

ULTRA SILENT SERIES

DIESEL GENERATOR
GROUPE ELECTROGENE DIESEL
GRUPO ELECTROGENO DIESEL
GRUPPO ELETTROGENO DIESEL

MODEL
MODELE
MODELO
MODELLO

VO 462 FQ*



ULTRA SILENT VERSION



GENERATING SET PERFORMANCE PERFORMANCES DU GROUPE PRESTACIONES DEL GRUPO PRESTAZIONI DEL GRUPPO		50 Hz	60 Hz
Voltage Voltage Voltaje Tensione		V 400 / 230	V 220 / 127
Continuous Power Puissance service continue Potencia servicio continuo Potenza servizio continuo	PRP	kVA 400	kVA 450
Stand-by Power Puissance service secours Potencia servicio emergencia Potenza servizio in emergenza	LTP	kVA 440	kVA 500
Continuous Power Puissance service continue Potencia servicio continuo Potenza servizio continuo	PRP	kWe 320	kWe 360
Stand-by Power Puissance service secours Potencia servicio emergencia Potenza servizio in emergenza	LTP	kWe 352	kWe 400
Power factor Facteur de puissance Factor de potencia Fattore di potenza	cos φ	0,8	0,8
Fuel consumption Consommation combustible Consumo de combustible Consumo combustibile	70 %	l/h 55,7	l/h 62,6
Noise level Niveau de bruit Nivel de ruido Livello rumorosità	dB(A)@7m	64dB(A) without load	
Limit ambient temperature Limite de la température ambiante Limite de la temperatura ambiente Limite di temperatura ambientale		55°C minimum	

ENGINE MOTEUR MOTOR MOTORE		VOLVO PENTA		TAD 1344 GE	
PERFORMANCE PERFORMANCES PRESTACIONES PRESTAZIONI		1500 rpm		1800 rpm	
Continuous Power Puissance service continue Potencia servicio continuo Potenza servizio continuo	PRP	kWm	358,8	kWm	402,7
Stand-by Power Puissance service secours Potencia servicio emergencia Potenza servizio in emergenza	LTP	kWm	393,8	kWm	441,7
Specific fuel consumption Consommation spécifique combustible Consumo específico de combustible Consumo specifico combustibile		g/kWh	25 % 219 50 % 200 75 % 197 100 % 194	g/kWh	25 % 229 50 % 205 75 % 200 100 % 201
Diesel 4 Stroke – Injection type Diesel 4 temps – Type injection Diesel 4 tiempos – Tipo de inyección Diesel a 4 tempi – Tipo di iniezione					Direct Directe Directa Diretta
Aspiration type Type d'aspiration Tipo de aspiracion Tipo d'aspirazione					Turbocharged Suralimentée Sobrealimentado Sovralimentata
Cooling system Refroidissement Sistema de refrigeración Raffreddamento					Water Eau Agua Acqua
Speed governor Régulateur de tours Regulador Regolatore di giri					Electronic Électronique Eléctronico Elettronico
Cylinders, numbers and arrangement Nombre et disposition des cylindres Cilindros, numero y disposición Numero e disposizione dei cilindri					6 L
Total displacement Cylindrée totale Cilindrata total Cilindrata totale				cm ³	12.780
Bore x stroke Alésage x course Diámetro x carrera Alesaggio x corsa				mm	131 x 158
Compression ratio Rapport de compression Relación de compresión Rapporto di compressione					18.1:1
Engine electric system voltage Voltage système électrique moteur Voltaje sistema eléctrico motor Voltaggio sistema elettrico motore					24 V
Derating for temperature Déclassement pour temperature Declasamiento para temperatura Declassamento per temperatura					NO DERATING
Derating for altitude Déclassement pour altitude Declasamiento para altitud Declassamento per altitudine		0÷3000 mt	0	0÷2000 mt	0
		3000÷3500 mt	4%	2000÷3000 mt	4 % / 500 m
		>3500 mt	7% / 500 mt	>3000 mt	10% / 500 m
Derating for relative humidity Déclassement pour humidité relative Declasamiento para humedad relativa Declassamento per umidità relativa					NO DERATING

ALTERNATOR ALTERNATEUR ALTERNADOR ALTERNATORE				MECCALTE	
PERFORMANCE PERFORMANCES PRESTACIONES PRESTAZIONI		1500 rpm		1800 rpm	
Model Modèle Modelo Modello		ECO40-1S/4		ECO40-1S/4	
Continuous Power Puissance service continue Potencia servicio continuo Potenza servizio continuo	40 °C	kVA kWe	400 320	KVA kWe	450 360
Stand-by Power Puissance service secours Potencia servicio emergencia Potenza servizio in emergenza	40 °C	KVA kWe	420 336	KVA kWe	504 403
Stand-by Power Puissance service secours Potencia servicio emergencia Potenza servizio in emergenza	27 °C	KVA kWe	438 350	KVA kWe	525 420
Efficiency Rendement Eficienza Efficienza		2/4 3/4 4/4	92,9 % 93,8 % 93,5 %	2/4 3/4 4/4	94,4 % 95,2 % 95,0 %
Standard winding connections Liaison des bobinages Tipo de conexión Collegamento avvolgimenti		Y		YY	
Exciter Eccitatrice Excitador Eccitatrice	brushless rotating exciter design with solid state pivotante sans brosses avec pont de diodes pivotants puente de diodos sin escobillas rotantes rotante senza spazzole con ponte di diodi rotanti				
Poles Poles Polos Poli		4			
Phases Phases Fases Fasi		3 + N			
Wires Fils Hilos Morsetti		12			
Voltage regulation Regulation Voltage Regulación voltaje Regolazione tensione		± 1%			
Insulation class Classe d' isolation Classe de aislamiento Classe di isolamento		H			
Enclosure Degré de protection mécanique Grado de protección mecánica Grado di protezione meccanica		IP 21			
Air Volume Volume d'air Volumen de aire Volume d'aria		50 Hz 60 Hz	54 m³/min 64,8 m³/min		
Standard AVR model Modèle AVR standard Modelo AVR standard Modello AVR standard		DER-1			
Derating for temperature Déclassement pour temperature Declasamiento para temperatura Declassamento per temperatura		0 ÷ 40°C > 40 °C	0 3 % / 5°C		
Derating for altitude Déclassement pour altitude Declasamiento para altitud Declassamento per altitudine		0 ÷ 1000 m 1000 ÷ 2500 m 2500 ÷ 3000 m	0 3% / 500 m 4% / 500 m		

LOGISTIC INFORMATION
INFORMATIONS LOGISTIQUES
INFORMATION LOGISTICA
INFORMAZIONI LOGISTICHE

	Integrated fuel tank capacity Capacité réservoir intégré Capacidad Tanque integrado Capacità Serbatoio integrato		Weight Poids Peso Peso	Dimensions Cotes d'encombrement Medidas externas Dimensioni d'ingombro			
	(L)			(kg)	(cm)		
	STD	EXTRA 1			L	W	H
SOUND PROOF VERSION VERSION INSONORISEE VERSIONE INSONORISATA VERSIONE INSONORIZZATA	2000	ON REQUEST	8340	500	210	240	

GENSET STANDARD EQUIPMENT
EQUIPEMENT STANDARD GROUPE ELECTROGENE
EQUIPAMIENTO STANDARD GRUPO ELECTROGENO
EQUIPAGGIAMENTO STANDARD GRUPPO ELETTROGENO

