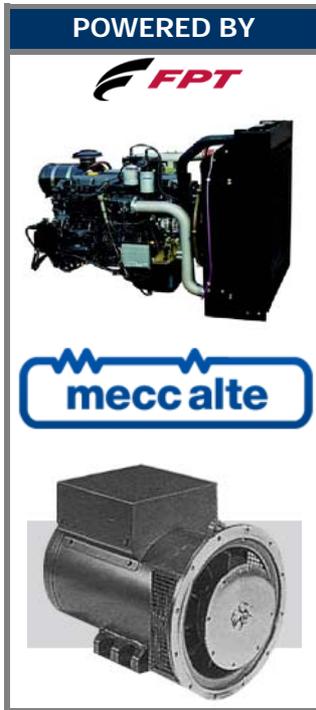


ENERMAX SERIES

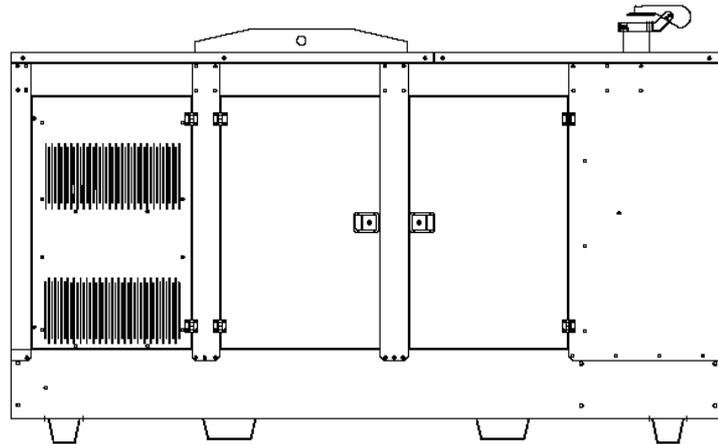
DIESEL GENERATOR
GROUPE ELECTROGENE DIESEL
GRUPO ELECTROGENO DIESEL
GRUPPO ELETTOGENO DIESEL

MODEL
 MODELE
 MODELO
 MODELLO

IV 331 TSX*



SOUNDPROOF 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 300	kVA 330
Stand-by Power Puissance service secours Potencia servicio emergencia Potenza servizio in emergenza	LTP	kVA 330	kVA 365
Continuous Power Puissance service continue Potencia servicio continuo Potenza servizio continuo	PRP	kWe 240	kWe 264
Stand-by Power Puissance service secours Potencia servicio emergencia Potenza servizio in emergenza	LTP	kWe 264	kWe 292
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	80 %	l/h 42,4	l/h 51,3

ENGINE MOTEUR MOTOR MOTORE	IVECO		CURSOR10TE1D				
PERFORMANCE PERFORMANCES PRESTACIONES PRESTAZIONI	1500 rpm		1800 rpm				
Continuous Power Puissance service continue Potencia servicio continuo Potenza servizio continuo	PRP	kWm	260	kWm	282		
Stand-by Power Puissance service secours Potencia servicio emergencia Potenza servizio in emergenza	LTP	kWm	286	kWm	311		
Specific fuel consumption Consumption spécifique combustible Consumo específico de combustible Consumo specifico combustibile		g/kWh	50 % 80 % 100 %	203 198 192	g/kWh	50 % 80 % 100 %	219 220 210
Diesel 4 Stroke – Injection type Diesel 4 temps – Type injection Diesel 4 tiempos – Tipo de inyeccion Diesel a 4 tempi – Tipo di iniezione							Direct Directe Directa Diretta
Aspiration type Type d'aspiration Tipo de aspiracion Tipo d'aspirazione							Turbocharged Suraalimentée sobrealimentato sovralimentata
Cooling system Refroidissement Sistema de refrigeracion Raffreddamento							Water Eau Agua Acqua
Speed governor Régulateur de tours Regulador Regolatore di giri							Electronic Electronique Electrónico Elettronico
Cylinders, numbers and arrangement Nombre et disposition des cylindres Cilindros, numero y disposicion Numero e disposizione dei cilindri							6 L
Total displacement Cylindrée totale Cilindrata total Cilindrata totale				cm ³			10300
Bore x stroke Alésage x course Diámetro x carrera Alesaggio x corsa				mm			125 x 140
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 Declasseamento per temperatura						0 ÷ 40°C > 40 °C	0 3 % / 5 °C
Derating for altitude Déclassement pour altitude Declasamiento para altitud Declasseamento per altitudine						0 ÷ 1000 m 1000 ÷ 3000 m > 3000 m	0 3 % / 500 m 6 % / 500 m

