

Plug-in Signal Conditioners M-UNIT

FREQUENCY TRANSMITTER

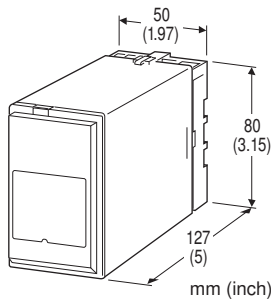
(field-programmable)

Functions & Features

- Converting the output from a pulse-type transducer into standard process signal
- Micro-processor based
- Field-programmable frequency range
- Linearization available for flow compensation
- Averaging non-uniform pulses
- Excitation
- Isolation up to 2000 V AC
- Loop testing via hand-held programmer PU-2x
- High-density mounting

Typical Applications

- Positive displacement flowmeters, turbine flowmeters and vortex flowmeters
- Proximity switches
- Oval flowmeters



MODEL: JPA-[1][2]-[3][4]

ORDERING INFORMATION

- Code number: JPA-[1][2]-[3][4]

Specify a code from below for each [1] through [4].

(e.g. JPA-23-B/Q)

- Frequency range (e.g. 0 - 152.3 Hz)
- Linearization data (max. 16 points)
- Special output range (For codes Z & 0)
- Use Ordering Information Sheet (No. ESU-1673) when the I/O signals are non-linear.

Note: Consult factory on applications with a sensor handling periodically (& quickly) changing frequency (e.g. oval flowmeter).

- Specify the specification for option code /Q (e.g. /C01/S01)

[1] INPUT

- 1: Open collector (Excitation: 12 V @ 30 mA)
- 2: Voltage pulse (Excitation: 12 V @ 30 mA)
- 3: Mechanical contact (Excitation: 12 V @ 30 mA)

[2] OUTPUT

Current

- A: 4 - 20 mA DC (Load resistance 750 Ω max.)
- B: 2 - 10 mA DC (Load resistance 1500 Ω max.)
- C: 1 - 5 mA DC (Load resistance 3000 Ω max.)
- D: 0 - 20 mA DC (Load resistance 750 Ω max.)
- E: 0 - 16 mA DC (Load resistance 900 Ω max.)
- F: 0 - 10 mA DC (Load resistance 1500 Ω max.)
- G: 0 - 1 mA DC (Load resistance 15 k Ω max.)
- Z: Specify current (See OUTPUT SPECIFICATIONS)

Voltage

- 1: 0 - 10 mV DC (Load resistance 10 k Ω min.)
- 2: 0 - 100 mV DC (Load resistance 100 k Ω min.)
- 3: 0 - 1 V DC (Load resistance 1000 Ω min.)
- 4: 0 - 10 V DC (Load resistance 10 k Ω min.)
- 5: 0 - 5 V DC (Load resistance 5000 Ω min.)
- 6: 1 - 5 V DC (Load resistance 5000 Ω min.)
- 4W: -10 - +10 V DC (Load resistance 10 k Ω min.)
- 5W: -5 - +5 V DC (Load resistance 5000 Ω min.)
- 0: Specify voltage (See OUTPUT SPECIFICATIONS)

[3] POWER INPUT

AC Power

- B: 100 V AC
- C: 110 V AC
- D: 115 V AC
- F: 120 V AC
- G: 200 V AC
- H: 220 V AC
- J: 240 V AC

DC Power

- S: 12 V DC
- R: 24 V DC
- V: 48 V DC

[4] OPTIONS

blank: none

/Q: With options (specify the specification)



SPECIFICATIONS OF OPTION: Q (multiple selections)

COATING (For the detail, refer to M-System's web site.)

/C01: Silicone coating

/C02: Polyurethane coating

/C03: Rubber coating

TERMINAL SCREW MATERIAL

/S01: Stainless steel

RELATED PRODUCTS

- JX configurator connection kit (model: JXCON)
- Programming Unit (model: PU-2x)

GENERAL SPECIFICATIONS

Construction: Plug-in

Connection: M3.5 screw terminals

Screw terminal: Chromated steel (standard) or stainless steel

Housing material: Flame-resistant resin (black)

Isolation: Input to output to power

Overrange output: -10 - +120 % at 1 - 5 V
(0 - 120 % when 0 % input equals to 0 Hz.)

Zero adjustment: -5 to +5 % (front)

Span adjustment: 95 to 105 % (front)

Linearization: 16 points max. represented as percentage of full-scale

Adjustments: Programming Unit (model: PU-2x); input range, low-end cutout, zero and span, simulating output, averaging nonuniform pulses, linearization data, etc. (Refer to the users manual of JXCON for the adjustments configurable with JXCON.)

Low-end cutout: 0 - 100 % adjustable (factory set to 0 %); hysteresis fixed to 1 %
(% of the range from 0 Hz to 100 % frequency.)

INPUT SPECIFICATIONS

Excitation: Shortcircuit protection

Pulse width (time) requirement: 10 msec. min. at < 20 Hz; duty ratio 20 - 80 % at \geq 20 Hz

Offset: Max. 3 times span

■ Open Collector

Frequency range: 0 - 0.01 Hz through 25 kHz
(0 - 1 kHz will be used if not otherwise specified)

Sensing: Approx. 12 V DC @ 3 mA

ON/OFF level: \leq 800 Ω / 2 V for ON,
 \geq 1.2 k Ω / 3.6 V for OFF

■ Mechanical Contact

Frequency range: 0 - 0.01 Hz through 5 Hz
(0 - 5 Hz will be used if not otherwise specified)

Sensing: Approx. 12 V DC @ 3 mA

ON/OFF level: \leq 800 Ω / 2 V for ON,
 \geq 1.2 k Ω / 3.6 V for OFF

■ Voltage Pulse: Square or sine waveforms
Frequency range: 0 - 0.01 Hz through 25 kHz
(0 - 1 kHz will be used if not otherwise specified.)
Input amplitude: 2 - 50 Vp-p
Input impedance: 10 k Ω min.