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✓ Lifting eye ✓ Fully bunded fuel tank ✓ Integrated fuel tank ✓ Vibration dampers ✓ One or more electric fans controlled by Inverter VSi ✓ Manual autostart control panel ACP7310AUS with circuit breaker ✓ Battery ✓ Ultra silent canopy ✓ Residential silencer ✓ Fork lift guides	✓ Crochet de levage ✓ Bac de rétention ✓ Réservoir intégré ✓ Amortisseurs de vibration ✓ Un ou plusieurs ventilateurs électriques commandés par Inverter VSi ✓ Démarrage manuel autostart ACP7310AUS avec disjoncteur de protection ✓ Batterie ✓ Capotage ultra-silencieux ✓ Silencieux résidentielle ✓ Supports pour fourches	✓ Gancho central ✓ Tanque del combustible con sistema de recolección de líquidos ✓ Tanque de combustible integrado ✓ Sistema de amortiguación anti-vibrante ✓ Uno o más ventiladores eléctricos controlados para Inverter Vsi ✓ Cuadro manual autostart ACP7310AUS con interruptor magnetotérmico ✓ Batería ✓ Cabina ultra-silenciosa ✓ Silenciador residencial ✓ Supportes para carretilla	✓ Gancio di sollevamento centrale ✓ Serbatoio con vasca di raccolta liquidi ✓ Serbatoio integrato ✓ Anti vibranti ✓ Una o più ventole elettriche controllate da tecnologia Inverter VSi ✓ Quadro di comando manuale autostart ACP7310AUS con interruttore magnetotermico ✓ Batteria ✓ Cabina ultra silenziosa ✓ Marmitta residenziale ✓ Porta forche

MANUAL AUTOSTART CONTROL PANEL
COFFRET ELECTRIQUE MANUEL AUTOSTART
CUADRO ELECTRICO MANUAL AUTOSTART
QUADRO ELETTRICO MANUALE AUTOSTART

ACP 7310 AUS

630 A (400 V - 3 ph - 50Hz - 1500 rpm)
1250 A (220 V - 3 ph - 60Hz - 1800 rpm)

STANDARD EQUIPMENT: 4 poles circuit breaker Electronic control board DSE 7310 Control panel box key Emergency Stop button	EQUIPEMENT STANDARD: Disjoncteur de protection 4 pôles Fiche électronique DSE 7310 Clé pour serrure du coffret Interrupteur d'arrêt d'urgence	EQUIPAMIENTO STANDARD: Interruptor magnetotermico 4 polos Carta electronica DSE 7310 Llave cuadro Botón de parada de emergencia	EQUIPAGGIAMENTO STANDARD: Interruttore magnetotermico 4 poli Scheda elettronica DSE 7310 Chiave quadro Pulsante di arresto di emergenza
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**DSE
7310**

CONTROL BOARD
CARTE ELECTRONIQUE DE CONTROL
CARTA ELECTRONICA DE CONTROL
SCHEDA ELETTRONICA DI CONTROLLO

PROTECTIONS	PROTECTIONS	PROTECCIONES	PROTEZIONI
Low oil pressure High engine temperature Low fuel level Fail to start Fail to stop Emergency stop Over/under generator frequency Over/under generator voltage Over/under speed Fuel level Belt breakage Over current Over/under battery voltage	Basse pression huile moteur Haute température moteur Basse niveau combustible Non démarrage Non arrêt Arrêt d'urgence Sur/sous générateur fréquence Sur/sous générateur voltage Sur/sous vitesse Niveau de combustible Rupture courroie Surcourant Sur/sus la tension de batterie	Baja presión aceite Elevada temperatura motor Baja nivel carburante Falta de arranque Falta de parada Parada de emergencia Sobre/bajo generatore frecuencia Sobre/bajo generatore voltaje Sobre/bajo velocidad nivel de combustible Ruptura correa Corriente maxima Sobre/bajo voltaje de la batería	Bassa pressione olio Alta temperatura motore Basso livello di carburante Mancato avviamento Mancato arresto Stop d'emergenza Sovra/sotto frequenza generatore Sovra/sotto voltaggio generatore Sovra/sotto velocità Livello del carburante Rottura cinghia Sovraccorrente Sovra/sotto tensione della batteria
DIGITAL METERS	VOYANT NUMERIQUE POUR	VISOR DIGITAL PARA	MISURATORE DIGITALE PER
Generator volts (3 phases) Generator amperes (3 phases) Generator frequency KW-meter KVA-meter Cos φ-meter Rpm meter Gen set hours counter Battery Volts	Voltmètre générateur (3 phases) Ampèremètre générateur (3 phases) Fréquencemètre générateur KW-mètre kVA- mètre Cos φ- mètre Tm mètre Totalisateur d'heures de marche Voltmètre batterie	Voltmetro (3 fases) Amperimetro (3 fases) Frecuencimetro KW- metro kVA- metro Cos φ- metro Revoluciones por minuto metro Medida horas de marcha Voltmetro batería	Voltmetro tensione generatore (3 fasi) Amperometro generatore (3 fasi) Frequenzimetro generatore KW- metro kVA- metro Cos φ- metro Gm metro Contaore di funzionamento gruppo Voltmetro batteria