ALTERNATOR ALTERNATEUR ALTERNADOR ALTERNATORE		MECCALTE			
PERFORMANCE PERFORMANCES PRESTACIONES PRESTAZIONI		1500 rpm		1800 rpm	
Model Modèle Modelo Modello		ECO38-2LN/4		ECO38-2LN/4	
Continuous Power Puissance service continue Potencia servicio continuo Potenza servizio continuo		40 °C	kVA 300,0 kWe 240,0	KVA 340,0 kWe 272,0	
Stand-by Power Puissance service secours Potencia servicio emergencia Potenza servizio in emergenza		40 °C	KVA 315,0 kWe 252,0	KVA 378,0 kWe 302,4	
Stand-by Power Puissance service secours Potencia servicio emergencia Potenza servizio in emergenza		27 °C	KVA 330,0 kWe 264,0	KVA 396,0 kWe 316,8	
Efficiency Rendement Eficienza Efficienza			2/4 92,7 % 3/4 94,0 % 4/4 93,7 %	2/4 93,9 % 3/4 95,1 % 4/4 94,7 %	
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 accuracy 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	32 m ³ /min		
		60 Hz	39 m ³ /min		
Standard AVR model Modèle AVR standard Modelo AVR standard Modello AVR standard		DSR			
Derating for temperature Déclassement pour température Declasamiento para temperatura Declassamento per temperatura		0 ÷ 40°C	0		
		> 40 °C	3 % / 5°C		
Derating for altitude Déclassement pour altitude Declasamiento para altitud Declassamento per altitudine		0 ÷ 1500 m	0		
		1500 ÷ 2500 m	3% / 500 m		
		2500 ÷ 3000 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)		(cm)			
	<i>STD</i>	<i>EXTRA1</i>	(kg)	L	W	H
SOUND PROOF VERSION VERSION INSONORISEE VERSION INSONORISADA VERSIONE INSONORIZZATA	600	ON REQUEST	3560	383	123	232

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

GB	F	E	I
<ul style="list-style-type: none"> Lifting eye Vibration dampers Integrated bunded fuel tank Battery Manual autostart control panel With DSE7310 Emergency stop button Sound proof canopy of galvanized steel with residential silencer Fork lift guides 	<ul style="list-style-type: none"> Crochet de levage Amortisseurs de vibrations Réservoir intégré avec bac de rétention Batterie Coffret de contrôle manuel autostart avec DSE7310 Bouton arrêt d'urgence Capote d'insonorisation d'acier galvanisé avec silencieux résidentiel Supports pour fourches 	<ul style="list-style-type: none"> Gancho central Apagadores de vibracion Tanque combustible integrado con bandeja para la recogida de líquidos Bateria Cuadro manual autostart con DSE7310 Botón parada de emergencia Cabina de insonorización de acero cincado con silenciador residencial Supportes para carretilla 	<ul style="list-style-type: none"> Gancio centrale di sollevamento Antivibranti Serbatoio integrato con vasca di raccolta liquidi Batteria Quadro manuale autostart con DSE7310 Pulsante arresto di emergenza Cabina di insonorizzazione di acciaio zincato con marmitta residenziale Porta forche

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

ACP 7310 AUS

630 A (400 V - 3 ph - 50Hz - 1500 rpm)
1000 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/sourvitesse 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 Sovracorrente 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) Frecuencímetro 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
QUADRO ELETTRICO AUTOMATICO
QUADRO ELETTRICO AUTOMATICO**

<p>1)</p> <p>ACP 7320 ATS</p> 	<p>COMPLETE CONTROL PANEL FREE STANDING TYPE Equipment: control board, circuit breaker, battery charger, transfer switch, box key. COFFRET ELECTRIQUE COMPLET TYPE ARMOIRE SEPRE DU GROUPE Equipement : carte électronique de contrôle, disjoncteur de protection, chargeur de batterie, inverseur de source, clé coffret. QUADRO ELETTRICO 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.</p>
<p>2)</p> <p>ACP 7320 AMF</p> 	<p>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. QUADRO ELETTRICO 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.</p>
<p>3)</p> <p>ACP 7320 STS</p>  	<p>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 SEPRE Equipement : carte électronique de contrôle, disjoncteur de protection, chargeur de batterie, inverseur de source séparé, clé coffret. QUADRO ELETTRICO 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.</p>

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

GB	F	E	I
<p>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.</p>	<p>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.</p>	<p>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.</p>	<p>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.</p>
FEATURES	EQUIPEMENT	EQUIPMENT	EQUIPAGGIAMENTO
<p>Stop/reste – Auto – Manual – Start LCD display scroll Event log view Acoustic alarm</p>	<p>Fiche électronique de contrôle DSE7320 Disjoncteur de protection Chargeur de batterie Bouton poussoir arrête d'urgence</p>	<p>Ficha electrónica de control DSE7320 Interruptor magnetotermico Cargador de batería Boton de parada de emergencia</p>	<p>Scheda elettronica di controllo DSE7320 Interruttore magnetotermico Carica batteria Pulsante stop emergenza</p>
DIGITAL MEASURING	MESURES NUMERIQUES	MEDIDAS DIGITALES	MISURAZIONI DIGITALI
<p>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 %</p>	<p>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 %</p>	<p>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 %</p>	<p>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 Contavviamenti Livello carburante %</p>
INDICATORS	INDICATEURS	INDICADORES	INDICATORI
<p>Mains live Generator live Mains contactor closed Generator contactor closed Engine running</p>	<p>Présence secteur Présence tension générateur Inverseur secteur fermé Inverseur générateur fermé Moteur en marche</p>	<p>Presencia tensión de red Presencia tensión grupo Transferencial red cerrado Transferencial grupo cerrado Motor en marcha</p>	<p>Presenza tensione di rete Presenza tensione generatore Erogazione da rete Erogazione da gruppo Motore avviato</p>
PROTECTIONS	PROTECTIONS	PROTECCIONES	PROTEZIONI
<p>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</p>	<p>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 Surcourant Sur/sus la tension de batterie</p>	<p>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</p>	<p>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 Sovraccorrente Sovra/sotto tensione della batteria</p>

