

10ERS501 ♦ 1-Element VAR Transducer Single Phase, 2-Wire Service ♦ $\pm 1\text{mA}$ DC Output



*Manufactured and Tested
in the United States
Since 1969*

- Measures Forward and Reverse Power Flow
- Accuracy to $\pm 0.2\%$ of Reading
- Exceptional Long-Term Stability and Reliability
- 240 and 480 Volt Input Ranges Available
- 1, 2.5 and 10 Amp Input Ranges Available
- 5000 Volts Surge Withstand Capability

The Number-One Source for Reliable, Utility-Grade Electrical Power Transducers

TransData is a leading manufacturer of utility-grade electrical power transducers for electric utility applications for over 50 years. TransData's transducers are used for measuring AC and DC power quantities and providing real-time information to SCADA and Energy Management Systems in a variety of Distribution, Substation, Generation and Industrial applications

TransData's electrical power transducers are precision engineered and manufactured to exacting standards utilizing superior grade materials and components that provide exceptional, long-term accuracy and reliability performance with rock solid stability.

TransData's transducers are direct pin-for-pin compatible with other brands and feature the utility specified all-steel enclosure with standardized mounting footprint.

SPECIFICATIONS

| | Self Powered | Externally Powered |
|---|--|--|
| Model | 10ERS501 | 10ERS501E |
| Nominal Potential Input | 120 Volts | 120 Volts |
| Potential Range With Rated Accuracy | 85-150 Volts | 0-185 Volts |
| Potential Overload, Continuous | 175 Volts | 200 Volts |
| Potential Burden Per Element at 120 Volts | Less than 0.02VA ⁽¹⁾ | Less than 0.02VA |
| Nominal Current Input | 5 Amps | 5 Amps |
| Current Range With Rated Accuracy | 0-10 Amps | 0-10 Amps |
| Current Overload, Continuous with Linearity | 15 Amps | 15 Amps |
| Current Overload, Maximum | 250 Amps for 1 Sec/Hour | 250 Amps for 1 Sec/Hour |
| Current Burden Per Element at 5 Amps | Less than 0.15VA | Less than 0.15VA |
| Full Scale Calibration Input | 500 VARs/Element ⁽²⁾ (500 Full Scale) | 500 VARs/Element ⁽²⁾ (500 Full Scale) |
| Output at Full Scale Input | $\pm 1\text{mA}$ DC | $\pm 1\text{mA}$ DC |
| Output Load | 0-10,000 Ohms | 0-10,000 Ohms |
| Output Compliance | 11 Volts | 11 Volts |
| Accuracy at 25°C, $\pm 2^\circ\text{C}$ | $\pm 0.2\%$ of Reading, $\pm 0.01\%$ of RO | $\pm 0.2\%$ of Reading, $\pm 0.01\%$ of RO |
| Temperature Range | -20°C to +70°C | -20°C to +70°C |
| Temperature Influence | $\pm 0.009\%/^\circ\text{C}$ | $\pm 0.009\%/^\circ\text{C}$ |
| Response Time to 99% | Less Than 400 milli-seconds | Less Than 400 milli-seconds |
| Operating Humidity | 0-99% non-condensing | 0-99% non-condensing |
| Frequency Range | 50 to 70 Hz ⁽³⁾ | 50 to 70 Hz ⁽³⁾ |
| Power Factor Range | Any | Any |
| Calibration Adjustment | $\pm 10\%$ ⁽⁴⁾ | $\pm 10\%$ ⁽⁴⁾ |
| Zero Adjustment | None Required | None Required |
| Stability Maximum (per year) | $\pm 0.1\%$ non-accumulative | $\pm 0.1\%$ non-accumulative |
| Surge Withstand Capability IEEE No. 472 | 5000 Volts | 5000 Volts |
| AC Component (Output Ripple) | Less than 0.5% of RO | Less than 0.5% of RO |
| Power Supply | Internal, Phase A | 85-135 VAC, 60Hz, <2.5VA @ 120V |
| Dielectric | 2000 Volts RMS | 2000 Volts RMS |
| Weight | 2.625 lbs (1.20kg) | 2.625 lbs (1.20kg) |

