

POWERSTAT® Variable Transformers

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A POWERSTAT Variable Transformer is a continuously adjustable voltage autotransformer having a movable brush-tap riding on a commutator. Rotation of the brush-tap by either manual or motor-driven means delivers any output voltage in the range of zero to or above line voltage.

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51

Recognized by Underwriters Laboratories File No. E15506, UL Standard UL508



Listed by the Canadian Standards Association File No. LR7674



Models prefixed "3PN" and "L" are Underwriters Laboratories Listed.

PLEASE NOTE: Screened 1 kVA and 2 kVA units rated 240 V or higher and 3 kVA and 4 kVA units rated 480 V or higher are not UL Recognized or CSA Certified. Types 3PN126C, 126CT, F216C, 3PN217C, 217CT, F217C, 226, 3PN226, 226T and F226 are standard screened units UL Recognized but not CSA Certified.

POWERKOTE® COILS

Most POWERSTAT Variable Transformers feature POWERKOTE coils for longer life, increased ratings, greater overload capacities and better resistance to fungus, salt spray and other contaminating atmospheres. The commutator of the new POWERKOTE coil is embedded in a high temperature material which holds the windings in place, even under severe overloads. As a result, POWERSTAT Variable Transformers with POWERKOTE coils provide higher output ratings per pound and per dollar than ordinary variable transformers.

CURRENT RATING TERMINOLOGY

To permit maximum utilization of POWERSTAT Variable Transformers, output ratings are given for both constant current and constant impedance loads.

CONSTANT CUBRENT LOAD: Output current that can be carried regardless of output voltage setting. CONSTANT IMPEDANCE LOAD: Loads such as incandescent lamps or resistance heaters in which the current drawn is approximately proportional to the applied voltage, increasing to maximum current at line voltage. These ratings apply only to units having maximum output voltage limited to line voltage.

EXCELLENT REGULATION

POWERSTAT Variable Transformers deliver the desired voltage with only negligible variation in output voltage from no-load to fullload current. Individual regulation curves are shown for all types.

HIGH EFFICIENCY

The watts loss of every POWERSTAT Variable Transformer is very low in contrast to the inefficient, wasteful control provided by rheostats and other resistive type controllers.

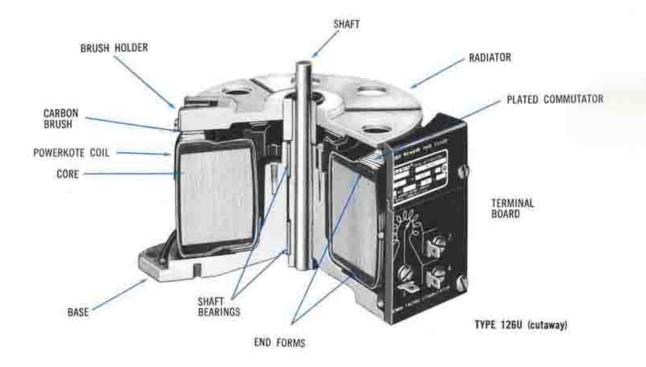
NEGLIGIBLE WAVEFORM DISTORTION

A POWERSTAT Variable Transformer provides an output voltage which is a faithful and distortionless reproduction of the applied input waveform. This is a required feature of many electronic applications and is a result of superior core and coil design and the use of highest grade silicon steel.

PRECIOUS METAL PLATED COMMUTATOR

A special precious metal plating process produces a commutator surface that withstands greater overloads and maintains a constant contact drop. The plated surface assures smooth performance, long life and increased resistance to corrosion.

GENERAL FEATURES



NEGLIGIBLE MAINTENANCE

With ordinary care and attention to the operating instructions, the only elements that may require periodic inspection and maintenance are the brushes. Their replacement is infrequently needed because they are made of a special carbon and are of a design that assures proper contact of the brush to the commutator at any setting.

LOW OPERATING TORQUE

The glass-smooth commutator surface, the constant and correct contact pressure of the brush-tap to the commutator and the stable positioning of coil and internal components result in the low operating torque of all POWERSTAT Variable Transformers. The driving torque for the individual units is given in the section devoted to the particular type.

LINEAR OUTPUT VOLTAGE

The angle of rotation from zero to maximum output voltage is given for each POWERSTAT Variable Transformer in the section devoted to the particular series. Output voltage is continuously adjustable from zero to maximum output voltage proportionately over the full range.

SMOOTH CONTROL

The output voltage of a POWERSTAT Variable Transformer can be considered continuously adjustable. The voltage between turns is a fraction of a volt and the brush tap is always in contact with one or more turns of the winding. Adjustment of output voltage can be made to a fraction of a volt.

RUGGED MECHANICAL CONSTRUCTION

All POWERSTAT Variable Transformers are designed for heavyduty, trouble-free operation. Rigid inspection at every stage of manufacture gives assurance of a quality-built product. The securely mounted core and coil, extra large aluminum brush heat radiator and durable brush assembly reduce the need for attention or replacement.

LONG LIFE

POWERSTAT Variable Transformers give reliable performance over extended periods of time even under extreme operating conditions. Materials are constantly being improved to give increased life expectancy.

MILITARY SPECIFICATIONS

All POWERSTAT Variable Transformer models are available on special order to meet applicable military specifications. The following are typical of the requirements which can be met:

ALTITUDE: Up to 10,000 feet operating; 50,000 feet nonoperating HUMIDITY: 95 per cent relative humidity for 24 hours

VIBRATION: Per MIL-STD-810C, Method 514.2

SHOCK: Per MIL-STD-810C. Method 516.2

CORROSION: All metal parts except the commutator protected to withstand 100-hour salt spray per FED STD 151A.

PHENOLIC PARTS: Laminated parts per MIL-P-15035C; molded parts per MIL-M-14F; rods and tubes per MIL-P-79C; and anti-fungus treatment per

MIL T-152B, Type 2

CONNECTING WIRE: Per MIL-W-16878D

GENERAL FEATURES

OVERLOAD CAPACITY

Because of their conservative ratings and the use of POWERKOTE coils, POWERSTAT Variable Transformers can safely handle many overloads. The "on" curve in Figure A shows the maximum time the units can be subjected to various overloads. When used with repetitive overloads, the units must also be allowed sufficient "off" time as indicated by the "off" curve to prevent excessive temperature buildup. Where the "on" time desired for a repetition overload is less than the maximum shown, the "off" time can be reduced in accordance with the following equation:

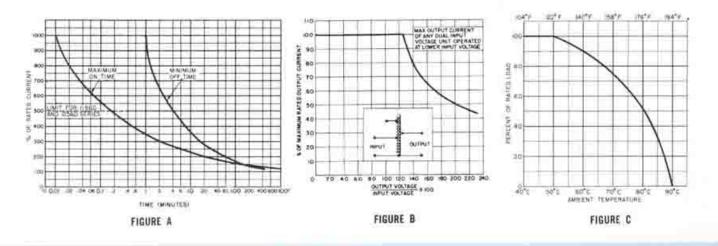


DUAL INPUT

Most 240 volt POWERSTAT Variable Transformers have a lower input voltage tap that permits operation from a 120 volt input to obtain an output voltage of 0-280 volts. The output current must be reduced according to the curve in Figure B when the output voltage exceeds 125% of the input voltage.

TEMPERATURE

Ratings given in this catalog are for operation at ambient temperatures of -20°C to +50°C at full rated load. When operation is required in ambient temperatures higher than 50°C the output current must be reduced according to the curve shown in Figure C.



TYPE NUMBER DESIGNATIONS

EXAMPLE:



3PN 120-VOLT VPES



3PN 240-VOLT TYPES



T (Terminal Enclosed) TYPES



F (Fused) TYPES

		mina. a	title actions	
SERIES	VOLTS*	CONSTANT	CONSTANT	
10C	120	2.25	3	
21	120	5	7	
115C	120	10	13	
117C	120	12	15	
126	120	15	20	
1368	120	22	28	PREF
146	120	30	35	
1156D	120	50	55	301
12	240	0.7	0.9	SM
22	240	2.25	3.25	15/
215C	240	3.5	5	60
217C	240	5	.7	DN
226	240	7.5	10	E.
2368	240	10	13	LW

19

28

MAX. AMPERES*

SERIES UNIT RATINGS

23 248

12560

"Nominal ratings. Vary with enclosure, mounting and special windings.

15

28

240

240

5M116CU-2 5-Second Mator-Driven

Series

PREFIXES

unix	BESCRIPTION	SUFFIX	DESCRIPTION
IPN IM ISM IOM IOM IOM	3-Wire Cord Receptacle 5-Second Motor Drive 15-Second Motor Drive 30-Second Motor Drive 60-Second Motor Drive Adjustable/Digital Motor Drive Fused with Terminal Box Isolated Secondary Series Enclosed Series	-2 10 27 X 40 T UT D P PS S Y	Units in Ganged Assembly 220V, 50 Hertz Motor Drive 40 Volt Series Terminal Enclosure Open-Onstruction Open-Delta Parallel Series-Parallel Series Wye 1256D Series

t 10C-12 and 21-22 Series units are of spen construction only but do not use a U prefix.

Units in Ganged Assembly

SUFFIXES

Open Construction



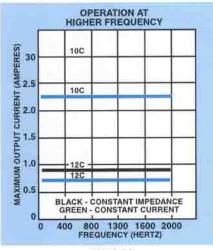




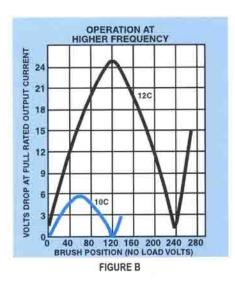


POWERSTAT Variable Transformers of the 10C-12C Series are offered in single and three phase manually operated assemblies. The 10C Series units operate from 120 volt lines and the 12C Series units operate from 240 volt lines. 10C Series units are rated at 2.25 amperes for constant current loads and 3.0 amperes for constant impedance loads. When line voltage connected, 12C Series units are rated at 0.7 ampere for constant current loads and 0.9 ampere for constant impedance loads. For over voltage connection the output rating for constant current loads is 0.5 ampere in the output range above line voltage but 0.7 ampere in the range from zero to line voltage. All these ratings are for metal panel mounting.

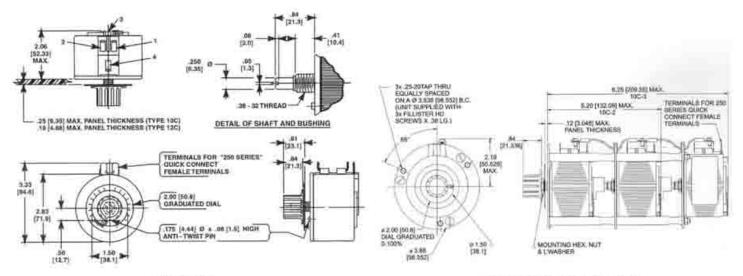
The tapping arrangement permits an output voltage of zero to line voltage or 10 percent above line voltage. Compensation may be made for a 10 percent drop in line voltage or to provide a wider working range. For additional flexibility, units of the 10C-12C Series can be connected to deliver an increasing output voltage of zero to line voltage with either clockwise or counterclockwise knob rotation. As shown in Figure A, all models can be operated at any frequency between 50 and 2000 hertz without reduction in allowable output current. Figure B shows the regulation curves for POWERSTAT Variable Transformers of the 10C-12C Series operating at full rated load. The curves show the voltage drop at any brush setting when full load is applied. For less than full load, voltage drop is proportional to the load. Driving torque, d-c resistance per coil and maximum core and brush loss when operating under no load are given in the chart. All types are of open construction designed for back-of-panel mounting. Type 10C and type 12C have 1/16 inch (1.6mm) high non-turn devices for keying the units to the panels. All units have a 2 inch (50.8mm) dial graduated 0-100 and an angle of knob rotation of 322°.







10C - 12C series



TYPE 10C

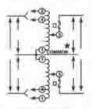
TYPES 10C-2 AND 10C-3

CONNECTIONS AND RATINGS

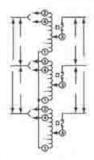
		IN	PUT			OUTPUT	r i					_
					CONS	11000	10000	STANT ICE LOAD	KNOB		TERMINAL	S
TYPE	CONNEC- TION	VOLTS	HERTZ	VOLTS	MAX. AMPS	MAX. KVA	MAX. AMPS	MAX KVA	ROTA- TION	INPUT	JUMPER	OUTPUT
			50/60	0-120	0.05+	0.27	31	0.36	CW	1-2	-	1-3
10C	#1	120	50/60	0-120	2.25‡	0.27	or	0.00	CCW	1-2	· · · ·	2-3
			60	0-132	2.25‡	0.30	-	-	CW	1-4		1-3
				0-240	0.71	0.17	0.91	0.22	CW	1-2	-	1-3
12C	#1	240	50/60	0*240	0.71	9.12	0.91	Viec	CCW	1-2	-	2-3
		1		0-264	0.5§	0.13	:		CW	1-4	-	1-3
	#2		50/60	0-240	2.25‡	0.54	31	0.72	CW	2-2	1-1	3-3
	1-Phase	240	50/00	0-240	616V+	0.04		OULE	CCW	. 1-1	2-2	3-3
10C-2	Series		60	0-264	2.25‡	0.59		-	CW	4-4	1.1	3-3
100-2	#2		50/60	0-120	2.25‡	0.47	3t	0.62	CW	2-1-2	1-1	3-1-3
	3-Phase	120	30/00			2000 C C C		U.U.L	CCW	1-2-1	2-2	3-2-3
	Series	[]	60	0-132	2.25‡	0.51	·	-	CW	4-1-4	1-1	3-1-3
	#2			0-480	0.71	0,29	0.91	0.37	CW	2-2	1-1	3-3
	1-Phase	480	50/60						CCW	1-1	2-2	3-3
12C-2	Series			0.528	0.5§	0.26			CW	4-4	1-1	3-3
120.0	#2			0-240	0.71	0.29	0.91	0.37	CW	2-1-2	1-1	3-1-3
	3-Phase	240	50/60						CCW	1-2-1	2-2	3-2-3
	Operi Data			0-264	0.5§	0.23	-		CW	4-1-4	1-1	3-1-3
10C-3	#3 3-Phase	240	60	0-240	2.25‡	0.94	3†	1.2	CW	2-2-2	1-1-1	3-3-3
	Wye	2.10	50				-		CCW	1-1-1	2-2-2	3-3-3
	#3		50/60	0-480	0.7‡	0.58	0.91	0.75	CW	2-2-2	1-1-1	3-3-3
12C-3	3-Phase	480	50/00	0.400	0.74	0.00	10.91	MIL M	CCW	1-1-1	2-2-2	3-3-3
	Wye		60	0.528	0.5§	0.46			CW	4-4-4	1-1-1	3-3-3



CONNECTION 1







CONNECTION 3

CONNECTIONS SHOWN ARE FOR CW KNOB ROTATION

* Common used as third leg in 3-phase open data or neutral in 3-wire single phase series and 4-wire 3-phase wye connections; not used in 2-wire series or 3-wire wye connections.

† Rating when mounted on a metal panel. When mounted on a bracket or a nonmetallic panel, derate to 2.5 amperes for 10C series. 0.75 amperes for 12C series.

‡ Rating when mounted on a metal panel. When mounted on a bracket or a nonmetallic panel, derate to 1.75 amperes for 10C series. 0.5 amperes for 12C series.

§ Maximum current when mounted on a metal panel is 0.76 amperes in culout voltage range form 0 to line voltage

¶ Jumper provided in standard common position should be moved or removed as required.

El Fuse recommended, not supplied.

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10C - 12C series

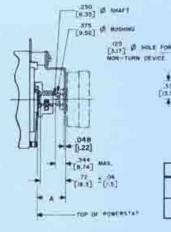


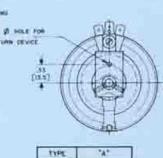
"Measured from start to end of winding.

POTENTIOMETER ADAPTER KITS

Adapter Kits are available to permit user mounting of potentiometers, rheostats, tap switches and other devices to operate in unison with a 10C-12C Series POWERSTAT Variable Transformer. Order Kit type B211060-1 for 10C Series units or Kit type 30111-000 for 12-C Series units. The kits will accommodate devices having a 3/8"-32 mounting bushing and a 1/4" (6.4mm) diameter shaft. If desired, POWERSTAT Variable Transformers having the device factory mounted are available on special order.







TYPE	"A"
IOC	(25.4)
120	.84 [21.3]

21-22 series

POWERSTAT Variable Transformers of the 21-22 Series are of open construction and are primarily designed for back-of-panel mounting. The rated output for the type 21 Series is 5 amperes for constant current loads and 7 amperes for constant impedance loads. For the 22 Series, the rated output is 2.25 amperes for constant current loads and 3.25 amperes for constant impedance loads. The 21 Series types operate from 120 volt lines and the 22 Series types from 240 volt lines. The tapping arrangement permits an output voltage range of zero to line voltage or zero to 17 percent above line voltage. As shown in Figure A, 21-22 Series POWERSTAT Variable Transformers can be operated at any frequency between 50 and 2000 hertz without reduction in allowable output current. Figure B shows the regulation curves for operating at full rated load. The curves show the voltage drop at any brush setting when full load is applied. Voltage drops for loads less than full load are proportional. Driving torque, d-c resistance per coil and maximum core and brush loss when operating under no load are given in the chart. All manually



operated units have a 3 3/4 inch (95.3mm) dial graduated 0-100 and an angle of rotation of 320" from the zero to maximum output voltage. Adjustable shafts can be extended from either end of the units, permitting general utility mounting if desired. In addition to the conventional screw-type method of connection, terminal adapters supplied with the units can be quickly mounted on the terminals for use with push-on connectors or soldered connections.

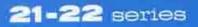
Motor-driven units in the 21-22 Series are designated by a letter M prefix in the type number. When ordering, prefix the motor-driven type number with the desired motor speed in seconds. Example: 5M21-2.

KNOB ON RADIATOR END

		IN	PUT			OUTPUT									
						TANT RENT AD	IMPE	TANT DANCE AD	KNOB			TERM			00 CMC
TYPE	CONNEC-	VOLTS	HERTZ	VOLTS	MAX. AMPS.	MAX. KVA	MAX. AMPS.	MAX. KVA	ROTA- TION	1.	B ON BASE		0.000	ON RADIAT	
TTPE	TION	VULIA	HEAST	ROLIS	Amr 3.	616	Antra.	1 10/4	110/1	1 111 01	Joint Lit	0011-01	1.000.000		
_		-		1				1	CW	1-4		3-4	1.14		1.3
	1.004		1.01	0-120	5	0.60	7	0.84	CCW	1:4		1-3	1-4	- 3-	3-4
71 M216	#1 Single	120	50/60						CW	4-5		3-4	1-2	_	1-3
mary	Phase			0-140	5	0.70			CCW	1-2	-	11.8	4.5	=	3-4
-	_		-			1000			CW	1.4	-	374	1.4	_	1.3
	41			0-240	2.25	0.54	3.25	0.78	CCW	1.4		1.3	1.4	121	3-4
22 M221	Single	240	50/60						CW	4.5		3.4	1.2	1241	1.3
	Pliese			0-280	2.25	0.63	-		CCW	1-2		1.3	4.5		3-4
_		-	-			-	-			1 1 2			-	_	
				0-240	5	1.2	7	1.7	CW	1-1	4.4	3-3	4.6	14	3-3
	#2 1-Phase	240	50/60	0.240	2	4.4	1		CCW	4.4	1-1	3-3	1-1	4/4:	3-3
	Series	540	30,00	0-280	5	1.4		-	CW	5-5	414	3.3	2.2	51	3-3
21-2		-		_					CCW	2-2	4.4	3-3	5-5	4.4	3.3
M21-25	#2			0-120	5	4	7	1.5	CW	1-4-1	4-8	3-#-3	1.4.1	4-4	3.4.3
	3-Phase Open	120	50/60					-	CW	5.4.5	4.4	3.4.3	2.1.2	14	3.1.3
	Delta			0-140	5	1,2	- TT	-	CCW	2-1-2	1-1	3-1-3	545	4.4	3.4.3
		-		D-480	2.25	11	3.25	1.6	CW	1.1	4.4	3-3	-4.4	1.1	3-3
	#2 1-Phese	480	50/60						CCW	364	1-1-1	3.3	- fcL	- 6,6	3-3
	Series	100	20/00	0-560	2.25	1.3			CW	55	4.4	3-3	2.2	1-1	3-3
22-2 M22-25	Octos			L. and a second		-		-	CCW	2-2	1-1	3-3-	5-5	4-4	3.3
MLL-13	#2			0-240	2.25	0.94	3.25	3:4	CCW	4-1-4	1.1	3.1.3	1.4.1	4.4	343
	3-Phase Open	240	50/60	0.600	b as	3.1	-	1	CW	5.4.5	4.4	343	2-1-2	1-12	3-1-3
	Deita			0-280	2.25	1.99	-	-	CCW	2-1-2	1-1	3.1-3	.5-4-5	4:4	3-4-3
-										_					
		1	50/60	0-240	5	2.3	z	2.9	CW	1-1-1	4.4.4	3.3.3	4-4-4	1-1-1	3.3-3
21-3	#3	240	Galant.	1.00035		3.4	*1	-	CCW	4-4-4	144	3-3-3	144-1	4-4-4	3-3-3
M21-3%	3-Phase Wye	1.87%.	60	0-280	5	24	-	-	CW	5-5-5	4.4.8	3-3-3	2.2.2	1.1-1	3-3-3
					11.82	120	1		CCW	2-2-2	144	3-3-3	5-5-5	4.4.4	1-3-3
			30/60	0-480	2.25	1:9	3.25	2.7	CW	144	4-4-4	3-3-3	4.4.4	1-1-1	3-3-3
22-3	#3 3 Phase	480		and and		-			CCW	4-4-4	1-1-1	3-3-3	1-1-1	4-4-4	3-3-3
W22-3	Wye		60	0-560	2.25	2.2	-	1 I-+:	CW	5-5-5	4.4.4	333	2.2.2.	1-1-1	3-3-3
			_						CCW	2.2.2	144	3-3-3	5.5.5	4-4-4	3-3-3

CONNECTIONS AND RATINGS

tFuse recommended, not supplied.





MOTOR-DRIVEN TYPES

TYPE	Appro Driving Oz-in	ximate Torque KpCm	No-Load Loss at 50 Hertz† (Watts)	D-C Resistance per Coil*† (Ohms)
21	15-25	1.1-1.8	3.0	4:4:
21-2	35-45	2.5-3.2	6.0	4,4
21-3	70-80	5-5.8	9:0	34:4
22	20-30	1.4-2.2	3.0	10.8
22-2	45-60	3.2-4.3	6.0	10.8
22-3	70-90	5-6.5	9,0	10.8

+Data applies to M prefixed models also. *Measured from start to end of winding.

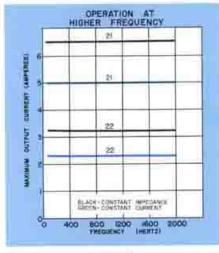
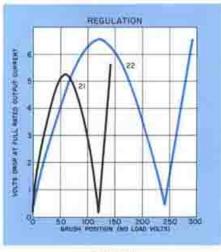
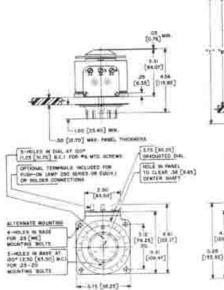
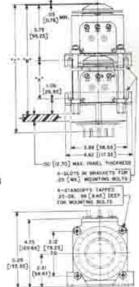


FIGURE A





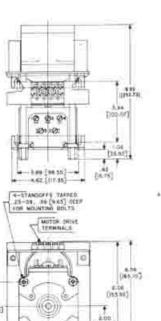




SINGLE MANUAL

GANGED MANUAL

TTPE	~A*	"H»	"ć*	~D*	"E*
2-6ANG	2.69 [60.32]	7.50	8.75 [22.555]	2,38 [187,45]	13.39 (340.11)
3-BANG	6.12 [155.45]	10.911 [277.87]	(2,19 [309.63]	10,81 [274.57]	16.84 [427.48]

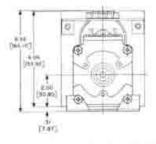




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SINGLE MOTOR DRIVEN

101 01 0.000 124.825 s ir 0 2 2 101.45 ЪŃ 1 1.84 [90.55] HAT THE M. a-stoff in BEALXERS FOR HE [B0] NOTENH IN-STOLEN A REPORTE ON S-CANGURAT 80.78



SANGED MOTOR DRIVEN

116C-216C and 117C-217C series

POWERSTAT Variable Transformers of the 116C and 117C Series operate from 120 volt lines and 216C and 217C Series operate from 240 volt lines. All models feature POWERKOTE coils. The rated output for constant current loads is 10 amperes for the 116C Series; 12 amperes for the 117C Series; 3.5 amperes for the 216C Series; and 5 amperes for the 217C Series. For a constant impedance load the maximum rated output current at line voltage is increased to 13 amperes for the 116C Series; 15 amperes for the 117C Series; 5 amperes for the 216C Series and 7 amperes for the 217C Series. Single, manually operated units have both 3-hole and 4-hole mounting arrangements; all others have the 4-hole mounting.

As shown in Figure A, assemblies of the 116C-216C Series can be operated at 50 to 1500 hertz and those of the 117C-217C Series can be operated at any frequency between 60 and 1500 hertz without reduction in allowable output current. Except for 216C types and the 217C types operating at the constant current rating, there is a slight reduction between 1500 and 2000 hertz. Figure B shows the regulation curves for types of the 116C-216C and 117C-217C Series operating at full load current. The curves show the voltage drop at any brush setting when full load is applied. For less than full load the voltage drop is proportional to the load.

Single units of the 117C-217C Series and cord-and-plug models of the 116C-216C Series have dials graduated in volts. Other single units of the 116C-216C Series and all ganged units have dials graduated 0-100. The angle of rotation from zero to maximum voltage is 317.5°.

Open construction models have a letter U suffix in the type number and have the shaft extending from the base end of the assembly for panel mounting. Knobs can also be placed at the radiator end of the assemblies for general utility mounting because the shafts are removable.

