



## **ALTERNATOR E1X13S B/2**

*three-phase brushless synchronous alternator with AVR - 2 poles*

Technical Data Sheet

## E1X13S B/2

### COMMON DATA

Rated Power at 50Hz	kVA	10	
Rated Power at 60Hz	kVA	12.5	
Rated Power Factor		0.8	
Nominal Temperature	°C	40	
Control System		self excited	
Execution		brushless	
Regulation Type		AVR	
Insulation Class		H	
Protection		IP21	
Maximum Overspeed	rpm	4500	
Overload		110% of rated power for one hour in a cycle of 6 hours	
Air Flow Requirement	m <sup>3</sup> /min	8.4 at 50Hz	10.1 at 60Hz
R.F.I. Suppression		Standard EN55011	

### REGULATION DATA

AVR	HVR11	HVR30
Sensing	single-phase	three-phase
Voltage Regulation	±1%	±1%
Sustained Short Circuit	> 300% of rated current	

### WINDING DATA

Stator Winding	Double layer with auxiliary winding	
Rotor Winding	with damping cage	
Winding Pitch	2/3	
Number of Leads of Stator	12	
Stator Winding Resistance	1.07 at 20°C	
Rotor Winding Resistance	9.42 at 20°C	
Exciter Stator Resistance	16.5 at 20°C	
Exciter Rotor Resistance	2.15 at 20°C	
THD at full load	<3%	
THD at no load	<3%	
Excitation at no load	A <sub>dc</sub>	0.19
Excitation at full load	A <sub>dc</sub>	1.03

### STANDARD

References	EN60034-1 ISO8528-3 EN55011
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### ELECTRICAL DATA

Frequency		50Hz - 3000rpm				60Hz - 3600rpm			
Voltage Series Star	V	<b>380/220</b>	<b>400/230</b>	<b>415/240</b>	<b>440/254</b>	<b>415/240</b>	<b>440/254</b>	<b>460/266</b>	<b>480/277</b>
Rated Power in Class H (125°C/40°C)	kVA	10	10	10	8.5	11	12.5	12.5	12.5
	kW	8	8	8	6.8	8.8	10	10	10
Rated Power in Class F (105°C/40°C)	kVA	9.5	9.5	9.5	7.8	10	11.5	11.5	11.5
	kW	7.6	7.6	7.6	6.24	8	9.2	9.2	9.2
Rated Power Standby (150°C/40°C)	kVA	11	11	10.8	9	12	13.5	13.5	13.5
	kW	8.8	8.8	8.64	7.2	9.6	10.8	10.8	10.8
Rated Power Standby (163°C/27°C)	kVA	11.4	11.4	11	9.4	12.5	14.2	14.2	14.2
	kW	9.12	9.12	8.8	7.52	10	11.36	11.36	11.36

### EFFICIENCY IN CL. H

4/4		81.5%						82.0%
3/4		81.6%						82.3%
2/4		78.0%						78.7%
1/4		74.0%						74.6%

### REACTANCES AND TIME CONSTANTS

pcc		0.42						
X <sub>d</sub> - dir. axis synchronous		432%	390%	362%	274%	459%	464%	390%
X' <sub>d</sub> - dir. axis transient		36.6%	33.0%	30.7%	23.2%	38.8%	39.3%	33.0%
X'' <sub>d</sub> - dir. axis subtransient		13.3%	12.0%	11.1%	8.4%	14.1%	14.3%	12.0%
X <sub>q</sub> - quad. axis reactance		255%	230%	214%	162%	271%	274%	230%
T' <sub>do</sub> - O.C. field time constant		320ms						
T' <sub>d</sub> - Transient time constant		27ms						
T'' <sub>d</sub> - Sub-transient time constant		7.9ms						

### MECHANICAL DATA

Bearing non drive end				6305-2Z-C3
Bearing drive end (B3/B14 form)				6208-2Z-C3
Weight of generator	in B2	kg		66
	in B3/B14	kg		61.9
	in B3/B9	kg		\