(1) Burden on Terminals 3 & 4 is <2.5VA (2) Other Full Scale Input Ranges Available (3) Available in 50Hz Models (4) Other Calibration Adjustments Available

TRANSDATA, INC.

www.transdatainc.com

2560 Tarpley Road • Carrollton, Texas 75006-2328 • Tel: 972-418-7717 • Fax: 972-418-7774 • Email: sales@transdatainc.com

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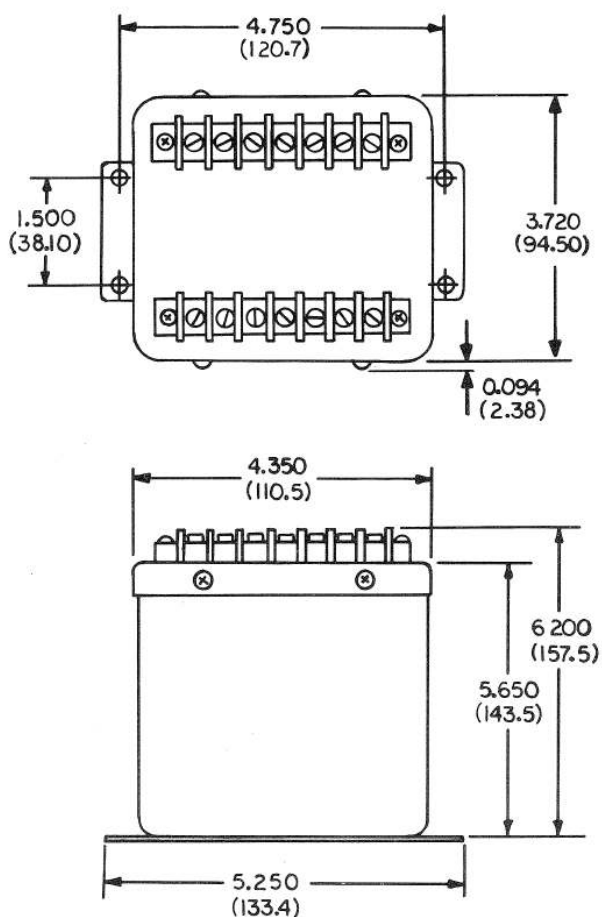
APPLICATION:

TransData, Inc. VAR transducers convert current and voltage input signals from a power system into DC output signals proportional to the reactive power on the system.

SURGE WITHSTAND CAPABILITY:

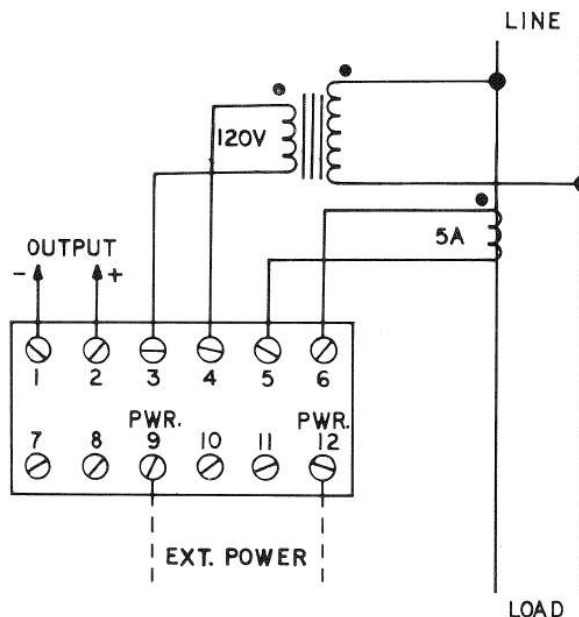
TransData, Inc. transducers are designed to withstand transient surges up to 5000 volts applied between input/output/case/power supply.

The test waveform consists of a series of damped oscillations at 50KHz to 200 KHz, the first peak being 5000 volts, decaying to 2000 volts in three cycles. These bursts are repeated at the rate of 120 per second for four seconds. Devices built with this protection will also pass the IEEE Standard No. 472 SWC Test.



NOTE: DIMENSIONS ARE IN INCHES AND (MM)

Mounting holes (4) are 3/16" in diameter.
Can is steel with integral mounting flanges.
Terminal screws are 8-32 binding head.



Connection diagram to a single phase line using current and potential transformers.

