THREE-PHASE SYNCHRONOUS GENERATOR

UNA397-D

Datasheet For 4 Poles - 50Hz @ 1500rpm / 60Hz @ 1800rpm

Ambient Temperature	40°C	**Excitation**	Brushless	**Short Circuit Current Capacity (with AUX OR PMG**	≥300%
Temperature Rise	125K	**Winding Pitch**	2 / 3	**Method of Cooling**	IC01
Service Duty	Continuous	**Power Factor**	0.8	**Direction of Rotation (viewing from Drive End)**	CW
Phase	3	**Insulation Class**	Class H	**Maximum Over-speed**	2250 rpm
Pole	4	**Waveform : TIF**	<50	**Degree of Protection**	IP23
Voltage Regulation Accuracy	+/- 0.5%	**Waveform : THF**	<2%	**Radio interference**	Class B Group 1
AVR Model	ETC-01	**Altitude**	≤1000 m.a.s.l	**Total Harmonic Content**	< 3% - At no load

Electrical and Mechanical Characteristic

Frequency	**Hz**	**50**			**60**				
Round per minute	**rpm**	**1500**			**1800**				
Voltage (Y Connection) - Series Star	**V**	380	**400**	415	380	416	440	460	480
Voltage (YY Connection) - Parallel Star	**V**	190	**200**	208	190	208	220	230	240
Voltage (Δ Connection) - Series Delta	**V**	220	**230**	240	220	240	254	266	277
Voltage (ΔΔ Connection) - Parallel Delta	**V**	110	**115**	120	110	120	127	133	138
Rated power at Class H (125K) temperature rise	**kVA**	190	**200**	192.5	190	207.5	220	230	240
	kW	152	**160**	154	152	166	176	184	192
Efficiency at Class H (P.F.=0.8)	**100%**	92.3	**92.4**	92.3	92.2	92.3	92.4	92.6	92.8
	75%	93.0	**93.1**	93.0	92.9	93.0	93.1	93.3	93.5
	50%	92.7	**92.8**	92.7	92.5	92.6	92.7	92.9	93.1
Efficiency at Class H (P.F.=1.0)	**100%**	93.9	**94**	93.9	93.9	94.0	94.1	94.3	94.5
	75%	94.6	**94.7**	94.6	94.6	94.7	94.8	95.0	95.2
	50%	94.3	**94.4**	94.3	94.2	94.3	94.4	94.6	94.8
Short-circuit ratio	**Kcc**	0.3310	**0.3490**	0.3897	0.2759	0.3029	0.3194	0.3337	0.3484
Direct axis synchronous reactance unsaturated	**Xd**	3.0211	**2.8700**	2.5663	3.6250	3.3010	3.1307	2.9969	2.8700
Quadrature axis synchronous reactance unsaturated	**Xq**	1.8632	**1.7700**	1.5827	2.2356	2.0358	1.9308	1.8482	1.7700
Direct axis transient reactance saturated	**X'd**	0.2284	**0.2170**	0.1940	0.2741	0.2496	0.2367	0.2266	0.2170
Direct axis subtransient reactance saturated	**X"d**	0.1905	**0.1810**	0.1618	0.2286	0.2082	0.1974	0.1890	0.1810
Quadrature axis subtransient reactance saturated	**X"q**	0.2200	**0.2090**	0.1869	0.2640	0.2404	0.2280	0.2182	0.2090
Zero sequence reactance unsaturated	**X0**	0.0389	**0.0370**	0.0331	0.0467	0.0426	0.0404	0.0386	0.0370
Leakage reactance	**X_L**	0.1347	**0.1280**	0.1145	0.1617	0.1472	0.1396	0.1337	0.1280
Negative sequence reactance saturated	**X2**	0.2053	**0.1950**	0.1744	0.2463	0.2243	0.2127	0.2036	0.1950

Open circuit time constant (sec.)	**T'do**	1.4806	
Short-circuit transient time constant (sec.)	**T'd**	0.0786	
Subtransient time constant (sec.)	**T"d**	0.0092	
Armature time constant (sec.)	**Tα**	0.0206	
No load excitation current	**io(A)**	0.5	0.5
Full load excitation current	**ic(A)**	1.9	1.8
Full load excitation voltage	**uc(V)**	50	48
Stator Winding Resistance (20°C)	**ohm**	0.02311	
Rotor Winding Resistance (20°C)	**ohm**	0.8508	
Exciter Stator Resistance (20°C)	**ohm**	17.1241	
Exciter Rotor Phase resistance	**ohm**	0.06603	
Cooling air requirement	**m^3/sec**	0.43	0.51

Configuration	**Single Bearing**	**Double Bearing**
Type of Construction	**B2 - SAE**	**IM B34**
Inertia (J) [kgm2]	2.47	2.37
Total Weight	533	541
Drive end bearing / Lubrication	Not supply	6218 C3-2Z / Prelubricated - sealed for life
Non-drive end bearing / Lubrication	6311 C3-2Z / Prelubricated - sealed for life	
Voltage Recovery Time - sec.	1.0	
Stator winding	DOUBLE LAYER CONCENTRIC	
Number of Terminal	12	
Rotor	with damping cage	
Overload	110% rated load for 1 hour	

STANDARD COMPLIANCE - IEC 60034-1; CEI 2-3; BS 4999-5000; VDE 0530; NF 51-100,111; OVE M-10, NEMA MG 1.22.