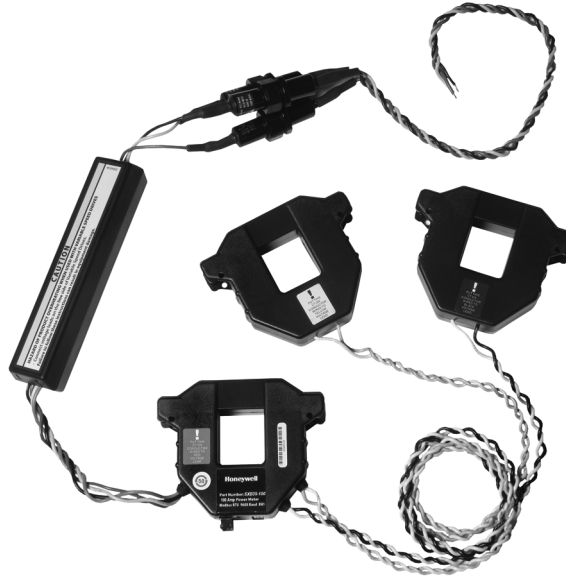


SXB40 Series Self-Contained Split-Core kW Transducers (4-20mA)

INSTALLATION INSTRUCTIONS



APPLICATION

The SXB40 Series combines a microprocessor based kW transducer and high accuracy split-core instrument grade current transformers (CTs) in a single unit. Because the electronics are integral to the CT(s), hardware and installation costs are greatly reduced. Split-core design eliminates the need to remove conductors.

The SXB42 is used in single phase or balanced load applications at 480V. The SXB43 and SXB44 are the three CT versions of the product for use on 208V and 480V with unbalanced loads.

SPECIFICATIONS

Input Voltage: 208 to 480 VAC

Number of Phases Monitored: 1 or 3

Frequency: 50/60 Hz

Maximum Primary Current: 2400 A continuous per phase

CT Case Isolation: 600 VAC

Internal Isolation: 2000 VAC rms

Operating Temperature Range:

0 to +60 °C (+32 to +122 °F) (<95% RH, non-condensing)

Storage Temperature Range: -40 to +70 °C (-40 to +158 °F)

Accuracy:

+/- 1% of reading from 10% to 100% of the rated current (accomplished by matching the CTs with a meter and calibrating them as a system; accuracy specified with conductors centered in the CT window)

Current Transformer: Split core, 100 to 2400 amps



Output: 4-20mA

Supply Power (loop): 9-30 VDC; 30 mA maximum

⚠ WARNING

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

Follow safe electrical work practices. See NFPA 70E in the USA, or applicable local codes.

This equipment must only be installed and serviced by qualified electrical personnel.

Read, understand and follow the instructions before installing this product.

Turn off all power supplying equipment before working on or inside the equipment.

Use a properly rated voltage sensing device to confirm power is off. **DO NOT DEPEND ON THIS PRODUCT FOR VOLTAGE INDICATION.**

Failure to follow these instructions will result in death or serious injury.

⚠ CAUTION

This product is not intended for life or safety applications.

Do not install this product in hazardous or classified locations.

The installer is responsible for conformance to all applicable codes.