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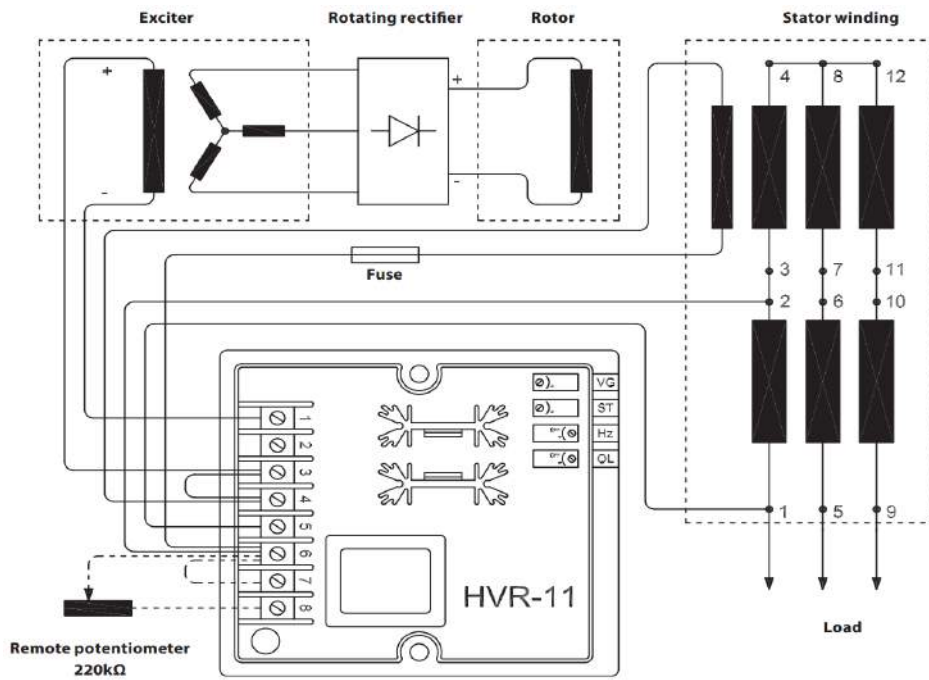
**MOMENT OF INERZIA**

B3/B9	kg·m <sup>2</sup>	\
SAE 7½	kg·m <sup>2</sup>	0.06
B2	kg·m <sup>2</sup>	0.062

**POWER VARIATION ACCORDING TO TEMPERATURE AND ALTITUDE**

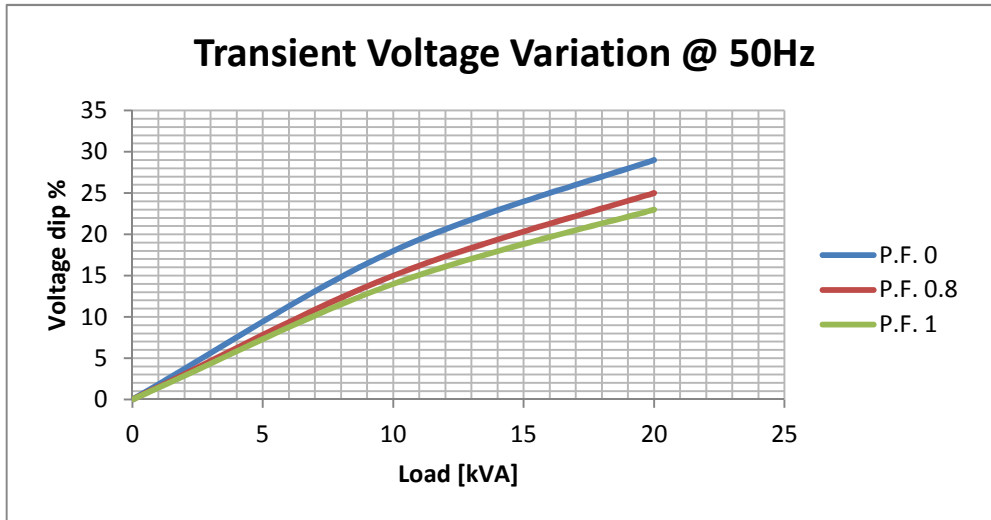
Altitude	Ambient temperature				
	25°C	40°C	45°C	50°C	55°C
< 1000m	1.09	1	0.96	0.93	0.91
1000m - 1500m	1.01	0.96	0.92	0.89	0.87
1500m - 2000m	0.96	0.91	0.87	0.84	0.83
2000m - 3000m	0.9	0.85	0.81	0.78	0.76