NOTE: INTERNAL POWER CONNECTED TO TERMINALS 3 AND 4, MODEL 10ERS501.

Terminals 7 through 12 are included on model 10ERS501E only. The external power for the amplifier is connected to terminals 9 and 12.

The dots shown on the transformers are relative polarity markings and show the proper connection polarity. Instrument transformer terminals are marked with a dot, a \pm symbol or other identifiable mark on both primary and secondary. Failure to observe the proper polarity may result in erroneous readings.

Grounding considerations may dictate connecting the primary opposite from the way shown. This is permissible if the secondary is also reversed, maintaining the same relative polarity.

20ERS501 ♦ 2-Element VAR Transducer 3-Phase, 3-Wire Delta Service ♦ $\pm 1\text{mA}$ DC Output



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in the United States
Since 1969**

- Measures Forward and Reverse Power Flow
- Accuracy to $\pm 0.2\%$ of Reading
- Exceptional Long-Term Stability and Reliability
- 240 and 480 Volt Input Ranges Available
- 1, 2.5 and 10 Amp Input Ranges Available
- 5000 Volts Surge Withstand Capability

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TransData's transducers are direct pin-for-pin compatible with other brands and feature the utility specified all-steel enclosure with standardized mounting footprint.

SPECIFICATIONS

| | Self Powered | Externally Powered |
|---|---|---|
| Model | 20ERS501 | 20ERS501E |
| Nominal Potential Input | 120 Volts | 120 Volts |
| Potential Range With Rated Accuracy | 85-150 Volts | 0-185 Volts |
| Potential Overload, Continuous | 175 Volts | 200 Volts |
| Potential Burden Per Element at 120 Volts | Less than 0.02VA ⁽¹⁾ | Less than 0.02VA |
| Nominal Current Input | 5 Amps | 5 Amps |
| Current Range With Rated Accuracy | 0-10 Amps | 0-10 Amps |
| Current Overload, Continuous with Linearity | 15 Amps | 15 Amps |
| Current Overload, Maximum | 250 Amps for 1 Sec/Hour | 250 Amps for 1 Sec/Hour |
| Current Burden Per Element at 5 Amps | Less than 0.15VA | Less than 0.15VA |
| Full Scale Calibration Input | 500 VARs/Element ⁽²⁾ (1000 Full Scale) | 500 VARs/Element ⁽²⁾ (1000 Full Scale) |
| Output at Full Scale Input | $\pm 1\text{mA}$ DC | $\pm 1\text{mA}$ DC |
| Output Load | 0-10,000 Ohms | 0-10,000 Ohms |
| Output Compliance | 11 Volts | 11 Volts |
| Accuracy at 25°C, $\pm 2^\circ\text{C}$ | $\pm 0.2\%$ of Reading, $\pm 0.01\%$ of RO | $\pm 0.2\%$ of Reading, $\pm 0.01\%$ of RO |
| Temperature Range | -20°C to +70°C | -20°C to +70°C |
| Temperature Influence | $\pm 0.009\%/^\circ\text{C}$ | $\pm 0.009\%/^\circ\text{C}$ |
| Response Time to 99% | Less Than 400 milli-seconds | Less Than 400 milli-seconds |
| Operating Humidity | 0-99% non-condensing | 0-99% non-condensing |
| Frequency Range | 50 to 70 Hz ⁽³⁾ | 50 to 70 Hz ⁽³⁾ |
| Power Factor Range | Any | Any |
| Calibration Adjustment | $\pm 10\%$ ⁽⁴⁾ | $\pm 10\%$ ⁽⁴⁾ |
| Zero Adjustment | None Required | None Required |
| Stability Maximum (per year) | $\pm 0.1\%$ non-accumulative | $\pm 0.1\%$ non-accumulative |
| Surge Withstand Capability IEEE No. 472 | 5000 Volts | 5000 Volts |
| AC Component (Output Ripple) | Less than 0.5% of RO | Less than 0.5% of RO |
| Power Supply | Internal, Phase A | 85-135 VAC, 60Hz, <2.5VA @ 120V |
| Dielectric Test (1 Min) | 2000 Volts RMS | 2000 Volts RMS |
| Weight | 3.25 lbs (1.47kg) | 3.25 lbs (1.47kg) |