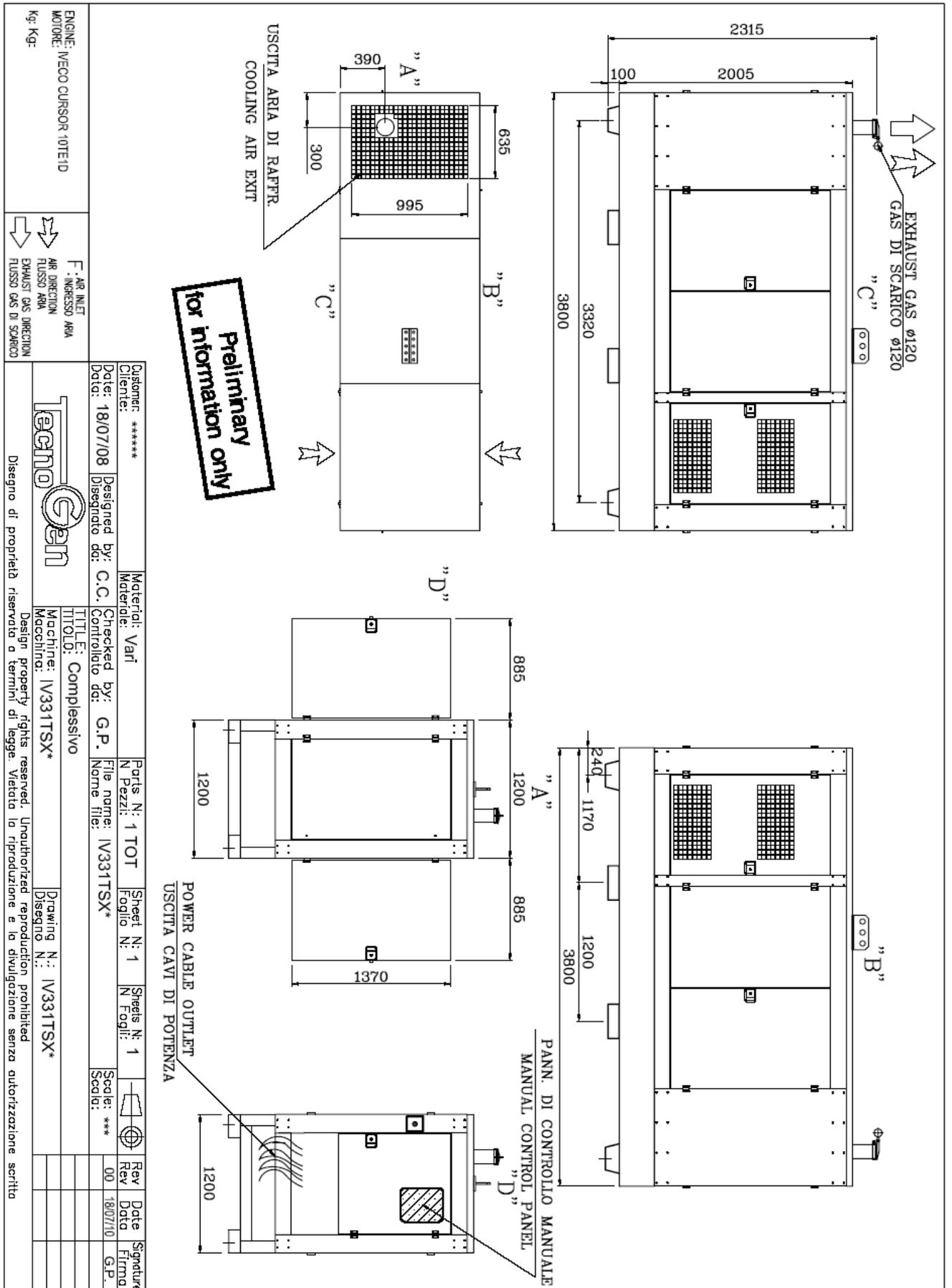
SOUNDPROOF CANOPY
CAPOTE D'INSONORISATION
CAPOTA DE INSONORIZACION
CABINA INSONORIZZATA

