21-3
- Input Range : (Example) 50~1000Hz
- Output Range: (Example) 1~5V DC
- Low Input Cut Point : (Example) 30Hz

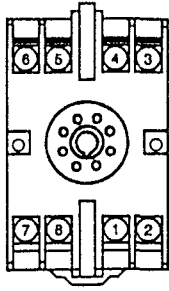
Input & Output

Input Frequency : $F_0 \sim F_{100}$ [Hz]
 ($0\text{Hz} \leq F_0 < F_{100}$ Hz)
 ($0.1\text{Hz} \leq F_{100} \leq 10\text{kHz}$)
 Accuracy is limited when F_0 elevation is more than 50% of F_{100} .
 Accuracy is

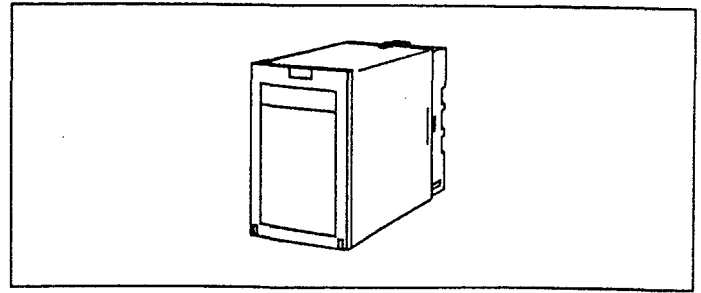
$$\frac{F_{100} - F_0 / 2}{F_{100} - F_0} \times 0.1(\%)$$
 F_0 : 0% input frequency
 F_{100} : 100% input frequency

Input Resistance :			
[When current pulse input] 200 Ω , 500 Ω , 1k Ω (combination can be selected by internal switch)			
[When voltage pulse input] More than 10k Ω			
Low Input Cut Point :			
Setting range : $0.01\text{Hz} \leq F_{cut} < F_{100}$			
Input below low input cut point (F_{cut}) corresponds to output 0Hz			
If low input cut point is not specified, shipment will be made setting it at 0.01Hz			
Input Signal Level :			
	Dry voltage contact R below 200 Ω	Voltage pulse -1~+8V	Current pulse -1/RL~+8/RLmA
	High level (V _H) contact R over 10k Ω	+2~+24V	+2/RL~+24/RLmA
RL : Internal Load Resistance (k Ω) V _H -V _L \geq 2V (conversion into voltage)			
Input Pulse Width : Pulse width so as duty to be within 50 \pm 30% when 100% input			
Transmitter Power Supply : 12V DC $\pm 10\%$ or 24V DC $\pm 10\%$ (with current control circuit at 40~60mA)			
Input Filter : 10ms filter (for use dry voltage contact) Filter requirement can be selected by switch			
Output Signal : DC voltage or current signal			
Output Setting Range : Refer Table 1			
Output Adjust Range : $\pm 10\%$ of span (for both zero/span)			
Standard Performance			
Accuracy Rating : $\pm 0.1\%$ of span However, in case accuracy limits exist for both input and output, take the value whichever greater			
Response Speed : Input pulse 1 cycle x 2+50ms (10 \rightarrow 90%) 63% response			
Insulation Resistance : Over 100M Ω (500V DC) between input~output~power supply~ground			
Withstand Voltage : 1500V AC/minute between input~output~power supply~ground			
Temperature Range : 0~50C			
Humidity Range : 5~90% RH (no condensation)			
Power Voltage : 24V DC $\pm 10\%$ 85~132V AC (47~63Hz)/85~150V DC or 170~264V AC (47~63Hz)			
Effect of Power Voltage Fluctuation : Less than $\pm 0.1\%$ of span for fluctuation of 24V DC $\pm 10\%$ 85~132V AC (47~63Hz)/85~150V DC or 170~264V AC			
Effect of Ambient Temperature Change : Less than $\pm 0.2\%$ of span for 10C temperature change			
Power Dissipation : 110V DC 20mA 24V DC 100mA			
Current Dissipation : 100V DC 6VA 200V AC 9VA			
Mounting, Shape & Accessories			
Materials	Case ABS plastic		
Mounting Method	Wall and DIN rail mountings More than 5mm interval is required for close mounting		
Connecting Method	M3.5 screw terminal		
External Dimension	80x50x123mm (HxWxD)		
Weight	Body : Abt. 250g Socket : Abt. 60g		
Accessories :			
Spacer 1 (use for DIN rail mounting)			
Range Label..... 2			

