High-density Signal Conditioners 10-RACK

CURRENT LOOP SUPPLY

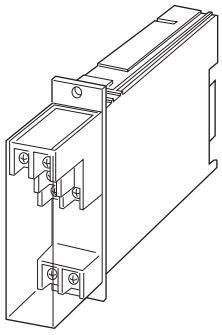
(linearizing; field-programmable)

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 of [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 our web site.)

/C01: Silicone coating

/C02: Polyurethane coating

/C03: Rubber coating

RELATED PRODUCTS

- Programming Unit (model: PU-2x)
- PC configurator software (model: JXCON)

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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: 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. -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

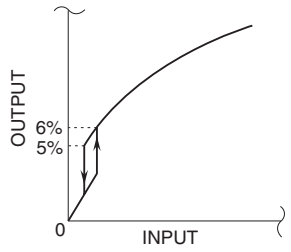
OUTPUT SPECIFICATIONS

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

Note: 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 508.4 Ω	-50 to +200	-58 to +392

Note: 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

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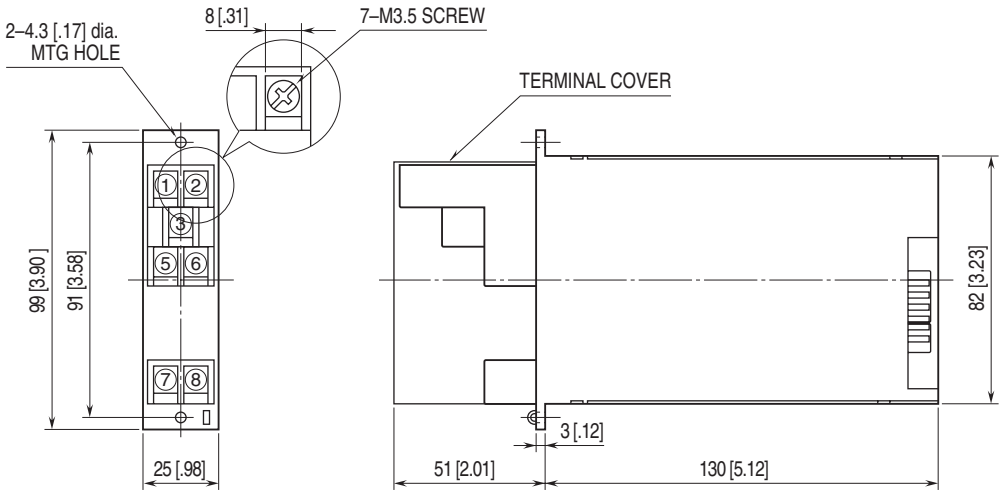
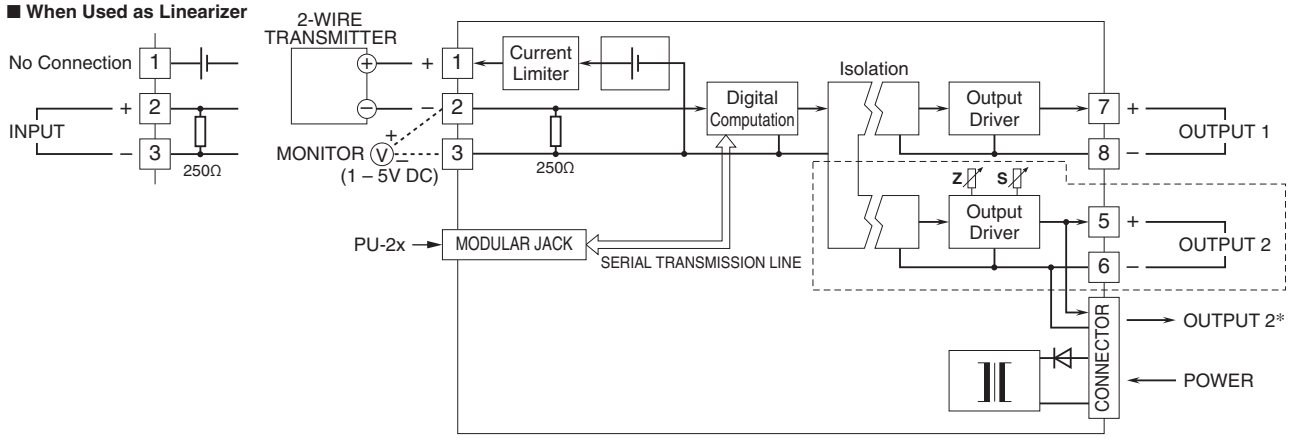
(input to output 1 to output 2 to power)
1500 V AC @ 1 minute (input or output or power to ground)

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



*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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