

# INSTRUCTIONS

for INSTALLATION OPERATION and MAINTENANCE

## POWERSTAT®

VARIABLE TRANSFORMERS

10C, 10C-40 and 12C Series

The right to make engineering refinements on all products is reserved. Dimensions and other details are subject to change.



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## INSPECTION

Your new POWERSTAT Variable Transformer has been carefully packed for shipment. However, damage may occur in transit. After receiving a unit, check all components (brush contact primarily) to satisfy yourself that there is no damage. Also make sure that the dial, knob, lock-washer and mounting nuts are in the package. The "Damage and Shortage" Instructions packed with the unit outline the proper procedure to follow if any parts are damaged or missing.

## INSTALLATION

POWERSTAT Variable Transformers of the 10C, 10C-40 and 12C Series are designed for mounting in the back-of-panel position only.

### Single Units

The single hole mounting of single units is fast and simple. For keying to the panel, a 1/16 inch projection is provided. To facilitate mounting, a drilling template is supplied as part of these instructions. Actually, the drilling template must be used only when the hole for the 1/16 inch projection is required.

### To mount, proceed as follows:

1. Using the drilling template, locate the panel holes. In order for the terminals to be on top, the template should be upright. Drill the holes.
2. Mount the POWERSTAT Variable Transformer as shown. Mount the unit flush to the back of the panel and the dial flush to the front. A single nut and lockwasher hold the unit and dial in place. The knob, when mounted on the shaft, covers the nut and lockwasher.
3. If the unit is not to be keyed to the panel, only the hole for the 3/8 inch center shaft should be drilled. The extra nut provided is placed on the shaft between the unit and the back of the panel. Otherwise the mounting is as explained above.

### Ganged Assemblies

Ganged units require four panel holes for mounting. Three are needed for the mounting bolts and a clearance hole is necessary for the center shaft.

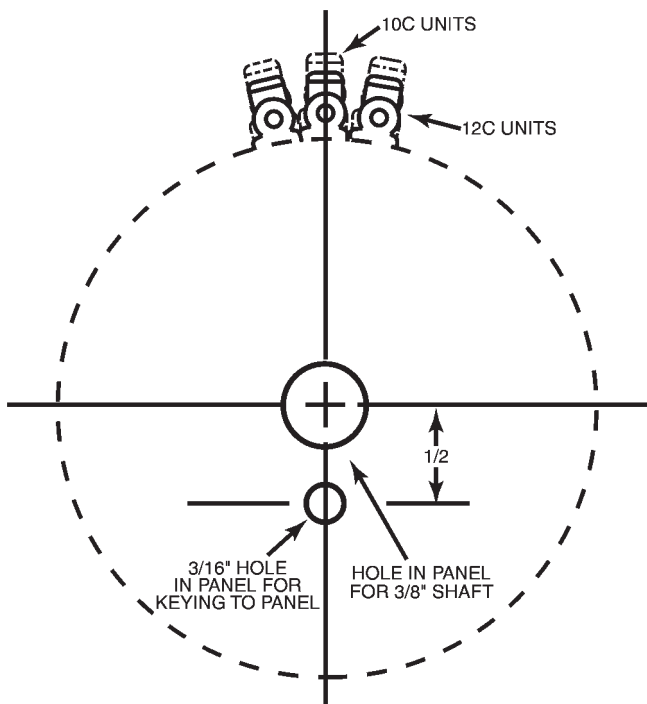
### To mount, proceed as follows:

1. Using the drilling template, locate the four panel holes. If the template is upright the terminals will not be directly on top. When terminals are required at the top, line marked "T" should be vertical. Drill the holes.
2. Mount the unit behind the panel as shown using the three 1/4"-20 mounting bolts provided. Mount the dial on the front panel, securing it in place with the 3/8"-32 nut and lockwasher provided. The knob, when mounted on the shaft covers the nut and lockwasher

## PANEL DRILLING TEMPLATE

(Viewed from Knob End)

### Single Units



## MAINTENANCE

When installed and operated in accordance with these instructions, a POWERSTAT Variable Transformer should require no servicing except possible replacement of the brush assembly. The brushes should be inspected periodically and replaced if arcing takes place or if they are badly worn. Use only the correct Superior Electric replacement brush assembly. The brushes must be of a special material if proper operation is to be attained.