**AUTOMATIC CONTROL PANEL
COFFRET ELECTRIQUE AUTOMATIQUE
CUADRO ELECTRICO AUTOMATICO
QUADRO ELETTRICO AUTOMATICO**

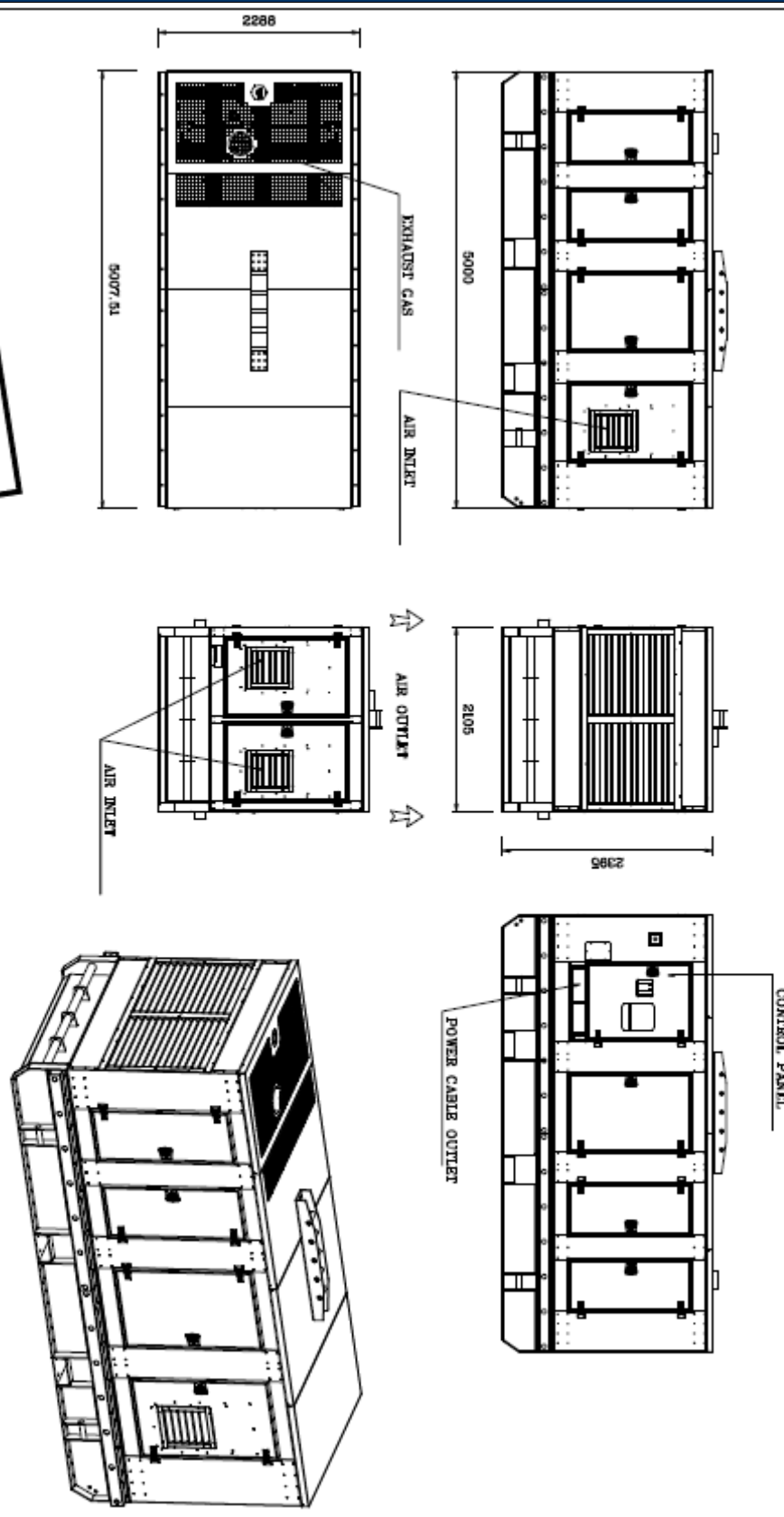
1)		COMPLETE CONTROL PANEL FREE STANDING TYPE Equipment: control board, circuit breaker, battery charger, transfer switch, box key. COFFRET ELECTRIQUE COMPLET TYPE ARMOIRE SEPARÉ DU GROUPE Equipement : carte électronique de contrôle, disjoncteur de protection, chargeur de batterie, inverseur de source, clé coffret. CUADRO ELECTRICO COMPLETO EN ARMARIO SEPARADO DEL GRUPO Equipamiento: carta electronica de controllo, interruptor magnetotermico, cargador de bateria, transferencial, llave quadro. QUADRO ELETTRICO COMPLETO SEPARATO DAL GRUPPO Equipaggiamento: scheda elettronica di controllo, interruttore magnetotermico, carica batteria, telecommutazione e chiave quadro.
2)		AMF CONTROL PANEL FITTED ON THE GEN-SET WITHOUT TRANSFER SWITCH Equipment: control board, circuit breaker, battery charger, box key. COFFRET ELECTRIQUE MONTE SUR LE GROUPE SANS INVERSEUR DE SOURCE Equipement : carte électronique de contrôle, disjoncteur de protection, chargeur de batterie, clé coffret. CUADRO ELECTRICO MONTADO SOBRE EL GRUPO SIN TRANSFERENCIAL Equipamiento: carta electronica de controllo, interruptor magnetotermico, cargador de bateria, llave quadro. QUADRO ELETTRICO MONTATO SUL GRUPPO ELETTROGENO SENZA TELECOMMUTAZIONE Equipaggiamento: scheda elettronica di controllo, interruttore magnetotermico, carica batteria, chiave quadro.
3)		CONTROL PANEL FITTED ON THE GEN-SET WITH TRANSFER SWITCH SUPPLIED IN A SEPARATED BOX Equipment: control board, circuit breaker, battery charger, box key, separate transfer switch. COFFRET ELECTRIQUE MONTE SUR LE GROUPE + INVERSEUR DE SOURCE FOURNI DANS UN COFFRET SEPARÉ Equipement : carte électronique de contrôle, disjoncteur de protection, chargeur de batterie, inverseur de source séparé, clé coffret. CUADRO ELECTRICO MONTADO SOBRE EL GRUPO CON TRANSFERENCIAL SEPARADO Equipamiento: carta electronica de controllo, interruptor magnetotermico, cargador de bateria, llave quadro, transferencial separado. QUADRO ELETTRICO MONTATO SUL GRUPPO ELETTROGENO CON TELECOMMUTAZIONE SEPARATA Equipaggiamento: scheda elettronica di controllo, interruttore magnetotermico, carica batteria, chiave quadro, telecommutazione in armadio separato.

	DSE 7320 CONTROL BOARD CARTE ELECTRONIQUE DE CONTROL CARTA ELECTRONICA DE CONTROL SCHEDE ELETTRONICA DI CONTROLLO
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The DSE7320 is an Automatic Mains Failure Control Module designed to automatically start and stop diesel generating sets that include electronic and non electronic engines. The module also provides excellent genset monitoring and protection features.	La DSE7320 est une carte de contrôle projetée pour démarrer et arrêter automatiquement groupes électrogènes diesels avec moteurs électroniques et non électroniques. La carte représente un système excellent de contrôle et de protection du groupe électrogène.	La DSE7320 es una carta de control para arrancar y parar automáticamente grupos electrógenos diesel con motores electrónicos y no electrónicos. La carta constituye un excelente sistema de control y protección del grupo electrógeno.	La DSE7320 è una scheda di controllo progettata per avviare e arrestare automaticamente gruppi elettrogeni diesel con motori elettronici e non elettronici. La scheda costituisce un eccellente sistema di controllo e di protezione del gruppo elettrogeno.
FEATURES	EQUIPEMENT	EQUIPMENT	EQUIPAGGIAMENTO
Stop/restart – Auto – Manual – Start LCD display scroll Event log view Acoustic alarm	Fiche électronique de contrôle DSE7320 Disjoncteur de protection Chargeur de batterie Bouton poussoir arrêt d'urgence	Ficha electrónica de control DSE7320 Interruptor magnetotermico Cargador de batería Botón de parada de emergencia	Scheda elettronica di controllo DSE7320 Interruttore magnetotermico Carica batteria Pulsante stop emergenza
DIGITAL MEASURING	MESURES NUMERIQUES	MEDIDAS DIGITALES	MISURAZIONI DIGITALI
Generator volts (3 phases) Generator amperes (3 phases) Generator frequency KW-meter kVA-meter Cos φ-meter Rpm meter Water temperature (optional) Oil pressure (optional) Gen set hours counter Mains volts Battery volts Mains frequency Charging voltage Start-counter Fuel level %	Voltmètre générateur (3 phases) Ampèremètre générateur (3 phases) Fréquencemètre générateur KW-mètre kVA- mètre Cos φ- mètre Tm mètre Température eau (facultatif) Pression huile (facultatif) Totalisateur d'heures de marche Voltmètre secteur Voltmètre batterie Fréquence réseau Tension de charge Compteur démarrages Niveau combustible %	Voltmetro (3 fases) Amperimetro (3 fases) Frecuencimetro KW- metro kVA- metro Cos φ-metro Revoluciones por minuto metro Termometro agua (opcional) Presión aceite (opcional) Medida horas de marcha Voltmetro tensión de red Voltmetro batería Frecuencia red Tensión de carga Numero de arranques Nivel carburante %	Voltmetro tensione generatore (3 fasi) Amperometro generatore (3 fasi) Frequenzimetro generatore KW- metro kVA- metro Cos φ-metro Gm metro Temperatura acqua (facoltativo) Pressione olio (facoltativo) Contaore di funzionamento gruppo Voltmetro tensione rete Voltmetro batteria Frequenza rete Tensione di carica Contavviameti Livello carburante %
INDICATORS	INDICATEURS	INDICADORES	INDICATORI
Mains live Generator live Mains contactor closed Generator contactor closed Engine running	Présence secteur Présence tension générateur Inverseur secteur fermé Inverseur générateur fermé Moteur en marche	Presencia tensión de red Presencia tensión grupo Transferencial red cerrado Transferencial grupo cerrado Motor en marcha	Presenza tensione di rete Presenza tensione generatore Erogazione da rete Erogazione da gruppo Motore avviato
PROTECTIONS	PROTECTIONS	PROTECCIONES	PROTEZIONI
Low oil pressure High engine temperature Low fuel level Fail to start Fail to stop Emergency stop Over/under frequency Over/under voltage Over/under speed Fuel level Belt breakage Over current Over/under battery voltage	Bas pression huile moteur Haute température moteur Bas niveau combustible Non démarrage Non arrêt Arrêt d'urgence Sur/sous fréquence Sur/sous voltage Sur/sous vitesse Niveau de combustible Rupture courroie Surcoursant Sur/sus la tension de batterie	Baja presión aceite Elevada temperatura motor Baja nivel carburante Falta de arranque Falta de parada Parada de emergencia Sobre/bajo frecuencia Sobre/bajo voltaje Sobre/bajo velocidad nivel de combustible Ruptura correa Corriente maxima Sobre/bajo voltaje de la batería	Bassa pressione olio Alta temperatura motore Basso livello di carburante Mancato avviamento Mancato arresto Stop d'emergenza Sovra/sotto frequenza Sovra/sotto voltaggio Sovra/sotto velocità Livello del carburante Rottura cinghia Sovracorrente Sovra/sotto tensione della batteria

