

Space-saving Plug-in Signal Conditioners F-UNIT

CURRENT LOOP SUPPLY

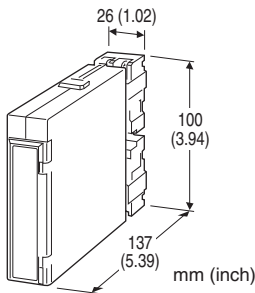
(linearizing; field-programmable)

Functions & Features

- Powering a 4 – 20 mA DC current loop
- Microprocessor based
- Shortcircuit protection
- Applicable to smart transmitters
- Field-programmable linearization data
- Loop testing via hand-held programmer PU-2x
- High-density mounting

Typical Applications

- Various 2-wire transmitters
- Providing isolation and linearization for a 2-wire temperature transmitter
- Linearizing weir flowmeter output to provide a linear-to-volume signal
- Linearizer application (4 – 20 mA input)
- Square root extraction for differential pressure transmitter



MODEL: FJDL-A[1][2]-[3]

ORDERING INFORMATION

- Code number: FJDL-A[1][2]-[3]

Specify a code from below for each [1] through [3] (e.g. FJDL-A1A-R)

Default setting (following table) will be used if not otherwise specified.

No linearization data will be programmed if you don't specify type of linearization and required data.

•Linearization data

Code 1 segment data: Use Ordering Information Sheet (No. ESU-1669) to specify linearization data.

Code 3 T/C, Code 4 RTD: Specify input sensor type and temperature range.

LINEARIZATION CODE	DEFAULT
1: Segment data	Linear
2: Square root extraction	—
3: Thermocouple	K 0 – 1000°C
4: RTD	Pt 100 0 – 100°C

INPUT

Current

A: 4 – 20 mA DC (Input resistance 250 Ω)

[1] LINEARIZATION

0: None

1: Segment data

2: Square root extraction

3: Thermocouple

4: RTD

[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.)

RELATED PRODUCTS

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

GENERAL SPECIFICATIONS

Construction: Plug-in

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

Screw terminal: Nickel-plated steel

Housing material: Flame-resistant resin (black)

Isolation: Input to output to power

Overrange output: Approx. -10 to +120 % at 1 – 5 V

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



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

SUPPLY OUTPUT

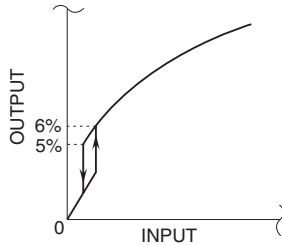
Output voltage: 24 - 28 V DC with no load
Current rating: ≤ 22 mA DC
 • **Shortcircuit Protection**
Current limited: 30 mA max.
Protected time duration: No limit

INPUT SPECIFICATIONS

■ **DC Current:** Input resistor incorporated

LINEARIZATION

- **No linearization:** The output is proportional to the input.
 - **Segment data:** 16 points (15 segments) max. within the range of -15.00 to +115.00 % input or output represented as percentage of fullscale
 - **Square root extraction**
- Low-end cutout:** 5 % (output); curve characteristics as in the figure below
- Square root extraction



• Thermocouple linearizable range

T/C	USABLE RANGE	
	°C	°F
(PR)	0 to 1760	32 to 3200
K (CA)	-270 to +1370	-454 to +2498
E (CRC)	-270 to +1000	-454 to +1832
J (IC)	-210 to +1200	-346 to +2192
T (CC)	-270 to +400	-454 to +752
B (RH)	0 to 1820	32 to 3308
R	-50 to +1760	-58 to +3200
S	-50 to +1760	-58 to +3200

Remark: For the temperatures that range below 0 °C, the transmitter may partially not satisfy the described accuracy. Consult factory.

• RTD linearizable range

RTD	USABLE RANGE	
	°C	°F
JPt 100 (JIS '89)	-200 to +500	-328 to +932
Pt 100 (JIS '89)	-200 to +650	-328 to +1202
Pt 100 (JIS '97/IEC)	-200 to +650	-328 to +1202
Pt 50Ω (JIS '81)	-200 to +500	-328 to +932
Ni 508.4Ω	-50 to +200	-58 to +392

Remark: Pt 100 (JIS '89) is deviated from Pt 100 (JIS '97) only within the described accuracy.

