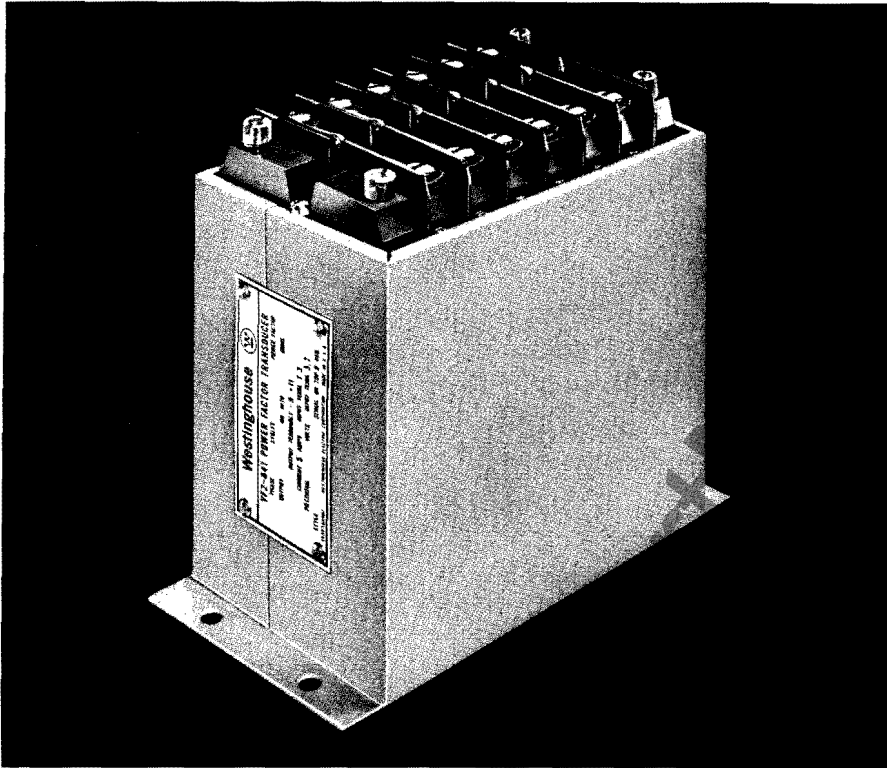


Westinghouse



### Application

Type V-2 transducers convert complex electrical quantities into direct currents which can be measured by conventional indicating instruments. While these devices were designed primarily for combination with Westinghouse panel instruments they can be used with any other manufacturer's instrument. Transducers of this type may be used as inputs to control or data acquisition systems, to computers, or to telemeters, or to recorders. Where the output level of the transducer is insufficient it may be combined with an amplifier to get a suitably high signal level. Transducers noted as output non-linear are primarily for use with indicating instruments.

### Features

The V-2 transducers are all solid state devices utilizing printed circuit techniques in the basic component assembly. Each has screwdriver adjustments accessible from the top (terminal) side.

A permanent diagram label is attached on one end of the transducer.

All transducers are identical in size, except for a greater width on the single phase var transducer. The base dimensions are such that they can be gang-mounted horizontally or vertically on either a standard rack or on a conventional control panel. The uniform

height makes for a neat appearance and ease of wiring group installations. There is no interaction between gang-mounted transducers.

All transducers have unfiltered outputs. Filter modules may be added when minimum output ripple is desired. Filters may be used only with loads of 50,000 ohms or more.

These filter units are made in three types:

1. With 50 ohm load resistor for use with watt and var transducers where a fixed millivolt output is required.
2. With 50 ohm load resistors and potentiometers for use with watt and var transducers where an adjustable (0-50 mv) output voltage is required.
3. With provisions for the external connection of a load resistor to suit the transducer used.

### Types Available

#### Watts

Type VP2-840, Hall Generator

Input: 5 amps, 120 volts, 40, 50, 60 or 400 Hz and 240 volts, 60 Hz.

Output: 50 mv across 50 ohms, linear.

Response Time: Full output within 0.05 sec.

Single Phase, 500 Watts: 1 element.

Three Phase 3 Wire, 1000 Watts: 2 elements.

Three Phase 4 Wire, 1500 Watts: 2½ elements.

Case: 3.0" x 5.75".

## Type V-2 Transducers

1% Accuracy Class

### Vars Type VV2-840, Hall Generator

Input: 5 amps, 120 volts, 60 or 400 Hz and 240 volts, 60 Hz.

Output:  $\pm 25$  (50) mV across 50 ohms, linear.

Response Time: Full output within 0.05 sec.

3 Phase cross connected, 1 phase internal phase shift.

Single Phase,  $\pm 250$  (500) Vars: 1 element.