(1) Burden on Terminals 3 & 4 is <2.5VA (2) Other Full Scale Input Ranges Available (3) Available in 50Hz Models (4) Other Calibration Adjustments Available

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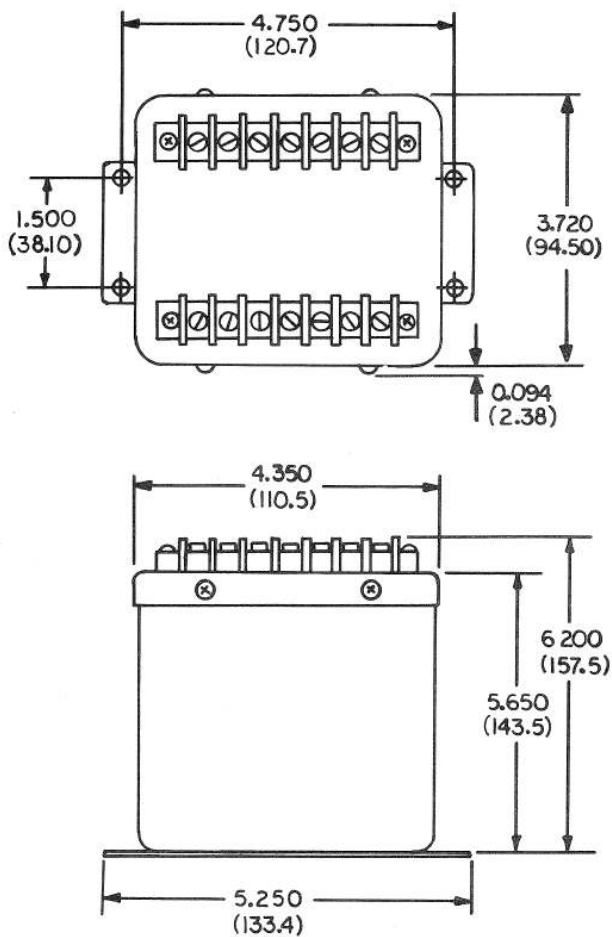
APPLICATION:

TransData, Inc. VAR transducers convert current and voltage input signals from a power system into DC output signals proportional to the reactive power on the system.

SURGE WITHSTAND CAPABILITY:

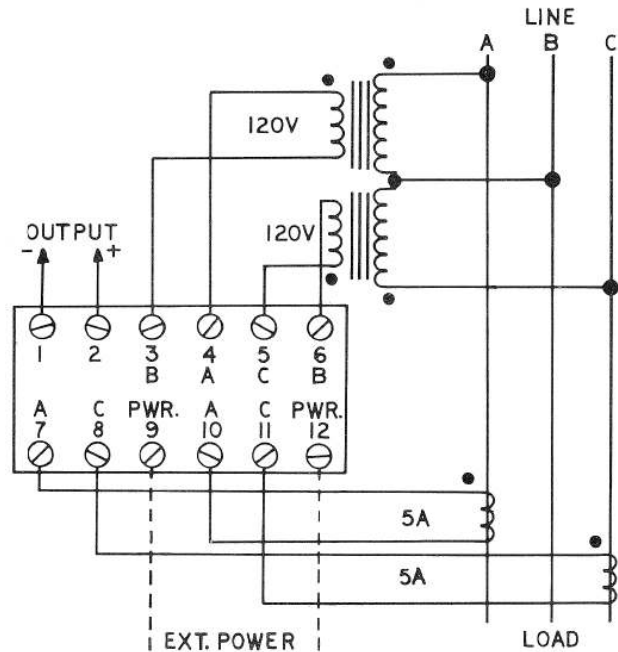
TransData, Inc. transducers are designed to withstand transient surges up to 5000 volts applied between input/output/case/power supply.

The test waveform consists of a series of damped oscillations at 50KHz to 200 KHz, the first peak being 5000 volts, decaying to 2000 volts in three cycles. These bursts are repeated at the rate of 120 per second for four seconds. Devices built with this protection will also pass the IEEE Standard No. 472 SWC Test.



NOTE: DIMENSIONS ARE IN INCHES AND (MM)

Mounting holes (4) are 3/16" in diameter.
Can is steel with integral mounting flanges.
Terminal screws are 8-32 binding head.