**WIRING DIAGRAM**

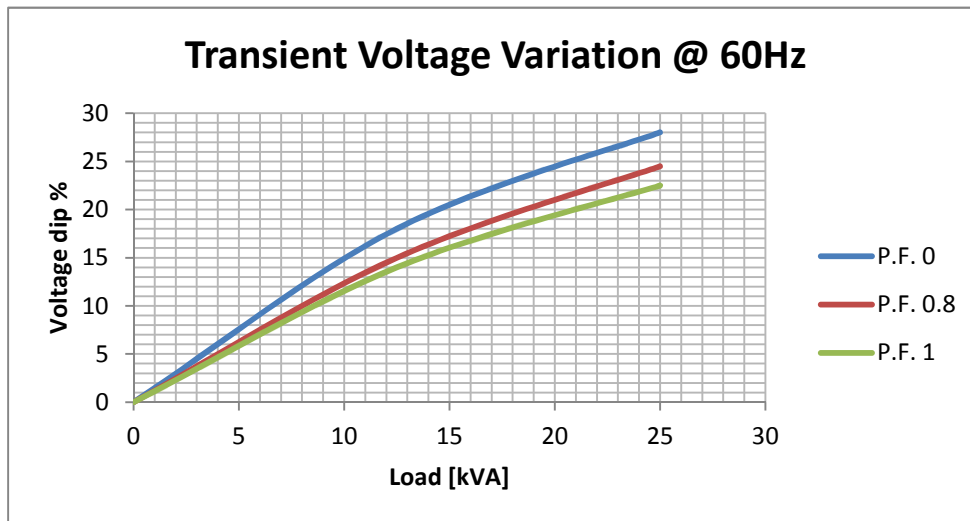


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**TRANSIENT VOLTAGE VARIATION 50Hz**

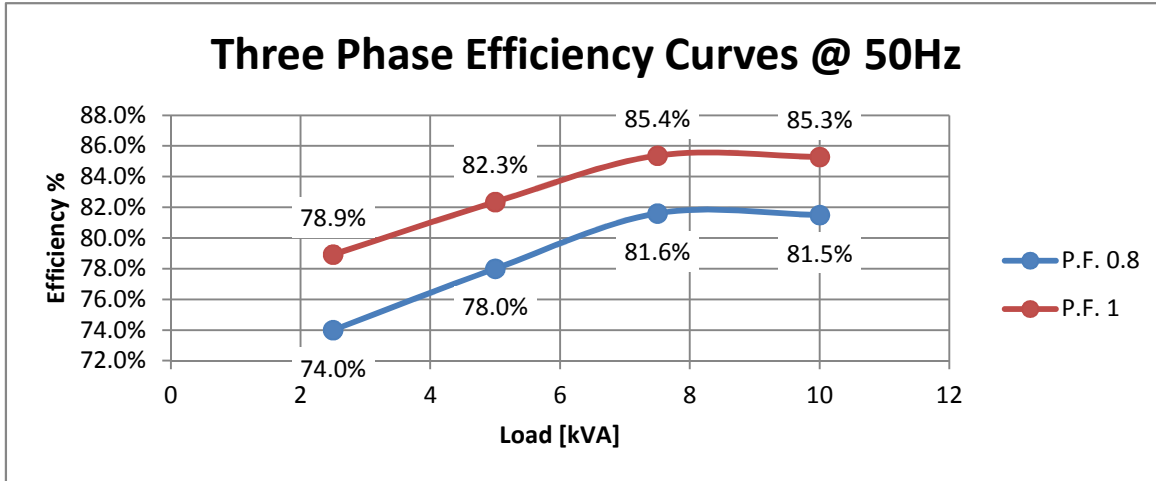


**TRANSIENT VOLTAGE VARIATION 60Hz**

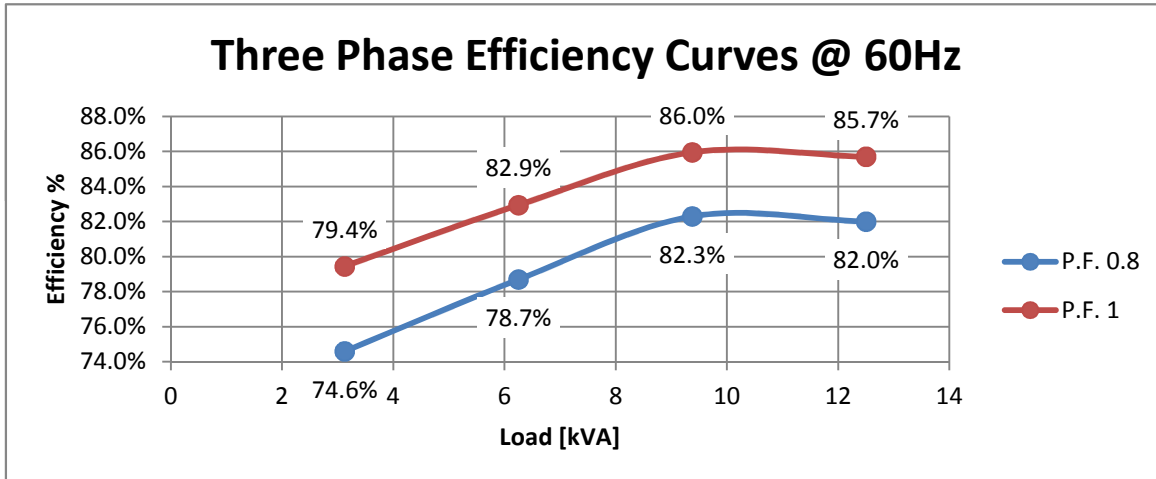


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### EFFICIENCY 50Hz



### EFFICIENCY 60Hz



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