Product Diagram

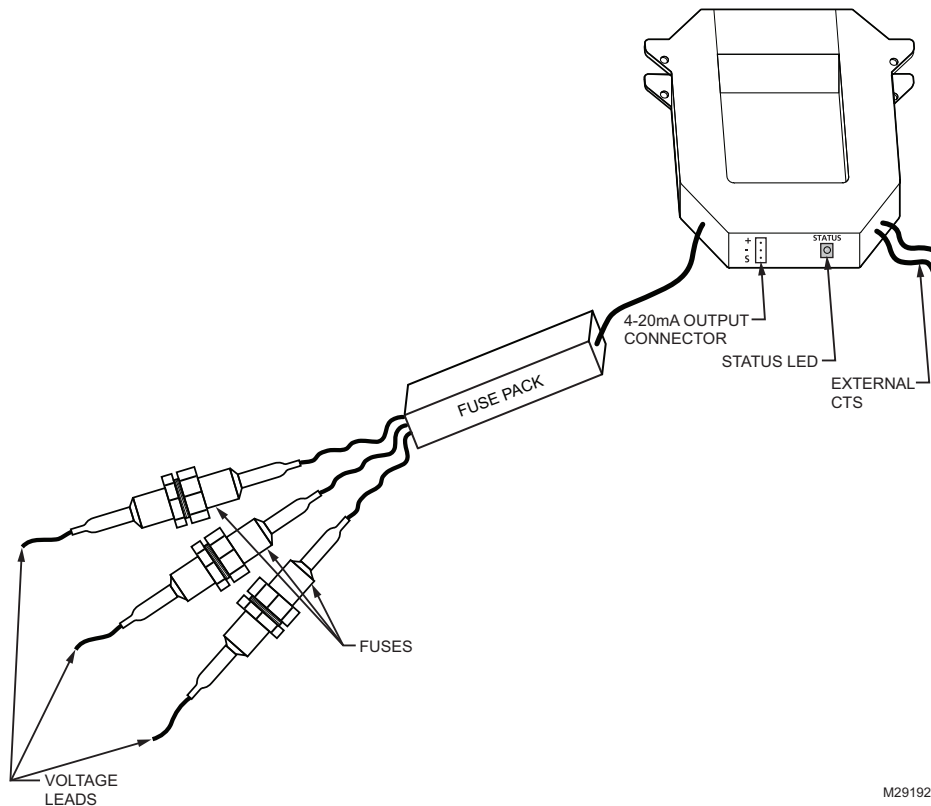


Fig. 1. Diagram of product components.

- 1. Voltage Leads:** Connect the leads to the electrical source to be monitored. (See wiring diagrams on the next page.) Input range is 208 to 480VAC, 50/60Hz.
- 2. Fuses:** Maximum current draw 60mA. Fuses provided by the factory are rated 1/2A, 600VAC, 200 KAIC. Replace only with fuses of the same type and rating.
- 3. 4-20mA Output Connector:** Please refer to wiring diagrams on the next page.
- 4. Status LED:** Blink codes: slow green for normal operation; slow red for incorrect wiring or low power factor (less than 0.5); fast red for maximum current exceedance.
- 5. External CTs (3 phase versions only):** These external CTs are permanently attached and must not be disconnected or used with other power meters.

INSTALLATION



CAUTION

For use in a pollution degree 2 or better environment only. A Pollution Degree 2 environment must control conductive pollution and the possibility of condensation or high humidity. Consideration must be given to the enclosure, the correct use of ventilation, thermal properties of the equipment and the relationship with the environment.



CAUTION

RISK OF EQUIPMENT DAMAGE

SXB meters are rated for use at 50-60Hz. Exposure to extreme harmonics from VFDs or similar sources may permanently damage the product. Failure to follow these instructions can result in overheating and permanent equipment damage.



WARNING

Disconnect and lock out power before installation.

Do not connect voltage inputs live!

1. Disconnect power and lock-out all power sources during installation.
2. Connect the voltage leads to the phase conductors, as shown on page 4. Because the meter requires voltage to communicate, connect the leads to a location which is not normally switched off.
3. Connect the red lead to the conductor most conveniently located to physically mount the CT with the output connector. After selecting the conductor for the red lead, the black and yellow leads may be attached to the other two conductors (in any order.)
4. Attach CTs to conductors. Each CT has a colored label, and must be attached to the same conductor as the correspondingly colored voltage lead (See "Wiring" on page 4). The unit will automatically detect phase reversal, so it is not important to orient a particular side of each CT towards the load.

Remove the terminal block and attach the 4-20mA output wires. Positive, negative and Shield wires must be connected as shown in Fig. 2.

5. If necessary, insulate any exposed wiring. Ensure that insulation complies with local and national electrical codes.
6. Check power reading (these calculations are approximations only - there may be some variation).

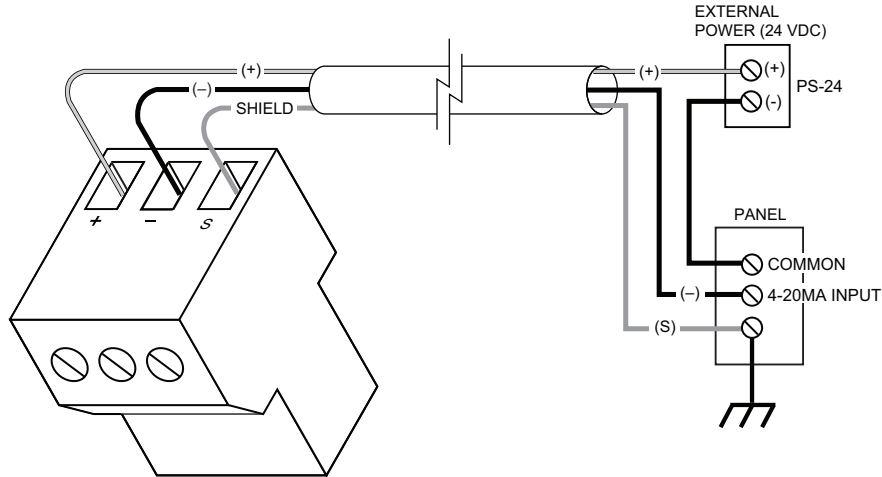
Expected power:

