Plug-in Signal Conditioners M-UNIT

SELF-SYNCH TRANSMITTER
(field-programmable)

Functions & Features
• Converting position signal from a self-synchronizing motor into DC signal proportional to the rotating shaft position
• Micro-processor based
• Linearization
• Loop testing via hand-held programmer PU-2x
• Offset adjustable via front multi-turn screwdriver adjustment
• High-density mounting

Typical Applications
• Position indicator using self-synch
• Tank gauge
• Sounding level meter

50 [1.97]
80 [3.15]
127 [5]
mm [inch]
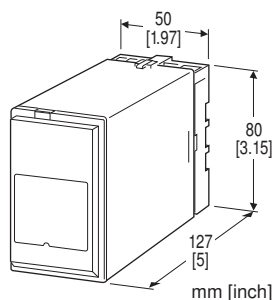
MODEL: JS-1[1]-[2][3]

ORDERING INFORMATION
• Code number: JS-1[1]-[2][3]
Specify a code from below for each of [1] through [3].
  (e.g. JS-1A-B/Q)
• Input range (e.g. 270°)
• Special output ranges (For codes Z & 0)
• Linearization data (max. 16 points)
Use Ordering Information Sheet (No. ESU-1669) to specify linearization data when the I/O signals are nonlinear.
• Specify the specification for option code /Q
  (e.g. /C01/S01)

INPUT
1: Self-synch signal

[1] OUTPUT
Current
A: 4 – 20 mA DC (Load resistance 750 Ω max.)
B: 2 – 10 mA DC (Load resistance 1500 Ω max.)
C: 1 – 5 mA DC (Load resistance 3000 Ω max.)
D: 0 – 20 mA DC (Load resistance 750 Ω max.)
E: 0 – 16 mA DC (Load resistance 900 Ω max.)
F: 0 – 10 mA DC (Load resistance 1500 Ω max.)
G: 0 – 1 mA DC (Load resistance 15 kΩ max.)
Z: Specify current (See OUTPUT SPECIFICATIONS)
Voltage
1: 0 – 10 mV DC (Load resistance 10 kΩ min.)
2: 0 – 100 mV DC (Load resistance 100 kΩ min.)
3: 0 – 1 V DC (Load resistance 1000 Ω min.)
4: 0 – 10 V DC (Load resistance 10 kΩ min.)
5: 0 – 5 V DC (Load resistance 5000 Ω min.)
6: 1 – 5 V DC (Load resistance 5000 Ω min.)
4W: -10 – +10 V DC (Load resistance 10 kΩ min.)
5W: -5 – +5 V DC (Load resistance 5000 Ω min.)
0: Specify voltage (See OUTPUT SPECIFICATIONS)

[2] POWER INPUT
AC Power
B: 100 V AC
C: 110 V AC
D: 115 V AC
F: 120 V AC
G: 200 V AC
H: 220 V AC
J: 240 V AC

[3] 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

Screw terminal: Chromated steel (standard) or stainless steel

Housing material: Flame-resistant resin (black)

Isolation: Input to output to power

Offset adjustment: 0 to 360°(front)

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

Span adjustment: 95 to 105 % (front)

Linearization: 16 points max. within the range of -15.00 – +115.00 % input or output; represented as percentage of full-scale

Adjustments: Programming Unit (model: PU-2x); input range, offset, linearization data, zero and span, input angle & coordinates, etc.
(Refer to the users manual of JXCON for the adjustments configurable with JXCON.)

INPUT SPECIFICATIONS

Input: Self-synch signal

Measurement range: 0 – 360°

Input range: 60 – 360° (270° for default)

Input resistance: 1 MΩ min.

Rated input voltage: 90 V AC

OUTPUT SPECIFICATIONS

■ **DC Current**: 0 – 20 mA DC

Minimum span: 1 mA

Offset: Max. 1.5 times span

Load resistance: Output drive 15 V max.

