

High-density Signal Conditioners 10-RACK

LOW FREQUENCY TRANSMITTER

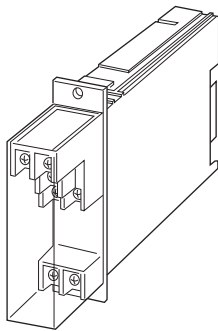
(50 Hz minimum)

Functions & Features

- Converting the output from a pulse-type transducer into a standard process signal
- Excitation
- 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



MODEL: 10SP-[1][2][3]-R[4]

ORDERING INFORMATION

- Code number: 10SP-[1][2][3]-R[4]
- Specify a code from below for each of [1] through [4].
(e.g. 10SP-2A6-R/Q)
- Frequency range (e.g. 0 - 10 kHz)
 - Specify the specification for option code /Q
(e.g. /C01)

[1] INPUT

- 1: Dry contact
- 2: Voltage pulse

[2] OUTPUT 1

Current

- A: 4 - 20 mA DC (Load resistance 600 Ω max.)
- B: 2 - 10 mA DC (Load resistance 1200 Ω max.)
- C: 1 - 5 mA DC (Load resistance 2400 Ω max.)
- D: 0 - 20 mA DC (Load resistance 600 Ω max.)
- E: 0 - 16 mA DC (Load resistance 750 Ω max.)

- F: 0 - 10 mA DC (Load resistance 1200 Ω max.)
 - G: 0 - 1 mA DC (Load resistance 12 k Ω max.)
- 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 100 Ω min.)
 - 4: 0 - 10 V DC (Load resistance 1000 Ω min.)
 - 5: 0 - 5 V DC (Load resistance 500 Ω min.)
 - 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 \pm 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 our web site.)
- /C01: Silicone coating
- /C02: Polyurethane coating
- /C03: Rubber coating

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: Approx. 0 to 120 % at 1 - 5V

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

Span adjustment: 95 to 105 % (front)

Input pulse sensing: DC coupled; detecting pulse rise

Low-end cutout: 2 to 5 %

INPUT SPECIFICATIONS

Excitation: 12 V DC @30 mA; shortcircuit protection
Frequency range: 0 - 50 Hz through 10 kHz
■ Dry Contact: Mechanical contact or open collector
Pulse width time requirement: 20 μ sec. min. for ON and OFF
Sensing: Approx. 12 V DC @3 mA
ON/OFF level: $\leq 200 \Omega$ / 0.6 V for ON, $\geq 100 \text{ k}\Omega$ / 6 V for OFF
■ Voltage Pulse: Square or sine waveforms
Pulse width time requirement: 20 μ sec. min. for high and low levels
Hi level: 2 - 50 V
Lo level: ≤ 1 V
Input impedance: 10 k Ω min.

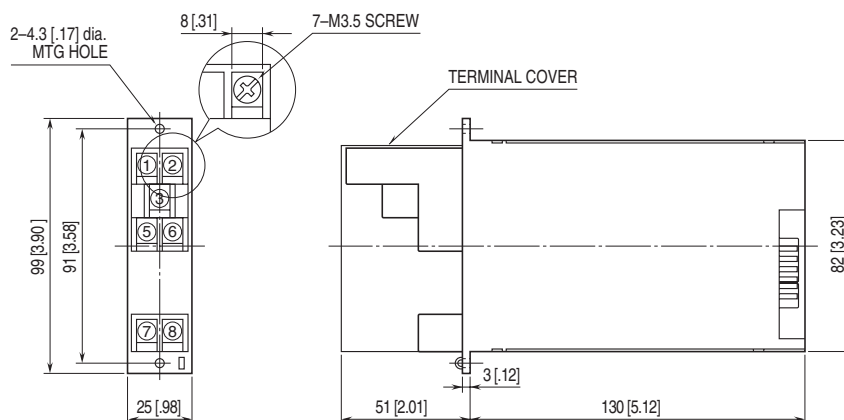
INSTALLATION

Current consumption: Approx. 50 mA with voltage output 1
 Approx. 70 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: 200 g (0.44 lb)

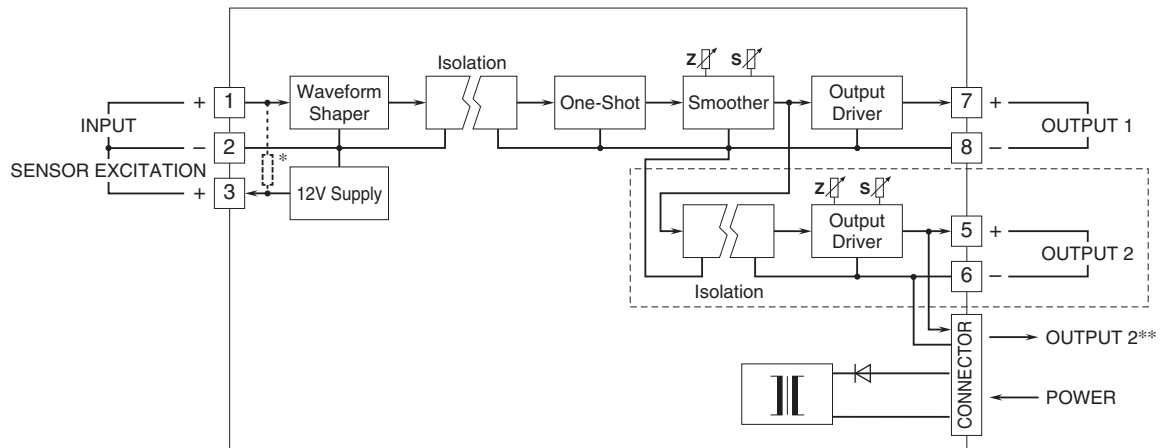
PERFORMANCE in percentage of span

Accuracy: ± 0.1 % (output 10 - 100 %)
Temp. coefficient: ± 0.015 %/°C (± 0.008 %/°F)
Response time: (0 - 90%)
 Approx. 1.8 sec. with 0 - 50 Hz
 Approx. 0.7 sec. with 0 - 100 Hz
 Approx. 0.5 sec. with 0 - 500 Hz
 Approx. 0.5 sec. with 0 - 10 kHz
Ripple: 0.2 %p-p max. with input ≥ 10 %
Line voltage effect: ± 0.1 % over voltage range
Insulation resistance: $\geq 100 \text{ M}\Omega$ 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)

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



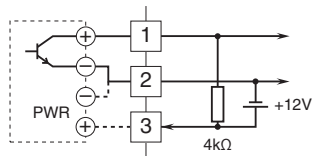
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



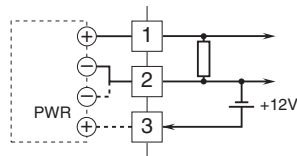
* 4kΩ attached for dry contact input only.
 **1 output type has the output 1 connected to the card-edge connector in parallel.
 Remark 1) The section enclosed by broken line is only for 2nd output channel.

Input Connection Examples

■ Dry Contact



■ Voltage Pulse



Specifications are subject to change without notice.