CLAMP-ON CURRENT SENSOR

MODEL

CLSE-U

SENSOR FOR CONNECTING TO UL APPROVAL

BEFORE USE

Thank you for choosing us. Before use, please check contents of the package you received as outlined below. If you have any problems or questions with the product, please contact our sales office or representatives.

■ THIS EQUIPMENT

- This equipment is a nylon spring, one-touch clamp type AC current sensor that is easy to mount in customers' equipment or machine. It cannot be mounted in existing facilities or panels. The equipment cannot be mounted or retrofitted to switchboards, distribution boards, or control panels that are installed and in operating in a facility.
- This equipment is for use in general industrial environments. Do not apply this equipment to IT power supply system.
- For safety, installation and maintenance of this equipment must be conducted by qualified personnel.

■ PACKAGE INCLUDES:

 $Clamp-on\ current\ sensor\(1)$

■ MODEL NO.

Confirm Model No. marking on the product to be exactly what you ordered.

■ INSTRUCTION MANUAL

This manual describes necessary points of caution when you use this product, including installation, connection and basic maintenance procedures. Use this manual when the product that is connected to this equipment conforms to UL.

■ SYMBOLS USED ON THE PRODUCT AND IN THIS MANUAL

⚠ The symbol indicated on the equipment, means that the user must refer to the related parts in the manual for safe operation of the equipment. It is essential to read the instructions wherever the symbol appears in the manual.

⚠ WARNING: is reserved for conditions and actions that can cause serious or fatal injury.

 \triangle **CAUTION**: is reserved for conditions and actions that can cause injury or instrument damage.

S: This indicates not to mount this equipment around UN-INSULATED HAZARDOUS LIVE conductors, which may render electric shock, electric burn, or arc flash.

N WARNING

- To avoid short-circuit accidents or personal injury, use this equipment in electrical circuits with:
 - Ground voltage (voltage to ground): Rated 240V AC or less
 - Line voltage (line to line): Rated 240V AC or less

Also, do not use on bare conductors.

CAUTION

■ REGARDING SAFETY

- If the equipment is used in a manner not specified by us, the protection provided by the equipment may be impaired.
- This equipment is suitable for
 - (1) Measurement Category II (CAT II) (input, transient voltage 2500V)
 - (2) Pollution Degree 2
 - (3) The maximum voltage for use between the primary side of measured wire and output terminal:

Less than Ground voltage

- To avoid short-circuit accidents or personal injury, use an insulated conductor (dielectric strength 1500V or more) that satisfies basic insulation in the above items (1), (2), (3) on the primary side of the measured wire.
- This equipment cannot be used in the environment with Overvoltage Category III. Be sure to use the equipment in the environment with Overvoltage Category II.
- Altitude up to 2000 meters.

■ GENERAL PRECAUTIONS

- Before you remove the sensor module or mount it, turn off the input signal for safety. While the line is alive, the module's cores, attracted to each other, may be hard to separate.
- The over-voltage clamp element is incorporated at the output for safety. However, care must be taken that the output is not disconnected from its load while current is flowing in the primary side.
- Keep the joint surface of the clamp core clean.

■ ENVIRONMENT

- Indoor use.
- When heavy dust or metal particles are present in the air, install the module inside proper housing with sufficient ventilation.
- Do not install the module where it is subjected to continuous vibration. Do not subject the module to physical impact.
- Environmental temperature must be within -20 to +55°C (-4 to +131°F) with relative humidity within 30 to 90% RH in order to ensure adequate life span and operation.

■ WIRING

- Do not install cables close to noise sources (relay drive cable, high frequency line, etc.).
- Do not bind these cables together with those in which noises are present. Do not install them in the same duct.
- When using long output wiring with extension connectors, make sure the connectors are firmly connected before and during operation to avoid accidentally removing the connectors while the equipment is operating. And check the energization of the output wiring and equipment.

COMPONENT IDENTIFICATION

Top Section Top Section Top Section Terminal Cover Input Cable Here Specifications

Individual models have different shapes.