$$kW = \text{Volts} \times \text{Amps} \times 1.732 \times \text{PF} / 1000$$

$$kW = \text{Horsepower} \times 0.746$$

Calculate approximate 4-20 mA response as:

$$kW \text{ demand} = kW \times (\text{mA out} - 4) / 16$$



NOTES: DO NOT GROUND THE SHIELD INSIDE THE ELECTRICAL PANEL. ALL WIRES INCLUDING THE SHIELD SHOULD BE INSULATED TO PREVENT ACCIDENTAL CONTACT TO HIGH VOLTAGE CONDUCTORS.

THE CABLE SHOULD BE MECHANICALLY SECURED WHERE IT ENTERS THE ELECTRICAL PANEL.

THE CABLE SHOULD BE SHIELDED TWISTED PAIR WIRE BELDEN 1120A OR SIMILAR.

M29197

Fig. 2. Installation diagram overview.

⚠ WARNING

After wiring, remove all scraps of wire or foil shield from the electrical panel. This could be DANGEROUS if wire scraps come into contact with high voltage wires!

WIRING

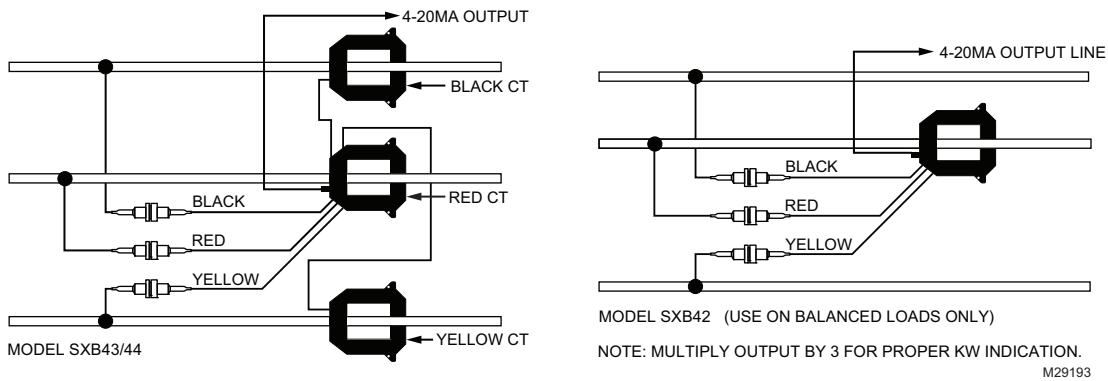


Fig. 3. Typical 208/480 VAC 3Ø, 3- or 4-wire installation.

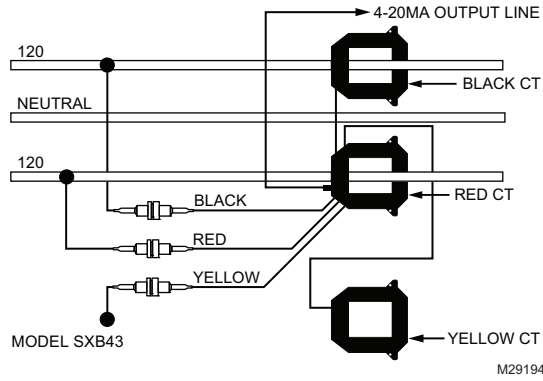


Fig. 4. Typical 240/120 VAC 1Ø, 3-wire installation.