TYPET	Approx Driving Oz-In		No-Load Loss at 60 Hertz (Walts)	D-C Resistance per Coll* (Ohms)
116CU	20-30	1.4-2.2	6.5	1.1
1180-2	60-75	4.3-5.4	13	1.1
116C-3	100-125	7,2.9	19.5	1.1
11700	20-30	1.4-2.2	8.5	0.49
1170-2	60-75	4.3-5.4	17	0.49
1170-3	100-125	7.2-9	25.5	0.49
21600	20-30	1.4.2.2	6.5	T0.8
2160-2	60-75	4.3-5.4	13	10.8
2160-3	100-125	7,2-8	19,5	10.8
217C	20-30	1.4.2.2	8.5	3.9
2170-2	60-75	4.3-5.4	17	-3.9
217C-3	100-125	7,2-9	25,5	1.9



All plug-in models have input cord-plug sets, output receptacles, switches and fuses and are connected for clockwise knob rotation. Plug-receptacle constructions available are shown in the outline for plug-in types on page 13. Units of the 116C-216C Series are connected for overvoltage operation with provision for changing in the field to limit the output voltage to line voltage. Units in the 117C-217C Series have output voltage limited to line voltage. All models can be changed in the field to provide increasing output voltage with counterclockwise knob rotation.

Motor-driven POWERSTAT Variable Transformers have a letter M prefix in the type number. When ordering, the type number should be prefixed with the desired speed in seconds. For example: 5M116CT.

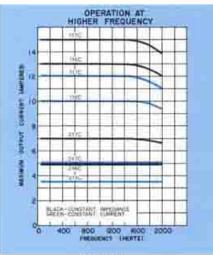
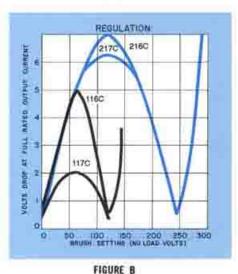
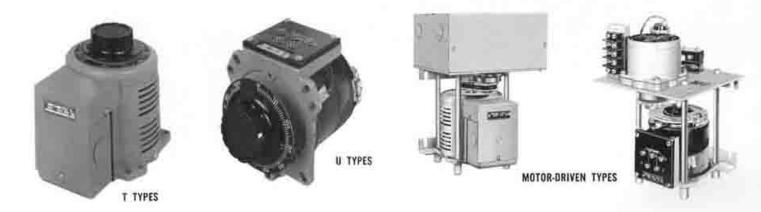


FIGURE A



"Measured from start to end of winding.

Data also applies to units having applicable prefixes and suffixes.



			NPUT		CONSTANT C		CONS	TANT						
					CUR	RENT	IMPEC	ANCE	KNOB	KNO	TERM B ON	KNO	BON	
	CONNEC	VOLTS	HERTZ	VOLTS	MAX.	MAX. KVA	MAX AMP	MAX. KVA	ROTA- TION	RADIAT	OR END		OUTPUT	
TYPE	TION	VOLIS	00076	YOUTS	Amr	510			CW	1-4	1-3	1-4	3-4	
				0+120	10	1.2	13	1.6	CCW	1-4	3.4	1-4	1-3	
116C 3PN116C	#1	120	50/60				-		cw	1.21	1-3	4-5	3-4	
				0-140	10	1.4	-	1.00	CCW	4.5	3.4	1.2	1-3	* •@
-									CW	1:4	1-3	1-4	3-4	
116CT				0.120	10	1.2	13	1.6	CCW	1:4	3-4	1-4	1.3	• @
MIISCTS IIECU	#2	120	50/60						cw	1.2	1-3	4-5	3-4	CONNECTIO
MIIECUS				0.140	10	-14		-	CCW	4-5	3-4	1-2	1-3	
				-				7353	cw	1-41	1-3	1-5	3.4	
3PN117C	#1	120	60	0-120	12	1.4	15	1.8	ccw	1-4	3-4	1-4	1-3	
117CT									CW	1-4	1-3	1-4	3-4	
M117CT § 117CU M117CU §	#2	120	60	0-120	12	1.4	15	1.8	CCW	1-4	3-4	14	1-3	
									CW	1-4	1-3	1-4	3-4	
				0-240	3.5	0.84	5	1.2	ccw	1-4	3.4	1-4	1-3	
216C		240	50/60						cw	1-21	1-3	4-5	3-4	T-0
3PN216C	#1			0-280	3.5	0.98		-	CCW	4-5	3-4	1-2	1-3	
		100		0.000	1.000	0.421	1		CW	1-6	1-3	4-7	3+4	9
		120	50/60	0-280	3.5*	124.0	-		CCW	4-7	3-4	1-5	13	CONNED
				0-240	3.5	0.84	5	1.2	CW	14	1-3	1-4	3-4	The second
		240	50/60	0-240	3.2	0.04	1		CCW	1-4	3-4	1-4	13	
216CT M216CTS		240	30/00	0-280	3.5	0.98			CW	1-2	1-3	4-5	3-4	
216CU M216CU §	#2			U-20U	5.5	0.50			CCW	4-5	3-4	1-2	1-3	
		120	50/60	0-280	3.5*	0.421			CW	1-6	1-3	4.7	3-4	116C TYPES DO NOT HA
		120	30/00	0.200	9.9	0.44			CCW	4-7	3-4	1-6	13	TERMINALS 6 OR 7
3PN217C	#1	240	60	0-240	5	1.2	7	1.7	CW	1-41	1.3	1-4	3-4	1170-2170 T
a de la u	<u> </u>	240		0.140	1				CCW	3-4	3-4	1-4	1-3	DO NOT HA TERMINALS 2, 5, 6 OR 7
217CT M217CT §	#2	240	60	0-240	5	1.2	7	1.7	CW	1-4	1-3	1-4	3-4	CONNECTIO
217CU M217CU §	7.4	240		0.240					CCW	14	3-4	14	1-3	SHOWN ARE

CONNECTION 2

CONNECTIONS SHOWN ARE FOR CW KNOB ROTATION KNOB ON RADIATOR END (CCW ROTATION KNOB ON BASE END)

*Maximum output current in output voltage range up to 150 volts. At higher output voltages output current must be reduced according to rating curve Figure B on page 4.

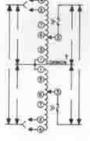
Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve Figure B on page 4. Fuse supplied: 10 ampere on 116C types, 15 ampere on 117C types, 4 ampere on 216C types, 8 ampere on 217C types.

SMotor-driven types use connections for CW rotation, knob on radiator end.

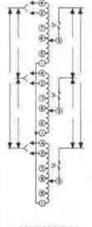
Unit wired this way when shipped.

aFuse recommended, not supplied.

		IN	PUT	1		CONSTANT CONSTANT		1									
			1		CUR	RENT	111953	DANCE	_			TERM	INALS				
	CONNEC-	-			MAX.			The second se		MAX.	KNOB RGTA-	1.	KNOB ON ADIATOR EN	A REAL PROPERTY OF A REAL PROPER		KNOB ON BASE END	
TYPE	TION	VOLTS	HERTZ	VOLTS	AMP.	KVA	AMP.	KVA	TION	INPUT	JUMPERS		INPUT	JUMPERS	OUTPU 3-3		
				0-240	10	2.4	13	3.1	CW	4-4	1-1	3-3	4-4	1-1	3-3		
	#1 1-Phase	240	50/60	_			-		CCW	1-1	4-0	3.3	5.14	4-4	3-3		
	Series			0-280	10	2.8	-	-	CW	2-2	14	-	5-5	1000	3.3		
116CU-2 M116CU-2 =							-		CCW	5-5	4-4	3.3	2-2	4-4	3-4-0		
HITTELY -				0-120	10	2.1	13	2.7	CW	4-1-4	1-1	3-1-3	1-4-1		3-1-3		
	#1 3-Phase	120	50/60						CCW	1-4-1	44	3-4-3	4-1-4	4-4	3-4-5		
	Open Delta			0-140	10	2.4	-		CW	2-1-2	1-1	3.4.3	2-1-2	1-1	3-1-3		
_						-			CCW	4-4		3.3	1-1	4-4	3.3		
	#1 1-Phase	240	50	0-240	12	2.9	15	3.6	CW	1-1	4-4	3.3	4-4	1-1	3.3		
117CU-2 M117CU-2=	Sories	-	-						CCW.	4-1-4	1-1	3-1-3	1-4-1	4-4	3-4-3		
antiruo a -	=1 3-Phase	120	50	0-120	12	2.5	15	3.1			4-4	3-4-3	4-1-4	1-1	3-1-3		
	Open Delta								CCW	1-4-1	1-1	3-3	1-1	4-4	3.3		
				0-480	3.5	17:	5	2.4	CW	1-1	4-4	3-3	4-4	1-1	3.3		
		480	50/60	-					CCW	2-2	1-1	3.3	5-5	44	3-3		
	#1 1.Phase			0-560	3.5	2.0		-	CW	5-5	4-4	3-3	2-2	14	3.3		
	Sarins			_	-			11	1997.2	5-5	1-1	3-3	7.7	4-4	3.3		
		240	50/60	0-560	3.5*	0.85	-	-	CW	7.7	4-4	3-3	6-6	1-1	3-3		
216CU-2 M216CU-2 =		-	_			-		-	CCW	1000	-	3-1-3	1-4-1	4-4	3-4-3		
10000				0-240	3.5	1.5	5	2.1	CW	4-1-4	1-1		4-1-4	1-1	3-1-3		
	#1	240	50/60		-		-		ccw	1-4-1	4-4	3-4-3	5-4-5	44	3-4-3		
	3-Phase Open Delta			0-280	3.5	\$.7		-	CW	2-1-2		3-1-3	2-1-2	1-1	3-1-3		
	opus parte		_			-	-	-	CCW	5-4-5	4-4	3-4-3	7.4.7	4-4	3.4.3		
		120	50/60	0-280	3.5*	0.74:	-		CW	6-1-6	1+1	3-1-3	6-1-6	1-1	3-1-3		
								-	CCW	7-4-7		12.000	-	4-4	3.3		
	#1 1-Phase	480	60	0-480	5	2.4	7	3.4	CW	4-4	1-1	3.3	1-1	1-1	3-3		
217CU-2 M217CU-2 =	Saries				-			-	CCW	1.1	4-4	3.3	1-4-1	4-4	3-4-3		
matricule -	#1 3-Phase	240	60	0-240	5	2,1	7	2.9	CW	4-1-4	1.1	3-1-3	4-1-4	1-1	3-1-3		
	Open Delta		-		-		-	-	CCW	1-4-1	4-4	3-4-3			1.1		
			50/60	0-240	10	42	13	5.4	CW	4-4-4	101-1	3-3-3	1-1-1	4:4:4	3-3-3		
116CU-3	#2 3-Phase	240							CCW	1-1-1	4-4-4	3-3-3	4-4-4	144	3-3-3		
M116CU-3 =	Wya	240		10000	142				cw	2.2.2	1.1.1	3-3-3	5-5-5	4-4-4	3-3-3		
			60	0-280	10	4.8		-	CCW	5-5-5	444	3-3-3	2-2-2	1-1-1	3-3-3		
Crattwo	#2				-				CW	4-4-4	1-1-1	3-3-3	1-1-1	4-4-4	3-3-3		
117CU-3 M117CU-3 =	3-Phase Wys #	240	60	0-240	12	5.0	15	6.2	ccw	1-1-1	4-4-4	3-3-3	4-4-4	1-1-1	3-3-3		
		-			-	-				-		3-3-3	1-1-1	4-4-4	3-3-3		
			50/60	0-480	3.5	2,9	5	4.2	CW	4-4-4	1-1-1						
		480							CCW	1-1-1	4-4-4	3-3-3	4-4-4	1-1-1	3-3-3		
216CU-3	≠2 3-Phase	- 22	60	0.560	3.5	3.4			CW	2.2.2	111	3-3-3	5-5-5	4-4-4	3-3-3		
M216CU-34	Wye		00	0.900	9,0		122		CCW	5-5-5	4-4-4	3-3-3	2-2-2	1.1.1	3-3-3		
									CW	6-6-6	1-1-1	3-3-3	7.7.7	444	3-3-3		
		240	60	0-560	3.5*	1.51	1.44	-	ccw	7.7.7	4-4-4	3-3-3	5-5-5	1-1-1	3.3.		
	#2				-		-	-	CW	4-4-6	1-1-1	3-3-3	1-1-1	4-4-4	3-3-3		
217CU-3 M217CU-3 =	3-Phase Wy# 1	480	60	0-480	5	4.2	7	5.8	-		-	-	-		-		
	THE ARE VE								CCW.	1-1-1	4-4-4	3-3-3	4-4-4	1-1-1	3.3.3		



CONNECTION 1



CONNECTION 2

116C TYPES DO NOT HAVE TERMINALS 6 OR 7

117C-217C TYPES DO NOT HAVE TERMINALS 2, 5, 6 OR 7

CONNECTIONS SHOWN ARE FOR CW KNOB ROTATION. KNOB ON RADIATOR END (CCW ROTATION KNOB ON BASE END)

Maximum output current in output voltage range from 0 to 25 percent above line voltage. At higher output voltages output current must be reduced according to rating curve Figure B on page 4.

Common used as third leg in 3-phase open delta on neutral in 3-wire single phase series and 4-wire 3-phase wye connections: not used in 2-wire series or 3-wire wye connections.

tMaximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve Figure B on page 4. Sjumper provided in standard common position should be moved or removed as required.

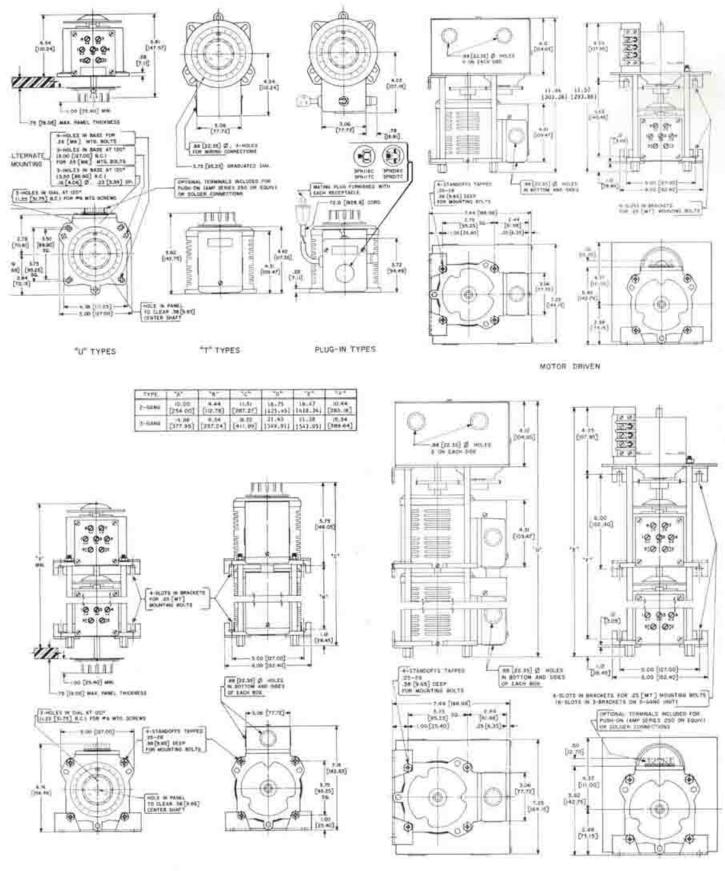
Three-wire system only. There must be no neutral connection in input or output.

DMotor-driven types use connections for CW rotation, knob on radiator end.

»Fuse recommended, not supplied.

12

116C-216C and 117C-217C series



MANUAL

MOTOR DRIVEN

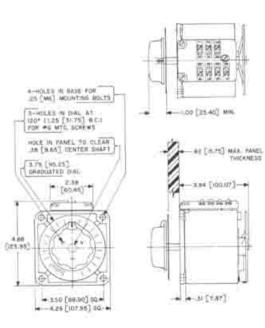
Q116U-Q216U and 0117U-0217U series

TYPE Q116U

POWERSTAT Variable Transformers of the Q116U-Q216U and Q117U-Q217U Series are available in manually operated assemblies for single and three phase service. The Q116U and Q117U Series operate from 120 volt lines and the Q216U and Q217U Series operate from 240 volt lines, All models have POWERKOTE colls. The rated output for constant current loads is 9 amperes for the Q116U Series; 10 amperes for the Q117U Series; 3.5 amperes for the Q216U Series; and 5 amperes for the Q217U Series. For constant impedance loads, the maximum rated output current at line voltage is increased to 12 amperes for the Q116U Series: 13 amperes for the Q117U Series: 5 amperes for the Q216U Series; and 7 amperes for the Q217U Series. The units are of open construction and have no screening, fuses, line switches, terminal enclosures, input cords or output receptacles, They have removable shafts which can be extended from either end of the assemblies.

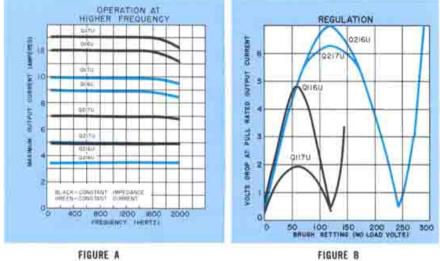
TYPE	Approx Driving Qz-Im	imate Torque KpCm	No-Load Loss at 60 Hertz (Watts)	D-C Resistance per Coll* (Obms)
Q116U	20-30	1.4-2.2	6.5	1.1
Q116U-2	\$0.75	4.3-5.4	13.0	3,1
Q116U-3	100-125	7,2.9	19.5	1.1
Q117U	20-30	1.4-2.2	8.5	0.49
Q117U-2	60-75	4.3-5.4	17.0	0.49
01170-3	100-125	7.2-9	25.5	0.49
02160	20-30	1.4-2.2	5,5	8.01
02160-2	60-75	4354	13.0	10.8
02160-3	100-125	7.2.9	19.5	10.8
02170	20-30	1.4-2.2	8.5	0.9
02170-2	60-75	4,3-5.4	17.0	3.9
Q217U-3	100-125	7.2.9	25.5	3.9

"Measured from start to end of winding



As shown in Figure A, Q116U-Q216U Series units can be operated at 50 to 1500 hertz and 0117U-0217U units between 60 and 1500 hertz without reduction in allowable output current. Except for Q216U and Q217U types operating at the constant current rating. there is a slight reduction between 1500 and 2000 hertz. Figure B shows the regulation curves for units of the Q116U-Q216U and Q117U-Q217U Series operating at full load current. The curves show the voltage drop at any setting when full load is applied. For less than full load, the voltage drop is proportional to the load.

All models can be connected to provide an increasing output voltage with either clockwise or counterclockwise knob rotation. Dials on Types Q117U and Q217U are graduated in volts. All other dials are graduated 0-100. The angle of knob rotation from zero to maximum voltage is 317.5°.



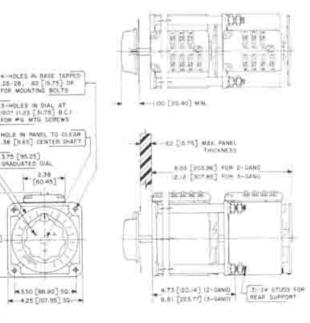


3.75 [96.25] GRADUATED (UAL

2.30 [60.45]

TR

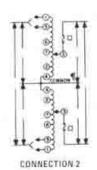
FIGURE B

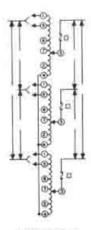


[123.95]

		10	PUT			UTPUT						TERMIN/	LS		
TYPE	CON- NEC- TION	VOLTS	HERTZ	VOLTS	CONS	RENT	CONS IMPED	ANCE	KNOB ROTA- TION		KNOD ON BASE END		R	KNOH ON	D
					MAX. AMP.	MAX. KVA	MAX. AMP.	MAX. KVA	-	INPUT	JUMPERI	OUTPUT	INPUT	JUMPER:	OUTPUT
							SINGL	E UHIT	5	_					
				0-120		1.1	32	1.4	CW.	14		3-4	14		1-3
Q116U Q116UM	#1 Single	120	50/60		12	101	1	100.0	CCW	1-4		1-3	1-4		1-3
Sector Sector	Phase			0-140	9	1.3	-	-	CW	1-2		1-3	4.5		3-4
1.11	#1							-	CW	14		3-4	14	-	1.3
0117U 0117UM	Singha Plugge	120	60	8-120	10	1.2	13	1.6	CCW .	14		1-3	14		3-4
				0-240	3.5	0.84	5	1.2	CW	14	+	3-4	14	-	1-3
		240	50/60	0-240	(d-9)	0.94			CCW	14		13	14	-	3-4
Q216U	art Single			0-280	3.5	0.98	-	-	CW	45	-	3-4	1-7		1-3
0716UM	Phote				1		-	-	CCW	1-2		34	1-6		1.3
		120	50/60	0-280	3.5*	0.421	, **	-	CCW	1.6		1-3	4-7		3-4
	#1	240	60	0-240	5	1.2	7.	1.7	CW	14		3-4	14	-	1-3
02170 02170M	Slegin Phase	290	.90	0.240	- 11		<u> </u>		CCW	3-4		1/3	34	-	3-4
						2	GANG A	SSEME	110.000						3-3
			1	0-240		2.2	12	2.9	CW.	4-4	4-4	3-3	44	4-4	3.3
	#2 1-Phase	240	50/60						CW	5-5	4-4	3-3	2.2	1-1	3-3
	Series			0-280	9	2.5	~	-	CCW	2.2	1-1	3-3	5-5	4.4	3-3
116U-2 116UM-2					1	1.0	10	44	CW.	1-4-1	4-4	3.4.3	4-1-4	34	3-1-3
	#2. 3 Phase	120	50/60	0-120	9.	1.9	12	2.5	CCW	4-1-4	1-1	3-1-3	1-4-1	4-4	3-4-3
	Open Detta			0-140	(g)	2.2	-		CW	5-4-5	44	3-4-3	2.1.2	3-1	3-1-3
_		_	-	2.5.5	÷.,	1	_		CCW	2-1-2	1-1	3-1-3	5-4-5	4-4	3-4-3
	n2 1-Phase	240	60	0-240	10	2.4	13	3.1	CW	4-4	4-4	3-3	1-2	44	3.3
Q117U-2 Q117UM-2	Series				-	_		-	CW	1-4-1	4-4	3.4.3	4-1-4	3-1	3-1-3
	3 Phase Open Detra	120	60	0-120	10	2.1	13	2.7	CCW	4-1-4	14	3.1.3	1-4-1	4.4	3-4-3
	-	-		2.02		1.047	2		CW	1-1	44	3.3	4-6	34	3.3
		480	50/60	0-480	3.5	3.7	5	2.4	CCW	4-4	1.1	3.3	1-1	-4-4	3-3
		7358	1.000.000	0-560	3.5	2.0	-		CW	5-5	4-4	3-3	2-2	4.1	3-3
	1.P(up) Service		_	- Junio	4.2				CCW	2-2	34	3.3	5-5	44	3-3
Q216U-2		240	30/60	0-560	3.5*	0.851	-	-	CW.	7.7	4-4	3.3	5-6 7-7	4-4	3.3
Q218UM-2						-		-	CW	1-4-1	4-4	343	4-1-4	1-1	3-1-3
				0-240	3.5	1.5	5	2.1	CCW	4-1-4	44	3-1-3	14.1	4-4	3:4-3
	#2 3.Phese	240	50/60						CW	5-4-5	44	3.4.3	2.1.2	1-1	3.1.3
	Open Detta			0-280	3.5	1.7	-	1	CCW	2-1-2	14	3-1-3	54-5	4-4	343
	1. (1. (1. (1. (1. (1. (1. (1. (1. (1. (0-280	3.5*	0.741	-	1	CW	7.4.7	44	3-4-3	6-1-6	- 14	3-1-3
_	-	120	50/60	200	_		-		CCW	6-1-5	14	3-1-3	7-4-7 4-4	4-4	3-4-3
	#2 1.Phms Series	480	60	0-480	5	2.4	Ż	3.4	CW	1-1	4-4	3.3	1.1	4.4	3.3
0217U-2 0217UM-2	omitt 1/2					-	-	-	CW	1-4-1	4-4	3-4-3	4-1-4	1-1	3-1-3
	3-Phase Open Daits	240	60	0-240	5	2.1	7	2.9	ccw	4-1-4	11-1	3-1-3	1-4-1	-4-6	34-3
						1	GANG	ASSEM	BLIES						
			50/60	0-240	9	3.8	12	5.0	CW	1-1-1	4-4-4	3-3-3	4-4-4	1-1-1	33-3
Q116U-3 Q116UM-3	3.9ham	240		1			-		CCW	10.4-4	144	3-3-3	1-1-1	444	3-3-3
	Wyr		50	0-280	8	4.4	\approx	-	CW	2-2-2	4-4-4	3-3-3	2.2.2	1-1-1 4-4-4	3.3-3
	10	No.			100		123	1.00	CW	1-1-1	4-4-4	3-3-3	4-4-4	1-1-1	3-3-3
Q117U-3 Q117UM-3	3.Phote Wys. 5	240	60	0-240	10	4.2	13	5.4	CCW	4-4-4	1-1-1	3-3-3	1-1-1	4-4-4	3-3-3
			an/in	0.250	25	2.9	5	4.2	CW	144	4-4-4	3-3-3	4-4-4	144	3-3-3
		480	50/60	0-480	3.5	2.3	2	4.4	CCW	4.4.4	- Fift	3-3-3	1.1.1	18-8-4	3-3-3
Q216U-3	13		60	0-560	3.5	3.4	-	-	CW	5.8.5	444	3.3.3	2.2.2	1-1-1	3-3-3
9215UM-3	3-Phase Wyte	-		-	-		-		CCW	2.2.2	4-4-4	3-3-3	5-5-5	4-4-4	3-3-3
		240	60	0-560	3.5*	1.51	-	-	CW	6-6-6	1-1-1	3.3.3	7.7.7	4-4-4	3-3-3
2000	=1			1000		1	-		CW	1-1-1	4.4.4	3-3-3	4.4.4	144	333
02170-3		480	60	0-480	5	4.2	1 7	5.8	1.000	1100000	10000	10.000	1000	And Personne of the local division of the lo	







CONNECTION 3

0116U TYPES DO NOT HAVE TERMINALS 6 OR 7 0117U 0217U TYPES DO NOT HAVE TERMINALS 2, 5, 6 OR 7

CONNECTIONS SHOWN ARE FOR CW KNOB ROTATION, KNOB ON BASE END (CCW ROTATION, KNOB ON RADIATOR END)

*Maximum output current in output voltage range from 0 to 25 percent above line voltage. At bigher output voltages, output current must be reduced according to rating curve Figure B on page 4. Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve Fig. B pg 4. Lumper provided in standard common position should be moved or removed as required. Three-wire system only. There must be no neutral connection in input or output. Common used as third leg in 3-phase open delta or neutral in 3-wire single phase series and 4-wire 3-phase wye connections, not used in 2-wire series or 3-wire wye connections. DFuse recommended, not supplied.