INSTALLATION

■ CONNECTING THE INPUT CABLE

- 1) Pull the tab and open the top section. Place the input cable inside. If it is used for a transducer input with polarity, confirm the direction (K, L).
- 2) Put back the top section and push in the tab securely.
- 3) Fix the sensor module at the input cable with a binding strap.

INPUT SPECIFICATION

MODEL	PRIMARY RATING	SECONDARY RATING
CLSE-U-R5	5 A	1.65 mA
CLSE-U-05	50 A	20 mA
CLSE-U-10	100 A	20 mA
CLSE-U-20	200 A	20 mA
CLSE-U-40	400 A	20 mA
CLSE-U-60	600 A	20 mA

TERMINAL CONNECTIONS

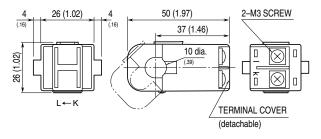
Connect the unit as in the diagram below.

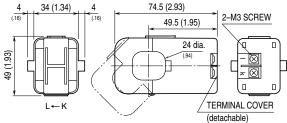
■ EXTERNAL DIMENSIONS

MODEL	CLSE-U-R5	CLSE-U-05	CLSE-U-10	CLSE-U-20	CLSE-U-40	CLSE-U-60
External dimensions	Figure A		Figure B	Figure C	Figure D	
Weight	approx. 45g (1.6 oz)	approx. 40g (1.4 oz)	approx. 75g (2.6 oz)	approx. 180g (6.3 oz)	approx. 300g (10.5 oz)	approx. 330g (11.6 oz)
Maximum applicable cable diameter	10 dia. (AWG 2/0)	10 dia. (AWG 2/0)	16 dia. (AWG 350MCM)	24 dia. (AWG 850MCM)	36 dia. (AWG 2000MCM)	36 dia. (AWG 2000MCM)
Minimum applicable cable diameter *	0.8 dia. (AWG 20)	2.5 dia. (AWG 10)	5 dia. (AWG 4)	8 dia. (AWG 1/0)	12.5 dia. (AWG 250MCM)	17 dia. (AWG 450MCM)

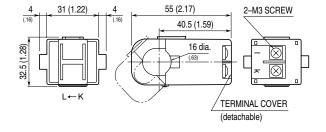
unit: mm (inch)

• Figure A



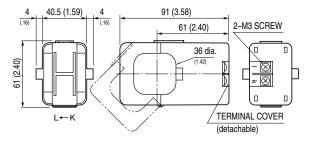


• Figure B



• Figure D

• Figure C



* When using each current type at a lower rated current, it is possible to reduce the minimum applicable wire diameter as follows.

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MODEL	OPERATIONAL CURRENT						
	≤5A	5A< ≤50A	50A< ≤100A	100A< ≤200A	200A< ≤400A	400A< ≤600A	
CLSE-U-R5	0.8 dia. (AWG 20)	-	_	_	-	-	
CLSE-U-05	0.8 dia. (AWG 20)	2.5 dia. (AWG 10)	_	_	_	-	
CLSE-U-10	0.8 dia. (AWG 20)	2.5 dia. (AWG 10)	5 dia. (AWG 4)	_	-	_	
CLSE-U-20	0.8 dia. (AWG 20)	2.5 dia. (AWG 10)	5 dia. (AWG 4)	8 dia. (AWG 1/0)	_	-	
CLSE-U-40	0.8 dia. (AWG 20)	2.5 dia. (AWG 10)	5 dia. (AWG 4)	8 dia. (AWG 1/0)	12.5 dia. (AWG 250MCM)	-	
CLSE-U-60	0.8 dia. (AWG 20)	2.5 dia. (AWG 10)	5 dia. (AWG 4)	8 dia. (AWG 1/0)	12.5 dia. (AWG 250MCM)	17 dia. (AWG 450MCM)	

WIRING INSTRUCTIONS

■ OUTPUT WIRING

Use AWG22 or thicker wires for the output. Twist the paired wires, extendable up to 30 meters. If the module is used for a transducer input with polarity, confirm the direction (K, L).

■ SCREW TERMINAL

Torque: 0.3 N·m

CHECKING

1) Terminal wiring: Check that all cables are correctly connected according to the connection diagram.

2) Input: Check the input signal.3) Output: Check the output signal.