3 Phase 3 Wire,  $\pm 500$  (1000) Vars: 2 elements.

3 Phase 4 Wire,  $\pm 750$  (1500) Vars: 2½ elements.

Case: Single phase, 5.5" x 5.75", 3 ph 3w and 3 ph 4 wire, 3.0" x 5.75".

These transducers are usually used bipolar for IN-OUT Vars. If measuring flow in one direction use the rating in parenthesis.

### Frequency Type VC2-841, Nulling Type

Input: 120 volts with ranges of 59-61, 58-62, 55-65, 50-70, 45-55, 45-65, 390-410, 380-420, 350-450 Hz.

Output: 50  $\mu$ a per Hz on either side of null, linear

Null at 30% of range up-scale from low frequency end. Null may be at a lower value of the listed range, if so specified when ordered.

Case: 3.0" x 5.75".

### Power Factor Type VF2-841, Zero Crossing Switch

Input: 5 amps, 120 volts, 60 Hz, 0.5-1-0.5 power factor.

Output:  $-0.5-0+0.5$  ma into 110 ohms, linear with respect to phase angle.

Response Time: Full output within 0.1 sec.

Case: 3.0" x 5.75".

Not applicable for use with VF2-876 filter unit.

### Voltage Type VE2-841, Bridge Type With RMS Network

Input: 150 volts, 60 or 400 Hz.

Output: 1 ma into 10,000 ohms, linear.

Response Time: Full output within 0.1 sec.

Case: 3.0" x 5.75".

### Current Type VI2-841, Bridge Type With RMS Network

Input: 5 amps, 60 or 400 Hz.

Output: 1 ma into 10,000 ohms, linear.

Response Time: Full output within 0.1 sec.

Case: 3.0" x 5.75".

### Suppressed Zero Voltage Type VE2-841, Zener Diode With RMS Network

Input: 110-130 volts, 25-1000 Hz.

Output: 500  $\mu$ a into 280 ohms, non-linear.

Response Time: Full output within 0.1 sec.

Case: 3.0" x 5.75".

### Speed Type VR2-841, Pulse Type

Input: Between 0-50 and 0-14,000 pulses/second.

Output: 1 ma into 100 ohms, linear.

Response Time: Full output within 0.1 sec.

Case: 3.0" x 5.75".

Requires separate power source of 120 volts, 60 Hz.

### Temperature Type VT2-841, Wheatstone Bridge

Input: Resistance Temperature Detectors (RTD) 10 ohms.

Ranges: 0-100°C, 0-150°C, 0-200°C.

Output: 30 mv into 30 ohms, non-linear.

Case: 3.0" x 5.75".

Requires separate power source of 120 volts, 60 Hz.

### Filters Type VF2-876

Output: ¼% of input ripple.

Response Time: Under 200 milliseconds.

Case: 3.0" x 5.75".

April, 1974

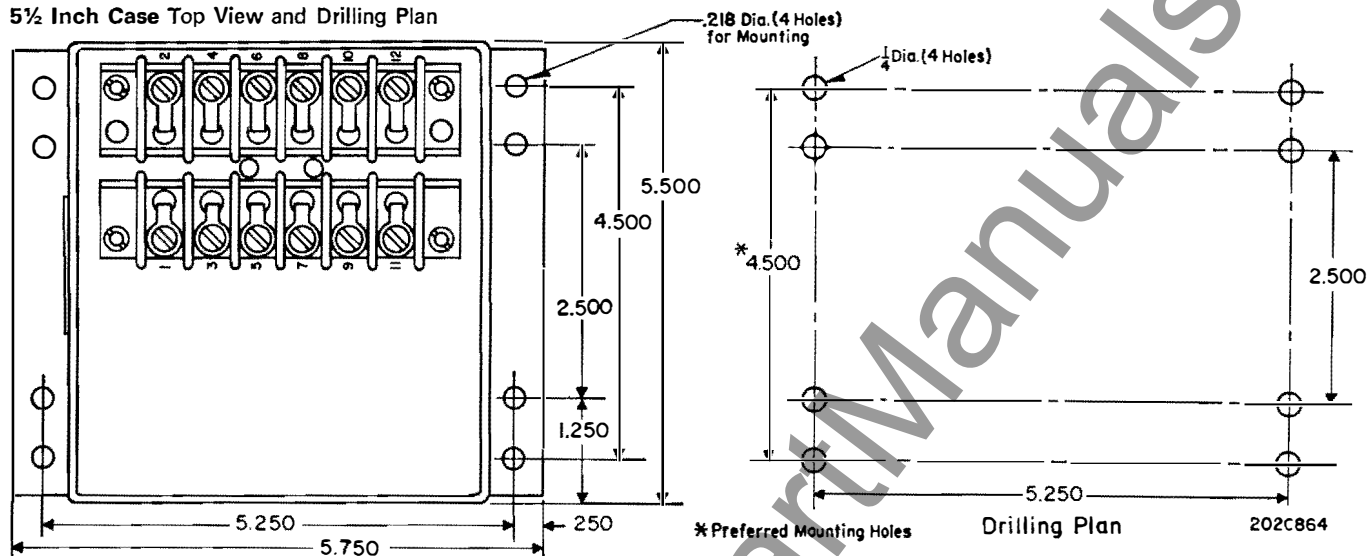
Supersedes DB 43-861, dated December, 1969  
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## Type V-2 Transducers