GB	F	E	I
<p>The TecnoGen Super Silent soundproof canopy has been designed with the aim of achieving the maximum noise level reduction and to provide a perfect cooling of the engine. The cooling airflow is forced through fixed circuits. The canopy is suitable for tropical ambient application. The exhaust gas silencer is residential type internally mounted. The canopy is completely built of hot galvanized carbon sheet steel. The sheets have a thickness 20/10. The structure is fully bolted, fixed by a special polyethylene sealing, completely free from electrical installation. All the panels can be easily removed. The cab is provided with doors of wide opening for easy access to generating set for the maintenance operations. The soundproofing materials are highly fire resistant and self-extinguishing.</p>	<p>La capote insonorisée TecnoGen Super Silent à été conçue pour atteindre le niveau de bruit le mineur possible et un refroidissement du moteur parfait. Le souffle d'air refroidissant est canalisé en circuits fixes. La capote est apte à être utilisée dans les ambiances tropicales. Le silencieux des gaz d'échappement, de type résidentiel, est mis à l'intérieur de la capote. La cabine est construite en acier galvanisé à chaud. Les tôles ont une épaisseur de 20/10. La structure est complètement boulonnée et fixée à travers des garnitures spéciales au polyéthylène. Tous les panneaux sont facilement amovibles. La cabine est dotée de portes avec grandes ouvertures qui permettent un accès facile au groupe électrogène pour les opérations de manutention. Les matériaux d'insonorisation sont fortement résistant au feu et auto-extinguibles.</p>	<p>La capota insonorizada TecnoGen Super Silent tiene sido planeada con el objetivo de alcanzar el menor nivel de rumorosidad posible y un perfecto enfriamiento del motor. El sopro de aire es canalizado en circuitos fijos. La cabina es apta a ser utilizada en ambientes tropicales. El silenciador de los gases de descargue, de tipo residencial, es colocado dentro de la cabina. La cabina es construida en acero cincado. Las chapas tienen un espesor de 20/10. La estructura es completamente bullonata y montada con sellos especiales de polietilene. Todos los paneles son fácilmente removibles. La cabina es dotada con puertas con amplias aberturas que permiten el fácil acceso al grupo electrógeno por las operaciones de manutención. Los materiales insonorizantes son muy resistentes al fuego y auto-extinguentes.</p>	<p>La cabina insonorizzata TecnoGen Super Silent è stata progettata allo scopo di raggiungere il minor livello di rumorosità possibile e un perfetto raffreddamento del motore. Il soffio d'aria raffreddante è canalizzato in circuiti fissi. La cabina è adatta ad essere utilizzata in ambienti tropicali. Il silenziatore dei gas di scarico, di tipo residenziale, è collocato all'interno della cabina. La cabina è costruita in acciaio zincato a caldo. Le lamiere hanno uno spessore di 20/10. La struttura è completamente bullonata e fissata tramite speciali sigilli al polietilene. Tutti i pannelli sono facilmente rimovibili. La cabina è dotata di porte con ampie aperture che consentono il facile accesso al gruppo elettrogeno per le operazioni di manutenzione. I materiali insonorizzanti sono altamente resistenti al fuoco e autoestinguenti.</p>

Our quality in 13 points
Notre qualité résumée en 13 points
Nuestra calidad en 13 puntos
La nostra qualità in 13 punti

1		Internal residential silencer for lower sound levels Silencieux interne pour un niveau bas de bruit Silenciador interno para un nivel de rumorosidad más bajo Silenziatore interno per un livello di rumorosità più basso
2		Integrated fuel tank of different sizes Réservoirs de combustible disponibles, sur demande, de capacité supérieure Tanques integrados disponibles, como opción, de capacidad superior Serbatoi integrati disponibili, su richiesta, di capacità superiore
3		Control panel viewing window to easily check status of generating set Fenêtre de visualisation du panneau de contrôle pour un contrôle plus facile du status opérationnel du groupe Ventana de visualización del panel de control por un más fácil control del estatus operativo del grupo Finestra di visualizzazione del pannello di controllo per un più facile controllo dello status operativo del gruppo
4		Lockable access doors for extra safety and security Porte d'accès avec serrure pour une sûreté majeure Puertas de acceso con cerradura para una mayor seguridad Porte di accesso con serratura per una maggiore sicurezza
5		Galvanized bolts Boulons galvanisés Pernos cincados Bulloni zincati
6		Emergency stop button Interrupteur d'arrêt d'urgence Botón parada de emergencia Pulsante arresto di emergenza
7		Fuel tank cap with external key Bouchon gasoil avec clé positionne a l'extérieur Tapo gasoleo con llave situado a l'externo Tappo gasolio con chiave posizionato all'esterno
8		Fully bunded base frame Réservoir amovible avec bague de retention Tanque integrado sfilabile con el envase para recoger los líquidos Serbatoio integrato sfilabile con vasca raccolta liquidi
9		Central lifting hook Crochet central d'enlèvement Gancho de elevación Gancio di sollevamento centrale
10		Doors location convenient to controls and service area Placement des portes pour rendre les contrôles plus faciles Colocación de las puertas para facilitar los controles Collocazione delle porte per facilitare i controlli
11		High serviceability level Haut niveau d'accessibilité pour la manutention Alto nivel de accesibilidad para la manutención Alto livello di accessibilità per la manutenzione
12		Large cable entry area for easy installation Grande zone d'entré des câbles pour une installation plus facile Amplia área de entrada cables para una instalación fácil Ampia area di entrata cavi per una facile installazione
13		Galvanized metal steel sheet pre-treated prior to powder coating Tôles en acier galvanisé pré-traitées avant le vernissage à poudre Chapas de acero cincado pre-tratadas antes de la pintura a polvo Lamiere di acciaio zincato pre-trattate prima della verniciatura a polvere

**SOUND PROOF VERSION DRAWING
DESSIN VERSION INSONORIZEE
DIBUJO VERSION INSONORISADA
DISEGNO VERSIONE INSONORIZZATA**



C10 TE1D

286 kW (1500 rpm) - 311 kW (1800 rpm)