Connection diagram to a three-phase three-wire line using current and potential transformers.

NOTE: INTERNAL POWER CONNECTED TO TERMINALS 3 AND 4, MODEL 20ERS501.

The external power for the amplifier for model 20ERS501E is connected to terminals 9 and 12. On the other model these terminals are unused.

The dots shown on the transformers are relative polarity markings and show the proper connection polarity. Instrument transformer terminals are marked with a dot, a \pm symbol or other identifiable mark on both primary and secondary. Failure to observe the proper polarity may result in erroneous readings.

Grounding considerations may dictate connecting the primary opposite from the way shown. This is permissible if the secondary is also reversed, maintaining the same relative polarity.

25ERS501 ♦ 2½-Element VAR Transducer 3-Phase, 4-Wire WYE Service ♦ ±1mA DC Output



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- **Measures Forward and Reverse Power Flow**
- **Accuracy to ±0.2% of Reading**
- **Exceptional Long-Term Stability and Reliability**
- **69, 240, 277 and 480 Volt Input Ranges Available**
- **1, 2.5 and 10 Amp Input Ranges Available**
- **5000 Volts Surge Withstand Capability**

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TransData's transducers are direct pin-for-pin compatible with other brands and feature the utility specified all-steel enclosure with standardized mounting footprint.

SPECIFICATIONS

| | Self Powered | Externally Powered |
|---|-------------------------------------|-------------------------------------|
| Model | 25ERS501 | 25ERS501E |
| Nominal Potential Input | 120 Volts | 120 Volts |
| Potential Range With Rated Accuracy | 85-150 Volts | 0-185 Volts |
| Potential Overload, Continuous | 175 Volts | 200 Volts |
| Potential Burden Per Element at 120 Volts | Less than 0.02VA ⁽¹⁾ | Less than 0.02VA |
| Nominal Current Input | 5 Amps | 5 Amps |
| Current Range With Rated Accuracy | 0-10 Amps | 0-10 Amps |
| Current Overload, Continuous with Linearity | 15 Amps | 15 Amps |
| Current Overload, Maximum | 250 Amps for 1 Sec/Hour | 250 Amps for 1 Sec/Hour |
| Current Burden Per Element at 5 Amps | Less than 0.15VA | Less than 0.15VA |
| Full Scale Calibration Input | 500 VARS per Element ⁽²⁾ | 500 VARS per Element ⁽²⁾ |
| Output at Full Scale Input | ±1mA DC | ±1mA DC |
| Output Load | 0-10,000 Ohms | 0-10,000 Ohms |
| Output Compliance | 11 Volts | 11 Volts |
| Accuracy at 25°C, ±2°C | ±0.2% of Reading, ±0.01% of RO | ±0.2% of Reading, ±0.01% of RO |
| Temperature Range | -20°C to +70°C | -20°C to +70°C |
| Temperature Influence | ±0.009%/°C | ±0.009%/°C |
| Response Time to 99% | Less Than 400 milli-seconds | Less Than 400 milli-seconds |
| Operating Humidity | 0-99% non-condensing | 0-99% non-condensing |
| Frequency Range | 50 to 70 Hz ⁽³⁾ | 50 to 70 Hz ⁽³⁾ |
| Power Factor Range | Any | Any |
| Calibration Adjustment | ±10% ⁽⁴⁾ | ±10% ⁽⁴⁾ |
| Zero Adjustment | None Required | None Required |
| Stability Maximum (per year) | ±0.1% non-accumulative | ±0.1% non-accumulative |
| Surge Withstand Capability IEEE No. 472 | 5000 Volts | 5000 Volts |
| AC Component (Output Ripple) | Less than 0.5% of RO | Less than 0.5% of RO |
| Power Supply | Internal, Phase A | 85-135 VAC, 60Hz, <2.5VA @ 120V |
| Dielectric | 2000 Volts RMS | 2000 Volts RMS |
| Weight | 3.375 lbs (1.53kg) | 3.375 lbs (1.53kg) |

(1) Burden on Terminals 3 & 4 is <2.5VA (2) Other Full Scale Input Ranges Available (3) Available in 50Hz Models (4) Other Calibration Adjustments Available