SOUND PROOF VERSION DRAWING
DESSIN VERSION INSONORISEE
DIBUJO VERSION INSONORISADA
DISEGNO VERSIONE INSONORIZZATA

Preliminary
for information only



TAD1344GE

NEW!

399 kW (543 hp) at 1500 rpm, 449 kW (611 hp) at 1800 rpm, acc. ISO 3046

The TAD1344GE is a powerful, reliable and economical Generating Set Diesel Engine built on the dependable Volvo in-line six concept.

Durability & low noise

Designed for easy, fast and economical installation. Field tested to ensure highest standard of durability and long life. Well-balanced to produce smooth and vibration-free operation with low noise level.

To maintain a controlled working temperature in cylinders and combustion chambers, the engine is equipped with piston cooling. The engine is also fitted with replaceable cylinder liners and valve seats/guides to ensure maximum durability and service life of the engine.

Low exhaust & noise emission

The state of the art, high-tech injection and highly efficient charge air system with low internal losses contributes to excellent combustion and low fuel consumption.

The TAD1344GE is EU Stage 2 emission certified. An electronically controlled viscous fan drive is available giving substantially lower noise and fuel consumption.

Easy service & maintenance

Easily accessible service and maintenance points contribute to the ease of service of the engine.

Technical description

Engine and block

- Cast iron cylinder block with optimum distribution of forces without the block being unnecessarily heavy.
- Wet, replaceable cylinder liners
- Piston cooling for low piston temperature and reduced ring temperature
- Tapered connecting rods for increased piston lifetime
- Crankshaft induction hardened bearing surfaces and fillets with seven bearings for moderate load on main and high-end bearings
- Case hardened and Nitrocarburized transmission gears for heavy duty operation
- Keystone top compression rings for long service life
- Viscous type crankshaft vibration dampers to withstand single bearing alternator torsional vibrations
- Replaceable valve guides and valve seats
- Over head camshaft and four valves per cylinder



Features

- Excellent load acceptance
- Highly efficient cooling system
- Dual Speed 1500 / 1800 rpm
- EMS 2
- EU Stage 2 emission certified
- Wide range of optional equipment including visco fan.

Lubrication system

- Full flow oil cooler
- Full flow disposable spin-on oil filter, for extra high filtration
- The lubricating oil level can be measured during operation
- Gear type lubricating oil pump, gear driven by the transmission

Fuel system

- Electronic high pressure unit injectors
- Fuel prefilter with water separator and water-in-fuel indicator / alarm
- Gear driven low-pressure fuel pump
- Fine fuel filter with manual feed pump and fuel pressure switch

Cooling system

- Efficient cooling with accurate coolant control through a water distribution duct in the cylinder block. Reliable sleeve thermostat with minimum pressure drop
- Belt driven coolant pump with high degree of efficiency
- Electronically controlled viscous fan drive provides lower noise and fuel consumption (optional).
- Coolant filter as standard

Turbo charger

- Efficient and reliable turbo charger
- Electronically controlled Waste-gate
- Extra oil filter for the turbo charger

Electrical system

- Engine Management System 2 (EMS 2), an electronically controlled processing system which optimizes engine performance. It also includes advanced facilities for diagnostics and fault tracing.
- Possibility to perform a start battery test according to the NCPA requirements via CAN bus signals.
- The instruments and controls connect to the engine via the CAN SAE J1939 interface, either through the Control Interface Unit (CIU) or the Digital Control Unit (DCU). The CIU converts the digital CAN bus signal to an analog signal, making it possible to connect a variety of instruments. The DCU is a control panel with display, engine control, monitoring, alarm, parameter setting and diagnostic functions. The DCU also presents error codes in clear text.
- Sensors for oil pressure, oil temp, boost pressure, boost temp, coolant temp, fuel temp, water in fuel, fuel pressure and two speed sensors.

**VOLVO
PENTA**

TAD1344GE

Technical Data

General

Engine designation	TAD1344GE	
No. of cylinders and configuration	in-line 6	
Method of operation	4-stroke	
Bore, mm (in.)	131 (5.16)	
Stroke, mm (in.)	158 (6.22)	
Displacement, l (in ³)	12.78 (780)	
Compression ratio	18.1:1	
Wet weight, engine only, kg (lb)	1325 (2921)	
Wet weight with Gen Pac, kg (lb)	1790 (3946)	

Performance	1500 rpm	1800 rpm
with fan, kW (hp) at:		
Prime Power	354 (481)	392 (533)
Standby Power	389 (529)	431 (586)

Lubrication system	1500 rpm	1800 rpm
Oil consumption, liter/h (US gal/h) at:		
Prime Power	0.04 (0.011)	0.05 (0.013)
Standby Power	0.04 (0.011)	0.05 (0.013)
Oil system capacity incl filters, liter	36	

Fuel system	1500 rpm	1800 rpm
Specific fuel consumption at:		
Prime Power, g/kWh (lb/hph)		
25 %	219 (0.355)	229 (0.371)
50 %	200 (0.324)	205 (0.332)
75 %	197 (0.319)	200 (0.324)
100 %	194 (0.314)	201 (0.326)
Standby Power, g/kWh (lb/hph)		
25 %	215 (0.349)	225 (0.365)
50 %	199 (0.323)	204 (0.331)
75 %	198 (0.321)	201 (0.326)
100 %	195 (0.316)	202 (0.327)

Intake and exhaust system	1500 rpm	1800 rpm
Air consumption, m ³ /min (cfm) at:		
Prime Power	27 (954)	33 (1165)
Standby Power	28 (989)	33 (1165)
Max allowable air intake restriction, kPa (PSI)	5 (0.7)	
Exhaust gas temperature after turbine, °C (°F) at:		
Prime Power	440 (824)	440 (824)
Standby Power	465 (869)	490 (914)
Max allowable back-pressure in exhaust line, kPa (PSI)	10 (1.5)	
Exhaust gas flow, m ³ /min (cfm) at:		
Prime power	63.5 (2243)	77.0 (2719)
Standby Power	67.5 (2384)	82.0 (2896)

Cooling system	1500 rpm	1800 rpm
Fan power consumption, std ratio, kW (hp) 10 (14)		18 (24)

Cooling performance	1500 rpm	1800 rpm
AOT at max cooling air flow, °C (°F):		
Prime Power	63 (145)	63 (145)
Standby Power	59 (138)	60 (140)
Max cooling air flow, m ³ /s (cfs)	6.7 (237)	8.2 (290)

Standard equipment

Engine

- Automatic belt tensioner
- Lift eyelets

Flywheel

- Flywheel housing with conn. acc. to SAE 1
- Flywheel for 14" flex. plate and flexible coupling