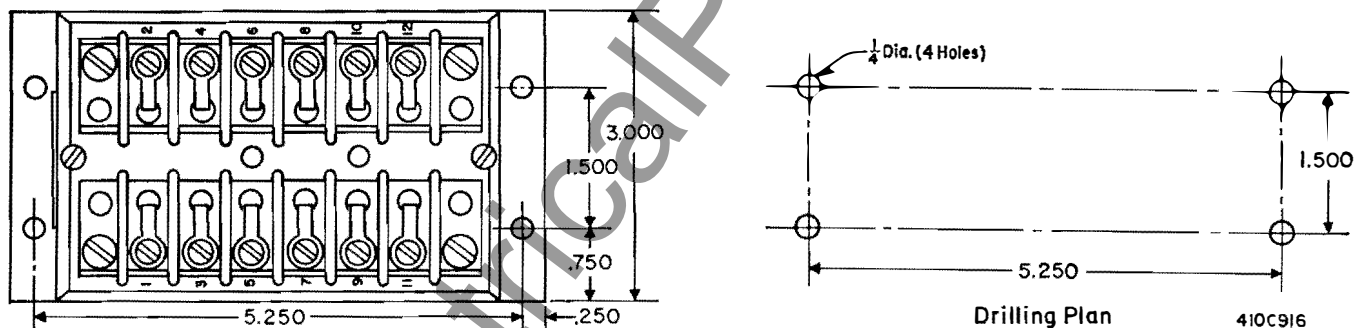
1% Accuracy Class

### Outline Dimensions (In Inches)

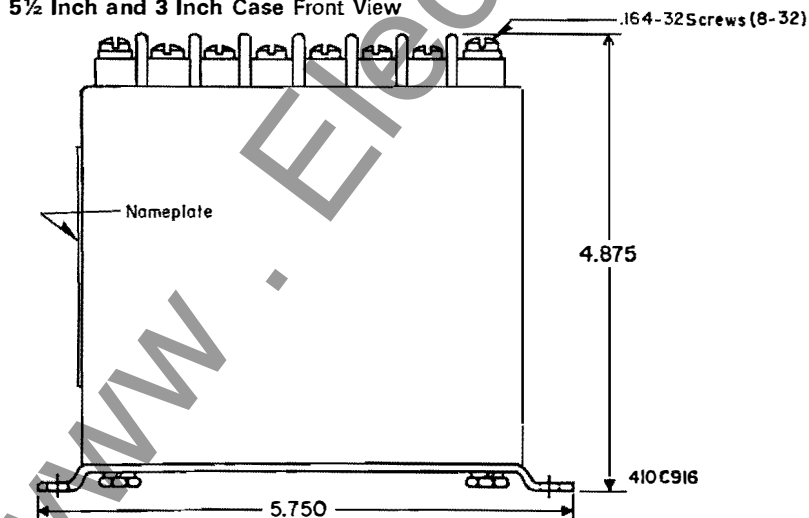
5½ Inch Case Top View and Drilling Plan



3 Inch Case Top View and Drilling Plan



5½ Inch and 3 Inch Case Front View



### Further Information

**Prices, Ordering Information:**  
Transducers and Filter Unit - PL 43-860

**Application Data:** AD 43-860

#### Instructions:

Watt Transducer - IL 43-840.3  
Power Factor Transducer - IL 43-841.5  
Frequency Transducer - IL 43-841.3  
Var Transducer - IL 43-840.4  
Voltage RMS, Current RMS Expanded  
Voltage Transducer - IL 43-841.1  
Temperature Transducer - IL 43-841.6  
Speed (Pulse) Transducer - IL 43-841.7  
Filters - IL 43-876.1

**Modification and Calibration:** IL 43-800.3

**Westinghouse Electric Corporation**

Relay-Instrument Division: Newark Plant, Newark, N. J. 07101

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