126-226 series

POWERSTAT Variable Transformers of the 126-226 Series are offered in single and three phase, manually operated and motordriven assemblies. The 126 Series types operate from 120 volt lines and the 226 Series types from 240 volt lines. The rated output for constant current loads is 15 amperes for the 126 Series and 7.5 amperes for the 226 Series. For a constant impedance load the maximum rated output current at line voltage is increased to 20 amperes for the 126 Series and 10 amperes for the 226 Series. All units in the 126-226 Series have POWERKOTE Coils.

POWERSTAT Variable Transformers of the 126-226 Series can be operated at any frequency between 50 and 2000 hertz. Figure A shows the allowable output current for operation at higher than rated frequency. Figure B shows the regulation curves for POWERSTAT Variable Transformers of the 126-226 Series operating at full load current. The curves show the voltage drop at any brush setting when full load is applied. For less than full load the voltage drop is proportional to the load. Driving torque, d-c resistance per coil and maximum core and brush loss when operating under no load are given in the chart ratings. The removable, solid-metal shaft can be adjusted for either general utility or back-of-panel mounting. All types have standard dials graduated 0-100. Terminal connections permit increasing output voltage with either clockwise or counterclockwise rotation of the knob. Rotation angle from zero to maximum output voltage is 320°.

Plug-in units have the same ratings as types 126 and 226 but offer the convenience of input cord-plugs, fuses and output receptacles housed in cast aluminum terminal enclosures. They can be converted to limit the output voltage to line voltage. Plugs and receptacles are shown in the outline for cord and plug types on page 17. Fused models of the 126 Series have 15 ampere fuses and those of the 226 Series have 8 ampere fuses.

Open construction types have a letter (U) suffix in the type number and the same electrical ratings and coil to terminal wiring as their corresponding enclosed construction types. These POWERSTAT Variable Transformers have no protective screening and the shaft extends from the base end of the assembly for back-of-panel mounting. The shaft is removable permitting its extension from the radiator end of the assembly if desired without disturbing the brush or radiator.

POWERSTAT Variable Transformers of the 126-226 Series are available in two- and three-gang assemblies in either enclosed or open construction. Most are provided with jumpers in the standard common position that may be moved or removed as required.



TYPE 226

U TYPES

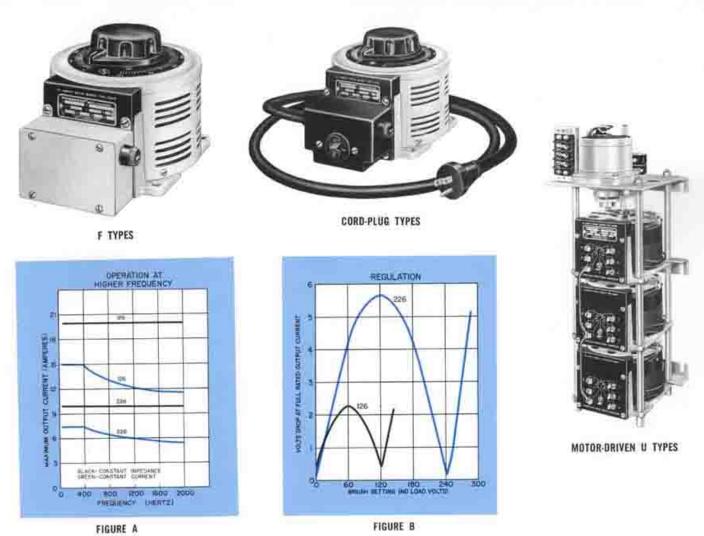


All except plug in models in the 126-226 Series are available with motor drives in standard speeds of 5, 15, 30 or 60 seconds for full range travel. Motor-driven POWERSTAT Variable Transformers have an MC prefix in the type number and the identical electrical ratings of their corresponding manually-operated types. The motor is rated for an input of 120 volts, 50/60 hertz single phase with a current requirement of approximately 0.3 ampere. Standoffs are provided for bench mounting and slotted brackets for against-the-wall mounting. When ordering, motor-driven models should be prefixed with the desired speed in seconds. For example: 5MC126.

TYPE	Approx Driving Oz-In		No-Load Loss at 50 Hertz (Watts)	D-C Resistance per Coll* (Ohms)
126	25-35	1.8-2.5	9	0.45
126-2	65-90	4.7-6.5	18	0,45
125-3	100-135	7.2-9.7	27	0.45
228	25-35	1.8-2.5	9	2.8
226-2	65-90	4.7-6.5	18	2.8
225-3	100-135	7,2-9,7	27	2,8

*Measured from start to end of winding.

fData also applies to units having applicable prefixes and suffixes.



		iN	PUT			OUTPUT					TERM	MALC	
			l		LO	T CURRENT	L	IMPEDANCE	KNOB		B ON OR END	KNO	8 ON END
TYPE	CONNEC- TION	VOLTS	HERTZ	VOLTS	MAX AMP.	MAX. KVA	MAX AMP.	MAX. KVA	ROTA- TION	INPUT	OUTPUT	INPUT	OUTPUT
126									CW	1-4	1-3	12-41	3-4
MC 1261 126T	n			0-120	15	1.8	20	2.4	CCW	1-4	3-4	D	1-3
MC 126T	111	120	50/60		441				CW	1-2	13	4-2	3-4
126U MC126U:				0-140	15	2.1		-	CCW	4-5	3+4	1-2	1-3
					112			ž.4	CW	14	13	- DK	3-4
F126			-	0-T20	15	1,8	20	Z(8)	CCW	14	3.4	14	1.3
F126 MC F126; 3PN126	#2	120	50/60	(1997)	100	2.1			CW	1-25	1.3	4-5	3:4
				0-140	15	2.1	1.00	- 22.1	CCW	.4-5	3-4	1.2	1.3
					100	1.14			CW	1-4	1.3	14	3-4
226 MC 2261				0-240	7.5	1.8	10	2.4	CCW	3:4	3.4	1.4	1-3
MC 2261 226T		240	50/60	0.200	7.5				CW	1-2	1-3	4-5	3.4
MC226T1 226U	11			0-280	7.5	2.1	-	-	CCW	4-5	3-4	1.7	1-3
MC 226U!		200	A DECK	0.060		0.91+			CW	1-6	R	4.7	3-4
	_	120	50/60	0-280	7.5*	0.94*			CCW	4-7	3-4	1-6	1-3
		-		0-240	7.5	110	216	2.4	CW.	1-4	1-3	14	3/4
		240	20.00	0-240	0 08.	1.8	30	2.8	CCW	344	3-4	14	1-3
F226 MCF226 3PN226		240	50/60	0.000	7.5		1.12		CW	1-2.5	1-3	4.5	34
3PN226	#2			0-280	1630	2.1			CCW	4.5	3.4	1-2	1.3
		160 m	VALUE	6.500	532	0.911			ĊW	1.6	1.1	4-7	3-4
		120 0	50/60	0-280	7.5*	0.917			CCW	4-7	3.4.	1-6	1-3

"Maximum output current in output voltage range up to 150 volts. At higher output voltages output current must be reduced according to rating curve Figure 8 on page 4.

Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve Figure B on page 4.

tMotor-driven types use connections for CW rotation, knob on radiator end.

§Fuse supplied 15 ampere on 126 types, 8 ampere on 226 types.

"Cord-and-plug units wired this way when shipped.

ONot available on types F226 or MCF226.

»Fuse recommended, not supplied.



CONNECTION Y

CONNECTION 2

126 TYPES DO NOT HAVE TERMINALS 60R7

CONNECTIONS SHOWN ARE FOR CW KNOB ROTATION, KNOB ON RADIATOR END (CCW ROTATION, KNUB ON BASE END

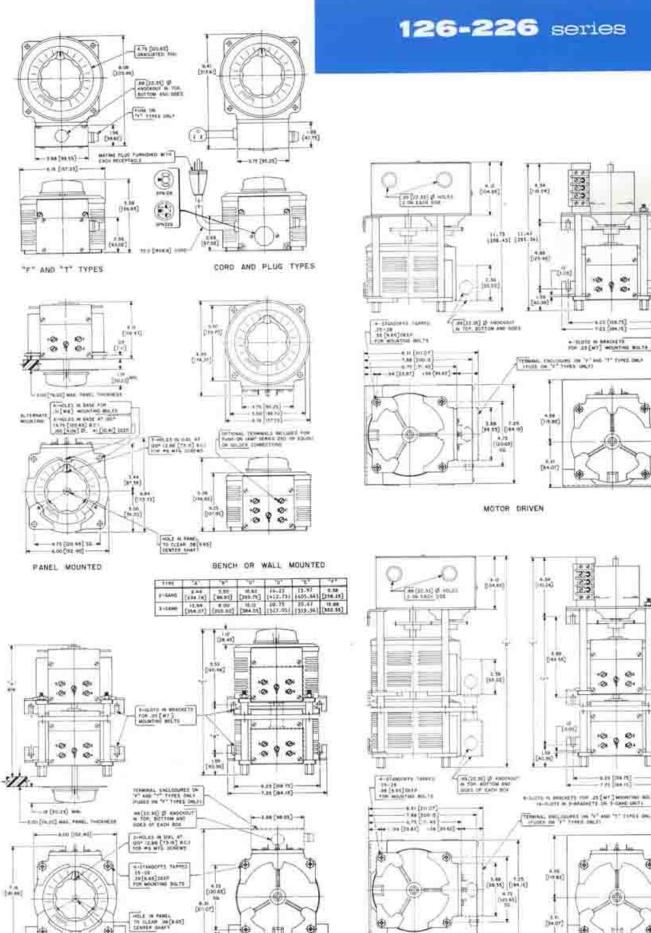
		IN	PUT			OUTPUT STANT RENT	CON	STANT DANCE				TERN	INALS			
	CONNEC-				MAX.	MAX	MAX.	MAX.	KNOR		KNOB ON RADIATOR E	ND		KNOB ON BASE END		
TYPE	TION	VOLTS	HERTZ	VOLES	AMP.	KVA.	AMP.	KVA	TION	INPUT	JUMPERS	100	INPUT		OUTPUT	
	#1			0-240	15	3.6	20	4.8	CW	4-4	-14	3:3	.19.	4-4	3-3	
	1-PHASE SERIES	240	50/60						CCW	3-1	44	3:3	(4-4)	3,4	3-3	
				0-280	15	4.2	-	-	cw	2.2	- 14	3-3	5-5	34	3-3	0
126U-2 MC126U-20		_	-						CCW	5-5	44:	3-3	2.2	1.1	3-3	0
	#1)			0-120	15	3.1	20	4.2	CW	414	94	3-1-3	1.4.1	X-6	3-4-3	1 8
	3 PHASE OPEN DELTA	120	50/60			_			CCW	1-4-1	4-4	3-4-3	4-1-4	10	3-1-3	
	DECTA			0-140	15	3.6	-	-	CW	2-1-2	14	3-1-3	5-4-5	4-4	3-4-3	
	_						-		ccw	5-4-5	. :442	3.4.3	2-1-2	14	3-1-3	CONNEC
				0-480	7.5	3,6	10	4.8	CW	4-4	19	3-3	1-1	4-4	3-3	COMPE
	#1	480	50/60						CCW	151	-4-4	3-3	44	1-1	3-3	
	I PHASE SERIES			0-560	7.5	4.2	-	\sim	CW	2-2	1.1	3-3	5-5	84	3-3	
	actives			2					CCW	5-5	44	3-3	2.2	14	3-3	
		240	50/60	0.560	7.5*	1.81	-	_	CW	6-6	44	3-3	2.7	44	3-3	
226U-2 MC 226U-20					-				CCW	7.7	4-4	3-3	6-6	14	3-3	
				0-240	75	3.1	10	4.2	CW	4-1-8	14	3-1-3	1-4-1	4-4	3-4-3	
	#1	240	30/60	- MARKS	1.9			26	CCW	1.4-1	.4-4	3-4-3	4-1-4	14	3-1-3	**
	3-PHASE OPEN	24U	30760	0-280	7.5	3.6	-	_	CW	2.1.2	11	3-1-3	5-4-5	4/4	3-4-3	0
	DELTA			0.200	7.5				CCW	5.4-5	4-4	3-4-3	2-1-2	1-1	3-1-3	
		120	100 // 0	0-280	7.64	1.00			CW	5-1-6	13	3-1-3	7:4-7	44	3-4-3	K 0
		120	50/60	0-280	7.5*	1.51		<u> </u>	ccw	7-4-7	- 14-4	3-4-3	6-1-6	ξi.	3-1-3	00
									CW	4-4-4	144	3-3-3	144	4.4.4	3:3:3	000
	≢2 1-PHASE	1	50/60	0.240	15	6.2	20	8.3	ccw	144	444	3:3:3	4:4-4	444	3-3-3	-
126U-3 MC126U-30	WYE	240							CW	2-2-2	1-1-1	3-3-3	5-5-5	4-4-4	3-3-3	
			60	0-280	15	7.3	1	-	CCW	5-5-5	4-4-4	3-3-3	2.2.2	1-1-1	3-3-3	8
								-	CW	4-4-4	3-3-1	3-3-3	юŗ	4-4-4	3-3-3	63
			50/60	0-480	7.5	6.2	10	8.3	CCW	144	4.4.4	3.3.3	4.4.4	1-1-1	3-3-3	CONNEL
226U-3	#2	480							CW	2.2.2	144	3-3-3	5-5-5	4-4-4	3-3-3	
MC226U-30	3-PHASE WYE		60	0-560	7.5	7.3	-	-	ccw	5-5-5	4-4-4	3-3-3	2-2-2	144	3-3-3	126 TY
									CW	6-6-6	144	3-3-3	7.7.7	4.4.4	3+3+3	DO NOT H
		240	.60	0-560	7.51	3:2‡	-		ċcw	1.1.7	444	3-3-3	5-5-6	1-1-1	3-3-3	6 OR CONNEC

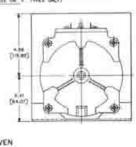
1Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve Figure B on page 4. §Fuses recommended on all units, 15 ampere fuses supplied internally on F126 types, 8 impere on F226 types.

flumper provided in standard common position should be moved or removed as required.

DMotor-driven types use connections for CW rotation, knob on radiator end.



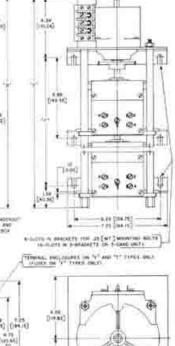




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MOTOR DRIVEN

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MANUAL

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136B-236B series

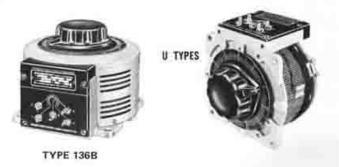
POWERSTAT Variable Transformers of the 136B-236B Series are available in single and three phase, manually operated and motor-driven assemblies. The 136B Series operates from 120 volt lines and the 236B Series from 240 volt lines. The rated output for constant current loads is 22 amperes for the 136B Series and 10 amperes for the 236B Series. For a constant impedance load the maximum rated output current at line voltage is 28 amperes for the 136B Series and 13 amperes for the 236B Series. POWERKOTE coils are featured on all units of the 136B-236B Series.

POWERSTAT Variable Transformers of the 136B-236B Series can be operated at any frequency between 50 and 2000 hertz. Figure A shows the reduction in allowable output current for operation higher than rated frequency. Figure B shows the regulation curves for types of the 136B-236B Series operating at full load current. Voltage drop is shown for any brush setting when full load is applied. For less than full load the voltage drop is proportional to the load. Driving torque, d-c resistance per coil and maximum core and brush loss when operating under no load are given in the chart. The shaft can be adjusted for general utility or back-of-panel mounting. Manually operated units have standard dials graduated 0-100. Terminal connections permit increasing output voltage with either clockwise or counterclockwise rotation of the knob. The angle of rotation from zero to maximum output voltage is 316°.

Plug-in units have the same ratings as types 136B and 236B but offer the convenience of input cord-plugs, fuses and output receptacles housed in cast aluminum terminal enclosures. They can be converted to limit the output voltage to line voltage. Plugs and receptacles are shown in the outline for cord and plug types on page 21. Fused units of the 136B Series have 25 ampere fuses and those of the 236B Series have 10 ampere fuses.

Open construction units have the letter U suffix in the type number and the same electrical ratings and coil to terminal wiring as their corresponding enclosed construction models. They have no protective screening. Knobs can be placed at the base end for back-of-panel mounting because the shaft is removable.

POWERSTAT Variable Transformers of the 136B-236B Series are available in two- and three-gang assemblies in either enclosed or open construction. Most ganged units are provided with jumpers in the standard common position that may be moved or removed as desired.





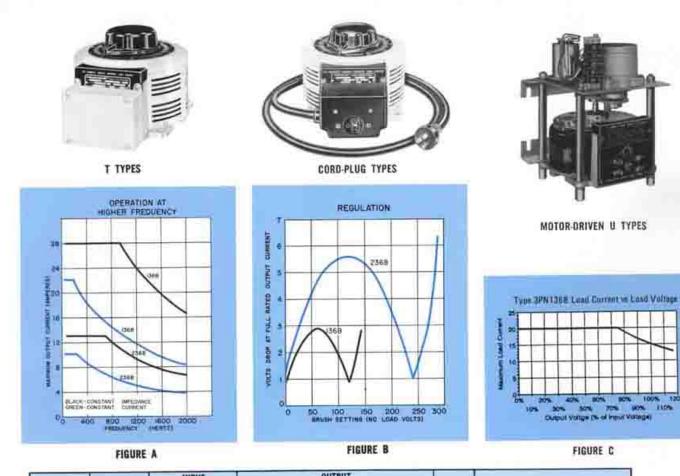
Two- and three-gang assemblies of the 136B-236B Series connected for parallel operation to increase their current carrying capacity require chokes to insure equal division of load. Order choke type T5000B for two-gang assemblies and type T5579B for three-gang assemblies.

All except plug-in units in the 136B-236B Series are available with motor drives in standard speeds of 5, 15, 30 or 60 seconds for full range travel. Motor-driven models have an MD prefix in the type number and the identical electrical ratings of their corresponding manually-operated types. The motor is rated for an input of 120 volts, 50/60 hertz single phase with a current requirement of approximately 0.3 ampere. Stand-offs are provided for bench mounting and slotted brackets for against-thewall mounting. When ordering, motor-driven units should be prefixed with the desired speed in seconds. For example: 5MD136B.

TYPE	Approx Driving Oz-In	timate Torque KpCm	No-Load Loss at 60 Hertz (Watts)	D-C Resistance per Coil* (Ofims)
1368	30-50	2.2.3.5	15	0.27
1368-2	70-90	5-6.5	30	0.27
136B-3	110-140	7,9-10.1	45	0.27
2368	30-50	2.2-3.6	15	1.7
2368-2	70-90	5-6.5	30	1.7
236B-3	110-140	7.9-10.1	45	1.7

*Measured from start to end of winding-

†Data also applies to units having applicable prefixes and suffixes.



		0	IPUT.	1		OUTPUT									
					CUR	TANT	IMPE	DANCE				INALS			
		0			LO MAX.	MAX	MAX	MAX.	ROTA		B ON TOR END	BAS	END		
TYPE	CONNEC- TION	VOLTS	HERTZ	VOLTS	AMP.	KYA	AMP	KVA	TION	INPUT	OUTPUT	INPUT	OUTPUT		
1368						22		1992	CW	1-4	1-3	14	34		
MD13681 1368T		1227.0	22/12/2	0-120	22	2.6	28	3.4	CCW	1-4	3:4	3.4	1.3.		
MD1368T: 1368U	91	120	50/60		34	-			CW	1-2	13	4-5	34		
MD1368U1				0-140	22	3.1			CCW	4-5	3.4	1.2	13		
				1000		2.6	1	3.4	CW	1-4	1-3	1-4	34		
F1368	100	0.000	-	0-120	22	2.6	28	3.4	CCW	1-4	3.4	3-6	13		
MDF13681	3¥2.	120	50/60	0.16	22				CW	1-21	1-3	4-5	34		
_				0.140	-22	3,1		_	CCW	4-5	3-4	1.5	1.3		
					-	1.8			CW	1-4	1-3	14	3.4		
				0.120	20	1.8	1.00		CCW	14	3-4	14	1.1		
3PN1358**	#2	120	50/60	14/140	20	1.8			ĆW.	1-25	1.3	4.5	3.4		
				0-140	.20	1.0	-		CCW	₫·5	34	1.2	13		
		-			10	2.4	13	3.1	CW	1-4	13	1:4	3.4		
2368			-	0-240	10	4.4	13	180	CCW	1-4	3-4	1-4	13		
MD23681 23687	-	240	50/60	-	148	1211			CW.	1-2	1-3	4-5	3.4		
MD236BT: 2368U	:#1:			0-280	10	2.8			CCW	4.5	3-4	1.7	13		
MD236BU:		245	107.022			3.21			CW	1-6	33	34/7	3-4		
		120	50/60	0.280	10*	4.21	1.00		W05	4-7	3-4	1-6	11		
				1000	10	2.4	13	3.1	CW	2-4	1-3	-14	3-4		
		0.00	10.00	0-240	10	969	н	- 4(4)	CCW	8-4	3-4	44	1-3		
F2368 MDF23681	-	240	50/60	50/60		0-280	10	2.8		-	CW	1-21	1-3	4-5	3-4
MDF23681 3PN2368	42	42	0-280	10	968			CGW	4-5	3-4	3.2	13			
		1000	VALUE	0-280	10*	2.2			CW	1-8	1-3	4/7	3.4		
		12011	50/60	0-283	40.	1.2	10		CCW	4/7	3.4	1-6	1-3		

*Maximum output current in output voltage range up to 150 volts. At higher output voltages, output current must be reduced according to

Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve Figure B on page 4.



100



1368 TYPES DO NOT HAVE TERMINALS 60B7

CONNECTIONS SHOWN ARE FOR CW KNOB ROTATION, KNOB ON RADIATOR END (CCW ROTATION, KNOB ON BASE END)

«Fuse recommended, not supplied **See Figure C.

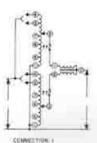
rating curve Figure 8 on page 4.

*Cord-and-plug units wired this way when shipped. DNot available on types F236B or MDF236B.

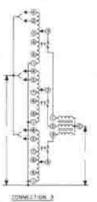
"Motor-driven types use connections for CW rotation, knob on radiator end. SFuse supplied: 25 ampere on 1368 types, 10 ampere on 2368 types.

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		111	PUT	1		OUTPUT									
					CU	RRENT	IMPE	DANCE		_		TERM	INALS	_	_
					MAX	MAX	MAX	MAX	ROTA-		RADIATOR END			KNOB ON BASE END	
TYPE	CONNECTION	VOLTS	HERTZ	VOLTS	AMP	KVA	AMP.	KYA	TION	INPUT	JUMPERD	OUTPUT	INPUT	IUMPER D	OUTPU
				2.112	100	144	322	24	CW	14	1-1, 4-45	1-C	1-4	1-1, 4-45	4-C
	1 PHASE	126	50/60	0-120	-94	5.3	56	6.7	CCW	14	1-1, 4-45	4-0	1-4	1-1, 4-45	1-0
	PARALLELS	120	30/60						CW.	1.2	1-1-2-25	1+C	4.5	4-4, 5-55	4-C
				0-140	44	5.2	-	_	CCW.	4.5	4-4, 5-55	4-C	1-2	1-1, 2-25	1-0
00000000				2020		1000	1.11		CW	4-4	1-1	3-3	1-1	4.4	3-3
1368U-2 MD136BU-2	1-PHASE		10.00	0-240	22	5.3	28	5.7	CCW	1.1	4-8	3-3	4-4	1-1	3-3
	SERIES	240	50/60			-			CW	2.2	151	3-3	5-5	44	3-3
				0-280	22	6.2	-	-	CCW	5.5	4.4	3.3	2.2	1-1	3-3
	_				1222	12.20		1.1	CW	4-1-4	1.1	3-1-3	1-4-1	4-4	3-4-3
	3-PHASE	320	20.00	0-120	22	4,6	28	5.8	CCW	1-4-1	3441	3-4-3	4-1-4	1-1	3-1-3
	DELTA	120	50/60	a har		-			CW	2-1-2	1-1	3-1-3	5.4.5	414	3-4-3
	DEFLAT			0-140	22	5.3	-	-	CCW	5.4-5	4.4	3.4.3	2-1-2	3-1	3-1-3
				2200	12		100		CW	14	1-1, 4-45	1-C	1-4	1-1, 4-45	4-C
			10.00	0-240	20	4.8	-26	6.2	CCW	1.4	1-1, 4-45	4-C	14	1-1: 4-45	1-0
	1. PHASE	240	50/60			1.614			CW	1.2	1-1.2-28	1-0	4-5	4-4, 5-55	4-C
	1-PHASE PARALLELI			0-280	20	5.6		-	CCW	4.5	44.5-58	4-C	1.2	1-1, 2-25	1-0
									CW	1-6	1-1, 5-65	1-0	6.7	4-4.7-75	4-C
		120	50/60	0-280	20	2.41	-	-	CCW	6.7	4-4, 7-78	4-C.	1-6	1-1, 5-55	1-C
-				201000		10.00		17-1	CW	4-4	14	3-3	1.1	4-4	3-3
2368U-2		1000		0-480	10	4,8	13	6.2	CCW	1-1	4.4	3-3	4.4	1-1	3-3
	1-PHASE	480	50/60		1.5	100			CW	2.2	1-1	3.3	5.5	4-4	3-3
	SERIES			0-560	10.	5.6		-	CCW	5-5	.4.4	3-3	2.2	(14)	3-3
			Contraction of	10000		1000			CW	8-6	1.1	3-3	7.7	4.4	3-3
		240	50/60	0-560	10++	2.41	-	-	CCW	7-7	4-4	3-3	6-6	1-1	3-3
				-					CW	4-1-4	1-1	3-1-3	1-4-1	4.4	3-4-3
				0-240	10	4.2	13	5.4	CCW	1-4-1	(4-4)	3-4-3	4-1-4	1-1	3-1-3
	3-PHASE	240	50/60						CW	2-1-2	1-1	3-1-3	5-4-5	4-4	3.4-3
	OPEN			0-280	10	4.8	-	-	CCW	5-4-5	4-4	3-4-3	2.1.2	1-1	3-1-3
	Gerty								CW	6-1-6	14	3-1-3	7.4.7	4-4	3.4.3
		120	50/60	0-280	10**	2.11		-	CCW	7.4.7	4-4	344	6-1-6	1-1	3-1-3
			-	-			-		CW	14	1-1-1, 4-4-4*	1-C.	1.4	1-1-1, 4-4-4*	4-C
	13			0-120	66	7.9	84	10.1	CCW	14	1-1-1, 4-4-4*	4-C	14	1-1-1, 4-4-4*	1-0
	1-PHASE PARALLEL*	120	50/60						CW	1.2	1-1-1, 2-2-2*	1-0	4-5	4-4-4, 5-5-5*	4-0
and the second second	(AUTORISE)			0-140	66	9.2	-	-	CCW	4-5	4-4-4, 5-5-5*	4.0	1-2	1-1-1. 2-2-2*	1-0
1368U-3 MD1368U-3				-		-			CW	4.4.4	1-1-1	3-3-3	1-1-1	6.4.4	3-3-3
	the		50/60	0-240	2.2	9.1	28	11.6	CCW	1-1-1	4-4-4	3-3-3	4-4-4	1-1-1	3-3-3
	3-PHASE WYE	240	i i i i	-					CW	2-2-2	1-1-1	3-8-3	5-5-5	4-4-4	3.3.3
			60	0-280	23	10.7	-	1	CCW	5-5-5	6-4-8	3-3-3	2-2-2	1-1-1	3.3.3
				-					CW	14	101-11-4-4-42	1-0	1-4	1-1-1, 4-4-4*	4-0
				0-240	30	7.2	39	9.4	CCW	14	1-1-1: 4-4-4*	4.0	1.4	1-1-1, 4-4-4*	1.0
	+3	240	50/60			10.001			CW	1.2	1-1-1.2-2-2*	1-0	4-5	4-4-4, 5-5-5*	4-0
	PARALLEL -			0-280	30	8.4	-	-	CCW	4-5	4-4-4, 5-5-5*	4-0	1.2	1-1-1, 2-2-2*	1-0
	Conditates."			1			-		CW	1-6	1-1-1.6-6-5*	1-0	4-7	4-4-4, 7-7-7*	4-0
236BU-3		120	50/60	0.280	30**	3.61	-	-	CCW	4-7	4-4-4, 7-7-7*	4-C	1-6	1-1-1, 6-6-6*	1-0
MD2368U-3+							-		CW	4.4.4	1-1-1	3-3-3	1-1-1	4-4-4	3-3-3
			50/60	0-480	10	8.3	13	10.8	CCW	1-1-1	4-4-4	3-3-3	4-4-4	1-L-T	3-3-3
		480	-	-					CW	2.2.2	1-1-1	3-3-3	5-5-5	4-4-4	3-3-3
	3-PHASE WYE		60	0-560	10	9.7	(→ 1	-	CCW	5-5-5	4-4-4	3-3-3	2-2-2	144	3-3-3
								-	CW	6-6-5	1-1-1	3-3-3	7.7.7	4-4-4	
		240	60	0-560	10**	4.21	-		10.00	7-7-7		22.00.000		THEFT	3-3-3
_						_			CCW	19.	4-4-4	3-3-3	6-6-6	Telel	3.3.3









*Jumpers also required connecting #3 on first unit to #1 on choke, #3 on second unit to #2 on choke and #3 on third unit to #3 on choke. T5579B choke required.