Engine suspension

- Fixed front suspension

Lubrication system

- Oil dipstick
- Full-flow oil filter of spin-on type
- By-pass oil filter of spin-on type
- Oil cooler, side mounted
- Low noise oil sump

Fuel system

- Fuel filters of disposable type
- Electronic unit injectors
- Pre-filter with water separator

Intake and exhaust system

- Air filter with replaceable paper insert
- Air restriction indicator
- Air cooled exhaust manifold
- Connecting flange for exhaust pipe
- Exhaust flange
- Turbo charger, low right side

Cooling system

- Radiator incl intercooler
- Coolant pump
- Fan hub
- Thrust fan
- Fan guard
- Belt guard

Control system

- Engine Management System (EMS) with CAN-bus interface SAE J1939

Alternator

- Alternator 80 A

Starting system

- Starter motor
- Connection facility for extra starter motor

Instruments and senders

- Temp.- and oil pressure for automatic stop/alarm

Other equipment

- Expandable base frame

Engine Packing

- Plastic wrapping

1) must be ordered, see order specification

2) Available later

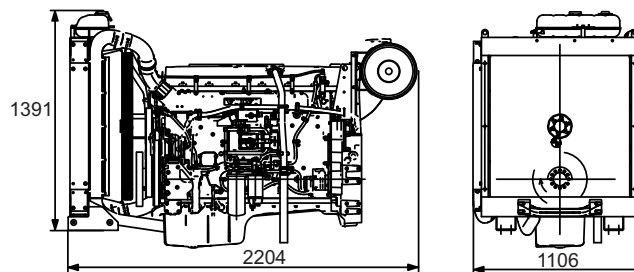
– optional equipment or not applicable

• included in standard specification

For our wide range of optional equipment, please see Order specification.

Dimensions TAD1344GE

Not for installation



Note! Not all models, standard equipment and accessories are available in all countries.

All specifications are subject to change without notice.

The engine illustrated may not be entirely identical to production standard engines.

Power Standards

The engine performance corresponds to ISO 3046, BS 5514 and DIN 6271. The technical data applies to an engine without cooling fan and operating on a fuel with calorific value of 42.7 MJ/kg (18360 BTU/lb) and a density of 0.84 kg/liter (7.01 lb/US gal), also where this involves a deviation from the standards. Power output guaranteed within 0 to +2% at rated ambient conditions at delivery. Ratings are based on ISO 8528. Engine speed governing in accordance with ISO 3046/IV, class A1 and ISO 8528-5 class G3

Exhaust emissions

The engine complies with EU stage 2 emission legislation according to the Non Road Directive EU 97/68/EEC. The engine also complies with TA-luft -50% exhaust emission regulations.

Rating Guidelines

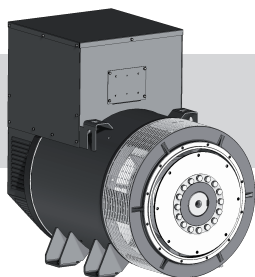
PRIME POWER rating corresponds to ISO Standard Power for continuous operation. It is applicable for supplying electrical power at variable load for an unlimited number of hours instead of commercially purchased power. A10 % overload capability for governing purpose is available for this rating.

STANDBY POWER rating corresponds to ISO Standard Fuel Stop Power. It is applicable for supplying standby electrical power at variable load in areas with well established electrical networks in the event of normal utility power failure. No overload capability is available for this rating.

1 hp = 1 kW x 1.36

VOLVO PENTA

AB Volvo Penta
SE-405 08 Göteborg, Sweden
www.volvopenta.com



ECO 40

MECCALTE spa - Via Roma, 20 - 36051 CREAZZO (VI) ITALIA
Tel. +39 0444/396111 - Fax +39 0444/396166 - e-mail : info@meccalte.it
web site: www.meccalte.com

4 POLE

CHARACTERISTICS

INDUSTRIAL RATINGS

ambient 40 °C

Type	kVA - cos φ 0.8 - 3 Phase continuous							Efficiency		
50 Hz	CL. H (ΔT= 125 °C)				CL. F (ΔT= 105 °C)			η % CL. H (ΔT= 125 °C)		
Series Star Y	760	800	830		760	800	830			
Parallel Star YY	380	400	415	IP45	380	400	415			
Series Delta Δ	440	460	480	400 V	440	460	480	2/4	3/4	4/4
Parallel Delta ΔΔ	220	230	240		220	230	240			
ECO40-1S/4	400	400	400	330	370	370	370	92,9	93,8	93,5
ECO40-2S/4	450	450	450	370	410	410	410	93,2	94	93,7
ECO40-3S/4	500	500	500	410	450	450	450	93,3	94,2	93,9
ECO40-1L/4	550	550	540	450	500	500	490	93,7	94,6	94,2
ECO40-1.5L/4	620	620	620	480	560	560	560	93,7	94,6	94,3
ECO40-2L/4	680	680	680	500	630	630	630	93,8	94,7	94,3
ECO40-VL/4	720	720	710	520	660	660	650	93,9	94,8	94,4

60 Hz	CL. H (ΔT= 125 °C)				CL. F (ΔT= 105 °C)			Efficiency		
Series Star Y	880	920	960		880	920	960			
Parallel Star YY	440	460	480	IP45	440	460	480			
Series Delta Δ	508	530	554	480 V	508	530	554	2/4	3/4	4/4
Parallel Delta ΔΔ	254	265	277		254	265	277			
ECO40-1S/4	450	480	480	396	410	440	440	94,4	95,2	95
ECO40-2S/4	510	540	540	444	460	490	490	94,2	95,5	94,7
ECO40-3S/4	580	600	600	492	520	540	540	94,8	95,6	95,2
ECO40-1L/4	630	660	660	540	570	600	600	94,8	95,5	95,2
ECO40-1.5L/4	700	744	744	576	632	672	672	95,3	96,4	95,7
ECO40-2L/4	780	816	816	600	720	756	756	95,5	96,7	95,8
ECO40-VL/4	865	865	865	625	800	800	800	95,8	96,8	96

STANDBY RATINGS

Type	kVA Temp. Rise / Ambient °C			kVA Temp. Rise / Ambient °C		
	50 Hz			60 Hz		
	163° / 27°	150° / 40°	125° / 27°	163° / 27°	150° / 40°	125° / 27°
ECO40-1S/4	437	417	417	525	500	500
ECO40-2S/4	491	468	468	590	563	563
ECO40-3S/4	546	521	521	656	625	625
ECO40-1L/4	601	567	567	722	680	680
ECO40-1.5L/4	670	640	640	805	770	770
ECO40-2L/4	735	700	700	882	840	840
ECO40-VL/4	779	740	740	935	890	890

Type	J (Kg m ²) B3-B14 FORM	Weight (Kg)	Air Volume		Noise dB(A)			
			50 Hz		50 Hz		60 Hz	
			50 Hz (m ³ /min)	60 Hz (m ³ /min)	1m	7m	1m	7m
ECO40-1S/4	5,504	1040	54	64,8	94	82	98	88
ECO40-2S/4	6,240	1118						
ECO40-3S/4	6,852	1171						
ECO40-1L/4	7,356	1324						
ECO40-1.5L/4	8,739	1380						
ECO40-2L/4	9,258	1586						
ECO40-VL/4	9,874	1693						