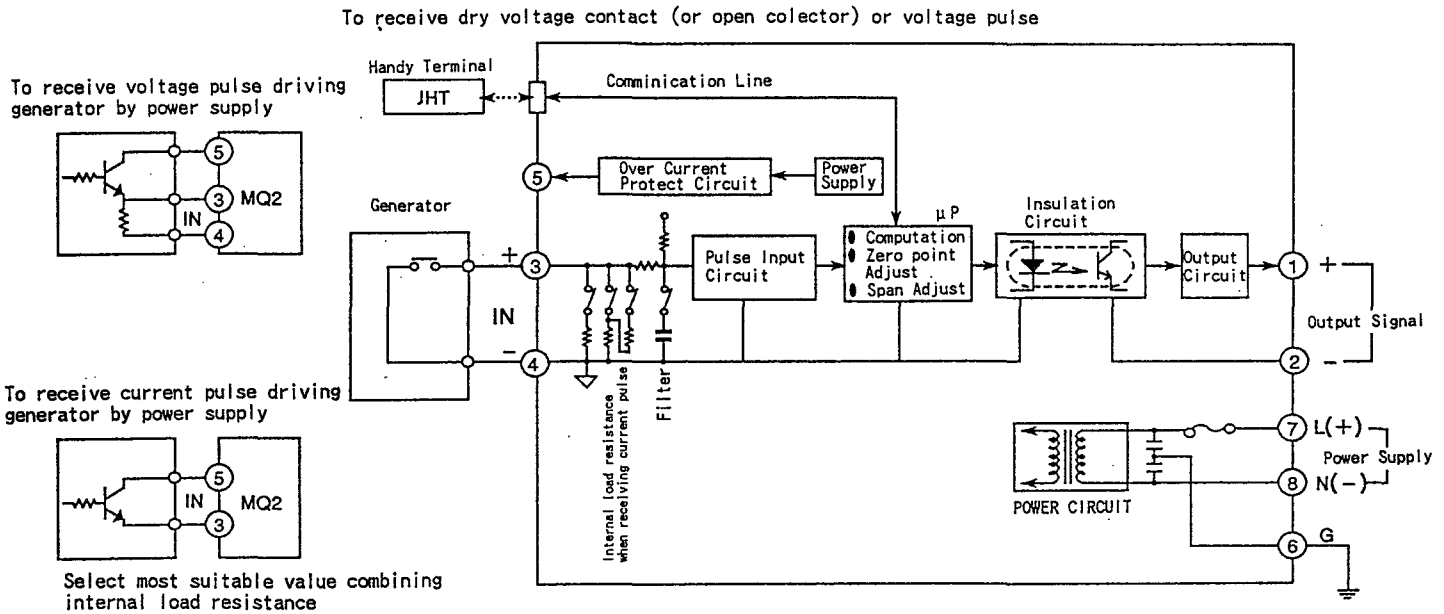
TERMINAL ARRANGEMENT



1	OUTPUT (+)
2	OUTPUT (-)
3	INPUT (+)
4	INPUT (-)
5	INPUT (PS+)
6	GND (G)
7	SUPPLY (L+)
8	SUPPLY (N-)



BLOCK DIAGRAM



EXTERNAL DIMENSION

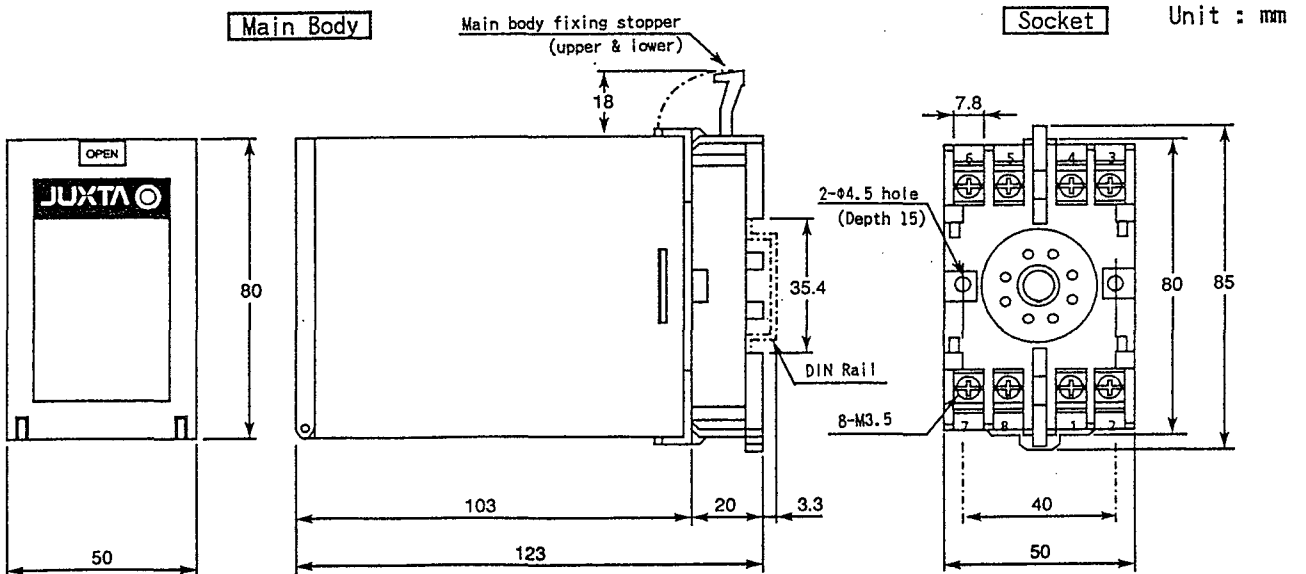


TABLE 1 : OUTPUT SETTING RANGE

Output Type	Output Setting Range	Conditions	Output Resistance	Permissible Load Resistance	Accuracy Limit
1	0~10V DC Span 0.5V or more	$V_{1.00} \leq 5V$	1 Ω or less	2k Ω or more	Span 2V or less $\pm 0.1 \times \frac{2V}{\text{Span } V} (\%)$
		$V_{1.00} > 5V$		$(V_{1.00} - 5) \times \frac{8}{5} + 2k\Omega$ or more	Span 4V or less $\pm 0.1 \times \frac{4V}{\text{Span } V} (\%)$
2	0~100mV DC Span 10mV or more	$V_{1.00} \leq 50mV$	100 Ω or less	250k Ω or more	Span 20mV or less $\pm 0.1 \times \frac{20mV}{\text{Span } mV} (\%)$
		$V_{1.00} > 50m$			Span 40V or less $\pm 0.1 \times \frac{40mV}{\text{Span } mV} (\%)$
0	-10~+10V DC Span 10mV or more	when output range is out of -100mV~+100mV	1 Ω or less	10k Ω or more	0.1% *In case zero elevation satisfies the conditions below :
		when output range is within -100mV~+100mV	100 Ω or less	250k Ω or more	$-100\% \leq \frac{0\% \text{ output voltage (V)}}{\text{output span (V)}} \times 100\% \leq 200\%$
A	0~20mA DC Span 2mA or more		500k Ω or more	15/ $I_{1.00}$ or more	Span 8mA or less $\pm 0.1 \times \frac{8mA}{\text{Span } mA} (\%)$
B	0~5mA DC Span 1mA or more				Span 2mA or less $\pm 0.1 \times \frac{2mA}{\text{Span } mA} (\%)$

$V_{1.00}$: Voltage (V) of output 100%
 $I_{1.00}$: Current (A) of output 100%

Subject to change without notice for grade up quality and performance

GS MQ2-01E