

TENAX Compact SERIES

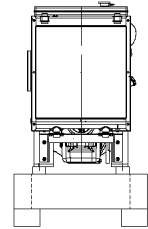
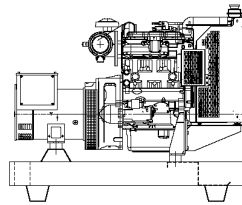
**DIESEL GENERATOR
GROUPE ELECTROGENE DIESEL
GRUPO ELECTROGENO DIESEL
GRUPPO ELETTOGENO DIESEL**

MODEL
MODELE
MODELO
MODELLO

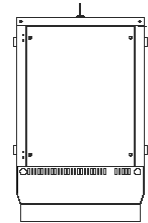
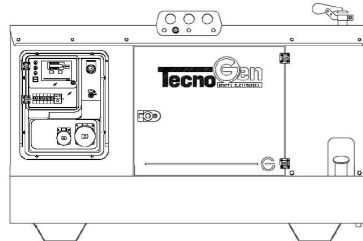
PK 10 TC**



OPEN VERSION



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 9	kVA 11,0
Stand-by Power Puissance service secours Potencia servicio emergencia Potenza servizio in emergenza	LTP	kVA 10	kVA 12,0
Continuous Power Puissance service continue Potencia servicio continuo Potenza servizio continuo	PRP	kWe 7,2	kWe 8,8
Stand-by Power Puissance service secours Potencia servicio emergencia Potenza servizio in emergenza	LTP	kWe 8	kWe 9,6
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 1,8	l/h 2,2

ENGINE MOTEUR MOTOR MOTORE		PERKINS		403D-11G	
PERFORMANCE PERFORMANCES PRESTACIONES PRESTAZIONI		1500 rpm		1800 rpm	
Continuous Power Puissance service continue Potencia servicio continuo Potenza servizio continuo	PRP	kWm	8,4	kWm	10,3
Stand-by Power Puissance service secours Potencia servicio emergencia Potenza servizio in emergenza	LTP	kWm	9,3	kWm	11,4
Specific fuel consumption Consommation spécifique combustible Consumo específico de combustible Consumo específico combustible		g/kWh	50 % 280 75 % 257 100 % 248 110 % 268	g/kWh	50 % 280 75 % 257 100 % 248 110 % 268
Diesel 4 Stroke – Injection type Diesel 4 temps – Type injection Diesel 4 tiempos – Tipo de inyección Diesel a 4 tempi – Tipo di iniezione					Indirect Indirecte Indirecta Indiretta
Aspiration type Type d'aspiration Tipo de aspiración Tipo d'aspirazione					Natural Naturel Natural Naturale
Cooling system Refroidissement Sistema de refrigeración Raffreddamento					Water Eau Agua Acqua
Speed governor Régulateur de tours Regulador Regolatore di giri					Mechanical Mécanique Mecánico Meccanico
Cylinders, numbers and arrangement Nombre et disposition des cylindres Cilindros, número y disposición Numero e disposizione dei cilindri					3 L
Total displacement Cylindrée totale Cilindrata total Cilindrata totale				cm ³	1131
Bore x stroke Alésage x course Diámetro x carrera Alesaggio x corsa				mm	77.0 x 81.0
Compression ratio Rapport de compression Relación de compresión Rapporto di compressione					23.0:1
Engine electric system voltage Voltage système électrique moteur Voltaje sistema eléctrico motor Voltaggio sistema elettrico motore					12 V
Derating for temperature Déclassement pour température Declasamiento para temperatura Declassamento per temperatura				0 ÷ 25°C > 25 °C	0 2 % / 10°C
Derating for altitude Déclassement pour altitude Declasamiento para altitud Declassamento per altitudine				0 ÷ 500 m 500 ÷ 1500 m 1500 ÷ 3000 m	0 4 % / 500 m 6 % / 500 m