Engine C10 TE1D

1/ GENERAL			1500 rpm	1800 rpm
Engine model			C10 TE1D	
Basic engine type			F3AE9685A*E001 - 504165779	
Number of cylinders			6	
Firing order (N° 1 nearest to fan)			1-4-2-6-3-5	
Cylinder arrangement			in line	
Valves per cylinder			4	
Cycle			diesel 4 stroke	
Injection system			direct E.U.I	
Electronic engine control unit			BOSCH EDC7 UC31	
Induction System			turbo aftercooler air/air	
Bore	mm		125	
Stroke	mm		140	
Total displacement	lit		10,3	
Mean piston speed	m/s		7	8,4
Compression ratio			16,5 : 1	
Flywheel rotation			anti clockwise viewed on flywheel	
Housing flywheel			SAE 1	
Flywheel			14"	
Moment of inertia				
	without flywheel	kgm ²	0,78	
	flywheel only	kgm ²	1,44	
BMEP gross				
	Prime Power	bar/kPa	21,3 / 2128	19,7 / 1974
	Stand-by Power	bar/kPa	23,3 / 2330	21,7 / 2168
Dry weight (including cooling package)			kg ~ 1110	
Energy to coolant			kcal/kWh	350 360
Energy to charge cooler			kcal/kWh	140 190
Energy to radiation			kcal/kWh	75 56
Dimensions L x W x H			mm 2195 x 1055 x 1480	
2/ PERFORMANCES			1500 rpm	1800 rpm
Continuous Power	(gross)	kWm	218	244
Prime Power	(gross)	kWm	274	305
Stand-By Power	(gross)	kWm	300	335
Fan consumption			kWm	10 18
Continuous Power	(net)	kWm	208	226
Prime Power	(net)	kWm	264	287
Stand-By Power	(net)	kWm	290	317
Performance condition				
	temperature	°C	≤ 40	
	altitude a.s.l	m	≤ 1000	
Derating				
	temperature > T 40°C	%/5°C	3%	
	altitude >1000 <3000 m	%/500m	3%	
	altitude >3000 m	%/500m	6%	

3/ COOLING SYSTEM			1500 rpm	1800 rpm
Type			liquid	
Recommended coolant			water + 50 % paraflu 11	
Coolant capacity				
engine only	liter		15	
radiator and hoses	liter		48	
Coolant pump flow	l/min		300	360
Pressure cap setting	kPa (bar)		70 (0,7)	
Shutdown switch setting	°C		103	
Maximum additional restriction	Pa		196	
Air To Boil	Prime Power	°C	58	55
Fan				
diameter	mm		700	
number of blades			8	
drive ratio			1,25 : 1	
speed	rpm		1875	2250
air flow	m ³ /s		6,5	7,7
power consumption	kWm		10	18

4/ LUBRICATION SYSTEM			1500 rpm	1800 rpm
Oil sump capacity				
max	liter		23,5	
min	liter		16,8	
Oil system capacity including filter	liter		30	
Oil pressure at rated speed	kPa		300-500	
Oil temperature				
normal	°C		0	
max	°C		120	
Engine angularity				
longitudinal	degrees		30°	
transverse	degrees		30°	
Servicing interval	hours		600	
Oil specification			ACEA E3/E5	
Oil consumption	%fuel		< 0,2	

5/ INTAKE SYSTEM			1500 rpm	1800 rpm
Air consumption at 100 % of load	m ³ /h (Kg/h)		1108 (1330)	1545 (1855)
Air intake restriction, clean filter	kPa (mbar)		2 (20)	
Air intake restriction, dirty filter	kPa (mbar)		5 (50)	
Air filter type			dry	

6/ EXHAUST SYSTEM			1500 rpm	1800 rpm
Gas flow at stand-by Power	kg/h		1389	1925
Max temperature at PRP (25°C)	°C		571	497
Max allowable back pressure	kPa (mbar)		5 (50)	
Energy to exhaust	kcal/kWh		580	675

7/ FUEL SYSTEM			1500 rpm	1800 rpm
Fuel consumption at				
Stand-By	gr/kWh (l/h) [kg/h]		194,8 (70,2) [59]	209,7 (83,7) [70,3]
Full load	gr/kWh (l/h) [kg/h]		192 (62,8) [52,8]	210,5 (76,4) [64,2]
80%	gr/kWh (l/h) [kg/h]		198 (53,7) [45,1]	219,8 (63,8) [55,3]
50%	gr/kWh (l/h) [kg/h]		202,5 (36,4) [30,6]	218,6 (43,7) [36,7]
Fuel specifications			EN 590	
Feed pump max suction head		m	-	

8/ ELECTRIC SYSTEM			1500 rpm	1800 rpm
Voltage (negative to ground)		V	24	
Starter motor				
make			DENSO	
power		kW	5,5	
pull current		Amp	12	
hold current		Amp	12	
break away current ^{+20°C}		Amp	1250	
cranking current ^{+20°C}		Amp	0	
Number of teeth on starter motor			10	
Number of teeth on flywheel			155	
Starting batteries				
recommended capacity		Ah	2x	185
discharge current		Amp	1200	
(EN 50342)				
Alternator				
voltage		V	28	
charge		Amp	90	

9/ COLD STARTING			1500 rpm	1800 rpm
Without air preheating		°C	-10	
With air preheating		°C	-25	

10/ EMISSION GASEOUS AND PARTICLES			1500 rpm	1800 rpm
No _x	Oxides of nitrogen	gr/kWh	5,71	-
HC	Hydrocarbons	gr/kWh	0,13	-
No _x +HC		gr/kWh	5,84	3,9
CO	Carbon monoxide	gr/kWh	1,27	1,1
PT	Particles	gr/kWh	0,13	0,19



meccalte



ECO 38N

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4 POLE

CHARACTERISTICS

INDUSTRIAL RATINGS

ambient 40° C

Type	KVA - cos 0.8φ- 3 Phase continuous							Efficiency		
	CL. H (ΔT= 125°C)				CL. F (ΔT= 105°C)			η % CL. H (ΔT= 125°C)		
Series Star Y	380	400	415		380	400	415	2/4	3/4	4/4
Parallel Star YY	190	200	208	IP45	190	200	208			
Series Delta Δ	220	230	240	400 V	220	230	240			
Parallel Delta ΔΔ	110	115	120		110	115	120			
ECO38-1SN/4	180	180	180	145	170	170	170			
ECO38-2SN/4	200	200	200	160	185	185	185	91,7	92,9	92,7
ECO38-3SN/4	225	225	225	180	207	207	207	92	93,3	93
ECO38-1LN/4	250	250	250	200	230	230	230	92,4	93,7	93,4
ECO38-2LN/4	300	300	300	240	275	275	275	92,7	94	93,7
ECO38-3LN/4	350	350	350	280	320	320	320	92,6	93,7	93,5

