High-density Signal Conditioners 10-RACK

FREQUENCY TRANSMITTER

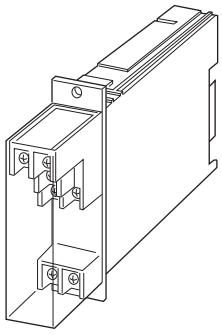
(field-programmable)

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)
Default setting will be used if not otherwise specified.
Use Ordering Information Sheet (No. ESU-1673) 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

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

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

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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.

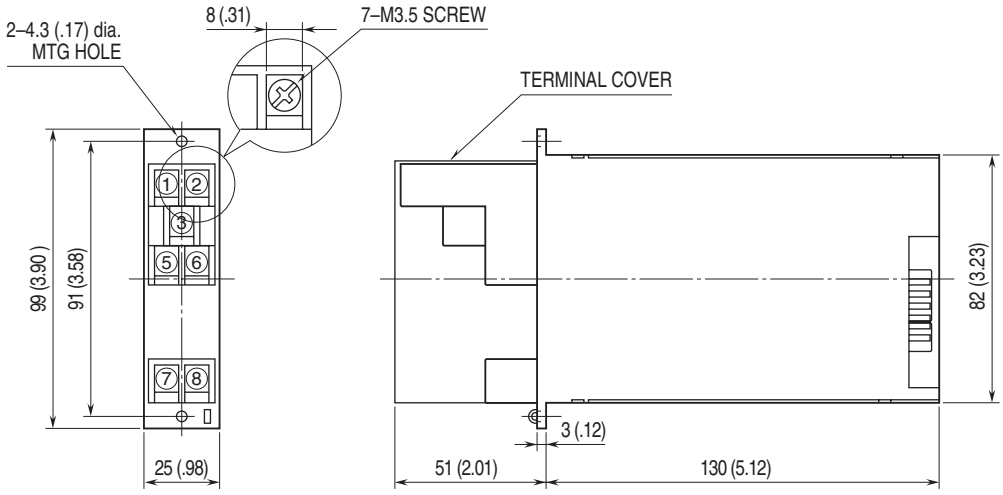
INSTALLATION

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)

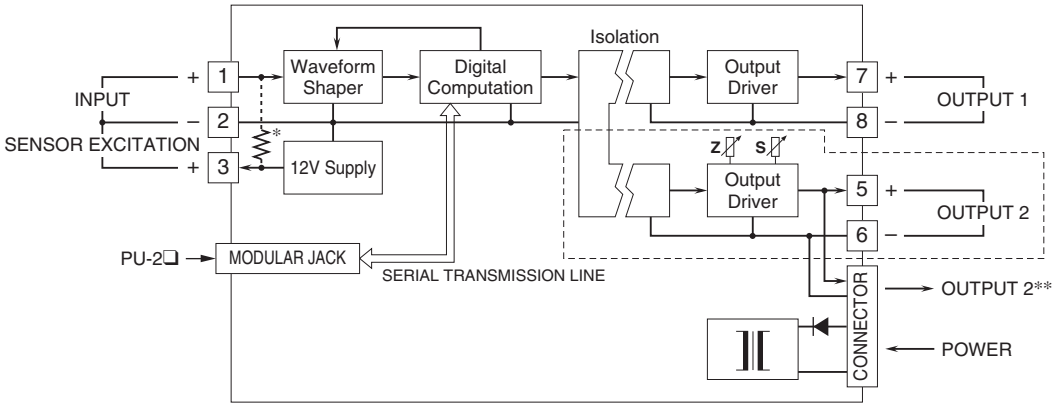
PERFORMANCE in percentage of span

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.

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