



# THREE-PHASE SYNCHRONOUS GENERATOR

**UNA397-F**

**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				
		1500			1800				
Round per minute	rpm								
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	237.5	250	240	237.5	260	275	287.5	300
	kW	190	200	192	190	208	220	230	240
Efficiency at Class H (P.F.=0.8)	100%	92.7	92.8	92.7	92.8	92.9	93.1	93.3	93.5
	75%	93.4	93.5	93.4	93.5	93.6	93.8	94.0	94.2
	50%	93.1	93.2	93.1	93.2	93.3	93.5	93.7	93.9
Efficiency at Class H (P.F.=1.0)	100%	94.2	94.3	94.2	94.2	94.3	94.5	94.7	94.9
	75%	94.9	95	94.9	94.9	95.0	95.2	95.4	95.6
	50%	94.6	94.7	94.6	94.6	94.7	94.9	95.1	95.3
Short-circuit ratio	Kcc	0.3323	0.3500	0.3922	0.2769	0.3034	0.3206	0.3350	0.3498
Direct axis synchronous reactance unsaturated	Xd	3.0095	2.8590	2.5498	3.6111	3.2963	3.1187	2.9854	2.8590
Quadrature axis synchronous reactance unsaturated	Xq	1.8116	1.7210	1.5349	2.1737	1.9842	1.8773	1.7971	1.7210
Direct axis transient reactance saturated	X'd	0.2031	0.1929	0.1720	0.2436	0.2224	0.2104	0.2014	0.1929
Direct axis subtransient reactance saturated	X''d	0.1664	0.1581	0.1410	0.1997	0.1823	0.1725	0.1651	0.1581
Quadrature axis subtransient reactance saturated	X''q	0.1989	0.1890	0.1686	0.2387	0.2179	0.2062	0.1974	0.1890
Zero sequence reactance unsaturated	X0	0.0358	0.0340	0.0303	0.0429	0.0392	0.0371	0.0355	0.0340
Leakage reactance	X <sub>L</sub>	0.1158	0.1100	0.0981	0.1389	0.1268	0.1200	0.1149	0.1100
Negative sequence reactance saturated	X2	0.1827	0.1736	0.1548	0.2193	0.2002	0.1894	0.1813	0.1736
Open circuit time constant (sec.)	T'do	1.6212							
Short-circuit transient time constant (sec.)	T'd	0.0784							
Subtransient time constant (sec.)	T''d	0.0104							
Armature time constant (sec.)	Ta	0.0224							
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)	48			46				
Stator Winding Resistance (20°C)	ohm	0.01688							
Rotor Winding Resistance (20°C)	ohm	0.9726							
Exciter Stator Resistance (20°C)	ohm	17.1241							
Exciter Rotor Phase resistance	ohm	0.06603							
Cooling air requirement	m <sup>3</sup> /sec	0.47			0.565				

Configuration	Single Bearing	Double Bearing
Type of Construction	B2 - SAE	IM B34
Inertia (J) [kgm2]	2.86	2.76
Total Weight	603	611
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.

Data and Technical Specification are subject to change in order to update or improve the products, without prior notice