Type	CL. H (ΔT= 125°C)				CL. F (ΔT= 105°C)			Efficiency		
	CL. H (ΔT= 125°C)				CL. F (ΔT= 105°C)			η % CL. H (ΔT= 125°C)		
Series Star Y	440	460	480		440	460	480	2/4	3/4	4/4
Parallel Star YY	220	230	240	IP45	220	230	240			
Series Delta Δ	254	265	277	480 V	254	265	277			
Parallel Delta ΔΔ	127	133	138		127	133	138			
ECO38-1SN/4	220	220	220	175	205	205	205			
ECO38-2SN/4	240	240	240	192	220	220	220	92,8	94	93,8
ECO38-3SN/4	270	270	270	215	250	250	250	93,4	94,5	94,2
ECO38-1LN/4	300	300	300	240	280	280	280	93,7	94,9	94,5
ECO38-2LN/4	340	360	360	280	310	330	330	93,9	95,1	94,7
ECO38-3LN/4	420	420	420	330	385	385	385	93,3	94,5	94,3

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°
ECO38-1SN/4	196	188	188	236	230	230
ECO38-2SN/4	220	211	211	264	253	253
ECO38-3SN/4	250	237	237	300	284	284
ECO38-1LN/4	275	264	264	330	316	316
ECO38-2LN/4	330	315	315	396	378	378
ECO38-3LN/4	370	360	360	444	432	432

Type	J (Kgm ²) B3-B14 FORM	Weight (Kg)	Air Volume		Noise dB(A)			
			Air Volume		50 Hz		60 Hz	
			50 Hz (m ³ /min)	60 Hz (m ³ /min)	1m	7m	1m	7m
ECO38-1SN/4	1,7243	510	32	39	82	69	86	73
ECO38-2SN/4	1,8799	560						
ECO38-3SN/4	2,0751	590						
ECO38-1LN/4	2,3481	680						
ECO38-2LN/4	2,8342	765						
ECO38-3LN/4	3,4747	905						

ACCESSORIES

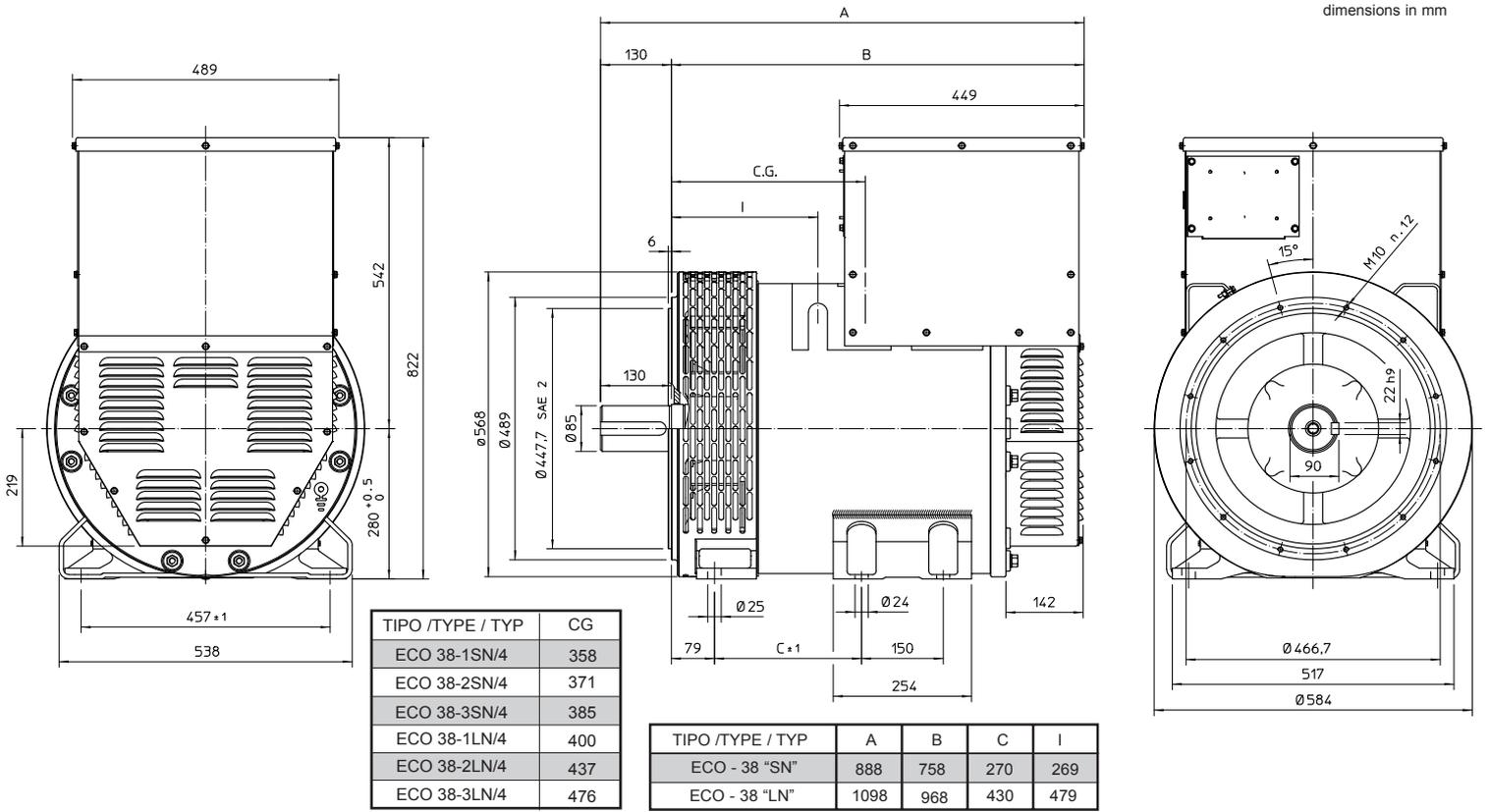
REGULATOR				PARALLEL DEVICE	THERMAL PROTECTION			HEATERS	MECHANICAL PROTECTION		
DSR	DER-1	SR7/2	UVR6		PTC	BIMET. DEVICE	PT100		IP21	IP23	IP45
●	□	□	□	□	□	□	□	□	●	□	□

