

## Space-saving Plug-in Signal Conditioners F-UNIT

3: Mechanical contact (Excitation: 12 V @ 30 mA)

### FREQUENCY TRANSMITTER

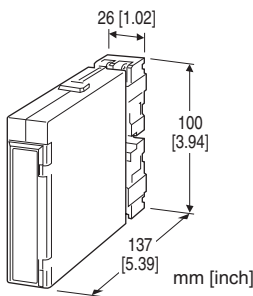
(field-programmable)

#### Functions & Features

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

#### Typical Applications

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



## MODEL: FJPA-[1][2]-[3][4]

### ORDERING INFORMATION

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

Specify a code from below for each of [1] through [4].  
(e.g. FJPA-3A-L/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/S01)

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)

### [2] OUTPUT

Current

A: 4 - 20 mA DC (Load resistance 600 Ω max.)

Voltage

6: 1 - 5 V DC (Load resistance 500 Ω min.)

### [3] POWER INPUT

AC Power

K: 85 - 132 V AC

(Operational voltage range 85 - 132 V, 47 - 66 Hz)

L: 170 - 264 V AC

(Operational voltage range 170 - 264 V, 47 - 66 Hz)

DC Power

R: 24 V DC

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

P: 110 V DC

(Operational voltage range 85 - 150 V, ripple 10 %p-p max.)

### [4] OPTIONS

blank: none

/Q: With options (specify the specification)

### SPECIFICATIONS OF OPTION: Q (multiple selections)

COATING (For the detail, refer to our web site.)

/C01: Silicone coating

/C02: Polyurethane coating

/C03: Rubber coating

TERMINAL SCREW MATERIAL

/S01: Stainless steel

### RELATED PRODUCTS

- Programming Unit (model: PU-2x)
  - PC configurator software (model: JXCON)
- Downloadable at our 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:** Plug-in

**Connection:** M3.5 screw terminals (torque 0.8 N·m)

**Screw terminal:** Nickel-plated 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.)

**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 %

## Dielectric strength

### Power input code R:

1000 V AC @ 1 minute (input to output)

2000 V AC @ 1 minute (input or output or power to ground)

500 V AC @ 1 minute (I/O to power)

### Power input code K, L, P:

1000 V AC @ 1 minute (input to output)

2000 V AC @ 1 minute (input or output or power to ground)

1500 V AC @ 1 minute (I/O to power)

## 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  $\geq$  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  $\Omega$  / 2 V for ON,  
 $\geq$  1.2 k $\Omega$  / 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  $\Omega$  / 2 V for ON,  
 $\geq$  1.2 k $\Omega$  / 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 $\Omega$  min.

## INSTALLATION

### Power input

•AC: Approx. 4.5 VA

•DC: 24 V approx. 70 mA

110 V approx. 20 mA

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

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

**Mounting:** Surface or DIN rail; Standard Rack Mounting  
Frame BX-16H available

**Weight:** 200 g (0.44 lb)

## PERFORMANCE in percentage of span

**Accuracy:**  $\pm$ 0.1 % with segment gain  $\leq$  1 [ $\pm$ 0.1 %  $\times$  gain]  
with segment gain  $>$  1

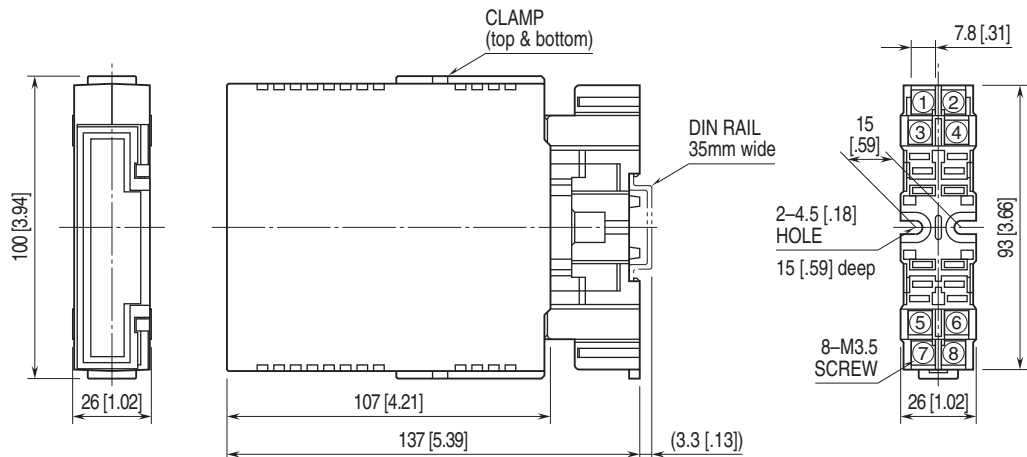
**Temp. coefficient:**  $\pm$ 0.015 %/°C ( $\pm$ 0.008 %/°F)

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

**Line voltage effect:**  $\pm$ 0.1 % over voltage range

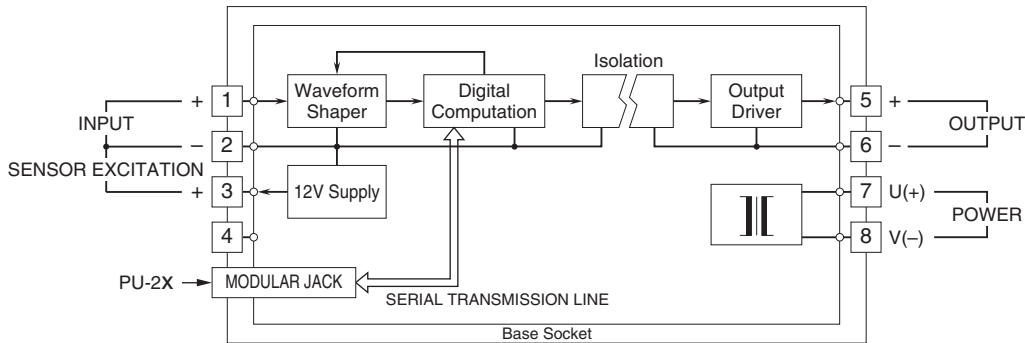
**Insulation resistance:**  $\geq$  100 M $\Omega$  with 500 V DC

**EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS** unit: mm [inch]



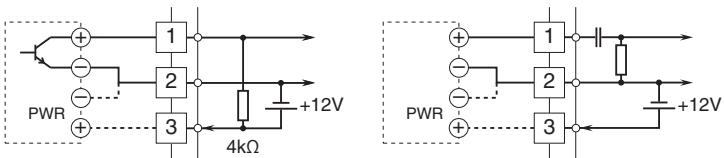
•When mounting, no extra space is needed between units.

**SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM**



**Input Connection Examples**

■ Open Collector or Mechanical Contact ■ Voltage Pulse



Specifications are subject to change without notice.