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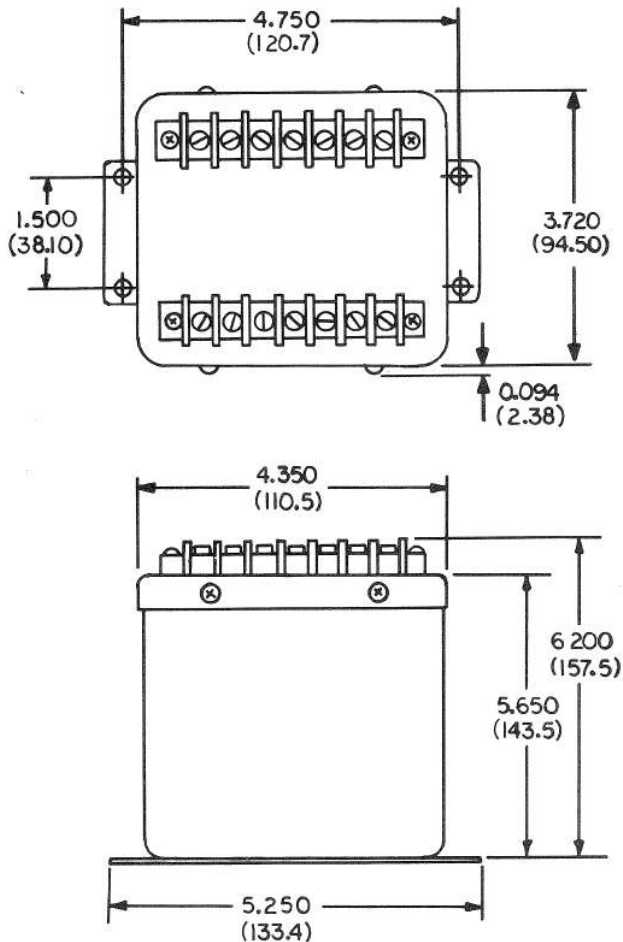
APPLICATION:

TransData, Inc. VAR transducers convert current and voltage input signals from a power system into DC output signals proportional to the reactive power on the system.

SURGE WITHSTAND CAPABILITY:

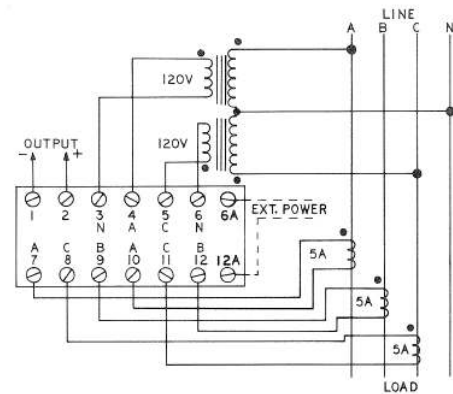
TransData, Inc. transducers are designed to withstand transient surges up to 5000 volts applied between input/output/case/power supply.

The test waveform consists of a series of damped oscillations at 50KHz to 200 KHz, the first peak being 5000 volts, decaying to 2000 volts in three cycles. These bursts are repeated at the rate of 120 per second for four seconds. Devices built with this protection will also pass the IEEE Standard No. 472 SWC Test.

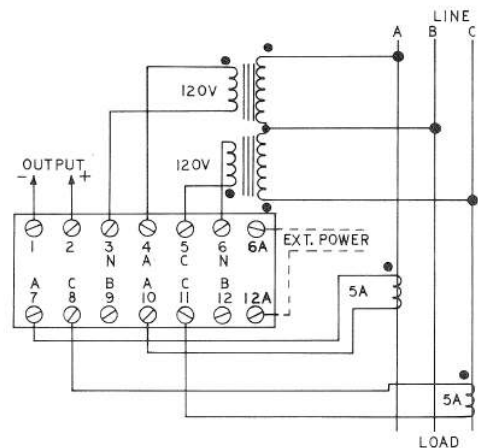


NOTE: DIMENSIONS ARE IN INCHES AND (MM)

Mounting holes (4) are 3/16" in diameter.
Can is steel with integral mounting flanges.
Terminal screws are 8-32 binding head.



Connection diagram to a three-phase four-wire balanced voltage line using current and potential transformers.