**Maximum output current in output voltage range from 0 to 25 percent above line voltage. At higher output voltages output current must be reduced according to rating curve Figure B on page 4.

Maximum XVA at maximum output voltage Maximum XVA at lower output voltages may be calculated from rating curve Figure B on page 4. t1Units must be fused. 25 ampere fuses supplied internally on F136B types, 10 ampere on F236B types. On other types, fuses must be wired as shown.

Common used as third leg in 3-phase open delta or neutral in 3-wire single phase series and 4-wire 3-phase wye connections; not used in 2-wire series or 3-wire wye connections.

Jumpers also required connecting #3 on first unit to #1 on choke and connecting #3 on second unit to #2 on choke. T5000B choke required. *Fuses recommended on all units. 25 ampere fuses supplied internally on F136B types, 10 ampere on F236B types.

Dlumper provided in standard common position should be moved or removed as required.

+Motor-driven types use connections for CW rotation, knob on radiator end.

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COMINCTION 4

1368 TYPES DO NOT HAVE TERMINALS 6 OR 7

CONNECTIONS SHOWN ARE FOR CW KNOB ROTATION, KNOB ON BASE END (CCW ROTATION, KNOB ON RADIATOR END)

136B-236B series

to,

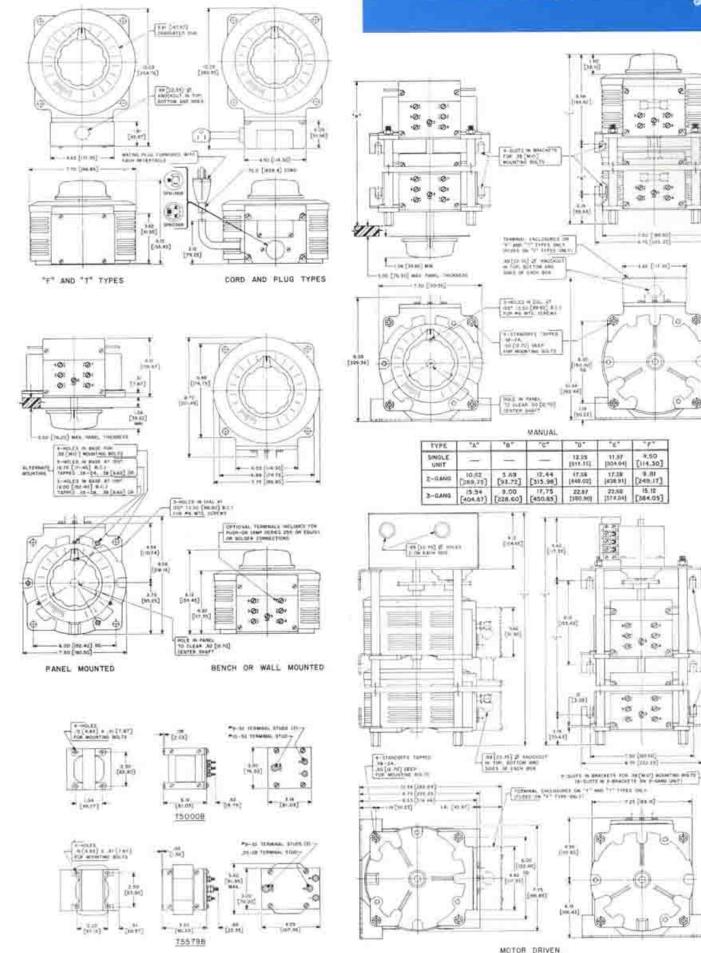
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23

146-246 series

POWERSTAT Variable Transformers of the 146-246 Series are available in single and three phase, manually operated and motor-driven assemblies, 146 Series units operate from 120 volt lines and 246 Series units from 240 volt lines. The rated output for constant current loads is 30 amperes for the 146 Series and 15 amperes for the 246 Series. For constant impedance loads, the maximum rated output current at line voltage is increased to 35 amperes for 146 types and 19 amperes for 246 types. Both Series incorporate POWERKOTE coils for longer life and increased resistance to damage.

POWERSTAT Variable Transformers of the 146-246 Series can be operated at any frequency between 50 and 550 hertz. Figure A shows the reduction in allowable output current when operated at higher than rated frequency. Figure B shows the regulation curves for types of the 146-246 Series operating at full load current. The curves show the voltage drop at any brush setting when full load is applied. For less than full load, the voltage drop is proportional to the load. Driving torque, d-c resistance per coil and maximum core and brush loss when operating under no load are given in the chart ratings. All models can be connected to deliver an increasing output voltage with either clockwise or counterclockwise knob rotation and have standard dials graduated 0-100. The angle of rotation from zero to maximum output voltage is 316°.

All are available with the terminal board enclosed in a metal terminal box. Knockouts in the terminal enclosure permit wiring with cable or conduit. Terminal enclosed models have the letter T in the type number following the series designation. For example: 5M246T. Fused units, prefixed with the letter F, in the 146 Series have 30 ampere fuses and those in the 246 Series have 15 ampere fuses.

Open construction units have the letter U suffix in the type number and the same electrical ratings and coil-to-terminal wiring as their corresponding enclosed construction models. They have no protective screening and the shaft extends from the radiator or brush end of the assembly. Knobs can be placed at the base end for back-of-panel mounting because the shaft is removable.

POWERSTAT Variable Transformers of the 146-246 Series are available in two- and three-gang assemblies in either enclosed or open construction. Most are provided with jumpers in the standard common position that may be moved or removed as desired.



TYPE 146





MOTOR-DRIVEN U TYPES

Two- and three-gang units connected for parallel operation to increase their current-carrying capacity require chokes to insure equal division of load. Order choke T6053 for type 146-2, choke T5000B for type 246-2, choke T6065 for type 146-3 or choke T5579B for type 246-3.

All types in the 146-246 Series are available with motor drives in standard speeds of 5, 15, 30 or 60 seconds for full range travel. Motor-driven units have an M prefix in the type number and the identical electrical ratings of their corresponding manually operated models. The motor is rated for an input of 120 volts, 50/60 hertz single phase with a current requirement of 0.3 ampere. Stand-offs are provided for bench mounting and slotted brackets for against the-wall mounting. When ordering, motor-driven types should be prefixed with the desired speed in seconds. For example: 5MI46.

			(Ohma)
40-60	2.9-4.3	25	0.2
80-120	5,8-8.6	50	0.2
120-180	8.6-13	75	0.2
40-60	2.9-4.3	25	0.9
80-120	5.8-8.6	50	0.9
120-180	8.6-13	75	0.9
	120-180 40-60 80-120	120-180 8.6-13 40-60 2.9-4.3 80-120 5.8-8.6	120-180 8.6-13 75 40-60 2.9-4.3 25 80-120 5.8-8.6 50

*Measured from start to end of winding.

Data also applies to types having applicable prefixes and suffixes.



GANGED U TYPES



T TYPES



MOTOR-DRIVEN SCREENED TYPES

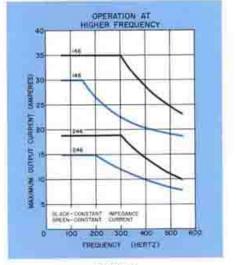
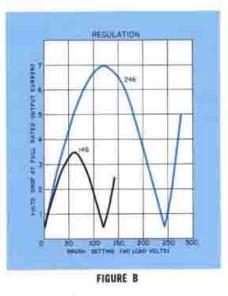


FIGURE A



CONNECTIONS AND RATINGS

	IN	(PUT			OUTPUT					TERM		
				CONSTANT 101	CURRENT		MPSUANCE AD	10110		B UN	who:	6 UN LNC
TYPE	VOLTS.	HERTZ	VOLIS	MAX AMP	KAM AVA	MAX AMH	MAX XVA	RIVER POTA TIDN	RADIAT INPUT	OUTPHT	INPUS	ELTHUS
146 M1461 F146 MF1461 1461 MF1461 1460 M14601			D-120	30	7.6	35		CW.	1145	1.9	164	3+
F146 MF1461			1.	30	11.6	-9.90	N2) 2	¢¢w	1440	0.8	3.8	1-3 3-4
146T	:10	390.60		30	100			06	1.7	13	18.5.	3.4
146U: M146U:			0.140	89.1	162			COW.	.45	34	191	13
346			1.010		1.00	No.	100	EW.	18.6	1.5	3-4	34
M2461	-	1207.00	0.290	45	3.6	(19)	4.6	COW	1.1	3.4	1.4	1.3
F246 MF2461	399	50,90	11/24/20	15	204			5%	11.21	12	44	2.4
246T			0-280	15	4.2	_		CCW	4.5	14	12	1.3
246 M2461 F246 MF2461 246T M246T1 246U M246UJ	120	100.00	0.280	200	10000			¢W.	3.6	12	100	2.4
M246UI	120	50,40	0.280	15+	1.81			CCW	64:35	304	1.0	13

"Maximum output current in output voltage range up to 150 volts. At higher output voltages output current must be reduced according to rating curve Figure 8 on page 4.

Maximum KVA at maximum output voltage. Maximum KVA at fower output voltages may be calculated from rating curve Figure 8 on page 4. TFuses recommended on all units. 30 ampere fuses supplied internally on FI46 types, 15 ampere on F246 types. EMotor-driven types use connections for GW rotation, knob on radiator end. 96.99.69

146 TYPES DO NOT HAVE TERMINALS 6 OR 7

CONNECTIONS SHOWN ARE FOR CW KNOB ROTATION, KNOB ON RADIATOR END (CCW ROTATION, KNOB ON BASE END)

		INF	PUT		0	UTPUT				1					
					CUR	STANT RENT DAD	IMPER	DANCE			KNOB ON RADIATOR END	TERMI	NALS	KNOB ON BASE END	
TYPE	CONNECTION	VOLTS	HERTZ	VOLTS	MAX	MAX. KVA	MAX: AMP	MAX	ROTA	INPUT	JUMPER #	OUTPUT	INPUT	JUMPER #	OUTPU
101	CONTRECTION	Votra	nenite	1013		CIA	-		_	1.4		1.0	1-4	1-1, 4-41	4-C
	#1			0-120	60	7.7	70	8.4	OW		11,441	4-C	1314-0-0	1.1, 4-4 1	1-0
	1-PHASE	120	50/60						CCW	1.4	1-1.4-41		4.5	4.4.5-51	4.0
	PARALLEL			0-140	60	8.4	-	-	CW	1.2	1-1, 2-21	1-0			1-0
		_		1100/061	1.00			-	CCW	4-5	4-4, 5-5 1	4-0	1.2	14.2.21	
				0-240	30	72	35	18.4	CW	4.4	11	3-3	14	4-4	3-3
146U-2 M146U-2 S	PHASE	240	50/60	Contraction of the	200	1.00			CCW	1.1	4-4	3-3	44	101	3.3
M1460-257	SERIES		0.000	0.280	30	84		-	CW	2-2	14	3.3	5-5	4-4	
	_			10,655		51		-	CCW	5-5	4-4	3.3	2.2	14	3.3
	142			0-120	30	6.2	35	7.3	CW	4-1-4	34	3-1-3	1-4-1	44	3-4-3
	3-PHASE	120	50/60	1000 C					CCW	1-4-1	4.4	3-4-3	4-1-4	1-1	3-1-3
	DELTA			0.140	30	7.3	_		CW	2.1.2	141	3-1-3	5-4-5	4.4	3-4-3
									CCW.	5-8-5	8-4	3-4-3	2.1.2	14	3-1-3
				0.240	30	7.2	38	9.3	CW	3-4	3-1, 4-4 t	1-0	1-4	3-1, 4-41	4-0
	_	240	30/60	Sectored.			अस:	24142	CCW	3:4	1-2, 4-41	4.0	1-4	11,441	1-0
	1 PHASE	2. 46.454	2302.04	0-280	30	8.4			CW	1.7	1-1, 2-21	1.0	4-5	44,5-51	4-12
	PARALLEL]	-		0.200	10	.9.9			CCW	4-5	44,5-51	4-0	3.2	1-1.2-21	1.0
		120	50/60	0.280	30**	3.61			CW	1.6	1-1, 5-51	1-0	47	4-4, 7-71	4.0
		140	30/00	0.400	30	3.0	_		CCW	4.7	4-4, 7-7†	4-0	1.6	1-1.6-61	1.0
				10.000 C		1000	12.87	1923	CW	4.4	14	3.3	1-1	#4	3-3
				0-480	15	7.2	19	9,1	CCW:	14	4-4	3.3	44	1-1	3.3
245U-2	#2	480	50/60	LAND AND	121	18.81	-		CW .	2.2	101	3-3	5-5	4+4	3.3
M248U-2:1	1-PHASE SERIES			0-560	15	8.4	-		CCW	5-5	(4)4	3.3	-2-2	1-1	3-3
	SERIES	RIES	2.000 Mar						CW	8-5	14	3-3	11	44	3.3
			50/60	0-560	15**	3.61	-	-	CCW.	7.7	-4-4	3.3	6-6	1-1	3.3
- 1	#2 104455		240		_	_				CW	4-1-4	(14)	3-1-3	1.4-1	4-4
				0-240	15	6.2	-19	7.9	CCW	1-4-1	4.4	3-4-3	4-1-4	1.1	3-1-3
		OPEN	50/60	1000		-			CW	2.1.2	1-1	3-1-3	54.5	8.4	3-4-3
	OPEN			0-280	35	7.3	_	-	CCW	5-4-5	4-4	3-4-3	2.1.2	1.1	3-1-3
	DELTA	1.0.00		Constant of	Marri	100			CW	6-1-6	1-1	3-1-3	7.4.7	4-4	343
		120	50/60	0-280	15**	3.25			CCW	7.4.7	44	3-4-3	6.1-6	14	341-3
_					_			+	daat	4.4		1.0	1.4	111.4.4.4"	4-C
1				0-120	90	10.8	105	12.6	CW	1-4	1-1-1, 4-4-41	1-C 4-C	1-4	1.1.1. 4.4.4"	1-0
	1-PHASE	120	60/60	1.5.52.03	-24	1100	1204	1	CCW	1-4	1-1-1, 4-4-4*		4-5	1444,555	4-0
	PARALLEL*	1.220	1010	0-140	90	12.6		-	CW	1-2	1-1-1, 2-2-2*	1.0		1-1-1.2-2-2*	1-0
1460-3				C-01	1	1			CCW	4-5	4-4-4, 5-5-5*	1-C	1.2	4.4.4	3.3.3
M1460-3-0	1.0		50/60	0-240	30	12.5	35	14.5	CW	4-4-4	1-1-1	3-3-3	1-1-1		3.3.3
	3-PHASE	240	6.8						CCW	101-1	4-4-4	3.3.3	444	4-4-4	3.3.3
	WYE		60	0-280	30	14.5	-	-	CW	2.2.2	1-1-1	3.3.3	5-5-5		
								-	CCW	5-5-5	4-4-4	3.3.3	2-2-2	1-1-1	3.3.3
				0-240	45	10.8	57	13.7	¢w.	1.4	1-1-1, 4-4-4*	1-0	1.6	1-1-1, 4-4.4*	4-0
	an l	240	50/60	10. A. A.	177.1		1.61	1014	CCW	1.4	1-1-1, 4-4-4*	4-0	1-4	1-1-1, 4-4-4*	1.0
	1-PHASE		and and	0-280	45	12.5	_	-	GW	1-2	1-1-1, 2-2-2*	3-0	4-5	4-4-4, 5-5-5*	4-0
	PARALLEL .			144103550	100	0.4665			CCW	4-5	4-4-4, 5-5-5*	4-C	1.2	1-1-1, 2-2-2"	1.0
		120	50/60	0-280	45**	5.55	-		CW	1.6	1.1.1.6.6.6*	1.0	4-7	4-4-4, 7-7-7*	4-0
248U-3 M246U-312		1420	1.02(000)	12.630	- 2262	10			CCW	4+7	444.7-7-7*	4-0	1-6	1-1-1, 6-6-6*	1.0
M2460-312			50/60	0-480	15	12.5	19	15.8	CW	4-4-4	144	3-3-3	3444	6-8-4	3,34
		480		1.1.1.1.1.1					CCW	144	4-4-4	3-3-3	444	144	3.3.
	3-PHASE		60	0-560	15:	14.5			CW	2-2-2	1-1-1	3-3-3	555	444	3-30
	WYE			0.000	11				CCW	5-5-5	444	3-3-3	2-2-2	1-1-1	3.3.3
			50	0.540	15**	6.31			CW	6-5-5	1.1.1	3-3-3	7.7.7	4-4-4	3.3.3
		240	60	0-560	0.022	679.1	1.00	1.000	CCW	7.7.7	4-4-4	3.5.3	6-5-6	144	3/3/3

"Jumpers also required connecting #3 on first unit to #1 on choke, #3 on second unit to #2 on choke and #3 on third unit to #3 on choke. T6065 choke required for 146 types, T5579B choke for 246 types.

**Maximum output current in output voltage range from 0 to 25 percent above line voltage. At higher output voltages output current must be reduced according to rating curve Figure B on page 4.

flumpers also required connecting #3 on first unit to #1 on choke and connecting #3 on second unit to #2 on choke. T6053 choke required for 146T types. T50008 choke for 246 types.

Common used as third teg in 3-phase open delta or neutral in 3-wire single phase series and 4-wire 3-phase wye connections; not used in 2-wire series or 3-wire wye connections.

§Units must be fused. 30 ampere fuses supplied internally on F146 types, 15 ampere on F246 types. On other types, fuses, must be wired as shown.

Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve Figure B on page 4. DFuses recommended on all units. 30 ampere fuses supplied internally on F146 types, 15 ampere on F246 types.

»Jumper provided in standard common position should be moved or removed as required.

crMotor-driven types use connections for CW rotation, knob on radiator end.

148 TYPES DO NOT HAVE TERMINALS

5 0R 7

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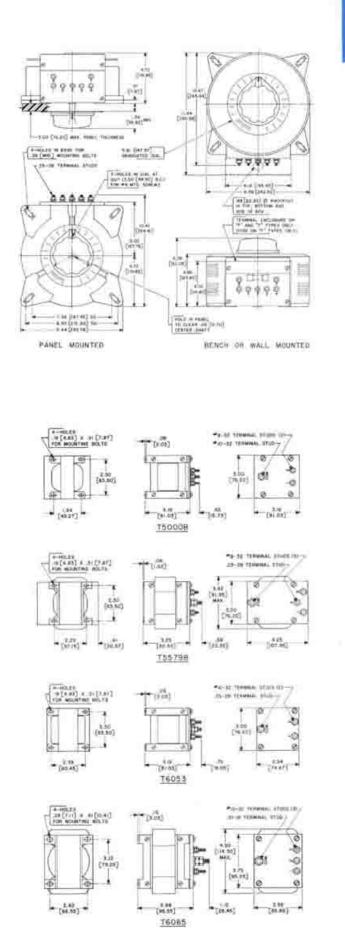
COMMERTION |

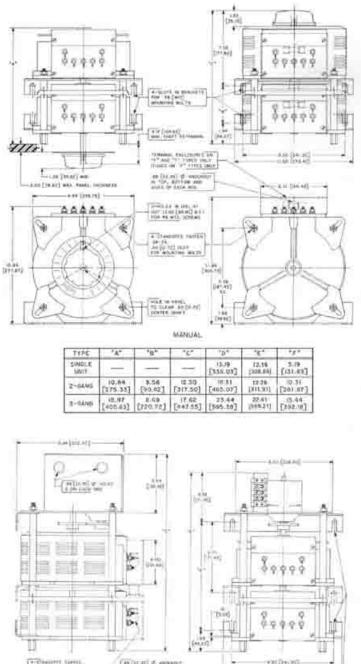
CONNECTION 2

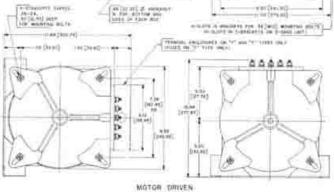
CONNECTION . &

CONNECTIONS SHOWN ARE FOR CW KNOB ROTATION, KNOB ON RADIATOR END (CCW ROTATION, KNOB ON BASE END

146-246 series







27

1156D-1256D series

POWERSTAT Variable Transformers of the 1156D-1256D Series are available in single and three phase, manually operated and motor-driven assemblies. The 1156D Series operates from 120 volt lines and the 1256D Series from 240 volt lines. The rated output for the 1156D Series is 50 amperes for constant current loads and 55 amperes for constant impedance loads. The 1256D Series is rated at 28 amperes for both constant current and constant impedance loads.

POWERSTAT Variable Transformers of the 1256D Series can be operated at any frequency between 50 and 500 hertz while 1156D Series units operate at 50/60 hertz only. Screens must be removed when operating at frequencies above 60 hertz. Figure A shows the reduction in allowable output current when operated at higher than rated frequency. The regulation curves for types of the 1156D-1256D Series operating at full load current are shown in Figure B. The curves show the voltage drop at any brush setting when full load is applied. For less than full load the voltage drop is proportional to the load. Driving torque, d-c resistance per coil and maximum core and brush loss when operating under no load are given in the chart. 1156D-1256D Series units may be bench or back-of-panel mounted. Manually operated types have standard dials graduated 0-100. The angle of rotation is 318° from zero to maximum output voltage. All units are provided with fuses in the output brush leads. POWERKOTE coils are featured in all 1156D-1256D Series models.

Except for models with chokes, all single units, 2- and 3-gang manually-operated and motor-driven assemblies are available with the terminal board enclosed in a metal terminal box. Knockouts in the terminal enclosure permit wiring with cable or conduit. If a terminal enclosed unit is desired, include the letter T in the type number following the Series designation. For example: 1256DT-2S.

Open construction models have the letter U suffix in the type number and the same electrical ratings and coil-to-terminal wiring as their corresponding enclosed construction types but have no protective screening.

POWERSTAT Variable Transformers of the 1156D-1256D Series are available in 2-, 3-, 4-, 5-, 6-, 7-, 8- and 9-gang assemblies for manually-operated or motor-driven duty and in 10-, 12-, 14-, 15-, 16-, 18-, 21-, 24- and 27-gang assemblies in motor-driven types only. All can be bench or floor mounted. Single units, 2- and 3gang manually-operated assemblies can be wall or back-of-panel mounted but additional support should be provided for ganged assemblies.



TYPE 1156D





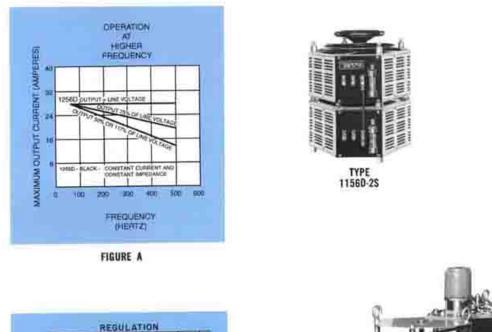
MOTOR-DRIVEN SCREENED TYPES



All POWERSTAT Variable Transformers of the 1156D-1256D Series are available as motor-driven assemblies. Motor-driven units have MB prefix in the type number and the identical electrical ratings of their corresponding manually-operated models. Standard speeds for full range travel are: 5, 15, 30 or 60 seconds for single units, 2- and 3-gang assemblies; 15, 30 or 60 seconds for 4-, 5- and 6-gang assemblies; 30 or 60 seconds for 7-, 8-, 9-, 10and 12-gang assemblies; and 60 seconds for 14-gang and larger. The motor is rated for an input of 120 volts, 50/60 hertz, single phase with a current requirement of approximately 0.4 ampere. When ordering, motor-driven types should be prefixed with the desired speed in seconds. For example: 5MB1156D.