## REPLACEMENT BRUSH ASSEMBLIES

TYPE	PART NO.	DESCRIPTION
10C	030098-001	RB10C/RB10B
10C-40	030098-004	RB10C-40/RB10B-40
12C	030098-001	RB12C

Note: 10C and 12C Replacement Brush Assembly are the same.

Whenever unusual mechanical or electrical difficulties are encountered in the installation or operation of your POWERSTAT Variable Transformer, consult Superior Electric.

# CONNECTIONS AND RATINGS

**Important connection notes. Please read carefully.**

POWERSTAT Variable Transformers of the 10C, 10C-40 and 12C Series may be connected to suit various requirements as shown in the RATINGS CHART. The individual units in types 10C-40-2 and 10C-40-3 are not electrically interconnected but are independently wired following the type 10C-40 connections. Under "KNOB ROTATION", rotating the knob in the direction indicated will INCREASE the output voltage. The dial is marked for clockwise rotation only.

- Jumper provided in standard common position should be moved or removed as required.
- 10C type ratings are when unit(s) are mounted on a metal panel. When mounted on a bracket or nonmetallic panel, derate to 1.75 amperes for Constant Current Load and 2.5 amperes for Constant Impedance Load.
- 12C type ratings are when unit(s) are mounted on a metal panel. When mounted on a bracket or nonmetallic panel, derate to 0.5 amperes for Constant Current Load and 0.75 amperes for Constant Impedance Load.
- Fuses are recommended (not supplied) on all units as shown ( § ).
- COMMON shown in the CONNECTION DIAGRAMS is used as third leg in 3-phase open delta, or neutral in single-phase 3-wire and 3-phase 4-wire configurations. COMMON is not used in single-phase 2-wire or 3-phase 3-wire wye configurations. Jumper(s) provided in standard common position should be moved or removed as required.

## RATINGS CHART

### 40 VOLT, SINGLE PHASE

"LINE" CONNECTION							"BOOST" CONNECTION					Model Numbers			
Input Voltage:		40					Input Voltage:		40						
Output Voltage:		0-40					Output Voltage:		0-40						
Constant Current Load		Constant Impedance Load		Terminals & Rotation			Constant Current Load		Terminals & Rotation			Model Numbers			
Freq. (Hz)	Max. Amps	Max. KVA	Max. Amps	Max. KVA	Input CW CCW	Output CW CCW	Jumper CW CCW	Freq. (Hz)	Max. Amps	Max. KVA	Input CW CCW	Output CW CCW	Jumper CW CCW	Manually Operated	Conn. Diag.
60	7	0.28	9	0.36	1-2 1-2	1-2 1-3 2-3								10C-40	20

### 120 VOLT, SINGLE PHASE

"LINE" CONNECTION							"BOOST" CONNECTION					Model Numbers			
Input Voltage:		120					Input Voltage:		120						
Output Voltage:		0-120					Output Voltage:		0-120						
Constant Current Load		Constant Impedance Load		Terminals & Rotation			Constant Current Load		Terminals & Rotation			Model Numbers			
Freq. (Hz)	Max. Amps	Max. KVA	Max. Amps	Max. KVA	Input CW CCW	Output CW CCW	Jumper CW CCW	Freq. (Hz)	Max. Amps	Max. KVA	Input CW CCW	Output CW CCW	Jumper CW CCW	Manually Operated	Conn. Diag.
50/60	2.25	0.27	3	0.36	1-2 1-2	1-2 1-3 2-3		60	2.25	0.3	1-4 1-4	1-3 1-3		10C	21

### 240 VOLT, SINGLE PHASE

"LINE" CONNECTION							"BOOST" CONNECTION					Model Numbers			
Input Voltage:		240		208			Input Voltage:		240			208			
Output Voltage:		0-240		0-208			Output Voltage:		0-240			0-208			
Constant Current Load		Constant Impedance Load		Terminals & Rotation			Constant Current Load		Terminals & Rotation			Model Numbers			
Freq. (Hz)	Max. Amps	Max. KVA	Max. Amps	Max. KVA	Input CW CCW	Output CW CCW	Jumper CW CCW	Freq. (Hz)	Max. Amps	Max. KVA	Input CW CCW	Output CW CCW	Jumper CW CCW	Manually Operated	Conn. Diag.
50/60	0.7	0.17	0.9	0.22	1-2 1-2	1-3 2-3		50/60	0.7	0.13	1-4 1-4	1-3 1-3		12C	21
60	2.25	0.54	3	0.72	2-2 1-1	3-3 3-3	1-1 2-2	60	2.25	0.59	4-4 4-4	3-3 3-3	1-1 1-1	10C-2	22