Connection diagram to a three-phase three-wire unbalanced voltage line using current and potential transformers.

NOTE: INTERNAL POWER CONNECTED TO TERMINALS 3 AND 4, MODEL 25ERS501.

Model 25ERS501E is equipped with 7 pin terminal strips. The seventh terminal of each strip, shown dotted in the diagram, is marked 6A and 12A and is used for the connection to the external amplifier power.

The dots shown on the transformers are relative polarity markings and show the proper connection polarity. Instrument transformer terminals are marked with a dot, a \pm symbol or other identifiable mark on both primary and secondary. Failure to observe the proper polarity may result in erroneous readings.

Grounding considerations may dictate connecting the primary opposite from the way shown. This is permissible if the secondary is also reversed, maintaining the same relative polarity.

30ERS501 ♦ 3-Element VAR Transducer 3-Phase, 4-Wire WYE Service ♦ ±1mA DC Output



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SPECIFICATIONS

| | Self Powered | Externally Powered |
|---|--|--|
| Model | 30ERS501 | 30ERS501E |
| Nominal Potential Input | 120 Volts | 120 Volts |
| Potential Range With Rated Accuracy | 85-150 Volts | 0-185 Volts |
| Potential Overload, Continuous | 175 Volts | 200 Volts |
| Potential Burden Per Element at 120 Volts | Less than 0.02VA ⁽¹⁾ | Less than 0.02VA |
| Nominal Current Input | 5 Amps | 5 Amps |
| Current Range With Rated Accuracy | 0-10 Amps | 0-10 Amps |
| Current Overload, Continuous with Linearity | 15 Amps | 15 Amps |
| Current Overload, Maximum | 250 Amps for 1 Sec/Hour | 250 Amps for 1 Sec/Hour |
| Current Burden Per Element at 5 Amps | Less than 0.15VA | Less than 0.15VA |
| Full Scale Calibration Input | 500 VARS per Element ⁽²⁾ | 500 VARS per Element ⁽²⁾ |
| Output at Full Scale Input | $\pm 1\text{mA}$ DC | $\pm 1\text{mA}$ DC |
| Output Load | 0-10,000 Ohms | 0-10,000 Ohms |
| Output Compliance | 11 Volts | 11 Volts |
| Accuracy at 25°C, $\pm 2^\circ\text{C}$ | $\pm 0.2\%$ of Reading, $\pm 0.01\%$ of RO | $\pm 0.2\%$ of Reading, $\pm 0.01\%$ of RO |
| Temperature Range | -20°C to +70°C | -20°C to +70°C |
| Temperature Influence | $\pm 0.009\%/^\circ\text{C}$ | $\pm 0.009\%/^\circ\text{C}$ |
| Response Time to 99% | Less Than 400 milli-seconds | Less Than 400 milli-seconds |
| Operating Humidity | 0-99% non-condensing | 0-99% non-condensing |
| Frequency Range | 50 to 70 Hz ⁽³⁾ | 50 to 70 Hz ⁽³⁾ |
| Power Factor Range | Any | Any |
| Calibration Adjustment | $\pm 10\%$ ⁽⁴⁾ | $\pm 10\%$ ⁽⁴⁾ |
| Zero Adjustment | None Required | None Required |
| Stability Maximum (per year) | $\pm 0.1\%$ non-accumulative | $\pm 0.1\%$ non-accumulative |
| Surge Withstand Capability IEEE No. 472 | 5000 Volts | 5000 Volts |
| AC Component (Output Ripple) | Less than 0.5% of RO | Less than 0.5% of RO |
| Power Supply | Internal, Phase A | 85-135 VAC, 60Hz, <2.5VA @ 120V |
| Dielectric Test (1 Min) | 2000 Volts RMS | 2000 Volts RMS |
| Weight | 3.625 lbs (1.64kg) | 3.625 lbs (1.64kg) |

(1) Burden on Terminals 3 & 4 is <2.5VA (2) Other Full Scale Input Ranges Available (3) Available in 50Hz Models (4) Other Calibration Adjustments Available