NUMBER OF	Approx Driving Oz-In		No-Load Losa at 60 Hertz (Watta)	D-C Res Per Coll 1156D Series	(Ohms)* 1256D Series
Single	200-250	14.4-18	40	0.11	0.43
2	400-500	28.8-36	80	0.11	0.45
3	600-750	43.2-54	120	0.11	0.43
4	800-1000	57,6-72	160	10111	0.43
5	1000-1250	72 -90	200	0.11	0.42
6	1200-1500	86.4-108	240	0.49	0:43
7	1400-1750	100.8-126	280	(0;11)	0.42
18	1600-2000	115.2-144	320	0.11	9:43
9	1800-2250	129.6-162	360	0.11	0.43
10	Motor	driven	400	10:11:	0.43
12	Motor-	driven	480	0.11	0.43
14	Motor	driven	560	0.11	0,49
15	Motor	driven	500	0.11	0.40
15	Mator	driven	640	0.11	0.43
18	Mator	driven	720	0234	0.43
21	Motor	-driven	840	.0.tt	0.43
24	Motor	driven	960	0.11	0.43
27	Motor	driven	1080	0.11	0.43

*Measured from start to end of winding.





TYPE MB1256DU-2P

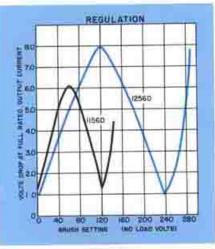
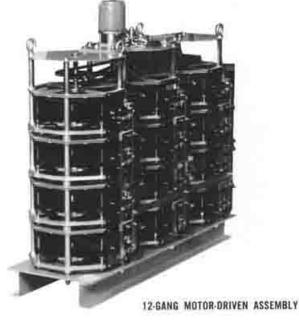


FIGURE B

L



		IN	IPUT			OUTPUT							
,	YPE		-		CONST CURR LOA	ENT	IMPEI	TANT DANCE AD					
MANUALLY	MOTOR	VOLTS.	HERTZ	VOLTS	MAX AMP	XAX XVA	MAX	MAX. KVA	TERM	OUTPU			
1156D 1156DT	MB11560	120	50/60	0-120	50	6.0	55	6.6	1,4	1.3			
1156DU	MB1156DT MB1156DU	120	50/60	0-140	50	7.0	-		1-2	13			
				0-240	28	6.7	28	6.7	1-4	13			
1256D 1256DT	MB1256D MB1256DT	240	50/60	0-280	28	7.8		-	12	13			
1256DU	MB1256DU	120	120	120	MB1256DU	50/60	0-280	28*	3.41	-	_	1.5	1.3

11560 TYPES DO NOT HAVE TERMINAL 5.

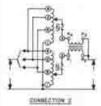
"Maximum output current in output voltage range up to 150 volts. At higher output voltages, output current must be reduced according to rating curve Figure B on page 4

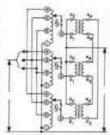
Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve Figure B on page 4. Fuse supplied 50 ampere on 11560 types, 30 ampere on 12560 types.

			IN	PUT	1		OUTPUT				
т	YPE					CUR	TANT	IMPED	TANT DANCE AD	TERN	INALS
MANUALLY	DRIVEN	CONNEC- TION	VOLTS	HERTZ	VOLTS	MAX. AMP.	MAX. KVA	MAX. AMP.	MAX. KVA	INPUT	OUTPUT
11560-20	MB1156D-20	#1	1800	100	0-120	50	10.4	55	11.4	4-1-4	3-1-3
115607-20 11560U-20	MB1156DT-20 MB1156DU-20	3-PHASE OPEN DELTA	120	50/60	0-140	50	12.1	-	-	2-1-2	3-1-3
11560-2P	MB11560-2P	#2 1-PHASE	120	50/60	0-120	100	12.0	110	13.2	1-4	1-H ₂
11560U-2P	MB11560U-2P	PARALLEL			0-140	100	14.0		~	1-2	3-Ha
11560-25 11560T-25	MB1156D-25 MB1156DT-25	#1 1-PHASE	240	50/60	0-240	50	12.0	55	13.2	44	3-3
115600-25	M611560U-25	SERIES		567.00	0-280	50	14.0		+=	2-2	3-3
			240	50/60	0-240	28	11.6	28	11.6	4-1-4	3-1-3
12560-20 MB12560-20 12560T-20 MB12560T-20 12560U-20 MB12560U-20	3-PHASE OPEN DELTA		50700	0-280	28	13.6	-	-	2-1-2	3-1-3	
_			120	50/60	0-280	28*	5.9t	-	-	5-1-5	3-1-3
1256D-2P MB1256D-2P 12560U-2P MB1256DU-2P	LPHASE PARALLEL	240	50/60	0-240	56	13.4	56	13.4	14	1-Ha	
		.240		0-280	56	15.7		-	1-2	1-H ₂	
		120	50/60	0-280	56*	6.81	1-1		1-5	1-88	
		480	50/60	0-480	28	13.4	28	13.4	4-4	3-3	
1256D-25 1256DT-25 1256DU-25	MB12560-25 MB12560T-25 MB12560U-25	#1 I-PHASE SERIES		50/00	0-550	28	15.7		-	2-2	3-3
			240	50/60	0-560	28*	5.81		-	5-5	3-3
11560-3P	MB11560-3F		120	50/60	0-120	150	18.0	155	19.8	1:4	T-Ha
1156DU-3P	AND A A REPORT OF		PARALLEL	120	507.00	0-140	150	21.0		-	1-2
1156D-3Y 1156DT-3Y	MB1156D-3Y MB1156DT-3Y	#4 3-PHASE	240	50/60	0-240	50	20.8	55	22.9	4-4-4	3-3-3
115600-31	MB11560U-3Y	WYE		60	0-280	50	24.2		-	2-2-2	3-3-3
			240	50 (60	0-240	84	20.2	84	20.2	1-4	1-81
12560-3P M812560-3P 12560U-3P M812560U-3P			240	50/60	0.280	84	23.5		-	1-2	1-8%
	- (0.4 (B - 4 - 4 - 2 - 2 - 4 - 4 - 4 - 4 - 4 - 4	120	50/60	0-280	84*	10.21		4	1-5	1-Ha	
			400	50/60	0-480	28	23.3	28	23.3	4-4-4	3-3-3
1256D-3Y 1256DT-3Y 1256DU-3Y	MB1256D-3Y MB1256DT-3Y MB1256DU-3Y	3-PHASE WYE	480	60	0-560	28	27.2	1,	-	2.2.2	3-3-3
			240	60	0-560	28*	11.81		- 24	5-5-5	3-3-3









CONNECTION 3



convection +

"Maximum output current in output voltage range from 0 to 25 percent above line voltage. At higher output voltages putput current must be reduced according to rating curve Figure B on page 4.

tMaximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve Figure B on page 4. tCommon used as third leg in 3-phase open delta or neutral in 3-wire single phase series and 4-wire 3-phase wye connections; not used in 2-wire series or 3-wire wye connections.

SFuse supplied: 50 ampere on 1156D types, 30 ampere on 1256D types.

NOTE: Choke T5587 is supplied with all parallel connected units in the 1156D-1256D Series.

1156D TYPES DO NOT HAVE TERMINAL 5

_			.00	PUT			OUTPUT	_			_		
						CONST	ENT	CONST IMPED	ANCE		The second second		
MANUALLY	MOTOR	CONNEC		110-0.75		ADJ RAM	MAX	MAR	WAX.		TERMINALS		
NPERATED	DRIVEN	TION	49175	115.872	VOL 15	AND	89A	AMIR	AVA .	ANPUS	TOANTAGE.	OUTPUT	
115400-40	M011550U-40	3.PHASE OPEN DELTA	(120)	:50/600	0.120 D-140	100	20.8	110	22.9	414 2.1-2		Hg-1 Hg Hg-1 Hg	
1.1.5.76.76.7		#Z		-	0.120	200	24.0	220	26.4	P/C	/841	sc	6
11560U-4F	ME11SEDU-4P	PARALLEL	120	50/80	0.140.0	200	28.0	-		#/C	P-24	5-0	
		1-PHASE	1000	-	0.240	100	24.0	310	26.4	4.4	-	Ha-Ha	
1156DU-4PS	MB1155DU-4FS	SERIES- PARALLEL	240	30/60	0.780	100	28.0	-		2.2	- Huni	Halla	
			240	50/80	0.740	56	22.3	56	22.3	- 4-1-6		Ha-J-Ha	
125600-40	MII125600-40	3-PHASE OPEN DELTA		36.64	D-280	56	27.2			2.1.2		HELHY	
_		DESIR DECIM	120	50/60	0.280	565	11.81	-		5-1-5	-	Ha-1-Ha	
		1-PHASE	240	50/5/3	0-240	112	26.9	117	26.9	1-8		1445 1449	
1256DU-4P	MB1256DU-4P	PARALLEL	120	50/60	0-280	1125	13.61			1.5		1-84	10
		1-PHASE	1415		0.480	56	26.9	58	26.9	8.4		Halla	**/*****®
125600-475	M812560U-4PS	SERIES	480	50/80	0-560	56	31.4			22	1	Ha-Ha	1°(•110
-		PARALLEL.	240	50/80	0.560	56 <u>§</u>	13.61		-	3.5	-	HaiHa	110
11560W-SP	METTSEDU-SP	1-PHASE	420	50/60	0.120	250	30.0	275	33.0	P.C.	P-41	5-0	1
	The second se	PARALLEL			0-140 0	250	35.0	140	33.8	14		1.84	. 40
100000 10	METTACOLAR	#2 TIPHASE	240	50/60	0.280	140	39.2	-		1.2		1.8+	18 10
129600-5P	M812560U-3P	PARALLEL	120	50/60	0-280	1405	17.01		-0	1.5		1.84	COMNEX
		3-PHASE	120	50/80	0-120	150	31.2	155	34.3	414	-	Ha-1-Ha	
115600-60	ME115600-60	OPEN DELTA	12001	0.55072	0-140	150	36.4			2.1.2		Hs-1Hs	
115600.67		1-PHASE	120	50/60	0.120	300	36.0	330	39,6	PC	P.41 P.21	5.0	
CONTRACTOR OF		PARALLEL #4			0:140 12	300	47.0		39.8	4.4	1.41	Ha-Ha	
115600-675	M011560U-6PS	1-PHASE SERIES	240	50/60	0.240	150	36.0	165	39.6	2.2		Hy-Ha-	
	104115-02V	PARALLEL			0-280	150	47.0				_		
119650-41	M811550U-6Y	3-PHASE	240	50/60	0-240	100	41.6	100	45.7	4.4-4		Ha-Ha-Ha Ha-Ha-Ha	
	20102020	WYE			0.240	84	34.9	84	34.9	414		Hg-1/Hg	
123830-80	M812560U-60	3-PHASE	240	50/80	0.280	84	40.7	180	-	2-1-7		Ha-14Ha	
AGO TO		OPEN DELTA	120	50.60	0-280	845	12.61	-		5-1-5	-	HaritHa	
		1-PHASE	240	50/60	0-240	168	40.3	168	40.3	9.0	P-41	5-0	
1256DU-6F M81256DU-6P	PARALLEL	1.00	- 30/60	0-280 1	168	47.0			P-G P-C	P-21 P-51	54		
		120		0-280	84	40.3	84	40.3	44		Ha-Ha		
	The second s	1-PHASE	480	50/60	0-560	84	47.0		-	2.2		Halta	
125600-695	MB1256DU-6PS	PARALLEL	240	50/60	0-560	84 g	20.41			5.5		Hy-Hy	13
			480	50/60	0-480	56	46.6	55	45.8	4.4.4		Halla	1
125600-61	MB1255DU-6Y	3-PHASE WYE	1000	60	8-560	56	54.3	-		2.2.2		H ₂ H ₂ H ₂	
_		1.100	240	60	0-560	56 5	23.51		-	5-5-5 P-C	P-411	H2 H2 H2 B-C	11 2/ 11/2
115600-77	M811550U-77	1-PHASE PARALLEL	120	50/60	0-120	350	42.0	385	46.2	P.C	P-211	5.0	II HIS
Managara and I	41070 N WEIGHT (2021	PARALLEL		TO DO NO.	0.240	196	47.0	196	47.0	P.C	P-41	5-0	L L L
	And a state of the	1-PHASE	240	50/60	0-260 1	195	34.8	199		P-0	P-21	5-0	1 12
125600-78	ME1256DU-7F	1-PHASE PARALLEL	120	50/60	0-260	196.8	23.81		-	P.C	P-St	3-0	1. 57 10
	to the second second second			10.000	0-120	200	41.6	220	45.7	Pa-Pa-Pa	PE45 Pa-45	\$1.53.53	
115600-80	M8115600-80	3-PHASE OPEN DELTA	120	50/60	0-140☆	200	48.5			Pi-Pi-Pa	P1-21, Pa-21	\$15,54	
0.000000		1-PHASE	130	50/60	0-120	400	48.0	440	5Z.8	PC	P-411	5-6	1.14
113600-87	METTSEDU-#P	PARALLEL	110	and the	0-140☆	400	56.0	EN T	-	P-0	P-211	3.0	****
	and an inclusion of	1.PHASE	1000		0-240	200	-#8.0	220	52.8	Pares	Pa145 Pa-45	81.52	30-1-1-4
1134DU-8PS	ME115500-8PS	SERIES	240	30/60	0-280☆	200	56.0		1	PiPe	P1-21, P1-21	\$1.54	416
		17/01/4410	1	199120	0-240	117	46.8	112	45.6	4-1-4		He Liffe	1
125600-80	MB12560U-8D	3-PHASE	240	30/60	0.280	112	54.3	-	-	2-1-2	-	Hg-1-Hg	4
		OPEN DELTA	120	50/60	0.280	1128	23.51	1.55	100	5-1-5		Hatlitta	DONN
		12	240	50/60	0.240	124	53.8	224	53.8	PC	P-41	3.0	
1256DU-8F	M812560U-8P	1-PHASE PARALLEL	A CONTRACT OF		0-260-0	224	82.7	-	-	P.C P.C	P-25 P-51	5-C 5-C	
-			120	50/60	0.280	2246	27.24		53:8	44		Halla	
	The second second second	1-PHASE	3480	:50/60	0-560	112	53.8	112	53.8	2-2	-	HaHa	
1356DU-8PS	M812560U-8PS	PARALLEL	240	30/60	0-560	1125	27.2	1	-	55	-	Hailla	
		2 million 1117		R. Market	0-120	450	54.0	495	59.4	P-C	P-411	5-C .	
115680-3#	METTSEDU-OP	1.PHASE PARALLEL	120	50/60	0-140 1	450	63.0		+	P-C	P-211	5.6	
and the second		3-PHASE	10110	50/60	0-240	150	62.4	105	68.8	4-6-6	+-	Ha-Ha-Ha	
113600-01	MEITSEDU-97	3-PHASE WYE	240	60	0-280	150	72.7	3		2-2-2	-	HaHaHa	
			240	50,00	0.240	252	60.5	252	60.5	P.Q	P-411	\$-C	
12560U-8P	MB12562U-9P	1-PHASE PARALLEL	-		0.280 0	252	20.6			P.C	P-211	3-0	4
	C. C. B. L. C. S. L.	Construction of the local distribution of th	-120	50/60	0-280	252 5	30.61		-	P-C	P-511		
				50/60	0.480	84	69.8	84	69.8	14:4:4		Hz-Ha-Ha-	
	University	45 3-PHASE	880	60	0.560	84	#1.5	-		2.2.2		Ha Ha Ha	1

S Maximum output current in output voltage range from 0 to 25 percent above line voltage. At higher output voltages output current must be reduced according to rating curve Figure B on page 4.

Sigurite are supplied with all required jumpers. Those indicated in the chart are wired permanently to the primary lugs on the terminal panel but are shifted between the #2; #4 and #5 ferminals as required.

tMaximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve Figure 8 on page 4.

ttCommon used as third leg in 3-phase open detta or neutral in 3-wire single phase series and 4-wire 3-phase wye connections;

not used in 2-wire series or 3-wire wye connections.

Terminal designations on P and PS types with separate terminal boards.

tiThree jumpers (see also §§ footnote above).

+Fuse supplied: 50 ampere on 1155D types, 30 ampere on 1256D types.

Two jumpers (see also 55 footnote above). DTerminal designations on 1156D-8D types.

cunit wired this way when shipped.

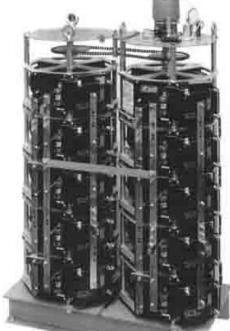
31

CONNECTION 27 25 20 2 2 201 20 01 20 8 1156D TYPES DO NOT HAVE TERMINAL 5 CONNECTION 5

MECTION

RATINGS OPEN DELTA AND SERIES-PARALLEL TYPES

			IPUT		CONS	ENT:	CONST.	ANCE
Type	CONNEC-	VOLTS	HUTZ	VOLTS	MAX AMP	MAX	MAX. AMP	MAX KV
TYPE	3-PHASE	10,13		0-120	250	51.9	275	57.
MB1156DU-100	OPEN DELTA	120	50/60	0-1400	250	50.6		:
and the second second second	1-PHASE			0-240	250	60.0	275	66
MB11550U-10PS	SERIES- PARALLEL	240	50/60	0-2800	250	70.0		-
			10.00	0.240	140	58.2	140	55
MB1256DU-10D	3-PHASE OPEN	240	50/60	0-2800	140	67.9	1 ± 1	(in
MB123000-100	DELTA	120	50/60	0.280	140*	29,41		-
	I-PHASE	480	50/60	0-480	140	67.2	140	67
MB12560U-10PS	SERIES			0-5600	140	78.4	-	
	1.0.00000000000	240	50/60	0-560	140*	33.91		
	3-PHASE OPEN	120	50/60	0-120	300	62,4	330	68
MB1156DU-12D	DELTA	-	-	0-1400	300	72.7		
and the second second	I-PHASE SERIES-	240	50/60	0-240	300	72.0	330	29
MB1156DU-12PS	PARALLEL	-		0-2800	300	84.0		-
	3-PHASE	240	50/60	0-240	168	69,8	168	69
MB12560U-120	OPEN DELTA			0-2800	168	81,5	2	
	1097004	120	50/60	0-280	168*	35.31		
	I-PHASE SERIES- PARALLEL	480	50/60	0-480	168	80.6	168	80
MB1256DU-12PS		-	21/27	0-5600	168	94.1	-	
Concert Concerts and		240	50/60	0-560	168*	40.71	-	
MB1156DU-140	3-PHASE OPEN DELTA	120	50/60	0-120	350	72.7	385	80
				0-1400	350	84.9	385	93
MB11560U-14PS	I-PHASE SERIES- PARALLEL	240	50/60	0-240	350	84,0	363	
				0-2800	350	98.0	106	8
MB1256DU-14D	3-PHASE OPEN DELTA	240	50/60	0-240	195	81.5	196	0
		100	180 180	0.2800	195	41.21	_	
_		120	50/60	0-280	196	-94.1	196	9
	1-PHASE SERIES- PARALLEL	480	50/60	0-480	196	110	790	
MB1256DU-14PS		240	50/60	0.560	196*	47.51		_
	3-PHASE	640.	50/60	0-120	400	83.1	440	9
MB11560U-160	OPEN DELTA	120		0-1400	400	97.0	-	-
	1-PHASE			0-240	400	96.0	440	1
M811560U-16PS	SERIES- PARALLEL	240	50/60	0-2800	400	112		-
				0+240	224	93.1	224	9
	3-PHASE OPEN	240	50/60	0-2800	224	109		-
MB12560U-160	DELTA	120	50/60	0-280	224*	47.01	-+	-
	a secondari	22:17	Tra and	0-480	224	108	224	1
	1-PHASE SERIES-	480	50/60	0.5600	224	125	-	-
M81256DU-16PS	PARALLEL	240	50/60	0-560	224*	54.37	-	1 4
	3-PHASE	100	60.00	0.120	450	93.5	495	1
MB115600-180	DELTA	120	50/60	0-1400	450	109	-	-
	1-PHASE	210	-	0-240	450	108	495	3
M811560U-18PS	SERIES- PARALLEL	240	50/60	0.2800	450	126	13-	-
	- a mutar	210	50/50	0-240	252	105	252	1
MB1256DU-18D	3-PHASE OPEN	240	50/60	0-2800	252	122		-
	DELTA	120	50/60	0-280	252*	52.91		-
	Children		60.00	0.480	252	121	252	1
MB12560U-18PS	1-PHASE SERIES	480	50/60	0-5600	252	141	1.5-	-
marteavolu-rera	PARALLEL	240	50/60	0.560	252*	61.11		-



10-GANG MOTOR-DRIVEN ASSEMBLY

*Maximum output current in output voltage range from 0 to 25 percent above line voltage. At higher output voltages output current must be reduced according to rating curve Figure B on page 4.

Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from from rating curve Figure B on page 4.

1156D-1256D series

RATINGS WYE TYPES



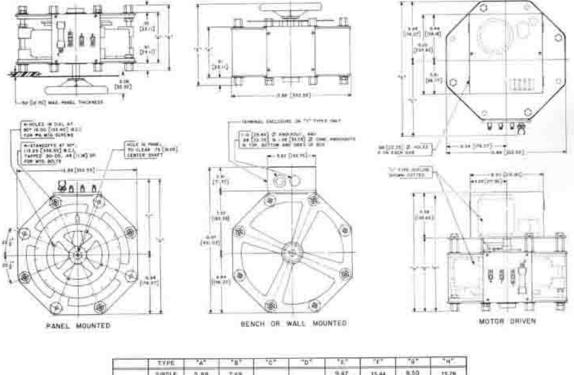
12-GANG MOTOR-DRIVEN ASSEMBLY

		15	PUT			OUTPUT		
					CONST	INT	LCAST IMPED LCA	ANGE
TYPE	CONNEC- TION	VOLTS	HERTI	VOLTS	MAX AMP	MAX. KVA	MAX. AMP.	MAX KVA
	3-PHASE	240	50/60	0-240	200	83.1	220	91.5
MB1155DU-12Y	WYE	240	60	0-280 52	200	97.0	ţ.	-
		480	50/60	0-480	112	93.1	112	93.1
MB12560U-12Y	3-PHASE WYE	*00	60	0-56012	112	109		200
		240	60	0-560	112*	47.01	-	
	3-PHASE	240	50/60	0-240	250	104	275	114
MI1156DU-15Y	WYE	249	60	0-280☆	250	121	-	120
		480	50/60	9-480	140	116	140	116
MB1256DU-15Y	3-PHASE WYE	NON .	60	0-560☆	140	135		-
		240	60	0-560	140*	58:81	-77	
	3-PHASE WYE	240	50/60	0-240	300	125	330	137
MB11560U-18Y		240	60	0-28057	300	345	-	
MB1256DU-18Y		480	50/60	0-480	168	140	168	140
	3-PHASE WYE	1448	60	0-560☆	168	163	-	
		240	60	p-560	168*	70.61	-	1
	3 PHASE	240	50/60	0-240	350	145	385	160
MB1156DU-21Y	WYE	240	60	0-28017	350	170	1	=
	3-PHASE WYE	480	50/60	0-480	196	363	196	163
M812560U-21Y		(1999)	60	0-560☆	196	190		-
		240	60	0-560	196*	82.31	-	-
	3-PHASE	240	50/60	0-240	400	166	440	183
MB1156DU-24Y	WYE	240	60	0-280☆	400	194	-	1
		480	50/60	G-480	224	186	224	186
MB1256DU-241	3-PHASE WYE	apo	60	0-560 🏠	224	217	-	-
		240	60	0-560	224*	94.11		-
	3-PRASE	240	50/60	0.240	450	187	495	206
MB1156DU-27Y	WYE	-290	60	0-280合	450	218		-
	1	480	50/60	0-480	252	210	252	210
M812560U-27Y	3-PHASE WYE	460	60	0-560 ☆	252	244	-	-
	- (1)-3 P	240	60	0.560	252*	1067		

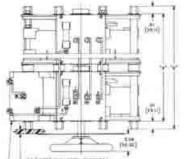
*Maximum output current in output voltage range up to 300 volts. At higher output voltages, output surrent must be reduced according to rating curve Figure B on page 4.

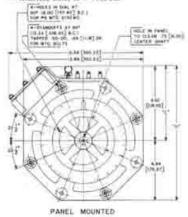
Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve Figure 8 on page 4.

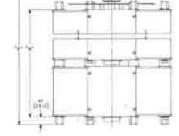
Unit wired this way when shipped.

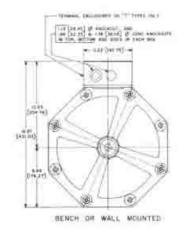


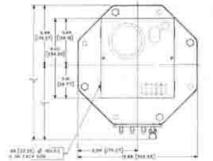
	TYPE	*A*	10.1	76*	-D.	1.	1.64 m	0.00	
	SINGLE	5.89	[96.32]		13.65 [397.76]	9.47 [240.54]	15.44 [392.18]	8.50 [215.90]	15.70
SERVES	2-0.4NB	12.50 [317.20]	14.31 [363.47]	8.72 [221.49]					
	3- GANG	19.12 [465.65]				22.72	28.69 [728.73]	21.75 [55.2.45]	. 29.00 (03.467)

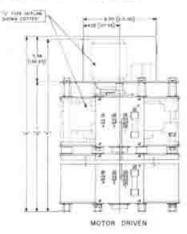




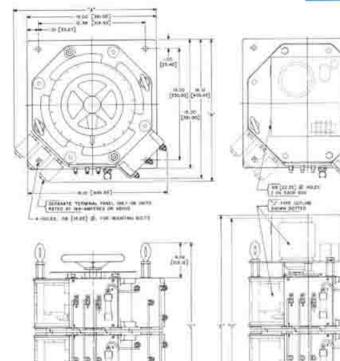








1156D-1256D series



APA Decret .

