High-density Signal Conditioners 10-RACK

CURRENT LOOP SUPPLY

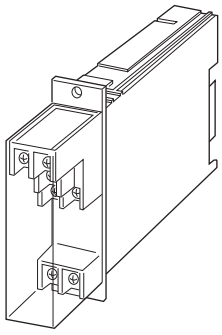
(linearizing; field-programmable)

Functions & Features

- Powering a 4 – 20mA DC current loop
- Microprocessor based
- Shortcircuit protection
- Applicable to smart transmitters
- Field-programmable linearization data
- Loop testing via hand-held programmer PU-2x
- Usable as Linearizer for 4 – 20 mA DC signals
- Optional second channel output available at the front terminals and at the Standard Rack connector

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



MODEL: 10JDL-A[1][2][3]-R[4]

ORDERING INFORMATION

- Code number: 10JDL-A[1][2][3]-R[4]

Specify a code from below for each [1] through [4].
(e.g. 10JDL-A1A6-R/Q)
Default setting (table next) 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.

- Specify the specification for option code /Q

(e.g. /C01)

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 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

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

OUTPUT SPECIFICATIONS

The output goes below 0 % when the input is open.

LINEARIZATION

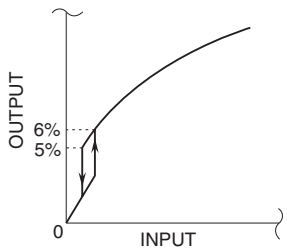
•**No linearization**: The output is proportional to the input.

•**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

Current consumption: Approx. 75 mA with voltage output 1
Approx. 100 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. (0 – 90 %)

Line voltage effect

Output signal: ±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)

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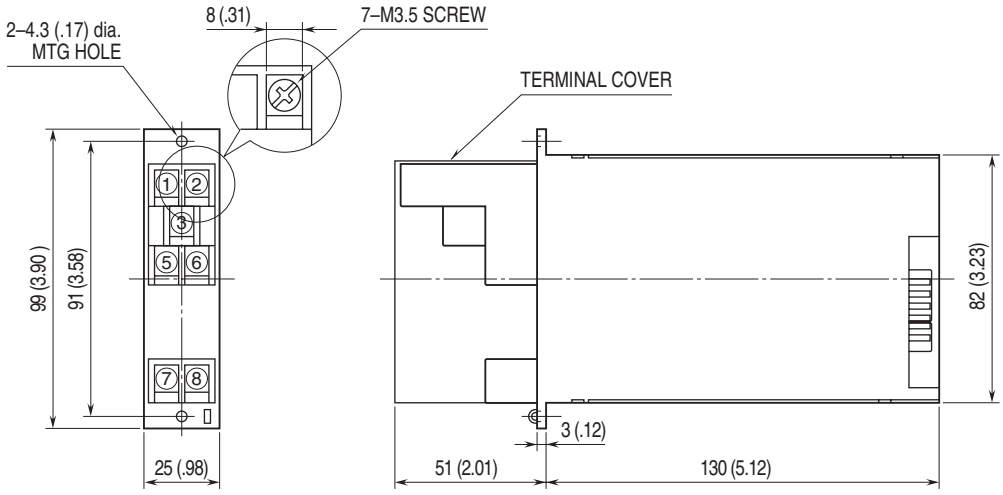
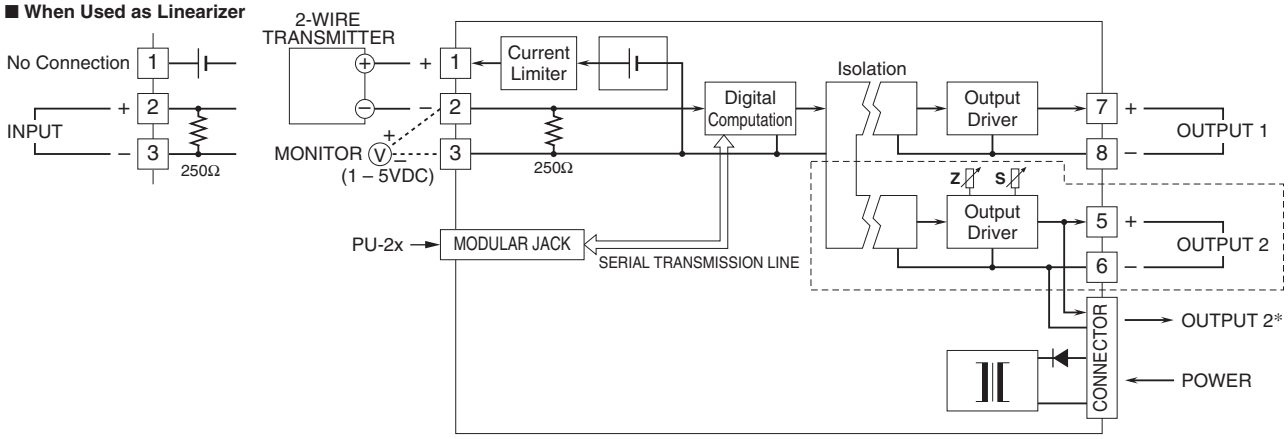
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

■ When Used as Linearizer



*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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