● = Standard
 □ = Optional

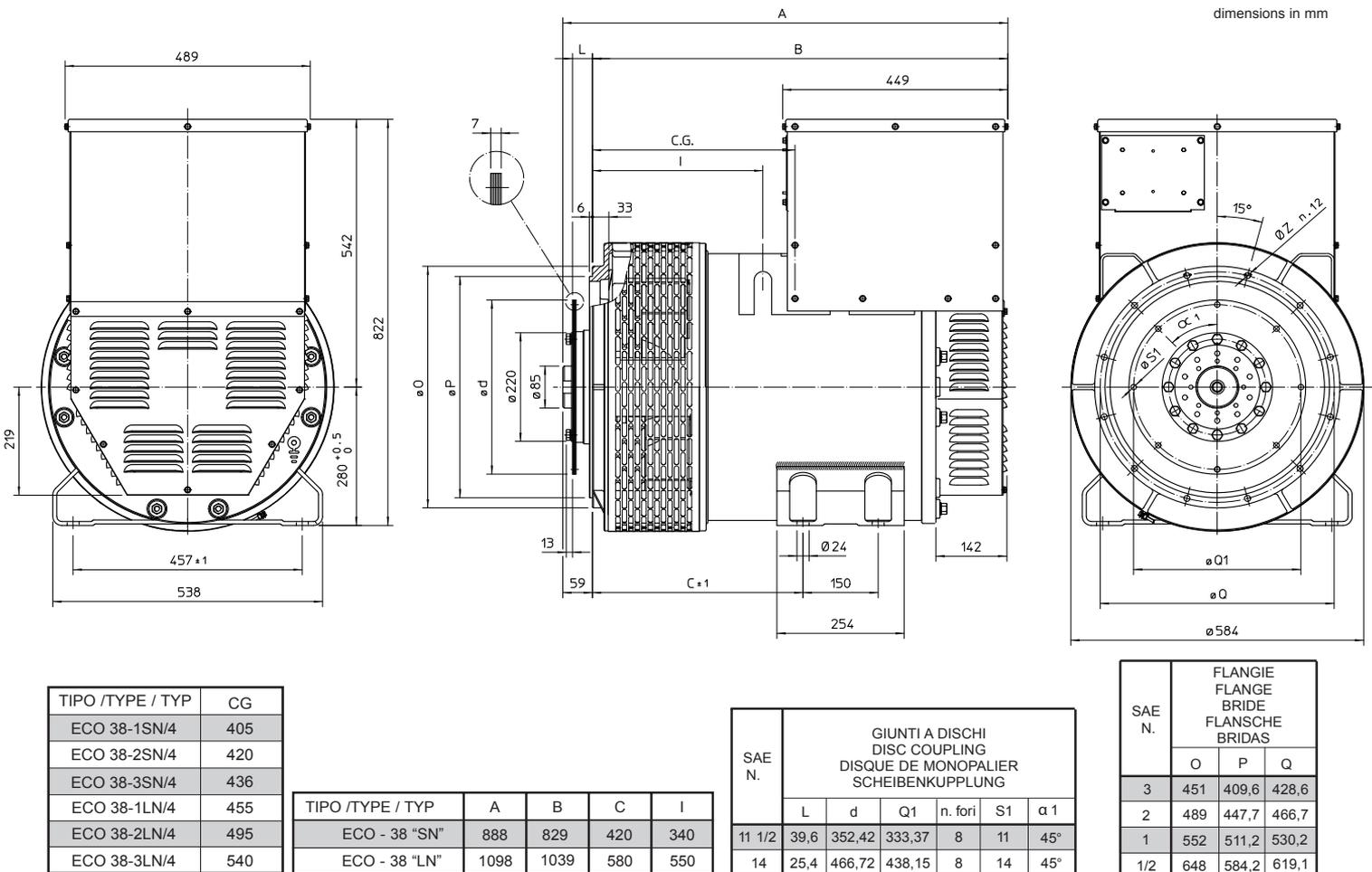
Rating



OVERALL DIMENSIONS B3-B14 FORM



OVERALL DIMENSIONS MD35 FORM



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

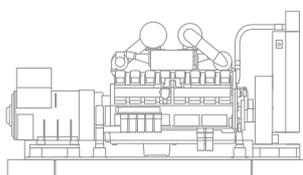
The module includes a comprehensive event log that shows the most recent 250 alarm conditions and the date and time that they occurred. This function assists the user when fault finding and maintaining a generating set.

