High-density Signal Conditioners 10-RACK

FREQUENCY TRANSMITTER

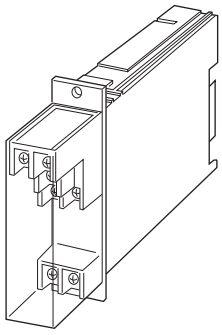
(field-programmable)

Functions & Features

• Converting the output from a pulse-type transducer into two standard process signals
• Microprocessor based
• Field-programmable frequency range
• Linearization available for flow compensation
• Averaging non-uniform pulses
• Excitation
• Loop testing via hand-held programmer PU-2x
• Optional second channel output available at the front terminals and at the Standard Rack connector

Typical Applications

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



MODEL: 10JPA–[1][2][3]–R[4]

ORDERING INFORMATION

• Code number: 10JPA-[1][2][3]-R[4]
Specify a code from below for each [1] through [4].
(e.g. 10JPA-2A6-R/Q)
• Frequency range (e.g. 0 – 152.3 Hz)
• Linearization data (max. 16 points)
Use Ordering Information Sheet (No. ESU-1673) to specify linearization data when the I/O signals are non-linear.
• Specify the specification for option code /Q
(e.g. /C01)
Note: Consult factory on applications with a sensor handling periodically (& quickly) changing frequency (e.g. oval flowmeter).

[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 1

Current
A: 4 – 20 mA DC (Load resistance 600 Ω max.)
Voltage
6: 1 – 5 V DC (Load resistance 500 Ω min.)

[3] OUTPUT 2

0: None
Voltage
6: 1 – 5 V DC (Load resistance 5000 Ω min.)

POWER INPUT

DC Power
R: 24 V DC
(Operational voltage range 24 V ±10 %, ripple 10 %p-p max.)

[4] OPTIONS

blank: none
/Q: With options (specify the specification)

SPECIFICATIONS OF OPTION: Q

COATING (For the detail, refer to M-System's web site.)
/C01: Silicone coating
/C02: Polyurethane coating
/C03: Rubber coating

RELATED PRODUCTS

• Programming Unit (model: PU-2x)
• PC configurator software (model: JXCON)
Downloadable at M-System's web site.
A dedicated cable is required to connect the module to the PC. Please refer to the internet software download site or the users manual for the PC configurator for applicable cable types.

GENERAL SPECIFICATIONS

Construction: Rack-mounted; terminal access via screw terminals at the front and via card-edge connector at the rear; terminal cover provided
Connection
Input: M3.5 screw terminals (torque 0.8 N·m)
Output: Card-edge connector and M3.5 screw terminals (torque 0.8 N·m)
Power input: Supplied from card-edge connector

Screw terminal: Nickel-plated steel
Housing material: Flame-resistant resin (black)
Isolation: Input to output 1 to output 2 to power
Overrange output: -10 – +120 % at 1 – 5 V
(0 – 120 % when 0 % input equals to 0 Hz.)
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 %

INPUT SPECIFICATIONS

Excitation: 12 V DC @30 mA; shortcircuit protection
Pulse width (time) requirement: 10 msec. min. at < 20 Hz; duty ratio 20 – 80 % at ≥ 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: ≤ 800 Ω / 2 V for ON,
≥ 1.2 kΩ / 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: ≤ 800 Ω / 2 V for ON,
≥ 1.2 kΩ / 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 kΩ min.

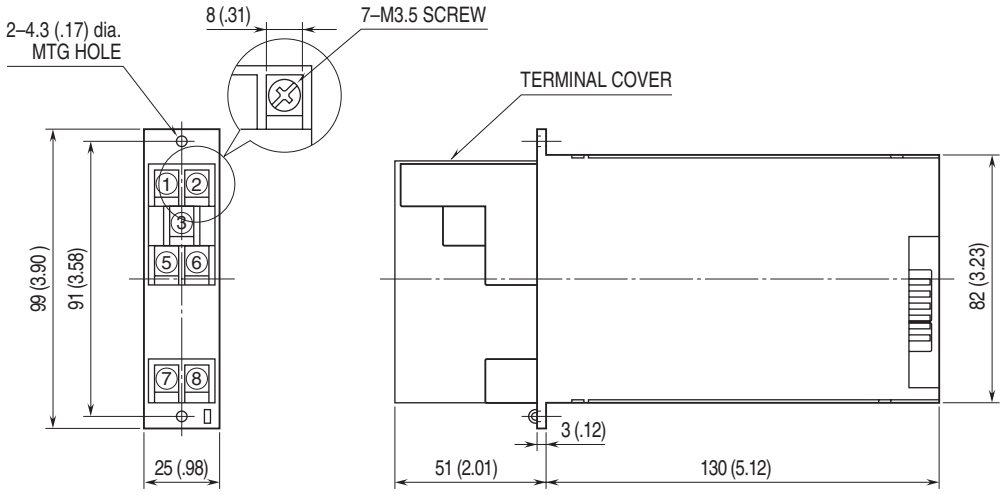
INSTALLATION

Current consumption: Approx. 60 mA with voltage output 1
Approx. 90 mA with current output 1
Operating temperature: -5 to +55°C (23 to 131°F)
Operating humidity: 30 to 90 %RH (non-condensing)
Mounting: Standard Rack 10BXx
Weight: 220 g (0.49 lb)

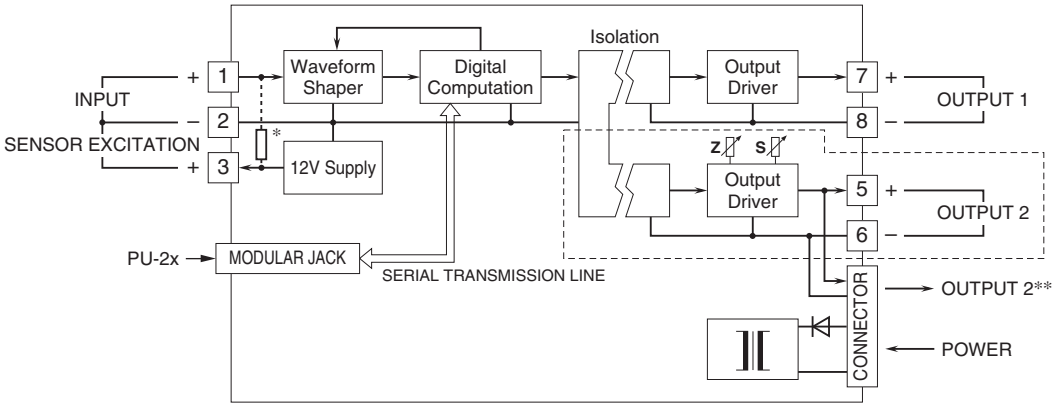
PERFORMANCE in percentage of span

Accuracy: ±0.1 % with segment gain ≤ 1 [±0.1 % × gain] with segment gain > 1
Temp. coefficient: ±0.015 %/°C (±0.008 %/°F)
Response time: 0.5 sec. + 1 pulse cycle (0 – 90 %)
Line voltage effect: ±0.1 % over voltage range
Insulation resistance: ≥ 100 MΩ with 500 V DC
Dielectric strength: 500 V AC @ 1 minute
(input to output 1 to output 2 to power)
1500 V AC @ 1 minute (input or output or power to ground)

DIMENSIONS unit: mm (inch)



SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



* 4kΩ attached for open collector and mechanical contact input only.
**1 output type has the output 1 connected to the card-edge connector in parallel.
Remark 1) The section enclosed by broken line is only for 2nd output channel.

⚠ Specifications are subject to change without notice.