### 480 VOLT, SINGLE PHASE

"LINE" CONNECTION							"BOOST" CONNECTION					Model Numbers			
Input Voltage:		480		380			Input Voltage:		480			380			
Output Voltage:		0-480		0-380			Output Voltage:		0-480			0-380			
Constant Current Load		Constant Impedance Load		Terminals & Rotation			Constant Current Load		Terminals & Rotation			Model Numbers			
Freq. (Hz)	Max. Amps	Max. KVA	Max. Amps	Max. KVA	Input CW CCW	Output CW CCW	Jumper CW CCW	Freq. (Hz)	Max. Amps	Max. KVA	Input CW CCW	Output CW CCW	Jumper CW CCW	Manually Operated	Conn. Diag.
50/60	0.7	0.29	0.9	0.37	2-2 1-1	3-3 3-3	1-1 2-2	50/60	0.7	0.26	4-4 4-4	3-3 3-3	1-1 1-1	12C-2	22

### 120 VOLT, THREE PHASE OPEN DELTA

"LINE" CONNECTION							"BOOST" CONNECTION					Model Numbers			
Input Voltage:		120					Input Voltage:		120						
Output Voltage:		0-120					Output Voltage:		0-120						
Constant Current Load		Constant Impedance Load		Terminals & Rotation			Constant Current Load		Terminals & Rotation			Model Numbers			
Freq. (Hz)	Max. Amps	Max. KVA	Max. Amps	Max. KVA	Input CW CCW	Output CW CCW	Jumper CW CCW	Freq. (Hz)	Max. Amps	Max. KVA	Input CW CCW	Output CW CCW	Jumper CW CCW	Manually Operated	Conn. Diag.
50/60	2.25	0.47	3	0.62	2-1-2 1-2-1	3-1-3 3-2-3	1-1 2-2	60	2.25	0.51	4-1-4 4-1-4	3-1-3 3-1-3	1-1 1-1	10C-2	22

### 240 VOLT, THREE PHASE OPEN DELTA

"LINE" CONNECTION							"BOOST" CONNECTION					Model Numbers			
Input Voltage:		240		208			Input Voltage:		240			208			
Output Voltage:		0-240		0-208			Output Voltage:		0-240			0-208			
Constant Current Load		Constant Impedance Load		Terminals & Rotation			Constant Current Load		Terminals & Rotation			Model Numbers			
Freq. (Hz)	Max. Amps	Max. KVA	Max. Amps	Max. KVA	Input CW CCW	Output CW CCW	Jumper CW CCW	Freq. (Hz)	Max. Amps	Max. KVA	Input CW CCW	Output CW CCW	Jumper CW CCW	Manually Operated	Conn. Diag.
50/60	0.7	0.29	0.9	0.37	2-1-2 1-2-1	3-1-3 3-2-3	1-1 2-2	50/60	0.7	0.23	4-4-4 4-4-4	3-1-3 3-1-3	1-1 1-1	12C-2	22

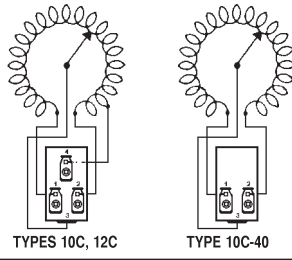
### 240Y / 138 VOLT, THREE PHASE WYE

"LINE" CONNECTION							"BOOST" CONNECTION					Model Numbers			
Input Voltage:		240		208			Input Voltage:		240			208			
Output Voltage:		0-240		0-208			Output Voltage:		0-240			0-208			
Constant Current Load		Constant Impedance Load		Terminals & Rotation			Constant Current Load		Terminals & Rotation			Model Numbers			
Freq. (Hz)	Max. Amps	Max. KVA	Max. Amps	Max. KVA	Input CW CCW	Output CW CCW	Jumper CW CCW	Freq. (Hz)	Max. Amps	Max. KVA	Input CW CCW	Output CW CCW	Jumper CW CCW	Manually Operated	Conn. Diag.
60	2.25	0.94	3	1.2	2-2-2 1-1-1	3-3-3 3-3-3	1-1-1 2-2-2							10C-3	23