OUTPUT SPECIFICATIONS

■ DC Current: 0 - 20 mA DC

Minimum span: 1 mA

Offset: Max. 1.5 times span

Load resistance: Output drive 15 V max.

■ DC Voltage: -10 - +20 V DC

Span: Min. 5 mV, max. 20 V

Offset: Max. 1.5 times span

Load resistance: Output drive 1 mA max.; at \geq 0.5 V

INSTALLATION

Power input

• **AC:** Operational voltage range: rating \pm 10 %, 50/60 \pm 2 Hz, approx. 3 VA

• **DC:** Operational voltage range: rating \pm 10 %, ripple 10 %p-p max., approx. 2 W (90 mA at 24 V)

Operating temperature: -5 to +55°C (23 to 131°F)

Operating humidity: 30 to 90 %RH (non-condensing)

Mounting: Surface or DIN rail

Weight: 350 g (0.77 lb)

PERFORMANCE in percentage of span

Accuracy: \pm 0.1 % with segment gain \leq 1 [\pm 0.1 % \times gain] with segment gain \geq 1

Temp. coefficient: \pm 0.015 %/°C (\pm 0.008 %/°F)

Response time: 0.5 sec. + 1 pulse cycle (0 - 90 %)

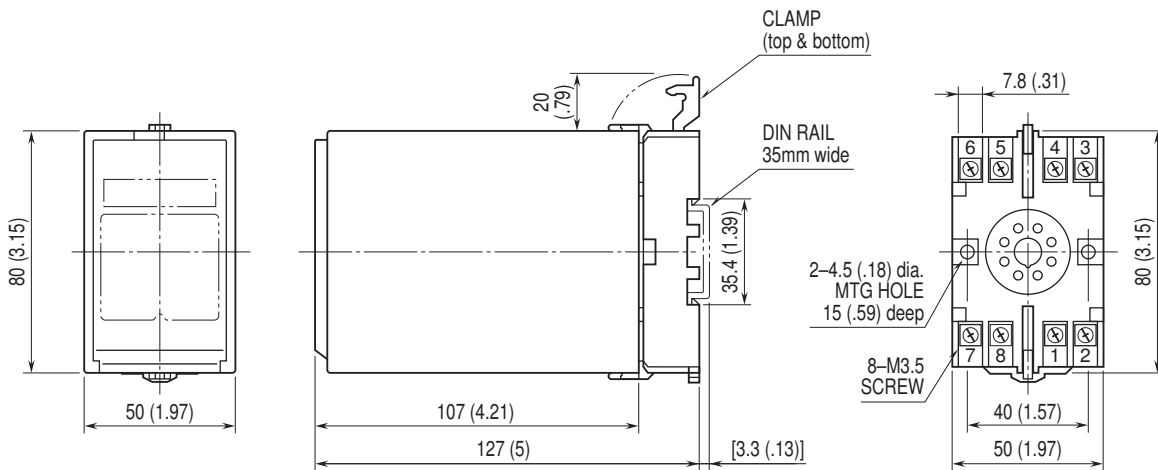
Line voltage effect: \pm 0.1 % over voltage range

Insulation resistance: \geq 100 M Ω with 500 V DC

Dielectric strength: 2000 V AC @1 minute (input to output to power to ground)

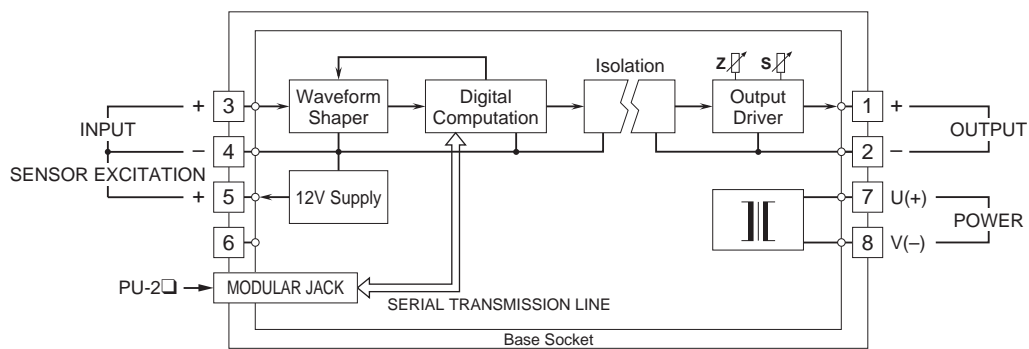


EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



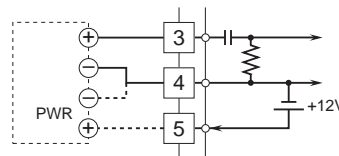
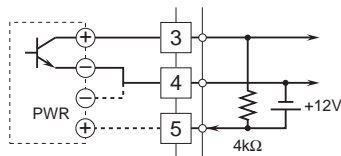
• When mounting, no extra space is needed between units.

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Input Connection Examples

■ Open Collector or Mechanical Contact ■ Voltage Pulse



Specifications are subject to change without notice.