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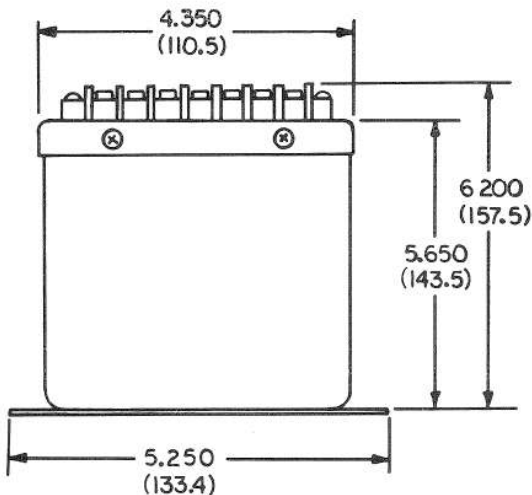
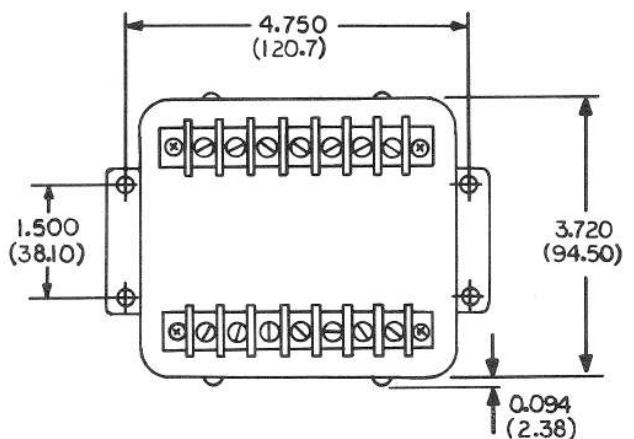
APPLICATION:

TransData, Inc. VAR transducers convert current and voltage input signals from a power system into DC output signals proportional to the reactive power on the system.

SURGE WITHSTAND CAPABILITY:

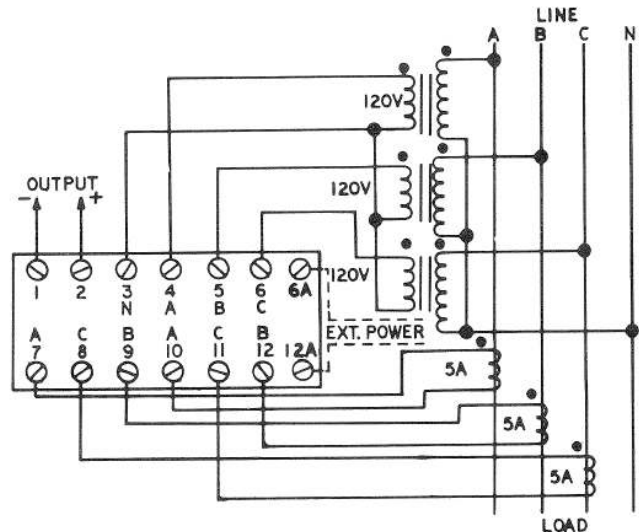
TransData, Inc. transducers are designed to withstand transient surges up to 5000 volts applied between input/output/case/power supply.

The test waveform consists of a series of damped oscillations at 50KHz to 200 KHz, the first peak being 5000 volts, decaying to 2000 volts in three cycles. These bursts are repeated at the rate of 120 per second for four seconds. Devices built with this protection will also pass the IEEE Standard No. 472 SWC Test.



NOTE: DIMENSIONS ARE IN INCHES AND (MM)

Mounting holes (4) are 3/16" in diameter.
Can is steel with integral mounting flanges.
Terminal screws are 8-32 binding head.



Connection diagram to a three-phase four-wire line using current and potential transformers.

NOTE: INTERNAL POWER CONNECTED TO TERMINALS 3 AND 4, MODEL 30ERS501.

Model 30ERS501E is equipped with 7 pin terminal strips. The seventh terminal of each strip, shown dotted in the diagram, is marked 6A and 12A and is used for the connection to the external amplifier power.

The dots shown on the transformers are relative polarity markings and show the proper connection polarity. Instrument transformer terminals are marked with a dot, a \pm symbol or other identifiable mark on both primary and secondary. Failure to observe the proper polarity may result in erroneous readings.

Grounding considerations may dictate connecting the primary opposite from the way shown. This is permissible if the secondary is also reversed, maintaining the same relative polarity.