	10045	11 3	124		· · · · · · · · · · · · · · · · · · ·	-	
		= /	101	1+40	-A-		
	1 51	1	100	()_A_	LI56D		
2	2	1.3	6	40, 471	-		
-A A	128	10		++	18.75 [425.45]		
(27.55) # 5.555 m	10.00			55	(425.45)		
HAR SOTTED	•			60, 625 67	-		
	10	1		80	(7.3) [433.63]	1	
1		1.			17.51 [439.64]	1	
	E	11.8	ş	81.8*6	14.75 [#25.42]		
N=I			Ì.		17.75 [450.85]	1	
A.C.L.	12	10	20	80	[410.05]	1	
2.5	êÔ Î	-	ъĤ	37	-		
	0.00		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	n	NOTE:	1 1	
						1728 1728 1550 1723 2 main 1673 1550 1723 2 main 1673 1673 1735 2 main 1673 1673 1745 2 main 1772 1773 1745 2 main 1772 1773 1747 1773 1773 1773 1747 1773 1773 1773 1747 1774 1773 1873 1747 1774 1873 1873 1747 1774 1873 1873 1747 1753 1873 1873 1747 1774 1873 1873 1747 1774 1873 1873 1747 1774 1873 1873 1747 1774 1873 1873 1747 1774 1873 1873 1747 1774 1873 1873 1747 1774 1873 1873 17	

4-GANG TO 9-GAND MOTOR DRIVEN

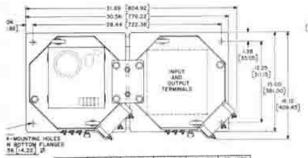
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12000	***				*g=	1444	1967	
1145	1156D	12550	11566	12540		1.46		
40, 471	-	-			34.00 [#63.60]	78.85 (941.71)	100.000 (00.000)	
+*	18.75 [425.45]		15.6.7 [526.75]	-	54.00 [#63.60]	35.85 3981.711	39.50 (885.5n)	
55	16.75 [425.45]	-	15.82		40.82	45.31	45.63	
60, 6P5 6Y	-	-	-		47,25 [jaoo.rs]	\$1.84 [1118:28]	\$2.26 (1227.40)	
-	(7.3)	16.79	18,19 [411:23]	15.8J [396.75]	47.25 [1200.15]	31.81 (1310.20)	\$2.26 [1227.40]	
78	17.51	16.75 [423.45]	(411,23)	15.67 [346.75]	\$3.66 [1368.55]	38.54 [1547.42]	58.94 (1455.55)	
81, 8P6	14.75 [+25.45]	-	15.67		£0.50 [(\$36.70]	41.18 (1855.43)	85.50 (1462.70)	
40	17.75	(K.75 [425.45]	(422.15)	15.42 [264.75]	80.50 [1536.70]	45.13 (1655.83)	45.50 (1065.70)	
\$2	(7.75. [450.03]	17.30	(422.15)	16.79 [411.83]	67.11 [)704.85]	72.81 [1823.97]	72.13. (1822.10)	
37	-	-	-	-	87.12 [VID4.65]	(1123.37)	32.35	

NOTE:	Interconnections may be by bus
	bars instead of wire harnesses as illustrated.

(0.05)

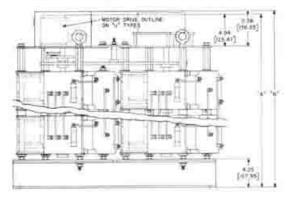
[381.00]



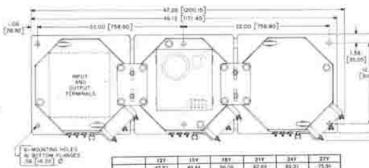
4-GANG TO S-GANG MANUAL

-

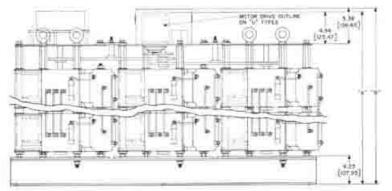




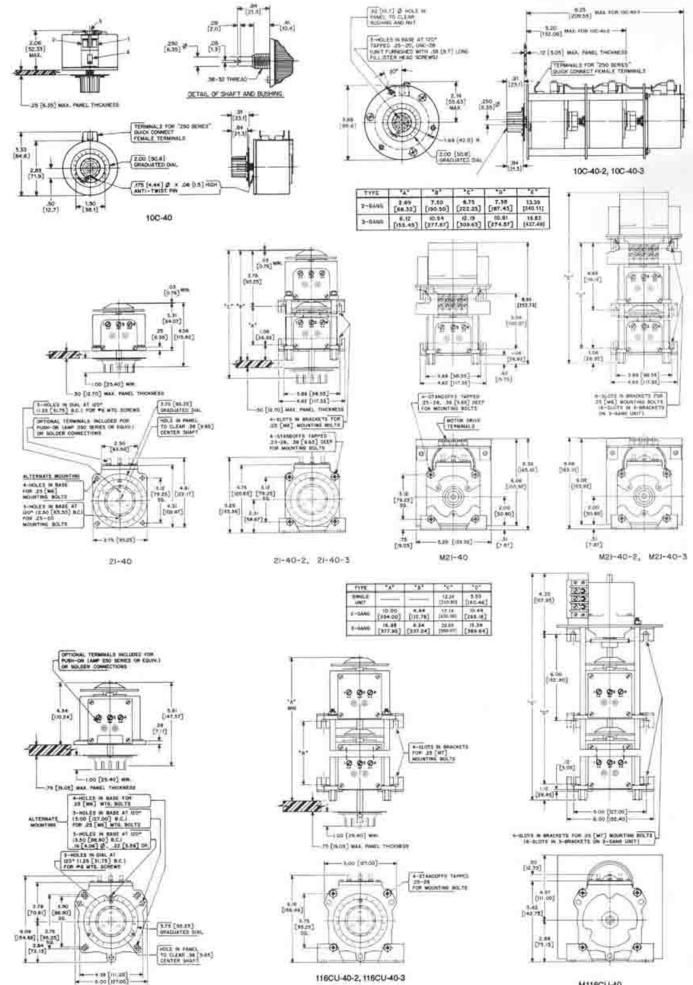
10- TO 18-GANG OPEN DELTA AND SERIES-PARALLEL TYPES







12- TO 27-GANG WYE TYPES



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M116CU-40 M116CU-40-2, M116CU-40-3

116CU-40

LW136B series

TYPE LW136B

U TYPES

POWERSTAT Variable Transformers of the LW136B Series have three windings: two 120 volt primary windings which can be connected in either series or parallel so that the unit can operate from either a 240 volt or 120 volt line, and an isolated secondary winding rated 0.30 volts, 25 amperes. A center tap on the secondary winding allows 15-0-15 volt operation at a current rating of 35 amperes. Connections can be made for operation as a source of adjustable low output voltage, a line voltage corrector or a limited range variable transformer. Because there are actually more than 200 different ratings possible, those given in this catalog are the fundamental ratings used most frequently. For 50/60 hertz except as shown.

Single units with enclosed construction can be general utility or back-of-panel mounted. Changes from bench or wall to panel mounting can be easily made because the removable shaft can be quickly adjusted for either mounting. Self-lubricating nylon shaft bearings provide smooth turning, dependable service and long life. Driving torque, d-c resistance of each winding per coil and maximum core and brush loss when operating under no

		ximate	No-Load Loss at 60 Hertz	D-C Resistance Per Winding (Ohms)			
TYPET	Oz-In	KpCm	(Watts)	Each Primary	Secondary		
LW1368U	30-50	2.2-3.6	9	0.6	0.04		
LW1368U-2	70-90	5 -6.5	18	0.6	0.04		
LW1368U-3	110-140	7.9-10.1	27	0.6	0.04		

Data also applies to units having applicable prefixes and suffixes.

load are given in the chart. Manually-operated models have standard dials graduated 0-100. The angle of rotation is 316° from zero to maximum output voltage. All units have POWER-KOTE coils.

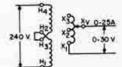
All POWERSTAT Variable Transformers of the LW136B Series are available with motor-drives in standard speeds of 5, 15, 30 and 60 seconds for full range travel. Motor-driven types have an MD prefix in the type number and the identical ratings as their corresponding manually-operated types. The motor is rated for an input of 120 volts, 50/60 hertz single phase with a current requirement of 0.3 ampere. When ordering, motor-driven types should be prefixed with the desired speed in seconds. For example: 5MDLW136B-2.

Open construction models have the letter U suffix in the type number and the same electrical ratings and coil-to-terminal wiring as their corresponding enclosed construction units but have no protective screening.

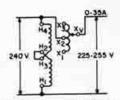
If desired, all manually-operated and motor-driven models with enclosed construction are available with the terminal boards enclosed in metal terminal boxes. Knockouts in the terminal enclosures permit wiring with cable or conduit. If a terminal enclosed unit is desired, include the letter T in the type number following the Series designation. For example: LW136BT-3.

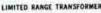
T	HAZ			
120 V	122	3	X 0-	35A
T	H3	3	15-0	15 %
. ±	123	_		

ANSFORMER



LOW VOLTAGE TRANSFORMER







LINE CORRECTOR

		LOW-VOL WITH IS	USED AS TAGE TRANS OLATED SEC	SFORMER	ų	USED AS MITED-RAN RANSFORME	GE	LINE	ISED AS CORRECTO	
	NOMINAL		OUTPUT			OUTPUT		INPUT	and the second sec	PUT
TYPE	LINE	VOLTS	MAX. AMP.	MAX. KVA	VOLTS	MAX. AMP.	MAX. KVA	VOLTS	MAX. AMP.	MAX. KVA
					90-120	25	3.0	96-120	25	3.0
	120	15-0-15	35		105-135	35	4.7	107-137†	35	4.2
LW1368 MDLW1368 LW1368T MDLW1368T LW1368U MDLW1368U		0-30		120-150	25	3.8	120-150*†	25	3.0	
					210-240	25	6.0	213-240	25	6.0
	240	15-0-15	35	0.52	225-255	35	8.9	226-256†	35	8.4
		0-30	25	0.75	240-270	25	6.8	240-2741	25	6.0

CONNECTIONS AND RATINGS

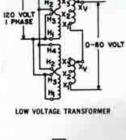
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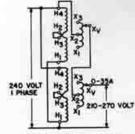
Maximum voltage limited by saturation characteristics of transformer core. 160 hertz only.



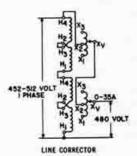
CONNECTIONS AND RATINGS

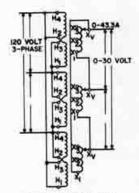
			ISOLATE	FORMER D SECO	WITH	LIMIT	ED AS ED-RANG SFORME			ED AS	
	CONNEC-	LINE	Contractor of	MAX.	MAX.		MAX.	MAX.	INPUT	MAX.	MAX
TYPE	TION	VOLTAGE	VOLTS	AMP,	KVA	VOLTS	AMP.	KVA	VOLTS	AMP.	KVA
			30-0-30	35	1.0	60-120	25	3.0	80-120	25	3.0
		120	0-60	25	1.5	90-150	35	5.2	96-150*†	35	4.2
						120-180	25	: 4:5			
	SINGLE		30-0-30	35	1.0	180-240	25	6.0	192-240	25	6.0
	PHASE	240	0-60	25	1.5	210-270	35	9.4	213-2741	35	8.4
			0.04			240-300	25	7.5	240-300*1	25	6.0
			30-0-30	35	1.0	420-480	25	12.0	427-480	25	12.0
LW136BU-2		480	0-60	25	1.5	450-510	35	17.8	452-5121	35	16.8
MOLW1368U-2						480-540	25	13.5	480-5491	25	12.0
						90-120	25	5.2	96-120	25	5.2
		120	0-30	25	1.3	105-135	35	8.2	107-1371	35	7,3
1	THREE					120-150	25	6.5	120-150*†	25	5.2
	PHASE					210-240	25	10.4	213-240	25	10.4
		240	0-30	25	1.3	225-255	35	15.5	226-2561	35	14.6
						240-270	25	11.7	240-2741	25	10.4
			45-0-45	35	1.6	30-120	25	3.0	69-120	25	3.0
	SINGLE	120	1.0.00	144		75-165	35	5.8		35	4.2
			0-90	25	2.2	120-210	25	5.2	87-150**	55	110
	PHASE		45-0-45	35	1.6	150-240	25	6.0	175-240	25	6.0
		240				195-285	35	10.0			
			0-90	25	2.2	240-330	25	8.2	202-2951	35	8.4
						79-120	25	5.2	86 120	25	5.2
		120	0-30	43.3	2.2	98-143	35	8.7	86-120	35	7.3
			0-52	25	2.2	120-167	25	7.2	101-1407		1.0
LW1368U-3						180-2401	25	10.4	192-2401	25	10.4
			0-30	43.3	2.2	197-240	25	10.4	201-240	25	10.4
	THREE	240	0-351	43.3	2.6	210-2701	35	16.4	214-260*+	35	14.5
	PHASE		0.52	25	2.2	218-263	35	15.9	219-2641	35	14.5
			0-601	25	2.6	240-286	25	12.4	240-293†	25	10.4
						240-3001	25	13.0			
			0-351	43.3	2.6	420-4801	25	20.8	427-4801	25	20.8
		480	0-501	25	2.6	450-510†	35	30,9	452-512†	35	29.1
			10.000	1012	1000	480-5401	25	23.4	480-520*1	25	20.8



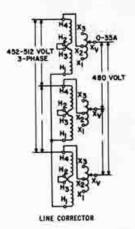








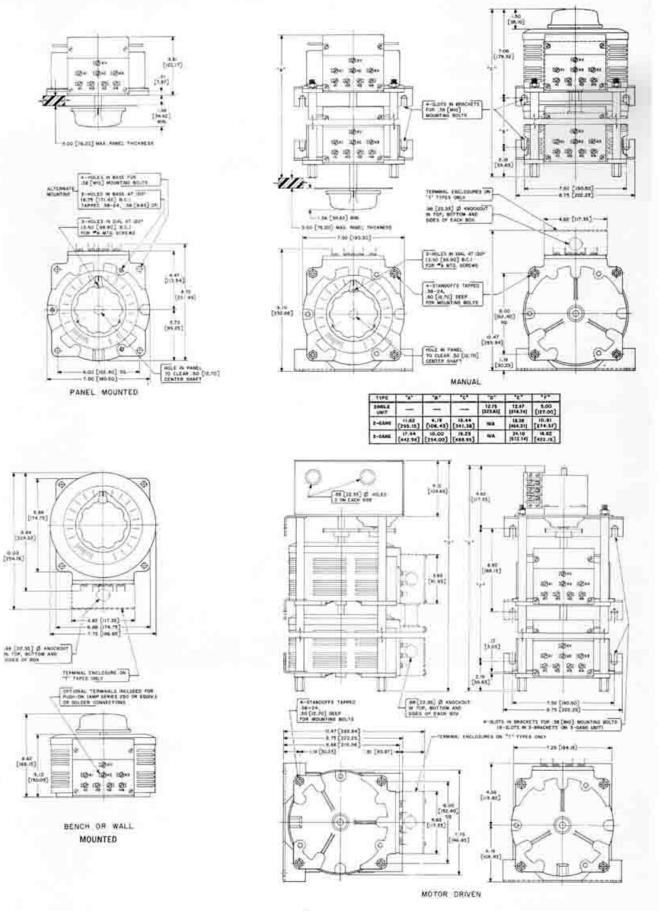
LOW VOLTAGE TRANSFORMER



 Maximum voltage limited by saturation characteristics of transformer core, t60 hertz only,

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LW136B series





TYPE L10C

Enclosed L Series POWERSTAT Variable Transformers are ideally suited for use in applications requiring a portable source of variable a-c voltage up to 1.4 KVA capacity. They are specially designed to minimize the possibility of shock hazard.

For maximum protection and safety, all models are equipped with a grounded NEMA cord-plug assembly, on-off switch, pilot light, output receptable and fuse. Type L116C has an integrally designed nonprojecting handle. Controls on the panel are recessed for eye appeal and protection from accidental bumping. All models are designed for 120 volt single phase service.

WALL MOUNTING

Enclosed L Series POWERSTAT Variable Transformers have slots at the rear that accept wall hanger brackets. They may be hung off the working surface yet can be easily removed for use in another location.

	INF	J.		OUTPUT		DIMENSIONS					
				CONSTANT CURRENT LOAD		INCHES (MILLIMETERS)					
TYPE	VOLTS	HERTZ	VOLTS	MAX. AMP.	MAX. KVA	HEIGHT	WIDTH	DEPTH			
L10C	120	60	0-132	1.75	0.23	6.28 (159.51)	5.0 (127.00)	4.25 (107.95)			
L21C	120	50/60	0-140	4.5	0.63	7.78 (197.61)	5.38 (136.65)	5.63 (143.00)			
L116C	120	50/60	0-140	10.0	1.4	9.50 (241.30)	6.44 (163.58)	6.5 (165.10)			

LINE CORRECTOR series

A POWERSTAT Line Corrector is used to correct line voltage variations to maintain constant output voltage or to supply a limited range of variable voltage from a stable a-c source. It consists of an appropriately tapped POWERSTAT Variable Transformer and one or more fixed-ratio step-down transformers. This combination permits relatively small POWERSTAT Variable Transformers to control large amounts of current in applications requiring control only over a limited range. Manually operated and motor-driven types are available for nominal 115, 230 and 460 volt, 50/60 hertz, single and three phase service. All line corrector models have POWERKOTE coils.



TYPE LC2106D

MOTOR-DRIVEN TYPES

With the exception of type MBLC3270DE which does not have the 5 second speed, all types of the Line Corrector Series are available with motor drives in standard speeds of 5, 15, 30 and 60 seconds for full range travel. Motor-driven models have an MB or MD prefix in the type number and the identical electrical ratings of their corresponding manually operated types. The motors are rated for 120 volt, 50/60 hertz single phase inputs with current requirements of 0.3 ampere for types prefixed MD, and 0.4 ampere for those prefixed MB. When ordering, motor-driven types should be prefixed with the desired speed in seconds. For example: 15MDLC2207D.



TYPE MBLC2115E

							RANSFORMER AR TO:		FIXED F	RATIO TRA	NSFORMER	
TY	PE			OUTPUT 1		MANUALLY	MOTOR	D	IMENSION (INCHES)	IS		WEIGHT
MANUALLY	DRIVEN	INPUT I VOLTS	VOLTS	MAX. AMP.	MAX, -	TYPE	TYPE	LENGTH	WIDTH	HEIGHT	NUMBER	EACH
LC2106D	MDLC21060	95-135	115	57	5,6	136B	MD1368	736	7%	6 3 %	1	44
LC2115E	MBLC2115E	95-135	115	144	16.6	11560§	MB1156D5	9%	7%	9%	-1	107
LC2207D	MDLC22070	195-255	230	36	8.3	2368	MD2368	7%	73%	63ie	1	46
LC2228E	MBLC2228E	205-250	230	130	29.9	1256D§	MB1256D5	8%	7%a	9%	1	100
LC2418E	MBLC2418E	400-520	460	45	20.7	11560§	MB1156D§	9%	7%	9%	1	107
LC3220YD	MOLC3220YD	195-255	230	63	25.1	1368-3	MD1368-3	73%	7%s	6 % #	3	44
LC3245YE	MBLC3245YE	195-255	230	145	57.8	1156D-3Y§	MB1156D-3Y§	9%	73%	9%	3	112
LC3270DE	MBLC3270DE	195-255	230	188	74.9	12560-40§	MB12560-405	8%	111%	10%	2	120
LC3425YD	MDLC3425YD	400-520	460	35	27.9	236B-3	MD2368-3	7%	73%	6 % .	3	45
LC3475YE	MBLC3475YE	400-520	460	100	79.7	12560-3Y5	MB1256D-3Y5	9%	7%s	9%	3	107
LC34100YE	MBLC34100YE	420-500	460	148	118	12560-375	MB1256D-3Y5	9%	7%	9%	3	107

CONNECTIONS AND RATINGS

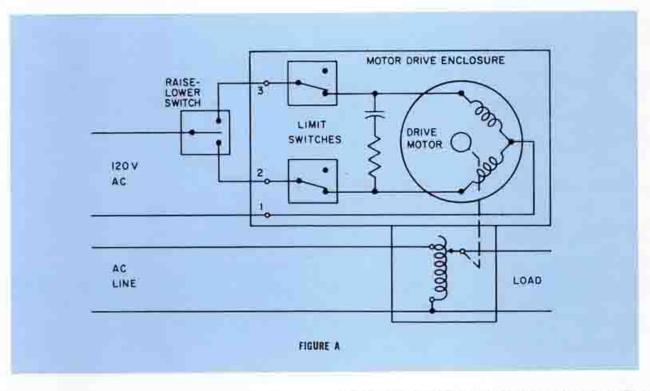
ILine Correctors may also be used as limited range transformers. Input voltage is the output voltage shown in chart and output voltage is the input voltage shown in chart. SWithout fuses.

MOTOR DRIVEN TYPES

Motor-driven units have the same electrical ratings as their corresponding manually-operated types. The motor-drive is a compact integral unit mounted on top of the assembly. On screened models, the motor-drive assembly is enclosed and is provided with knockouts for cable or conduit connections. The permanent magnet SLO-SYN Synchronous Motor operates on 120 volt, 50/60 hertz single phase lines. Because synchronous motors are frequency sensitive they operate slightly slower at 50 hertz.

For full range travel from zero to maximum output voltage, standard motor-driven models are available in speeds of 5, 15, 30 and 60 seconds at 60 hertz or 6, 18, 36 and 72 seconds at 50 hertz. A smooth, quiet planetary gear unit is used for reduction from the motor to the POWERSTAT Variable Transformer shaft. Limit switch control at the lower and upper limits of travel prevents overtravel. The limit switches may be adjusted if desired. The motor circuit diagram is shown in Figure A.





RAISE-LOWER SWITCH

The standard method of controlling a motor-driven POWERSTAT Variable Transformer is with a momentary contact raise-lower switch of either the lever-action or the pushbutton type. A lever-action switch, catalog number 14096-000, is recommended for this use. The switch is supplied with an indicator plate and mounts in a standard 2 inch (50.8mm) deep switchbox. Any standard switchplate can be used.

Ordinarily, one switch is used to operate each POWERSTAT Variable Transformer as shown in Figure A. If desired, additional switches can be provided to permit control from any of several locations. Master control of two or more motor-driven units is also possible using relays or multiple-pole switches.

ADJUSTABLE SPEED/ DIGITAL CONTROL



TYPE DM217CT

DM Series Adjustable Speed/Digitally Controlled Motor Drives are available on all POWERSTAT Variable Transformers in the 1kVA (116C-216C). 2kVA (126-226), 3kVA (136B-236B) and 4kVA (146-246) Series and on 5kVA (1156D-1256D) series units up to 6-deck. The drives operate from 120 volt, 50, 60 or 400 hertz lines and permit the output voltage of the variable transformers to be controlled over the full range of zero to maximum output voltage. Models for 240 volt service are also available and are identified with a letter X in the type number. For example, DM136BTX-2. Terminal blocks and knockouts are provided for making the external control and power connections. Motor drive enclosures on all 1kVA, 2kVA and 3kVA units are one inch higher than on equivalent standard motor-driven models while those on 5kVA units are two inches higher. Height of the motor drive enclosure on 4kVA models does not change.

Connections for the controls require low-voltage wiring only. Depending on the model ordered, the DM Series motor drive operates on either 120 volt or 240 volt, single-phase service at frequencies of 50, 60 or 400 hertz. Limit switches at the upper and lower limits of variable transformer travel prevent overtravel.

When ordering POWERSTAT Variable Transformers with Adjustable Speed/Digitally Controlled motor drives, prefix the manual type number with the letters "DM". For example: type DM136B-3. Types are available in cataloged 120, 208, 240, 480 and 575 volt, single and three-phase assemblies.

ADJUSTABLE SPEED MOTOR DRIVE



When used as an adjustable speed motor drive, a DM Series drive allows the output voltage of the POWERSTAT Variable Transformer to be remotely controlled from a raise-lower switch. The speed of the motor drive can be controlled with a potentiometer to provide any speed from 5 to 200 seconds for full range travel. All control circuitry is solid-state.

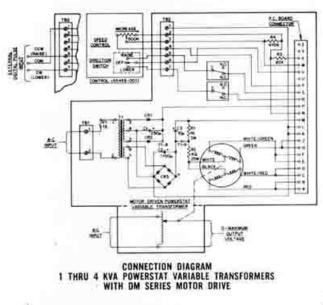
Adjustable Speed Control type 65455-001, available as an accessory, provides a 500K ohm, reverse taper potentiometer for controlling the motor drive speed and a raise-lower, center-off switch for directional control. The control must be listed separately on the purchase order, if desired.

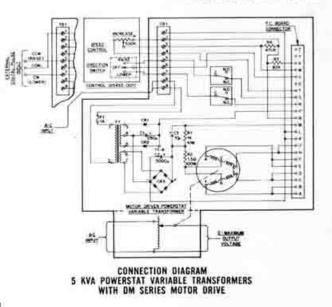
DIGITALLY CONTROLLED MOTOR DRIVE

Digital control allows the variable transformer to be controlled over the full range with pulses or square waves. Pulses can be programmed to increase or decrease the output voltage proportionally with a resolution ranging from approximately 0.5 volt to 2 volts, depending on model selected. Control over the full range from zero to maximum output voltage is accomplished in approximately 1200 pulses. Maximum speed is 250 pulses per second.

The motor drive will be triggered by a change in voltage from logic level 1 to logic level 0 applied to the proper pulse input terminal (CW or CCW). Complete specifications for the triggering pulse requirements are as follows.

Logic Level 1 Logic Level 0 Minimum Pulse Width Maximum Fall Time Maximum Rise Time Loading 2.4 VDC to 5.5 VDC 0 VDC to 0.4 VDC 10 microseconds 1 microsecond 10 microseconds 5 milliamperes max. With an open collector TTL device, a 4.7K ohm ± 10% pull-up resistor to 5 volts is required.





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POSITIONER SYSTEM

With Positioner Control PD120B, a synchronous motor driven POWERSTAT Variable Transformer is automatically driven to a setting proportional to the position of a control potentiometer. For example, if the control potentiometer is set at the mid position, the output voltage of the POWERSTAT unit will be driven to 50 percent of the full output voltage. The positioner controller does not regulate the output voltage. Changes in the input voltage will be reflected in the output voltage. Any number of motordriven POWERSTAT units can be controlled from a compact control station.

A complete positioner system consists of a positioner controller type PD120B, a user supplied 1000 ohm, 3 W control potentiometer and asynchronous motor driven POWERSTAT Variable Transformer. The potentiometer can be mounted at the most suitable control location. Potentiometer kit 026602-008 consisting of a knob, a dial and a potentiometer is available for use with positioner systems.

The wiring diagram for a complete positioner system is shown in Figure A. When used with a 240 or 480 V POWERSTAT Variable Transformer, a type T6068 step-down transformer is required in the output voltage sensing leads. Although two POWERSTAT units can be controlled from one potentiometer, one positioner controller is required for each POWERSTAT assembly. Figure B

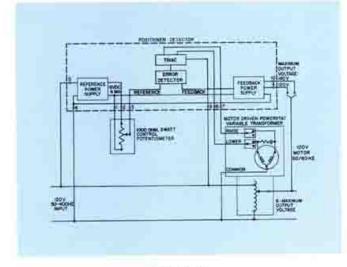


FIGURE A



POSITIONER CONTROL TYPE PD1208

shows how two or more positioner controlled units can be mastered using a POWERSTAT Variable Transformer Type 10C to vary the input to the control potentiometers.