■ **DC Voltage**: -10 – +20 V DC

Span: Min. 5 mV, max. 20 V

Offset: Max. 1.5 times span

Load resistance: Output drive 1 mA max.; at ≥ 0.5 V

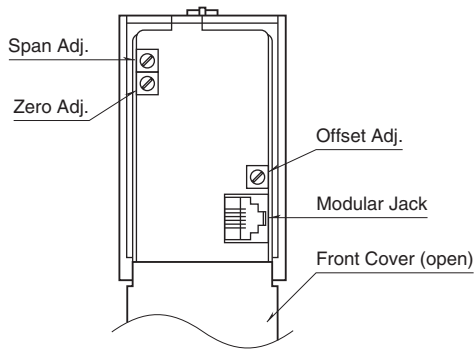## INSTALLATION

Power input

•**AC**: Operational voltage range: rating ±10 %, 50/60 ±2 Hz, approx. 3 VA

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

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

Mounting: Surface or DIN rail
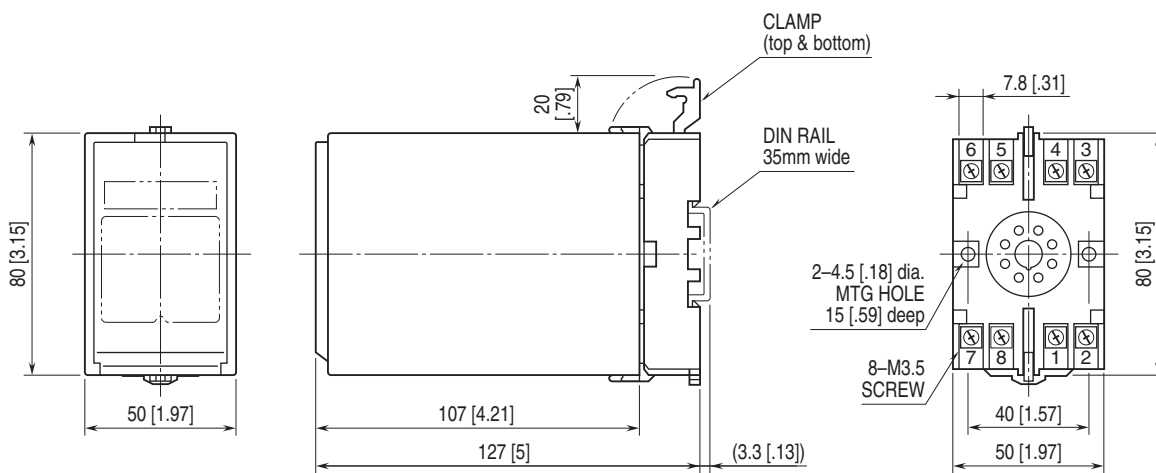
Weight: 350 g (0.77 lb)

PERFORMANCE in percentage of span

Accuracy: ±0.2 % or ±0.5°, whichever is greater (gain ≤ 1)
accuracy = [±0.2 %(±0.5°) × gain] with the gain > 1

Temp. coefficient: ±0.015 %/°C (±0.008 %/°F)

Response time: Approx. 2 sec. (0 – 90 %)

Line voltage effect: ±0.1 % over voltage range

Insulation resistance: ≥ 100 MΩ with 500 V DC

Dielectric strength: 2000 V AC @1 minute (input to output to power to ground)

EXTERNAL VIEW

Span Adj.

Zero Adj.

Offset Adj.

Modular Jack

Front Cover (open)

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS   unit: mm [inch]

CLAMP
(top & bottom)

20 [.79]

DIN RAIL
35mm wide

7.8 [.31]

80 [3.15]

80 [3.15]

2–4.5 [.18] dia.
MTG HOLE
15 [.59] deep

8–M3.5
SCREW

50 [1.97]

107 [4.21]

127 [5]

(3.3 [.13])

40 [1.57]

50 [1.97]

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

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

OFFSET

Isolation

z   s

Digital
Computation

Output
Driver

SELF-
SYNCH

S1   3

S2   4

S3   5

Low Drift
Amplifier

1   +

2   −

OUTPUT

R2   R1

6

**

U   7

V   8

POWER

PU-2x

MODULAR JACK

SERIAL TRANSMISSION LINE

Base Socket
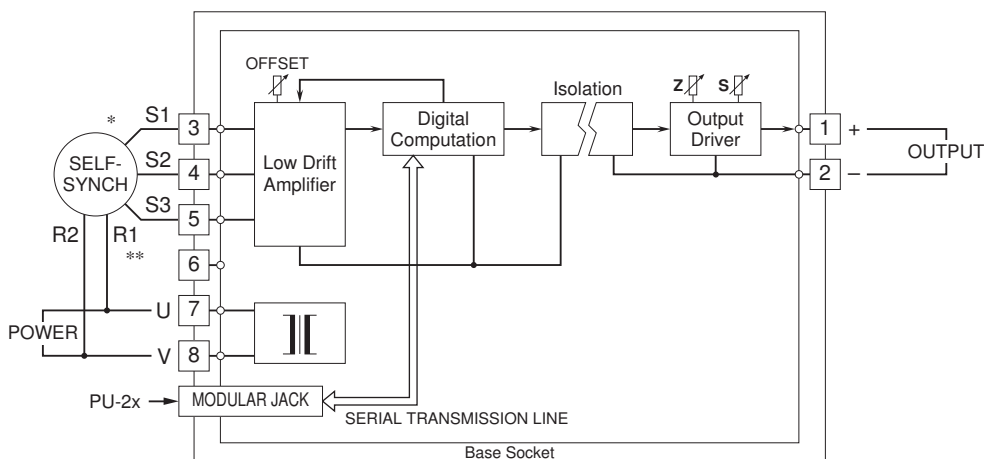
*   The output increases when the self-synch rotates clockwise. For changing
    the operation to counterclockwise, replace the connection of the S2 and S3.
**Be sure that the polarity of the power input to the JS matches to the self-
    synch input polarity. When the connetion is reversed, the JS output will be
    shifted by 180°.

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⚠ Specifications are subject to change without notice.

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