ACCESSORIES

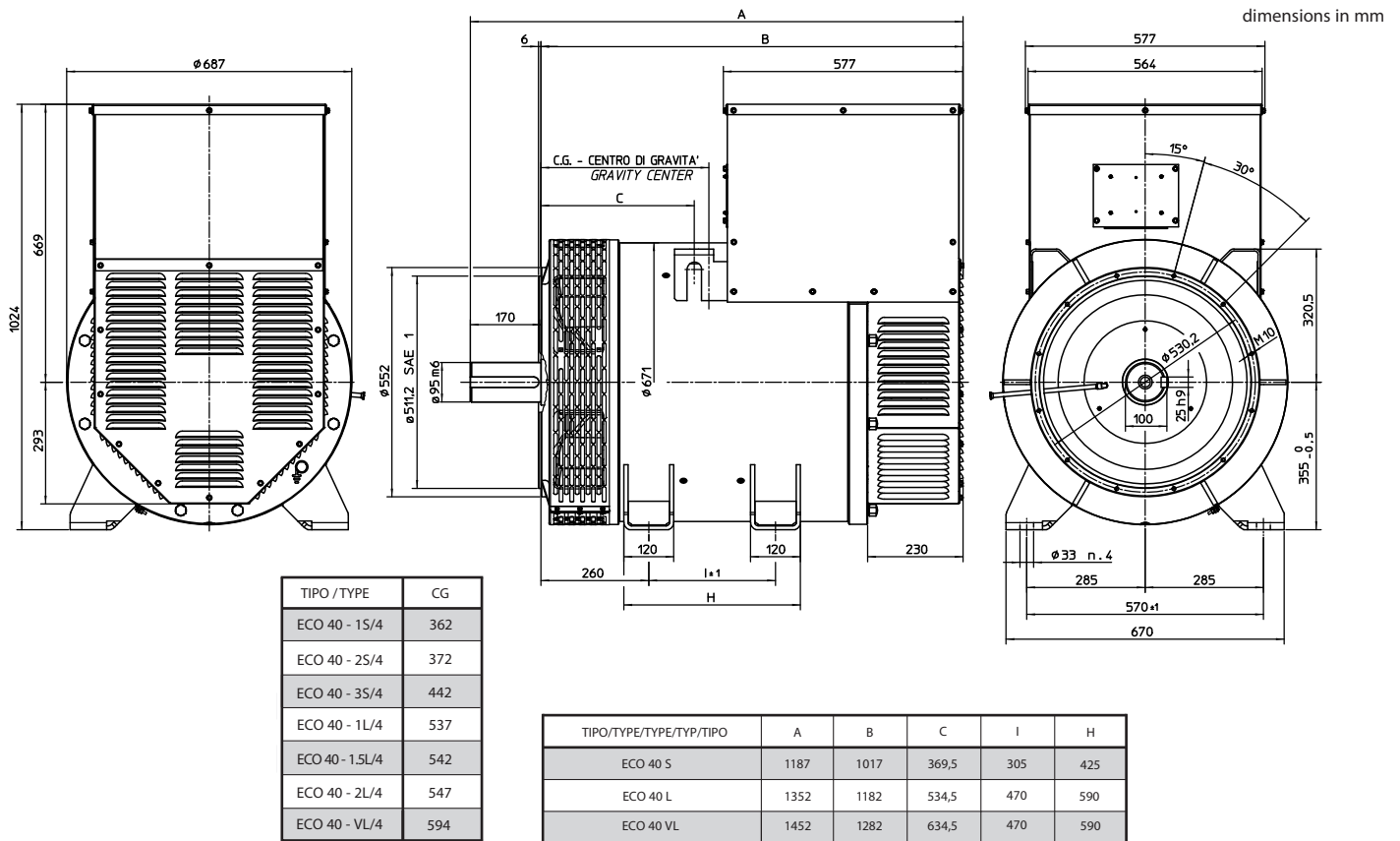
REGULATOR				PARALLEL DEVICE	THERMAL PROTECTION			HEATERS	MECHANICAL PROTECTION		
DSR	DER-1	SR7/2	UVR6		PTC	BIMET. DEVICE	PT100		IP21	IP23	IP45
☐	☒	☐	☐	☒	☐	☐	☐	☐	☒	☐	☐

● = Standard
□ = Optional

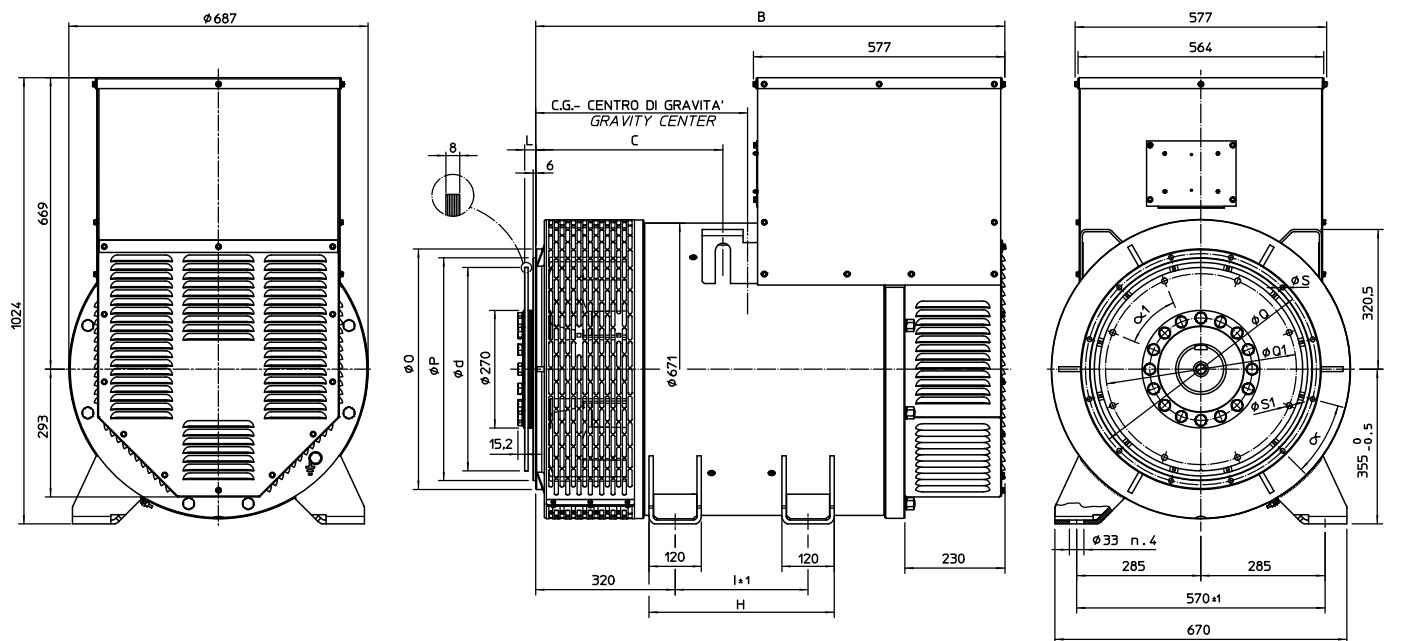
Rating



OVERALL DIMENSIONS B3 - B14 FORM



OVERALL DIMENSIONS MD35 FORM



TIPO / TYPE	CG
ECO 40 - 1S/4	422
ECO 40 - 2S/4	432
ECO 40 - 3S/4	442
ECO 40 - 1L/4	597
ECO 40 - 1SL/4	600
ECO 40 - 2L/4	607
ECO 40 - VL/4	650

SAE N.	FLANGIE FLANGE BRIDE FLANSCH BRIDAS					
	O	P	Q	n. fori	S	α
1	552	511,2	530,2	12	11	30°
1/2	648	584,2	619,1	12	14	30°
0	711	647,7	679,5	16	14	22,5°
00	883	787,4	850,9	16	14	22,5°

SAE N.	GIUNTI A DISCHI DISC COUPLING DISQUE DE MONOPALIER SCHEIBENKUPPLUNG						
	L	d	Q1	n. fori	S1	α	1
14	25,4	466,72	438,15	8	14	45°	
18	15,7	571,5	542,92	6	17	60°	

TIPO/TYPE/TYP/TYPE/TYPE	B	C	I	H
ECO 40 S	1077	429,5	305	425
ECO 40 L	1242	594,5	470	590
ECO 40 VL	1342	604,5	470	590

DSECONTROL[®] MONITORING WITH INTELLIGENCE.