Consult the factory Application Support Group if the positioner system is to be used with other than an 120 V, 50/60 Hz synchronous motor drive or if the control is to be used on a 600 V system.

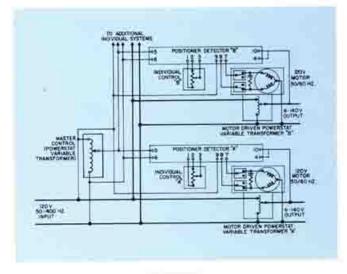


FIGURE B

All dimensions are in inches (millimeters).

STABILINE ** FULL RANGE REGULATOR CONTROLLERS

... for use with any synchronous motor driven POWERSTAT Variable Transformer to provide:

- Regulated AC voltage
- Regulated AC current
- Regulated DC voltage

TYPES FR501B & FRX501B



TYPES

FR501BMP &

FRX501BMP

unit can be selected. These controllers are ideal for applications requiring a wide range of regulated current or voltage or where wide input voltage variations will be encountered. Types prefixed FR are for use with 120 V POWERSTAT assembly motor drives; types prefixed FRX are for use with 240 V

motor drives.

Types FR501B and FRX501B are AC controllers for use where the output is to be remotely selected from a separate user supplied output adjustment potentiometer (1 K ohm, 3W) or a 0 to 6 V, 6 mA reference source. Potentiometer Kit 026602-008 consisting of a knob, dial and potentiometer is offered for use with these units.

A STABILINE Full Range Regulator Controller is a solid-state device which monitors the load voltage or current of a motor-driven POWERSTAT Variable Transformer and operates the motor drive to hold the output constant at the selected value. Any load voltage or current value within the full range of the POWERSTAT

Types FR501BMP and FRX501BMP are AC controllers which have the output adjust potentiometer and an output voltmeter furnished as part of the unit.

Types FR501BDC and FRX501BDC are DC voltage controllers. A separate output adjustment potentiometer (1 K ohm, 3 W) or a 0 to 6 V, 6 mA reference source is required to set the desired output voltage Potentiometer Kit 026602-008 consisting of a knob, dial and potentiometer is offered for this purpose.

Regulated AC Voltage

All AC versions of the STABILINE Full Range Regulator Controllers can be used to provide regulated AC voltage when used with synchronous motor driven POWERSTAT Variable Transformers. This combination will maintain a constant output voltage accurate within ± 0.8 percent of the maximum output voltage. All AC controllers can be connected to provide a maximum output voltage of 120, 140, 240, 280, 480 or 600V at 50/60/400 Hz. For 480 or 600 V applications, a 4:1 step-down transformer (Superior Electric Type T6026) is required.

Regulated AC Current

With the addition of a T6340 Transformer, the FR501B and FRX501B STABILINE Full Range Regulator Controllers can be

TYPES FR501BDC & FRX501BDC



STABILINE * FULL RANGE REGULATOR CONTROLLERS

used with synchronous motor driven POWERSTAT Variable Transformers to automatically regulate current.

When used with these STABILINE Full Range Regulator Controllers, the T6340 sense transformer converts AC 0 to 5 A into voltage which is sensed by the controller to direct the POWERSTAT unit in regulating the load current.

To regulate load currents greater than 5 A, a separate current transformer is needed to convert the load current to the 0 to 5 A required by the T6340 sense transformer. Most current transformers deliver 0 to 5 A when the current through the transformer is varied between 0 and the rated current of the transformer. The current transformer must be rated to supply 0 to 5 A, 10 VA minimum to the T6340 sense transformer.

Superior Electric offers two current transformers which are suitable for load currents up to 500 A. The 300:5 A current transformer (Part No. 220282-001) is used for several current ranges depending on the number of times the load wire is passed through the current transformer:

Maximum Load	Number of times load wire passes
Current	through 300:5 current transformer.
50	6
75	4
150	2
300	1

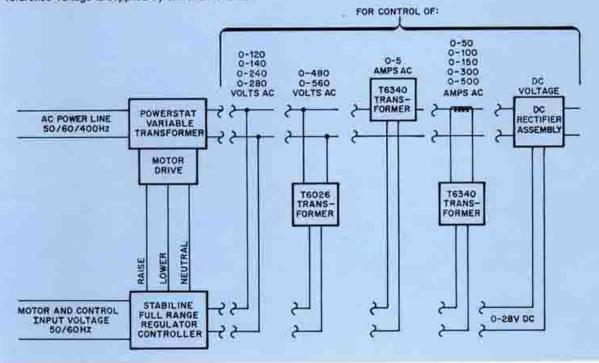
The 500:5 A current transformer (Part No. 220282-002) is used for currents up to 500 A.

The combination will maintain constant output current accurate within ± 1 percent of the rated load current. Load current can be regulated from 0 to maximum.

Regulated DC Voltage

STABILINE Full Range Regulator Controllers with DC suffixes provide regulated DC voltage when used with a synchronous motor driven POWERSTAT Variable Transformer that is powering a user supplied rectifier assembly. Types FR501BDC and FRX501BDC both require 0 to 28 VDC and 16 mA to the sensing terminals. This combination will maintain constant DC voltage accurate within ± 0.8 percent of the maximum DC voltage output.

A STABILINE Full Range Regulator Controller is a solid-state sensing device which detects any variation in load voltage or current and operates a POWERSTAT Variable Transformer drive motor to correct the variation. A potentiometer is used to adjust the level of a built-in reference voltage or a reference voltage is supplied by the user. The voltage or current to be regulated is rectified and compared with the reference voltage. An error signal created by the difference between the two actuates an integrated circuit switch which powers the variable transformer drive motor to correct the output.

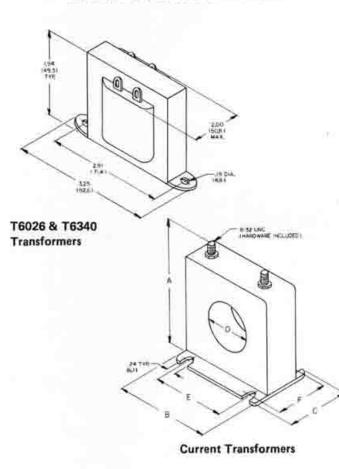


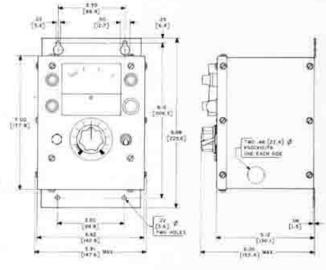
STABILINE ** FULL RANGE REGULATOR CONTROLLERS

Regulated Output	Motor & Control Voltage	Control Type	Load Volt/Amp Range	Required Part No.	I Sensing Components Description		
AC VOLTAGE	120 Nom. (95 – 135) 240 Nom. (216 – 264)	FR501B* FR501BMP FRX501B* FRX501BMP	0-120, 0-140 0-240, 0-280 0-480, 0-600	T6026	None Required Step-Down Transformer		
AC	120 Nom. (95 – 135)	FR501B* FR501BMP	0-5 0-50, 0-100 0-150, 0-300	T6340 T6340 And 220282-001	5 A Sense Transformer 5 A Sense Transformer 300:5 Current Transformer		
AC CURRENT	240 Nom. (216 – 264)	FRX501B FRX501BMP	0-500 0-Above 500	T6340 220282-002 T6340 And Current Transformer	5 A Sense Transformer 500:5 Current Transformer 5 A Sense Transformer User Supplied		
DC	120 Nom. (95-135)	FR501BDC*					
VOLTAGE	240 Nom. (216 - 264)	FRX501BDC*	0-28		None Required		

SYSTEM REQUIREMENTS

"Potentiometer Kit 026602-008 or equivalent also required.





Types FR501BMP & FRX501BMP

Current	Dimensions										
Transformer	A	В	C	D	E	F					
220282-001 300:5	3.11 (79.0)	2.33 (59.2)	1.88 (47.8)	1.13 (28.7)	1.70 (43.2)	1.60 (40.6)					
220282-002 500:5	4.07 (103.4)	3.50 (88.9)	2.15 (54.6)	1.56 (39.6)	2.70 (68.6)	1.79 (45.5)					

All dimensions are in inches (millimeters).

RATING CHART single phase

- 1	VP1/1	-		OUTPUT		(10) (10) (10)	MANUALLY OFF		and the second second	1	AND OR OFFICE	Augustan	WEIGHT (BOY)
101.76	HERTZ	VOLTS	CONSTANT O	MAX KVA	CONSTANT INF		DW	APPROXIMATE NOT	WEIGHT (POUNDE)	70	AVAILABLE SPEEDS . ISECONDS) AT 89 HZ	APPROXIMATE NET	ENDPINE
49.76					MAX MAP		SINGLE PHASE RAT		201709			-	
120	50/80	0-120 0-132	2.25*	0.27	31	0.36	100	- T.	2:1/2	1			
120	\$0.40	0-120	3	0.54	1	0.78	21	5-1/2		MZI	5, 15, 30, 60	13	35
120	50/80	0-140	10	1.2	13	1.6	116C 3PR116C 116CT 116CU	10	12	MITHORT, MITHOD	5, 15: 30, 650	19	22
	1.26.76	6-140	10	-04			Strattmand & Shinting				5, 15, 30, 60	19	. 22
120	60	0-120	12	1.4	20	1.8	11707_117C_3PN117C_117CU	10	12	MITTOT, MITTOU MC126, MCF126, MC1267,	The Processing of the		
120	\$3/60	0-120 0-140	15	1.8		24	126, F126, 1267, 3PM126, 126U	16	tă:	MC126U	5, 15, 30, 60	27	-31
120	58/60	0-120	22	2.6	2.8	3.4	1368,F1388, 13687, 13680	23	26	M0136E, MOF1368, M0136BT, M0136BU	5. 15, 30, 60	36	: 60
120	50/60	6-120	20	18		-	3PN1368	23	26	-	- ·	1	-
100	50/60	0-140 0-120	20	1.8	35	4.2	146, F146, 146T, 146U	35	38	M146, MF146, M1467, M146U	5, 15, 30, 60	50	37
120	1 X COL	0-140 0-120	30	42	56	5.7	10110-22240111-11-0-440 10120-245	- 192 - 192		the second se	5.15.30.00	68	85
120	56(60)	6-140	- 44	62	1.17		13680-24	48	53	M01368U-29			
120	50/60	0-140	50 50	-6.0 7.0	55	86	1156D, 1156D1, 1156DU	22	82	MB1156D, MB1156DT, MB1156DU	5, 15, 30, 60	30	102
120	00/00	0-120	60 60	72	70	8.4	1460-211	76	81	M146U-211	5, 15, 30, 60	89	99
120	50,700	0-120	66	7.9	- 84	10.1	1368U-31	74	80	MD1368U-39	3. 15. 30. 80	83	108
	10.2711	0-140 0-120	90	9.2	105	12.5	14611-366	- 114	125	M146U-3§§	5, 15, 80, 60	126	140
120	565-50	0-140	90 100	12.6	110	13.2				the state of the s	Contractions of		
120	50/50	0-140	100	14.0	-	1 4 2 3	1156D-2P, 1156DU-2P	141	109	MBITIGO 2P. MILLISEDU-ST	5, 16, 30, 60	162	200
120	90160	0-120	150	18.0	165	19.8	1156D-3P, 1156DU-3P	225	272	MR11560-3P, MB115500-3	1. 10.38.60	239	301
t20	30/60	0-120	200	24.0	. 220	28.4	1156DU-4P	328	373	M8115600-4P	15, 30, 80	348	.393
120	50/60	0-120	250	30.0	275	33.0	1156DU-5P	400	445	MBTT56DU-5P	15, 30, 107	420	465
		0-140	250	35.0	330	30.6	- A March March	475	520	MB11560U-6P	15, 30, 60	495	540
120	50/60	0-140	300	42.0	385	46.2	1156DLI-6P	1.1111.0	7820				_
120	50/80	0-120	350	49.0			1156DU-JP	.555	605	MB1156DU-7#	30.60	575	625
120	50/60	0+120	400	48.0	-840	\$2.8	11550U-8P	635	690	METTSEDU-8P	30,60	650	710
120	50.40	0+120	450	54.0 63.0	495	59.4	115500-9**	715	790	ME11450U-9P	30, 60	730	810
240	50.50	0-240	0.7*	<u>0.17</u>	0.91	0.22	120	2	2:1/2	-	-	-	-
	59/60	0-284	2.25	0.13	31	0.72	124				-	-	-
240	60	0-264	2.25*	0.59		-	100-2	\$1/2	6				
240	50/60	0-240	2.25	0.54	3.25	0.78	22	5-1/2	8	M22	5, 15, 30, 50	18.	15
240	50/60	0-240	35	0.84	6		216C: BPN216C. 216CT: 216CU	10	12	M216CT_W216CU	5, 15, 30, 60	19	22
129	50/06	0-280	3.5**	0.421		~							
240	56/68	0-240		1.8		18	23-2	11-12	13-1/2	M21-2	5, 15, 30, 60		23
245	60	0-240	- 8	1.2	7.	1.7:	217CT, 3PN217C, 217CU	30	12	M21701, M21700	5. 15, 30, 60	10	22
240	50/60	0.240	7.5	1.8	10	2.4	and Send anot believe Anni	44	140	M0226, MCF226 . M02267,	5.15.30.60	27	31
120	50/60	0-280	75	2.1			226, #226 ; 226T; 3PW22E, 22EU	16	38	MC2261	4. 13, 30 co.	40° -	- 37
240	50/60	0-240	10.	2.4	13	3.1	11600-2	20	24	M118CU-2	5, 15, 30, 88	32	36
240	50/60	0-240	10	2.4	13	31	2368, F2368 2368T.			M02368. MDF2368 , MD23687.	5. 15, 30, 60	36	40
120	30,50	0-280	10	2.8		-	3PN2358.2358U	23	26	M0236BU			
240	60	0-240	12	2.9	15	36 4.6	11700-2	20	24	M11709-1	5, 15, 30, 60	32	36
240	36/60	0-280	15	12			246, F246, 246T, 246U	35	38	M246, MF246, M2467, M246U	5.15.30,60	- 50	57
120	50/00	0-280	15	1.81	20	4.8	1260-2	31	36	MC126U-2	5.15, 30, 60	48	51
240	50/60	0-280	15	42	26	82	1200-2	41		murado s	or out one		7.1
240	50/00	0.280	20	5.0	26	.0.2	236R0-25	48	53	M02368U-2§	5, 15, 30, 60	88	83
120	50/60	0-250	20	2.41	28	8,7	1368J-2	48	53	M013681-2	5. 15. 30. 60	68	85
240	50/60	0-280	22	82 8.7		-	1306012	40	30	MU1308U-1	9. 19. dv. vv		00
240	50/60	0-240	28	7.8	28	- 14	12560, 125601, 125600	72	62	MB12560, MB12560T, MB12560U	5, 15, 30, 60	95	102
120	50/60	0-280	28**	3.41	35	84	1440.0		177	M1480-2	5, 15, 30, 80	88	99
240	50/60	0-280	30	8.4	38	81	1460-2	70	43	WINDO.K.	0.19,99,99		
240	50/60	0-280	30	8.4	-1		2460-23	20	83	M246U-2§	5, 15, 30, 60	88	99
120	50-60	0-230	30**	3.61	38	8.4		-					
240	50:50	0-280	30	8.4			536BD-34	-74	80	MD236BU-31	5:15.30.60	-93	108
120	50/60	0.280	30**	10.8	57	13.7				Advanta of	5.16.20.00	198	140
120	50-60	0-280	45	12.0			2460-31	358	125	M2460-21	5, 15, 30, 60	126	140
240	50/00	0.240	- 50	12.0	55	13.2	156D-25, 11560T-25, 11560U-25	144	156	M811660-25, M8115601-25, M811560U-25	5, 15, 38, 60	162	172
240	50.60	0-200	50 56	14.0	55	124		C ¹⁴	100	COMPANIES CONTRACTOR OF CAME	112102-016	1112	-
120	50/60	0-280	56	15.7			12560-29, 125600-29	3410	169	M812560-2P, MH125600-2P	5, 15, 30, 60	162	209
240	50/60	0-240		20.2	84	20.2	19500 30 10000		-	ME1256D-3-P, MB1256DU-3P	5, 15, 30, 80		285
120	50.60	0-280	84	23.5	T		12560-3P, 12560U-3P	220	765	His reader and Mission Par-	a 10.00,00		100
-	50/60	0-240	100	24.0	110	26.4	11550U-4PS	320	.301	MB1156DU-4PS	15, 30, 60	\$40	385

Highling when incommed on A metric panel. When recommend as the local of a remonance panel down in 1.13 interprete for 1.03 and panel. Using a memory term 100 servers, income the local and a memory and the local and local and local and the local and the local and local and the lo

RATING CHART single phase

	INPUT.		CONSTANT	URRENT LOAD	CONSTRAIT IM	PEDANCE LOAN	MONITARY ON		WEIGHT (POUNDES		MOTOR DRIVER	AFPROXIMATE	WEIGHT OFFICE
VOLTE	HERTZ	WALTE	MAX IMP	MAX KVA	WAX, AM.P		TYNE	MT	SHEPPINE		AVALABLE SPEEDS (EECONDE) AT 50 HZ	NET	SHIPPIN
		0.040				200.00	SINGLE PHASE RATINGS	5 continued					
240	50/60	0-240	112	26.9	112	28.9	12600-49	328	373	M8125600-4P	15, 30, 60	348	393
20	50/60	0-280	112**	13.61			19774.40	2004	10170	1997392015-01	108,7191.07	1944	-
240	50/50	0-240	140	33.6	140	33.8	100000000	400	446	M81255DU-5#	15, 30, 60	420	485
120	50/60	9-280	140	39.2		-	12560U-5P	19.07	990	BIO LEUDERUPOR	10, 39, 50		- 2988
240	50/60	0-280	150	35.0	185	.39.6	115600-695	475	\$20	MB1166DU-6PS	15: 30, 60	495	- 640
-		0-280	150	42.0	168	40.3							
240	50/60	0-280	168	47.0		-	12560U-8P	475	520	MB12550U-6P	18, 30, 60	495	540
120	56/60	0-280	168**	20.4‡	-		IL CONTROL J	1.		THE OBEN DUIL		-	
240	50/60	0-240	196	47.0	196	47.0	125600-7P	555	605	MB12560U-7P	30, 60	578	825
120	50/60	0-280	196**	23.81	-	1 H 1	1000000-00	Ellin 1		170-50102.00	100.00		
240	50/60	0-240	200	48.0	220	52.8	115600-885	635	690	M8115600-8PS	30, 60	855	210
122	24.40	0-280	200	53.8	224	53.8							
240	50/60	0.280	224	62.7	-+1	- H - 2	12560U-8P	635	690	MB1256DU-BP	30.00	655	710
120	50/60	0-240	224**	27.21	275	66.0		-		Y.Strong Story 22	244	1000	
240	50/50	0-250	250	70.0		-		-	275	MS1155DU-10PS	30, 60	860	105
240	30/60	0.240	252	10.5	252	66.5	105500-00		700	AND COREDUCION	30, 60	735	810
120	50/68	0-280	252	70.8			12560(J-9P	F15	790	MB1256DU-9P	.40, 00	140	2014
240	50/00	0-240	300	72.0	330	79.2		-	1	M81156DU 12PS	30.60	1020	1145
- 14	1 38612	0-280	300	84.0 #4.0	385	92.4-		-		and set the set of the			
240	50/60	0-240	350	98.0		-		-		M811060UF14PS	60	1155	1315
240	50/60	0.240	400	96.0	-640	105	+			MB1156D8-16PS	60	1356	1485
	0.171	0-280	403	108	895	119							1112 5
240	50/60	0-280	450	126		1.12	~	-	-	MB1156D8-18PS	60	1520	1675
450	50/60	0-480	0.7*	0.34	0.9.1	143	120-2	5-1/2	6	-	-	-	
	-	0-528	0.611 2.25	0.26	3.25	1.6		100.010		1000	1.11.11.11	20.110	-
480	\$0/60	0-560	2.25	1.3	-	1.100	22-2	11/16	10-11年	MZ2-2	5, 15, 30, 60	20-1/ 2	23
480	50/60	0-480	3.8	2.0	0.	24	21603-2	20	24	M216CU-2	5, 15, 30, 60	32	34
240	30/60	0-560	3.5**	1.81			210002	20	24	- WE TOGOPE	11.10.30.00		
450	60	0-460	5.	24	<u> </u>	3.4	21700-2	20	24	M21700-2	5, 15, 30, 60	- 37	34
450	50/60	0-480	7.5	3.8	10	4.8	2260-2	31	36	MC2260-2	5, 15, 30, 68	de l	53
240	56/60	0-560	75.**	1.81			1000 5			1	an inclusion	- CC -	- 70.
490	50/60	0-480	10	4.8	13	62	(and a local sector of the sec	2241	-	Advention of	a an our last	44	
240	50/50	0-560	10	2.41			23681-2	45	53	M023686-2	5, 15, 30, 60	68	65
480	50/00	0-480	15	7.2	19	31	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		9-21	1	1 1 1 1 1 1 1 4 2 M		
	50/60	0-560	15.	8.4			2460-2	76	料	M2466+2	5, 15, 30, 60	58	99
240		0-560	20	3.61	2.8	13.4					-		
490	56/60	0-560	.28	15.7	-		12560-25, 125607-25, 1260U-25	144	156	MB1256D-2S_MB12560T-2S_ MB12560U-2S	5.15.30,60	182	172
240	50/60	0-560	28**	8.8t 26.9	56	26.9							
490	56/60	0-560	56	31.4	-	-	12580(J-425	325	361	MB125680U-4PS	15, 30, 60	340	385
240	50/60	0-560	56**	13.61	-			1 6 6 6 1	1.11.	- (A. 2017) (3.5	1		
480	55/60	0-450	84 84	40.3		40.3	125600-625	475	520	MB12560U-6PS	15, 30, 60	495	540
240	56/60	0-560	84**	20,41		:	02200.012	1,000	216	20110000.012	0.000.0000.500	1000	
480	50/60	0-560	112	53.8	112	53.8	125800-8PS	635	690	MB12560U-8PS	30.00	655	2 in
240	50/60	0-560	112**	27.21		-	(xanothing)	0.04	449	WEICOUGE U.S	396, 60	eve	10.00
480	50/60	0-480	140	67.2	140	87.2				0.5.2240.0044			1274
240	66/60	0-560	140	78.4 33.91	- 7		2U (- 772		M61256DU-10PS	30,60	BEA1	385
480	58/60	0.480	168	80.5	168	80.6		-		A CONTRACTOR	Corner 1		0.02
	and the second	0-560	168	94.1		-	72,	10		M8125606-12PS	30, 60	1020	1145
240	50/60	0-560	168	40.7‡	196	94.1		_					_
480	50/60	0-550	196	110	-		72		-	M61256DU-14PS	60	1180	1513
240	50/80	0-560	196***	47.51	724	108				-	-		
480	20/60	0-560	224	125			-	-	-	M812560U-1825	80	1350	1498
240	30/60	0-560	224**	54.3	-	107				CONTRACTOR AND A			
480	58/60	0-480	252	121	262	121	-	-	-	MB1256D8-18P5	60	1520	1678
240	50/60	0-560	252**	.81.14	-			1000		CONTRACTOR OF A	100	1 1032	11000
1487	50/80	0-120	2.25*	0.47	31	0.62	THREE PHASE RAT				C	1	_
120	fic	0-132	2.25	0.51	-		100-2	: 5-1/2	.8	-	-	-	-
128	50/00	0-120	5	1.0	7-	14	21-2	11:5/2	13-1/2	M21-2	5, 15, 30, 60	20-1/2	23
		0-140	10	1.2	13	2.7				A PARTY AND A PARTY	1.00000000	-	14
	50/85	0-140	10	2,4		100	11BCU-2	20	24	M116CU-2	5, 15, 30, 60	32	36
129	50	0-120	12	2.5	15	42	11760-2	20	24	M117CB-2	5, 15, 30, 60	32	38
120	US THE REAL OF	0-140	15	3.6			1280-2	31	36	MC126U-2	5, 15, 30, 60	dēj	61
1. V.2	60/80	0-120	22	4.6	- 28	54	1360-2	48	59	M0136BU-2	5, 15, 30, 60	68	65
120	50/80 50/60		1. 11	5.3 8.2	35	7.3	274-51			78.8197825	10-10-0-000		-
120 120 120	50/60	0-140					1460-2	70	81	M1460-2	5, 15, 30, 60	88	39
120		0-140 0-120 0-140	30 30	7.3		100							
120 120 120	50/60	0-140 0-120 0-140 0-120	30 30 50	7.3	55	11.4	11560-20, 115507-20, 115601-2	143	155	MB1156D-2D, MB1156DT-2D, MB1156DU-2D	5, 15, 30, 60	161.	174
128 120 120 120 120	50/60 50/60 50/60	0-140 0-120 0-140	30 30	7.3	55	11.4	11560-20, 115507-20, 115680-2	11		MB11560U-20	- Martine -		1.111
120 120 120 120	50/60 50/60	0-140 0-120 0-140 0-120 0-140 0-120 0-140	30 30 50 100 100	7.3 10.4 12.1 20.8 24.2	110	22.9	11560-20, 115607-20, 115600-2 115600-40	143 320	155 361	MB1156D-20, MB1156D7-2D, MB1156DU-2D MB1156DU-4D	5, 15, 30, 60 15, 30, 60	161. 340	1.11.1
128 129 120 120 120	50/60 50/60 50/60	0-140 0-120 0-140 0-120 0-140 0-140	30 30 50 50 100	7.3 10.4 12.1 20.8		1.000		11		MB11560U-20	- Martine -		174 385 540

ame, when mounted on a bracket or a nonmetal in pane, dynamic 9.1 is movement to type 9.1.15 amplemes to 100 server, 0.5 ampleme for 100 server, 0.5 ampleme for 100 server, 0.5 ampleme for togen angle 4 and Win togen and an angle 4 and 5 amplement to togen and togen and togen and togen and the togen and togen and the togen and togen and togen and the togen and tog