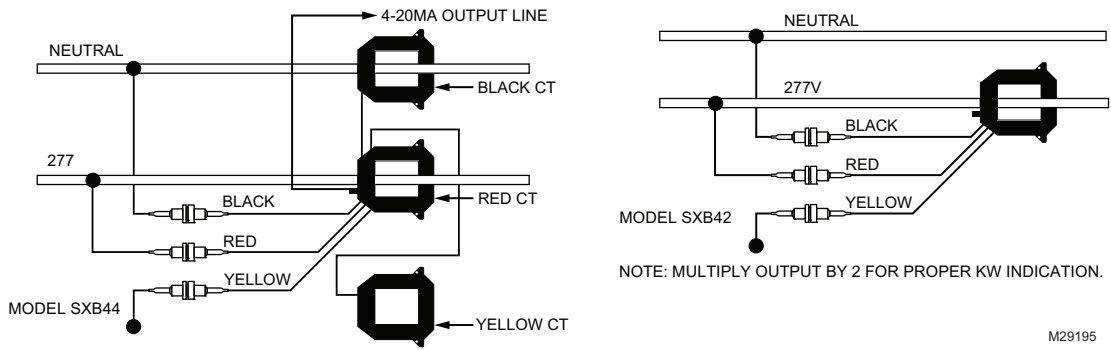


Fig. 5. Typical 277 VAC 1Ø, 2-wire installation.

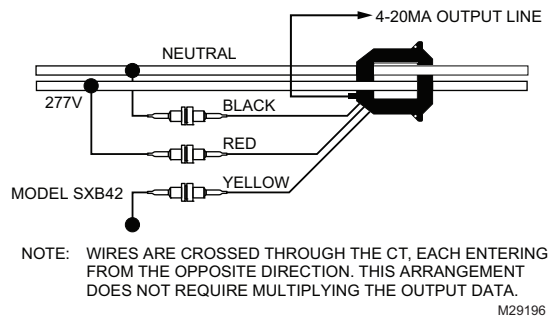


Fig. 6. Alternative 277 VAC 1Ø, 2-wire installation.

TROUBLESHOOTING

Problem	Solution
Status LED does not blink	Check fuses and voltage connections. Status LED should blink regardless of CTs or output connections.
Readings seem highly inaccurate.	<ul style="list-style-type: none"> • Check that each CT is installed on the conductor with the corresponding color voltage input lead attached. In most cases, incorrect wiring will cause the STATUS LED to blink RED (slowly). However, a power factor lower than 0.5 could cause the LED to blink this way, even if the unit is installed properly. • It does not matter which side of the CT faces towards the load. • If current is below 7% of full scale maximum for the CT, use a smaller CT or wrap each wire through the CT multiple times and divide the output reading by the number of turns through the CT window. • If using the single-phase CT model SXB42, ensure that all 3 phases are passing approximately the same current by testing each phase with an amp-clamp. If phases are unbalanced, you should use the model SXB43/44.
Meter goes offline when load is switched off.	Voltage leads must be connected on the Line side of the conductor. The power meter cannot communicate without voltage.
Status LED blinks red.	<ul style="list-style-type: none"> • If the LED blinks quickly (i.e., about 5 blinks in two seconds), the CT used is too small. A model with a larger current rating is required. • If the LED blinks slowly (i.e., about 1 blink in two seconds) the CTs are not installed on the correct conductors, or the power factor is less than 0.5. The meter can accurately measure these low PFs, but few loads operate normally at such a low power factor.

Table 1. Maximum KW, Reading at 20mA.

Model	3Ø POWER	1Ø POWER
SXB42-100	83.14 kW	55.43 kW
SXB42-300	249.4 kW	166.3 kW
SXB42-400	332.6 kW	221.7 kW
SXB42-800-3	665.1 kW	443.4 kW
SXB42-800-4	665.1 kW	443.4 kW
SXB42-1600-4	1330 kW	886.7 kW
SXB42-2400-4	1995 kW	1330 kW
SXB43-100	36.03 kW	36.03 kW
SXB43-300	108.1 kW	108.1 kW
SXB43-400	144.1 kW	144.1 kW
SXB43-800-3	288.2 kW	288.2 kW
SXB43-800-4	288.2 kW	288.2 kW
SXB43-1600-4	576.4 kW	576.4 kW
SXB43-2400-4	864.6 kW	864.6 kW
SXB44-100	83.14 kW	83.14 kW
SXB44-300	249.4 kW	249.4 kW
SXB44-400	332.6 kW	332.6 kW
SXB44-800-3	665.1 kW	665.1 kW
SXB44-800-4	665.1 kW	665.1 kW
SXB44-1600-4	1330 kW	1330 kW
SXB44-2400-4	1995 kW	1995 kW

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