DSE7310 & DSE7320

AUTO START & AUTO MAINS FAILURE CONTROL MODULES (COMMUNICATIONS & EXPANSION)



The DSE7310 and DSE7320 are control modules for single gen-set applications. The modules have been developed from the successful DSE5310 and DSE5320 Series and incorporate a number of advanced features to meet the most demanding on-site applications.

The DSE7310 is an Automatic Start Control Module and the DSE7320 is an Auto Mains (Utility) Failure Control Module. Both modules have been designed to start and stop diesel and gas generating sets that include electronic and non-electronic engines. The DSE7320 includes the additional capability of being able to monitor a mains (utility) supply.

Both modules include USB, RS232 and RS485 ports as well as dedicated DSENet[®] terminals for expansion device connectivity.

The modules are simple to operate and feature a user-friendly menu layout for improved clarity. Enhanced features include a real time clock for enhanced event and performance monitoring, ethernet communications for low cost monitoring, mutual standby (DSE7310 only) to reduce engine wear and tear and preventative maintenance features to detect engine part faults prior to a major problem occurring.

FEATURES

- Backed up real time clock
- 132 x 64 pixel LCD display
- Configurable display languages
- Five-key menu navigation
- Fully configurable via PC software
- LED and LCD alarm indication
- Engine exercise mode
- Configurable start & fuel outputs
- kWh monitoring
- Automatic load transfer
- Eight configurable digital inputs
- Six configurable outputs
- Configurable timers and alarms
- Modbus RTU
- Magnetic pick-up
- Selected front panel programming
- Multiple date and time exercise scheduler
- SMS messaging (additional external modem required)
- Power save mode
- User selectable RS232 & RS485 communications
- DSENet[®] compatible
- Ethernet communications via DSE860/865
- Multiple date and time maintenance scheduler
- Configurable display pages
- Programmable load shedding/acceptance
- Preventative maintenance
- kW overload protection
- Unbalanced load protection
- Flexible sender input
- Configurable SCADA output page
- True dual mutual standby with load balancing timer (DSE7310 only)
- Fan control for additional cooling
- 'Protections Disabled' facility
- Fuel usage monitoring and low fuel alarm
- Support for up to three remote display units
- Automatic sleep mode
- Easy access, configurable diagnostics page shows summary of output states
- Improved programmable event log (250) showing date and time
- Manual fuel pump control
- 3 alternative configurations
- Multiple date and time scheduler
- 3 Programmable Maintenance alarms with comms alert
- Customisable status screens
- Low fuel level alarm delay
- Charge alternator fail warning and shutdown alarms with user programmable delay
- Independent Earth fault trip
- Sleep mode
- Load switching (Load shedding and dummy load outputs)
- Manual speed trim (on CAN engines that support this feature)
- Additional display screens to help with modem diagnostics
- Security levels – PC software has password system to control access to PC software features
- Operator configurable virtual LEDs visible in SCADA

NEW FEATURES

- Additional programmable logic
- Improved modem diagnostics
- Remote control sources (10) can be accessed via SCADA
- Additional electrical trip options
- Additional start delay functions
- Oil pressure values from additional engines
- Front panel editing of scheduler
- Displays kW as % of rated kW setting

SPECIFICATION

DC SUPPLY

CONTINUOUS VOLTAGE RATING

8V to 35V Continuous

CRANKING DIP PROTECTION

Able to survive 0V for 50mS, providing supply was at least 10V before dropout and supply recovers to 5V. This is achieved without the need for internal batteries

CHARGE FAIL/ EXCITATION

0V to 35V fixed power source 2.5W

MAXIMUM STANDBY CURRENT

160mA at 12V 80mA at 24V

MAXIMUM OPERATING CURRENT

340mA at 12V 160mA at 24V

ALTERNATOR INPUT

RANGE

15V - 333V (L-N) 50Hz - 60Hz
(Minimum 15V AC Ph-N)

ACCURACY

1% of full scale true RMS sensing

SUPPORTED TOPOLOGIES

3 phase 4 wire
3 phase 3 wire
3 phase 4 wire Delta
Single phase 2 wire
2 phase 3 wire L1 & L2
2 phase 3 wire L1 & L3

MAINS/UTILITY INPUT (DSE7320 ONLY)

RANGE

15V - 333V (L-N) 50Hz - 60Hz
(Minimum 15V AC Ph-N)

ACCURACY

1% of full scale true RMS sensing

SUPPORTED TOPOLOGIES

3 phase 4 wire
3 phase 3 wire
3 phase 4 wire Delta
Single phase 2 wire
2 phase 3 wire L1 & L2
2 phase 3 wire L1 & L3

CT'S

BURDEN

0.5VA

PRIMARY RATING

1A - 8000A (user selectable)

SECONDARY RATING

1A or 5A secondary (user selectable)

ACCURACY OF MEASUREMENT

1% of full load rating

RECOMMENDATIONS

Class 1 required for instrumentation
Protection class required if using for protection

SPECIFICATION

MAGNETIC PICKUP

VOLTAGE RANGE

+/- 0.5V minimum (during cranking) to 70V peak

FREQUENCY RANGE

10,000 Hz (max)

OUTPUTS

OUTPUT A (FUEL)

15 Amp DC at supply voltage

OUTPUT B (START)

15 Amp DC at supply voltage

OUTPUTS C & D

8 Amp 250V (Volt free)

AUXILIARY OUTPUTS E,F,G,H

2 Amp DC at supply voltage

DIMENSIONS

OVERALL

240mm x 181.1mm x 41.7mm
9.4" x 7.1" x 1.6"

PANEL CUT-OUT

220mm x 160mm
8.7" x 6.3"
Max panel thickness 8mm (0.3")

ENVIRONMENTAL TESTING STANDARDS

ELECTRICAL SAFETY

BS EN 60950
Safety of Information Technology Equipment,
including Electrical Business Equipment

ELECTRO MAGNETIC COMPATIBILITY

BS EN 61000-6-2
EMC Generic Immunity Standard for the
Industrial Environment
BS EN 61000-6-4
EMC Generic Emission Standard for the
Industrial Environment

TEMPERATURE (OPERATING)

BS EN 60068
Test Ab to +70°C 60068-2-2 Hot
Test Ab to -30°C 60068-2-1 Cold

VIBRATION

BS EN 60068-2-6
Ten sweeps in each of three major axes
5Hz to 8Hz @ +/-7.5mm, 8Hz to 500Hz @ 2g

HUMIDITY

BS 2011 part 2.1 60068-2-30
Test Cb Ob Cyclic
93% RH @ 40°C for 48 hours

SHOCK

BS EN 60068-2-27
Three shocks in each of three major axes
15gn in 11ms

BENEFITS

- 132 x 64 pixel ratio makes information easy to read
- Real time clock provides accurate event logging
- PC software is license free
- Set maintenance periods can be configured to maintain optimum engine performance
- Ethernet communications provides advanced remote monitoring at low cost
- Modules can be integrated into building management systems
- Preventative maintenance avoids expensive engine down time
- Advanced PCB layout ensures high reliability
- Robust design
- Extensive performance monitoring

OPERATION

The modules are operated via the START, STOP, AUTO and MANUAL soft touch membrane buttons on the front panel. The DSE7320 also has a TEST button. Both modules include load switch buttons. The main menu system is accessed using the five navigation buttons to the left of the LCD display.