ELECTRONIC ENGINE COMPATIBILITY

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

RELATED MATERIALS

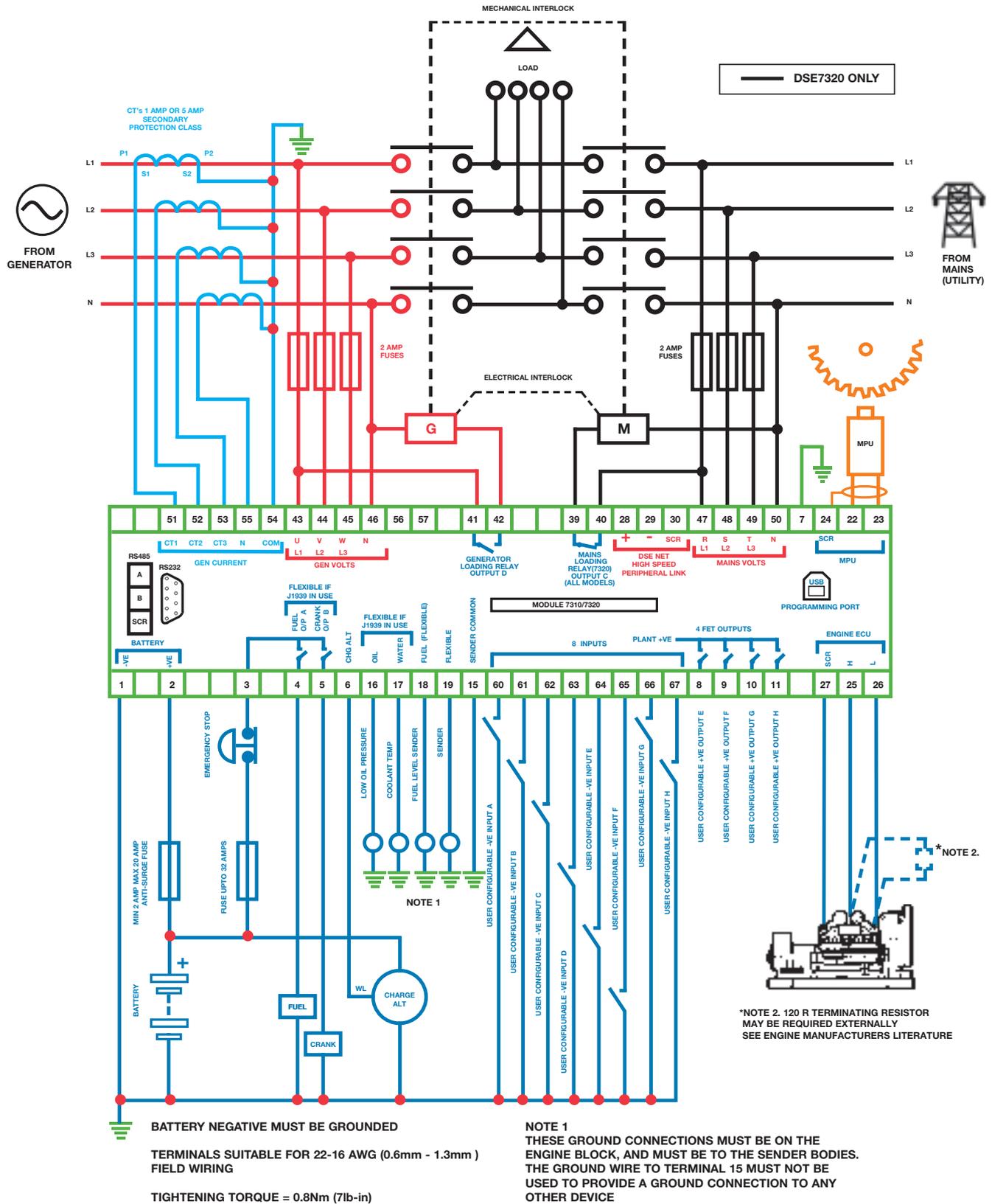
TITLE	PART NO'S
DSE7xxx Manual	057-074
DSE72xx/73xx PC Software Manual	057-077
DSE2130 Data Sheet	053-060
DSE2157 Data Sheet	053-061
DSE2548 Data Sheet	053-062
DSE860/865 Data Sheet	055-071
DSE2510/20 Data Sheet	055-074



ELECTRONIC ENGINE CAPABILITY

7310	7320
<p>Generator Instruments Volts, Hz, Amps, kW, kVA, Pf, kWh, kVAr, kVArh, KVArh</p> <p>Engine Instruments RPM, Oil Pressure, Coolant Temperature, Hours Run, Charging Voltage, Battery Volts.</p> <p>Electronic Engines Enhanced Instrumentation and Engine ECU diagnostics via electronic engine interface.</p>	<p>Generator Instruments Volts, Hz, Amps, kW, kVA, Pf, kWh, kVAr, kVArh, KVArh</p> <p>Engine Instruments RPM, Oil Pressure, Coolant Temperature, Hours Run, Charging Voltage, Battery Volts.</p> <p>Electronic Engines Enhanced instrumentation and Engine ECU diagnostics via electronic engine interface.</p> <p>Mains/Utility Instruments Volts, Frequency, Amps (optional when CT's are fitted load side of the line)</p>

DSE7310 & DSE7320



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