### 480Y / 277 VOLT, THREE PHASE WYE

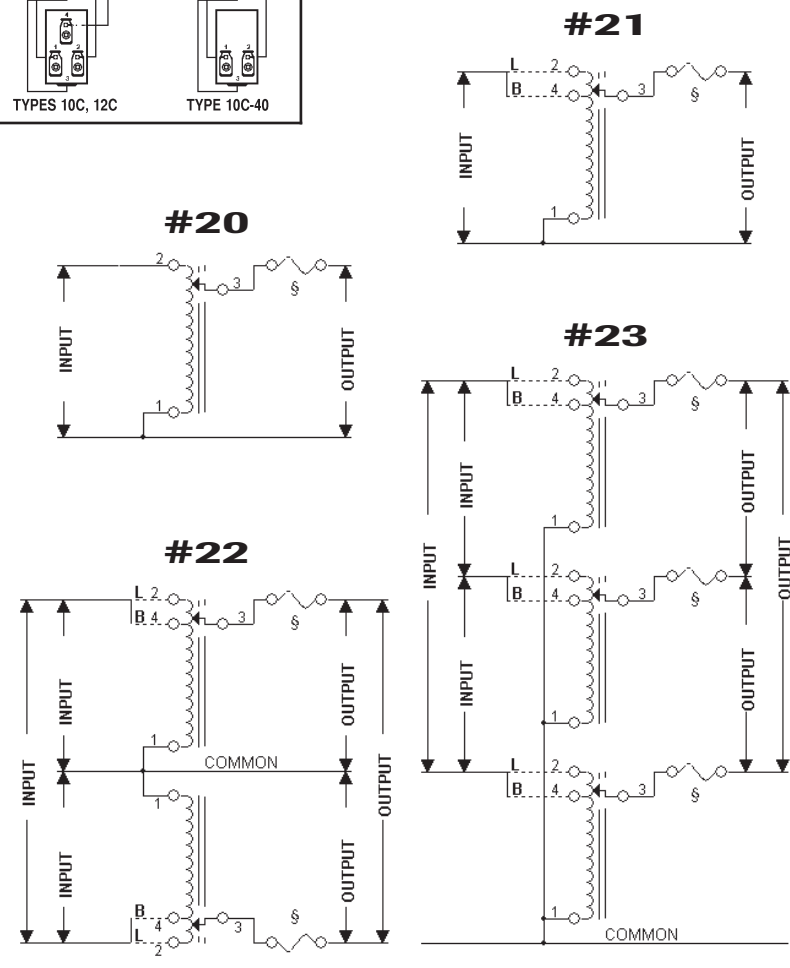
"LINE" CONNECTION							"BOOST" CONNECTION					Model Numbers			
Input Voltage:		480		380			Input Voltage:		480			380			
Output Voltage:		0-480		0-380			Output Voltage:		0-480			0-380			
Constant Current Load		Constant Impedance Load		Terminals & Rotation			Constant Current Load		Terminals & Rotation			Model Numbers			
Freq. (Hz)	Max. Amps	Max. KVA	Max. Amps	Max. KVA	Input CW CCW	Output CW CCW	Jumper CW CCW	Freq. (Hz)	Max. Amps	Max. KVA	Input CW CCW	Output CW CCW	Jumper CW CCW	Manually Operated	Conn. Diag.
50/60	0.7	0.58	0.9	0.75	2-2-2 1-1-1	3-3-3 3-3-3	1-1-1 2-2-2	60	0.7	0.46	4-4-4 4-4-4	3-3-3 3-3-3	1-1-1 1-1-1	12C-3	23

Viewed from Knob End



## CONNECTION DIAGRAMS

(Viewed from Knob End)



## PANEL DRILLING TEMPLATE

(Viewed from Knob End)  
Ganged Assemblies