CONFIGURATION

The modules can be configured using the front panel buttons or by using the DSE Configuration Suite PC software and a USB lead.

COMMUNICATIONS

The DSE7310 & DSE7320 have a number of different communication capabilities.

SMS Messaging

When the module detects an alarm condition, it has the ability to send an SMS message to a dedicated mobile number (s), notifying an engineer of the exact time, date and reason why the engine failed (GSM Modem and SIM Card required).

Remote Communications

When the module detects an alarm state, it dials out to a PC notifying the user of the condition (Modem required).

Remote Control

The module can be controlled remotely using either a GSM Modem, Ethernet via DSE860/865 or via RS485. Using a modem allows the module to be controlled from any distance. Using RS485 limits the distance to 1km (0.6 miles).

Building Management

The module has been designed to be integrated into new and existing building management systems, using RS485.

PC Software

The module has the ability to be configured and monitored from a remote PC, using the PC software and a USB lead.

INPUTS & OUTPUTS

Analogue inputs are provided for oil pressure, coolant temperature and fuel level. These connect to conventional engine mounted resistive sensor units to provide accurate monitoring and protection facilities. They can also be configured to interface with digital switch type inputs for low oil pressure and high coolant temperature shutdowns. Eight user configurable digital inputs are also included, plus one flexible sender.

Outputs are provided for fuel solenoid, start solenoid and six additional configurable outputs. On these configurable outputs a range of different functions, conditions or alarms can be selected.

INSTRUMENTATION

The modules provide advanced metering facilities, displaying the information on the LCD display. The information can be accessed using the five-key menu navigation to the left of the display.

DSENET®

DSENet® is a collection of expansion modules that have been created to work with DSENet® compatible control modules. DSENet® allows up to 20 different expansion devices to be used at a time. The expansion modules available are:

- DSE2157 Relay Output Expansion Module
- DSE2130 Input Expansion Module
- DSE2548 Annunciator Module
- Remote Display Module
- DSE2510 Remote Display
- DSE2520 Remote Display

EVENT LOG

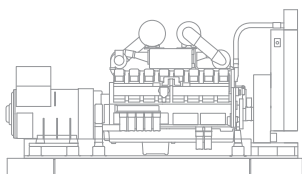
The module includes a comprehensive event log that shows the most recent 250 alarm conditions and the date and time that they occurred. This function assists the user when fault finding and maintaining a generating set.

ELECTRONIC ENGINE COMPATABILITY

- CAT
- Cummins
- Deutz
- John Deere
- MTU
- Perkins
- Scania
- Volvo
- IVECO
- Generic
- Plus additional manufacturers

RELATED MATERIALS

TITLE	PART NO'S
DSE7xxx Manual	057-074
DSE72xx/73xx PC Software Manual	057-077
DSE2130 Data Sheet	053-060
DSE2157 Data Sheet	053-061
DSE2548 Data Sheet	053-062
DSE860/865 Data Sheet	055-071
DSE2510/20 Data Sheet	055-074



ELECTRONIC ENGINE CAPABILITY

7310

Generator Instruments

Volts, Hz, Amps, kW, kVA, Pf, kWh, kVAr, kVArh, KVAh

Engine Instruments

RPM, Oil Pressure, Coolant Temperature, Hours Run, Charging Voltage, Battery Volts.

Electronic Engines

Enhanced Instrumentation and Engine ECU diagnostics via electronic engine interface.

7320

Generator Instruments

Volts, Hz, Amps, kW, kVA, Pf, kWh, kVAr, kVArh, KVAh

Engine Instruments

RPM, Oil Pressure, Coolant Temperature, Hours Run, Charging Voltage, Battery Volts.

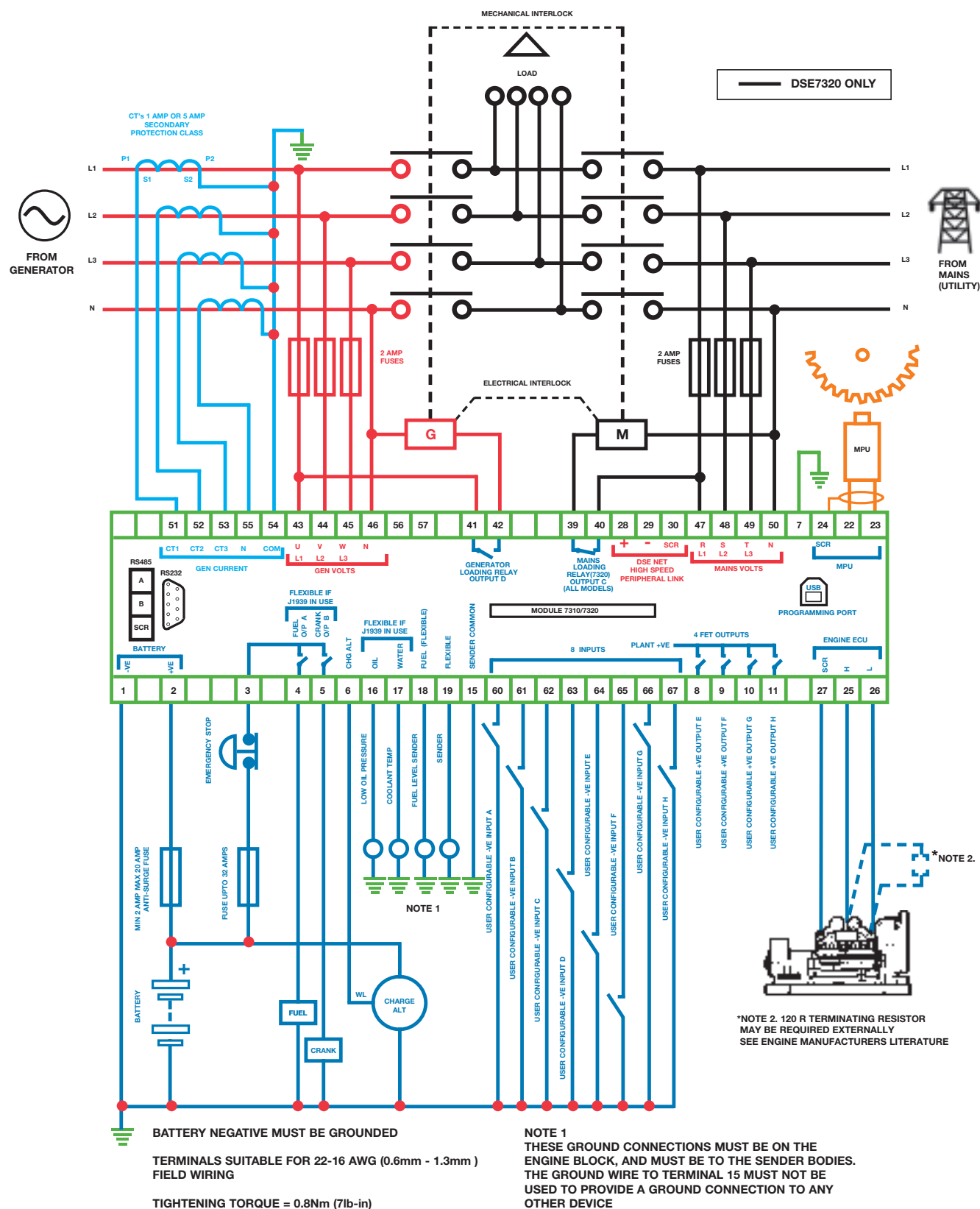
Electronic Engines

Enhanced instrumentation and Engine ECU diagnostics via electronic engine interface.

Mains/Utility Instruments

Volts, Frequency, Amps (optional when CT's are fitted load side of the line)

DSE7310 & DSE7320



DEEP SEA ELECTRONICS PLC

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