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: 220 g (0.49 lbs)

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. (0 - 90 %)

Line voltage effect: ±0.1 % over voltage range

Insulation resistance: ≥ 100 MΩ with 500 V DC

Dielectric strength

Power input code R:

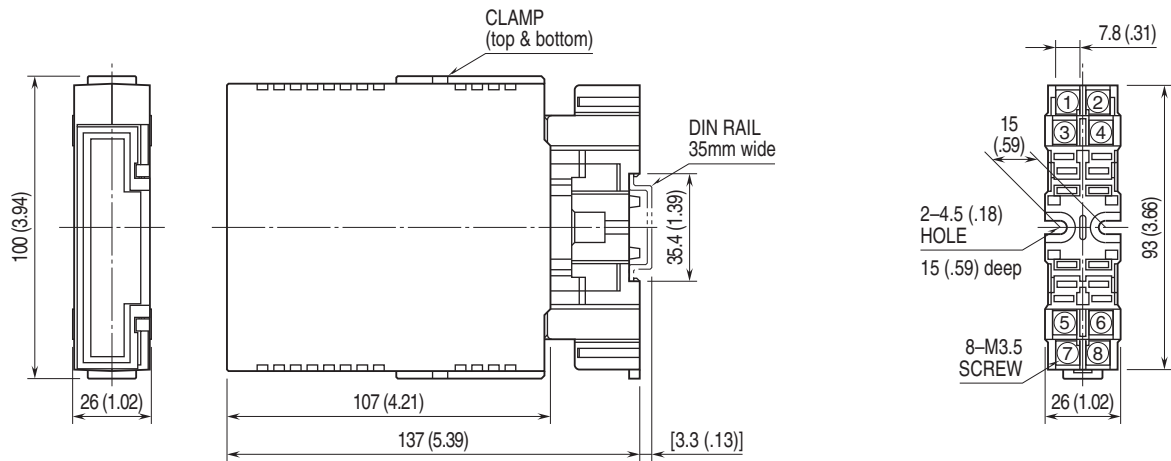
- 1000 V AC @ 1 minute (input to output)
- 2000 V AC @ 1 minute (input or output or power to ground)
- 500 V AC @ 1 minute (I/O to power)

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)

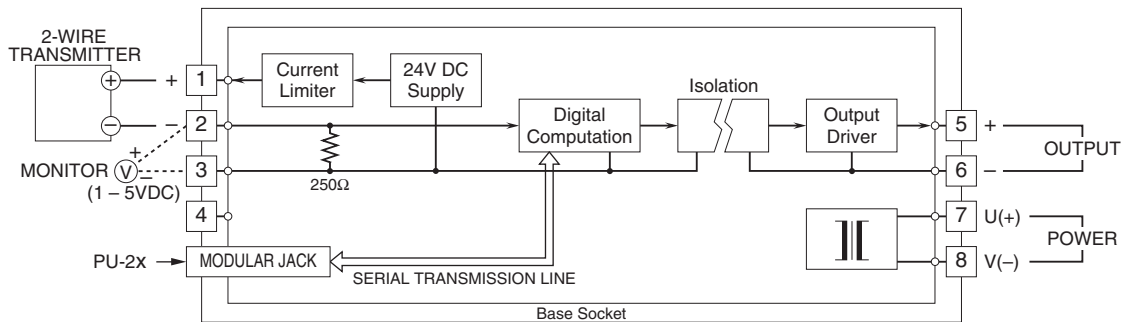


EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)

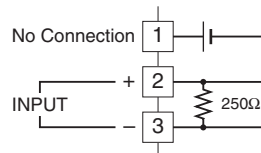


•When mounting, no extra space is needed between units.

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



■ When Used as Linearizer



Specifications are subject to change without notice.