m KVA at m arte 20 parte t maaintiviin dattool vitä ercenti siinwer et 58 he

RATING CHART three phase

_	NPUT			DUTINI			WANTATTA DARRAUED				Motox Darves		
		1	CONDITION! O	WHENT LOAC			APPROXIMATE WEIGHT (POUNCE			1411	WAILABLE SPEEDI		WEIRHT (POURD
(0;75	HERITZ	WOLTS -	WAX, MMP	MAX, KVA	MAX, AM.P	MAK KVA	THREE PHASE BATINGS	NET CONTINUED	SHPPAG	DM.	ISECONDS) AT 60 HZ	MIT	SHIPAS
120	50:50	0-120	250	51.9	275	\$7.2	-	-	-	ME115600-100	30. 90	860	-983
-		0-140 0-120	250	60.6	330	68.6		-	_	COLUMN DESCRIPTION	30.60	1020	1145
120	50:60	0-140	300	72.7				_	-	M811560U-128	-SOMPN	1004.00	
120	90/60	0-120	350	72.7	385	80.0	-		-	M81150DU-14U	80	1180	1315
120	50760	0-120	400	83.1	-40	91.5	1.44		+1	M81106DU-16D	60	1350	1495
120	50/00	0-120	450	93.5	495	103	·		-	MB11560U-18D	60	1520.	1675
240	50/60	0-140	450	109	0.91	0.37	120-0	5-1/2				-	-
240	60	0-264 0-240	0.511	0.23		12	100-3	-	8-1/2	-			
240	50/60	0-240	2.25	0.94	3.25	1.4	22-2	11-1/2	13-12	M22-8	5, 15, 30, 60	20-1/2	23
240	50.60	0-280 0-249	225	15	5	21	and the second s	12			a marine		
120	50/60	0-280	3.5	0.741			21HCU-2	- 20	24		5, 15, 30, 60		34
240	50/60 60	0-240	- 5	81 24	1	24	21-3	17	19	M21-3	5, 15, 30, 60	29	31
240	.00	0-240	5	2.5	1.		21701-2	20	24	M2170U-2	5, 15, 30, 40	32	34
240	66,60	0-240	7.5	3.1	10	41	2260-7	31	36	MC2260-3	5, 15, 30, 50	46	51
120	\$0.90	0-280	7.5**	1.61	- 15	- sī							
240	68/60	0-280	10	4.5	- 13	-	11800-3	31	36	MITOCU-3	5, 15, 30, 60	_	- 167
246	50/60	0-240	10	42	13	4.4	23680-2	-85	55	AMD2368U-2	5, 15, 30, 40	68.	85
120	50/60	0-280	10.**	2.1± 5.0	- 15	67	177013-3	11	36	M117CU-3	5. 15, 30, 60	40	47.
2405	60. 50/50	0-240	15	8.2	18	7.8				1	3.		1.11
120	50/00	0-280	16	13	-	-	24611-2	76	83	M2460-2	5, 15, 30, 60		:19
248	50/60	0-240	15	62	26	83	1260-3	48	59	MC126U-3	\$ 15, 30, 60	.62	69
240	-80 50/60	5-280 5-240	22	- 9,1	. 28	11.8	13680-3	7.6	80	MD13668-3	5. 15.30,60	93	108
_	60	0-280	28	10.7	28	11.6				Autors and an entry of the training	COMPANY AND		
240	50/50	0-280	24	13.6			1256D-20, 1256DT-20, 1256OJ-20	345	155	WB12560-20, MB125601-20 MB12560U-20	5, 15, 30, 60	181	:174
120	50/60 50/68	0-240	28.**	39.1 12.5	35	14.5	1460-3	114	125	M146U-3	5. 15, 30, 60	128	340
1.1.1	60 50/60	0-280	30	14.5	- 55	22.9	The second se	11 Martin	230	MB11560-3Y; MB11560T-3Y, MB11560U-3Y	\$ 15, 30, 60	229	250
240	60	0-280	50 56	24.2		23.3	11560-3Y, 115607-3Y, 115600-3Y	215	2.50	MB1156DU-3Y	a. 1.0, 502, 503		
248	55/60	0-240	- 56	27.2	- 56		12600-40	320	300	MB1255DU-40	15, 20, 88		385
120	50.60	0-280	56**	34.9	84	34.9		2.45		Contraction and an	T. STATISTICS	1.00	1.00
246	50,60	0.280	84 84**	40.7			125880-40	475	520	M81256GU-6D	15, 30, 80	295	540
240	56-60	8-248	100	41.6	110	45.7	1145DU-6V	462	507	M811550U-5Y	15, 30, 60	482	\$27
-	10	0-280	112	48.5	112	46.6	1.000-000-00	10000		Incompany and	-		
240	50/60	0+280	117	54.2			1256DU-8D	633	990	M813550U-80	30.60	655	710
240	50/60	0.240	140	\$8.2	140	58.2		1.1.1		MB12560U-100	30, 60	880	995
120	50/60	0-290	140	67.9 29.41	-		-	-		WB120000100	20,00	000	
240	50/60	0-240	150	12.1	165	68.6	1156DU-9Y	715	790	M81156DU-9Y	30, 60		810
240	50/60	0.240	168	69.8	168	69.8				M812560U-120	30.60	1020	1145
120	50/00	0-280	168.	81,5	-		_	-	_	918124280-0-14M	30,00	1020	11394
240	50/60	0-240 0-280	196 196	95.1	198	81.5	-	-	-	MB12256DU-14D	60	1780	:1815
120	50/66	0-280	195**	41,21		-							
240	58/66	0-280	200	83.1 97.0	220	01.5		-	-	MB1145'6CU-12Y	30, 60	990	3115
240	58/55	0-240	224 224	93.1 109	224	93.1	-	-	-	MB125504/-160	60	1350	1495
240	50/60	0-280	224**	47.01		111		_		20.09009-0702712717271		10000	1000
120	50/60	0.280	250	121	275				-	MB1155DU-15Y	60	1215	1350
240	50/60	0-240	252	105	252	105		-	- 2	M91255DU-18D	66	1520	1675
120	50/60	0-280	252**	52.91 125	130	137		-		Particular I		1.000	3262
240	50/60	0-240	300	145	1.00	1.000		-	-	MB11560U-V8Y	60	1455	1600
240	\$0/60 60	0-240	350	345 170	385	150	50	-++		MB115600-21Y	60	1700	1850
240	50/60 60	0-240	400	166	840	182		-	×	MB115600-24Y	80	1960	2120
240	50/00	0-240	450	187	495	206	77.1			MB1156DU27Y	60	2250	2400
240	80 50/60	0-280 0-480	450	218	10.0	0.75	120-3	8	8-1/2	- Market Co	-	-	-
101	60 50/60	0-528	2.25	0.48	125	27				M22-3	Contraction of the local division of the loc	28	31
400	60	0.560	2.25	2.2		1	253	17	19	W200	5, 15, 30, 80	40	101
460	\$0/60 60	0-460	35	2.9	5	42	21603-0	31	36	M216CU-3	5, 15, 30, 60	40	67
240 450§	60 60	0-550	3.5.1	1.51	7	5.8	21700-3	31	36	M217(3)-3	5 15, 30, 60	40	47
480	50/60	0.460	1.5	8.2	10	8.3	2261/-3	48	53	MC22NIE3	5 15 30 80	52	69
240	60 60	0-560	7.5**	3.21	-		La contra	-	- 55				-
	50/60	0-480	10	8.3	13	16.8	23680-0	74	90	M023680-0	5. 15. 30. 60	1	108

Risking when required on a motor game, Whan measures on a tracker or a commutity game, denore to 1.2 answers to type 6, 6.75 answers to 100 protect. 0.8 amplies for 120 protect Maximum support combining operations are supported by the denore of the estings. At types of upper object operations for 100 protect on a tracker game, Whan measures on a tracker game, and the motor of the estings. At types of upper object operations for 100 protect on a tracker game, when measures on a tracker game, and the motor of the estings. At types of upper object operations for 100 protect on the tracker of the estings of the esting

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RATING CHART three phase

	PUT			OUTPUT			MANUALL	PERATED			MOTOR DRIVEN	_	
			CUS	STANT IRENT	EMPE	DANCE DAD		10.11175.9	OXIMATE (EIGHT OUNDS)		AVAILABLE SPEEDS (SECONDS)		ROXIMATE REIGHT OUNDS
VOLTS	HERTZ	YOUTS	MAX.	MAX.	MAX.	MAX. KVA	TYPE	NET	SHIPPINS	TYPE	AT 80 HZ C D	NET	SHIPPING
						TH	REE PHASE P	ATING	S contin	nued			
	50/60	0-480	15	1 12.5	19	15.8	T						T
480	60	0-560	15	14.5			2450-3	114	125	M246U-3	5, 15, 30, 60	126	140
240	60	0-560	15**	6.31	-		10000 C			1.1483 P			
1000	50/50	0-480	28	23.3	28	23.3	CONTRACTOR CONTRACTOR			M81256D-3Y,			
480	60	0-560	28	27.2	-	-	12560-3Y, 12560T-3Y, 12560U-3Y	220	235	M81256DT-3Y	5, 15, 30, 60	235	280
240	60	0-560	28**	11.81			123500-31			MB12560U-3Y			-
	50/60	0-480	56	45.6	55	46.6		16761	1.1	-Otherwitzel		Must	1.000
480	60	0-560	56	54.3	_	-	1256DU 6Y	462	507	M81256DU 6Y	15, 30, 60	482	
240	60	0.560	56**	23.51		-						_	
	50/60	0-480	84	69.8	84	69.8	Example of the	1127	Sales	A STREET, STRE	0.0120	Local Anti-	1000
480	60	0-560	84	81.5		1	1256DU 9Y	715	790	M81255DU-8Y	30, 60	735	810.
240	60	0-560	84**	35.31		-	The second se			1.1.1.2.4.10.2.2.91.11		11021	-
480	50/60	0-480	112	93.1	112	93.1				The second second second			
480	60	0-560	112	109						M812560U-12Y	30, 60	-990	1115
240	60	0.560	112	47.01	_	1007							<u> </u>
480	50/60	0-450	\$40	116	140	116				and the second second	v ieo	1215	1350
400	60	0-560	140	136	-	1.40		-		MB1256DU-15Y			
240	60	0.560	140**	55.81				_	_		_		+
480	50/60	0-450	168	140	168	140				MR125EDU-18Y	60	1455	1600
880	60	0.550	168	163				_		W8125600-161	. 40	7453	1000
240	60	0-560	168**	70.61		1		-	_				-
480	50/60	0-480	195	163	196	163		1.1.1		MB12560U-21Y	60	1700	1850
90V.	60	0-560	196	190		-			-	WB123600-211		*/**	10.00
240	60	0-560	196**	82.31				-				<u> </u>	+
480	50/60	0-480	224	185	224	196				ME12550U-24Y	60	1960	2120
400	60	0-560	224	217		-		-		MB123600-241	. 1957	1000	erey.
240	- 60	0-560	224**	94.11				-				-	-
490	50/60	0-480	252	210	252	210				##195001157V	60	2230	2400
+44	60	0-560	252	244	(25	M81256DU-27Y	60	1000	2400
240	60	0-560	252**	1061	· · · ·	-					_		

Maximum output current in output voltage range from 0 to 25 percent above line voltage. At higher output voltages output current must be reduced according to valing curve Figure B on page 4. SMaximum KVA at maximum output voltage, Maximum KVA at lower output voltages may be calculated from valing curve Figure B on page 4.

O D Speeds are 20 percent slower at 50 herts.

"Q" SERIES

100	10.000	0-120	9	11	12	1.4	Q116U	10	12	-
120	50/60	0-140	9	1.3						
120	60	0-120	10	1.2	13	1.6	01170	10	12	
	10.00	0-240	3.5	0.84	5	1.2		1.12	1.0	-
240	50/60	0-280	3.5	0.98			92160	10	12	
120	50/60	0-260	3.51	0.425	-		6			
240	60	0-240	5	1.2	1	1.7	Q217U	10	12	single phas
240	50/60	0-240	9	2.2	12	2.9	01160-2	20	24	
64033 III	100000	9-280	9	2.5	lines.					
240	60	0-240	10	2.4	13	31	01170-2	20	24	
480	50/80	0-480	3,5	1.7	5	2.4	02160-2	18.5	1.2	
	- SD/ EU	0-560	3.5	2.0	-		02160-2	20	24	
240	50/60	0-560	3.51	0.855	-	-				
480	40	0-480	5	2.4	1	3.4	02178-2	20	24	
		0-120	9	1.9	12	25	01150-2			
120	50/60	0-140	9	2.2	22			20	24	
120	60	0-120	10		13	2.7	01170-2	20	24	
		0-240	3.5	2.1	5	2.1				
240	50/60	0-280	3.5 3.51	1.7	-		Q2160-2	20	24	
120	50/60	0-280	3.51	0.745						the second second
240	60	0-240	5	2.1	7	2.9	Q2170-Z	20	24	three phas
	50/60	0-240	9	21	12	5.0	01150-3		36	
240	60	0-280	9	4.4		-	1000	31		
2401	60	0-240	10	4.2	13	5.4	01170-3	31	36	
the state of the s	50/60	0-480	3.5	2.9	5	4.2				
480	60	0-560	3.5	3.4			Q216U-3	31	36	
	60	0-560	3.51	1.55		-				
240	60							31		

*Other types available on special order). 1 Maximum output current in output voltage range from 0 to 25 percent above line voltage. At higher output voltages colout current must be reduced according to rating curve Figure B on page 4. SMaximum VVA at maximum output voltage. Maximum XVA at inser output voltages may be calculated from rating curve Figure B on page 4. *120 volt input connection and available. * There must be no neutral connection on in vit or output.

RATING CHARTS

40-VOLT SERIES

10	PUT	1		OUTPUT			MANU	ALLY OPERAT	ED.		MOTOR DRIVER						
	WERTZ			RENT	IMP	EDANCE DAD		WE	IGHT UNDSI		AVAILABLE SPEEDS	W	EIGHT				
VOLTS		VOLTS	AMP	MAX.	MAX.	MAX.	TYPE	HET	SHIPPING	TYPES	AT SO HZ O P	NET	SHIPPING				
Tatis			-		-		102-40	21/2	3	-	-	-	1.1				
			2	0.28	9	0.36	100-40-21	6	61/2	-			-				
	1					19397.0	100.40.31	9	91/2	-							
			-	-	-		21.40	51/2	6	M21-40	5, 15, 30, 60	13					
40	60	0-40	18	0.72	22	0.88	21-40-21	1114	1342	M21-40-21	5, 15, 30, 60	21					
		1.44	1.0	12.22			2140.37	17	19	M21-40.31	5, 15, 30, 80	26					
			-	-	-		118CU 40	9	11	M116CU-40	5, 15, 30, 60	18	21				
			25	10	30	12	1166040-21	18	21	M116CU-40-21	5, 15, 30, 60	30	34				
							1.0	3.0	30	1.2	11660-40-31	25	30	M116CU-40-31	5, 15, 30, 50	38	45

II D Speeds are 20 percent slower at 50 hertz.

LW136B SERIES

	TRANS	S LOW-VO FORMER V ED SECON	WITH	LIM	USED AS ITED RANG	L.	LINE	SED AS	R	MANU		RATED ROXIMATE WEIGHT		MOTOR DRIVES	APPI	ROXIMATE	
NOMINAL LINE	VOLTS	MAX.	MAX.	VOLTS	MAX.	MAX.	VOLTS	MAX AMP	MAX.	TYPE		SHIPPING	TYPE	AT BE HZ DE	the second se	SHIPPING	
VULIAGE	15-0-15	35	0.52	96-120 105-135 120-150	25 35	2.0 4.7 3.8	96-126 107-1374 120-150**	25 15 25	3.0 4.2 3.0	LW1368 LW13687 LW1368U	23	26	MULW1368 MDLW13687 MDLW13680	5. 15, 30, 60	36	40	
120	30.0.30	35 25	1.0 3.5	60-120 90-150 120-160	25 35 25	3.0 5.2 4.5	80-120 96-150*1	29 35	3.0 4.2	LW1368U-2	48	52	MOLW1268U-2	5. 15. 30, 60	.68	85	
	45-0-45	35	1.6	30-120 75-165 120-210	25 35 25	30 5.8 5.7	65-120 87-150*1	25 25	3.0 4.2	LW1368U/3	196	80	MDCW1368U-3	3, 15, 30, 60	93	108	
	15-0-15	35 25	0.57	210-240 225-255 240-270	27 15 25	8.0 8.9	213.240 226-2561 240-2741	25 35 75	8.0 8.4 6.0	LW1368 LW13687 LW1368U	22	26	MOLW1368 MDLW1368T MDLW1368U	5, 15, 30, 90	36	40.	Single Phase
240	30-0-30 0-60	35 25	1.0	180-240 210-270 240-390	25 35 25	8.0 9.4 7.5	192-240 213-2741 240-300*1	35 25	5.0 8.4 6.0	LW1368U-2	48	53	MOLWIJEBU 2	3, 15, 30, 60	68	85	
	45-0-45	35	1.6 2.2	150-240 195-285 240-330	25 35 25	8.0 10.0 8.2	175-240 202-295	25	6.0 8.4	LW1368U-3	74	80	MDLW1368U-3	5. 15. 30, 60	-02	106	
#80	30-0-30 0-60	35 25	1.0 1.5	420 480 450-510 480 540	25 35 25	12.0 17.8 13.5	427-480 452-5121 480-5491	25 35 25	10.8 12.0	LW1388U-2	18	53	MOLW1368U-2	5, 15, 20, 60	68	85	
	0-35	-25	4.3	90-120 105-135 120-150	25 10 35	5.2	96-120 107-1371 120-150")	25 35 25	5.3 7.3 5.2	FM13680-5	48	53	MOLW1368U3	5 15 30 60	58	85	
120	0.30	43.1 75	2.2	79-120 98-143 120-167	25 35 25	32 87 72	86-120 101-146	25 35	22 73	LW1358U-3	74	80	MOLWISEBUG	5, 15, 30, 60	-93	168	
	0-30	25	13	210-240 225-255 245-270	25 35 25	10.4 15.5 11.7	213-240 226-2561 240-2741	25 35 25	10.4 14.6 10.4	TM13680.5	188	53	MOLW13680 2	5, 15, 30, 60	18	83	
240	0-30 0-351 0-52 0-601	43.3 40.5 25 25	2.2 7.6 2.2 2.6	180-240+ 197-240 215-270+ 218-263 240-285 240-285	8 25 35 35 25	10.8 10.4 16.4 15.0 12.4 13.0	192-740+ 201-240 214-260*+ 219-264* 240-293*	15 75 75 75 75 75	10.4 10.4 14.5 14.5 10.4	LW1368U.3	- 74	80	WOLWIJEBU-3	5. 15. 30, 60	93	108	Three Phase
480	0.351	433	2.8	420-4801 450-5101 480-5401	25 33 25	20.8 30.1 23.4	480-520*1	35 35 25	20.8 29.1 20.8	rmiseen a	74	80	MDLW1368U-3	5, 15, 30, 60	83	108	

*Other types available on special order 1 Maximum output current in output voltage range from 0 to 25 percent above line voltage. At higher output voltages output current must be reduced according to rating curve figure 8 on page 4, 5 Maximum KVA at maximum output voltage. Maximum KVA at inver output voltages may be calculated from rating curve figure 8 on page 4, 4 (20 volt input connection not available, 1 There must be no insuital connection on imput or output 2 0 Speeds are 20 percent slower at 50 herts.

RATING CHARTS

ENCLOSED L SERIES

)	UNPU1			00	reut					
			CONSTANT	CURRENT	CONSTANT	AD		APPROXIMATE		
VOLTS	HERTZ	VOLTS	MAX.	MAX XVA	MAX.	MAX. KVA	TYPE	NET	SHIPPING	
120	60	0-132	1.75	.73			LICC	5 10.	8 ID.	
120	50/60	0-140	4.5	.63			L210	10 10	11 10.	
120	50/60	0-140	30	1.4			11180	14 10	15 /0	

LINE CORRECTOR SERIES**

		N.	MOTOR DRIVEN		0	ALLY OPERATO	MAN		OUTPUT		UT	1967
	APPROXI WEIGH		AVAILABLE SPEEDS (SECONDS)			APPRO		MAX	MAX.			
SHIPPIN	ET.		AT 60 HZ D D	TYPE	SHIPPING	NET	TYPE	KVA.	AMP.	VOLTS	HERTZ	VOLTS
99	79		5, 15, 30, 60	MDLC21060	81	66	LC21060	6.6	57	115	50/60	95-135
227	97		5, 15, 30, 60	MBLC2115E	202	117	LC2115E	16.6	144	115	50/60	95-135
101	81		5, 15, 30, 60	MDLC2207D	83	58	LC22070	8.3	- 36	230	50/60	195-255
243	13		5, 15, 30, 60	MBLC2228E	208	183	LC2228E	29.9	130	230	50/60	205-250
227	97		5, 15, 30, 60	MBLC2416E	202	172	LC2418E	20.7	45	460	50/60	400-520
252	22		5, 15, 30, 60	MDLC3220YD	229	204	LC3220Y0	25.1	63	230	50/60	195-255
650	65		5, 15, 30, 60	MBLC3245YE	631	551	1C3245YE	57.8	145	230	50/60	195-255
695	80		15, 30, 60	MBLC3270DE	670	560	1C3270DE	74.9	188	230	50/60	195-255
258	28		5, 15, 30, 60	MDLC3425YD	235	210	LC3425YD	27.9	35	460	50/60	400-520
635	50	1	5, 15, 30, 60	MBLC3475YE	616	536	1C3475YE	79.7	100	460	50/60	400-520
635	50		5. 15. 30, 60	MBLC34100YE	616	536	LC34100YE	116	148	450	50/60	420-500

**Line Correctors may also be used as limited range transformers. Input voltage is the output voltage shown in the chart and output voltage is the input voltage shown in the chart. *Maximum voltage limited by saturation characteristics of transformer core *60 herts only.

is in Speeds are 20 percent slower at 50 hertz.

AUXILIARY EQUIPMENT

TYPE	DESCRIPTION	TYPE	DESCRIPTION	TYPE	DESCRIPTION
14096-000	Raise-Lower Swith	26602-008	Control Potentiameter For FR5018	155798	3-Gang Paratieling Choke for 1368
PD1208	Position Detector	Constant and Constant	Transformer for full Range Reg-		2358, 245 Series
26502-008	Position Control Potentiometer	16026	ulator Controllers	15587	Paralleling Choke supplied with all 1156D-1256D Series
16068	Transformer for Positioner Defector	10035	Transformer for Full Range Reg-		
FR5018*	Full Range Regulator Controller For AC Voltage Control	16340	ulator Controllers	16053	2-Gang Paralleling Choke for 146 Series
R5018MP*	Full Range Regulator Controller with Meter and Control	6211060.1	Pasentiumnies Adapter Cit fan 100 Server	16065	3-Gang Paralleting Choke for 146 Series
FR50180C*	Full Range Regulator Controller For D.C Voltage Control	30111-000	Potentiometer Adapter Bit for 12 Series		
		150008	2-Gang Paralleting Choke 1368, 2368, 246 Series		

*Add suffix X when ordering for use with X-suffixed motor-driven POWERSTAT Variable Transformers

REPLACEMENT BRUSHES

UNIT TYPE:	BRUSH TYPE	UNIT TYPE:	BRUSH	UNT TYPE1	BRUSH	UNIT TYPE:	BRUSH TYPE	UNIT TYPE:	BRUSH	UNIT TYPE:	BRUSH TYPE
		1160	RB1158	225	#B226	145	RB146	01150	aponte	02170	R80217
_				1368.1021060 R6136 1	246	R8246	01160	AB0116	LW1368	HELW136	
100	88108	1170	881178		R6136	1156D. LC2115E	8811568	01170	AB0117	100.40	RB108-40
15	9812	2160	P82158	Swazzury.	H10405-0	LC2418E, LC3245YE	H011200	51170		21-40	8821-46
16	the second s	the second s	the second s	330 B 10333 10		1256D, LC2228E					
21	R821	2170	HB2178	2368, CC22070 RB236 CC327	LC3270DE	R812568	Q216U	R8Q216	116CU-40	R61168-40	
22	R822	126	R8126		LC3475YE 1034100YE					1.0000000000000000000000000000000000000	

Eincludes also ganged units and variations such as Enclosed. Dil-Cooled and Explosion proof types.

Other Voltage Control Products

STABILINE® POWER CONDITIONERS -

PPC and WHC Series units maintain constant, clean voltage to electronic equipment by regulating voltage, providing isolation from common-mode noise and attenuating transversemode noise. Mounted in attractive cabinets. Ratings from 110 VA to 33 kVA single phase and 12 kVA to 125 kVA three phase. All 120 VAC, 60 Hz PPC Series units are UL 1012 listed and CSA certified; international 230 VAC, 50 Hz models are TUV certified.

STABILINE* UNINTERRUPTIBLE POWER SUPPLIES -

UPSY Series units are true on-line systems that regulate voltage, protect equipment from noise and provide battery backup power in event of utility failure. Available in 500 VA desktop models with easy conversion to rack mounting. SP Series feature an Advanced Battery Management system to prolong battery life, speed recharge time and provide advance notification of impending battery service. Available in North American 120 VAC, 60 Hz and international 230 VAC, 50/60 Hz models with power ratings of 220, 300, 420, 500 and 650 VA.





SL Series units are line-interactive devices that provide continuous sinewave output to every mission critical load. Use "boost/buck" tap system for tight output regulation and control over chronic low or high input voltage conditions. Available in North American versions with user selectable 110, 120 or 127 VAC, 60 Hz operation and international models for user selectable 220, 230 or 240 VAC, 50/60 Hz operation. Power ratings of 400, 600, 1000, 1500, 2000 and 2200 VA.

STABILINE® POWER QUALITY INTERFACES -

PQI Series Transient Voltage Suppressors/RFI Filters provide bidirectional protection from source or load disturbances such as electromagnetic Interference, spikes and transients. Offer input/output option choices and fax/modern telephone line protection. Ratings 120 VAC, 12 and 15A and 240 VAC, 20A. CSA approved and UL 1449 listed (clamping level 330 V). Wall and rack mount, desktop, industrial hardwired and NEMA 12 models available.

STABILINE® VOLTAGE REGULATORS -

WHR Series units for AC power systems up to 660 V are high power voltage regulators that maintain constant voltage to sensitive equipment even when the input voltage and system load vary widely. Numerous standard options for tailoring unit to the application. Power ratings from 2 to 1680 kVA, 99% typical efficiency, no waveform distortion or power factor restrictions and availability of two input voltage ranges. Hold output voltage within ±1%.

Distribution Coast-to-Coast and International

Superior Electric products are available worldwide through an extensive authorized distributor network. These distributors offer literature, technical assistance and a wide range of models off the shelf for fastest possible delivery and service.

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