ALTERNATOR ALTERNATEUR ALTERNADOR ALTERNATORE		MECCALTE	
PERFORMANCE PERFORMANCES PRESTACIONES PRESTAZIONI		1500 rpm	1800 rpm
Model Modèle Modelo Modello		ECP3-1L/4	ECP3-1L/4
Continuous Power Puissance service continue Potencia servicio continuo Potenza servizio continuo	40 °C	kVA 11,0 kWe 8,8	KVA 13,2 kWe 10,6
Stand-by Power Puissance service secours Potencia servicio emergencia Potenza servizio in emergenza	40 °C	KVA 11,4 kWe 9,1	KVA 13,8 kWe 11,0
Stand-by Power Puissance service secours Potencia servicio emergencia Potenza servizio in emergenza	27 °C	KVA 11,8 kWe 9,4	KVA 14,3 kWe 11,4
Efficiency Rendement Eficiencia Efficienza		2/4 84,4 % 3/4 86,4 % 4/4 85,9 %	2/4 85,4 % 3/4 87,8 % 4/4 87,7 %
Standard winding connections Liaison des bobinages Tipo de conexión Collegamento avvolgimenti		Y	YY
Exciter Excitatrice Excitador Excitatrice	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 23
Air volume Volume d'air Volumen de aire Volume d'aria		50 Hz 60 Hz	3,3 m ³ /min 4,0 m ³ /min
Standard AVR model Modèle AVR standard Modelo AVR standard Modello AVR standard			DSR
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 ÷ 1500 m 1500 ÷ 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	EXTRA1			L	W	H
OPEN SKID VERSION VERSION SUR SKID VERSION ABIERTA VERSIONE APERTA	50	ON REQUEST	335	120	70	103	
SOUND PROOF VERSION VERSION INSONORISEE VERSION INSONORISADA VERSIONE INSONORIZZATA	50	ON REQUEST	460	150	76	112	

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"> Steel base frame Vibration dampers Integrated fuel tank Silencer industrial type for open version Battery Manual autostart control panel With DSE6110 Engine with original tropical radiator Emergency stop button Sound proof canopy of galvanized steel with residential silencer 	<ul style="list-style-type: none"> Châssis acier Amortisseurs de vibrations Réservoir intégré Silencieux industriel pour la version ouverte Batterie Coffret de contrôle manuel autostart avec DSE6110 Moteur avec radiateur tropical Bouton arrêt d'urgence Capote d'insonorisation d'acier galvanisé avec silencieux résidentiel 	<ul style="list-style-type: none"> Telar de acero Apagadores de vibracion Tanque combustible Silenciador industrial para la versión abierta Bateria Cuadro electrico manual autostart con DSE6110 Motor con radiador original tropical Botón parada de emergencia Cabina de insonorización de acero cincado con silenciador residencial 	<ul style="list-style-type: none"> Basamento in acciaio Antivibranti Serbatoio integrato Silenziatore industriale per versione aperta Batteria Quadro elettrico manuale autostart con DSE6110 Motore con radiatore originale tropicalizzato Pulsante arresto di emergenza Cabina di insonorizzazione di acciaio zincato con marmitta residenziale

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

ACP 6110 AUS

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

STANDARD EQUIPMENT: 4 poles circuit breaker Electronic control board DSE6110 Emergency Stop button	EQUIPEMENT STANDARD: Disjoncteur de protection 4 pôles Fiche électronique DSE6110 Interrupteur d'arrêt d'urgence	EQUIPAMIENTO STANDARD: Interruptor magnetotermico 4 polos Carta electronica DSE6110 Botón de parada de emergencia	EQUIPAGGIAMENTO STANDARD: Interruttore magnetotermico 4 poli Scheda elettronica DSE6110 Pulsante di arresto di emergenza
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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 Over/under 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 Sur/sous voltage Sur/sous survitesse Niveau de combustible Rupture courroie Surcourant Sur/sous tension batterie	Baja presión de aceite Alta temperatura agua Bajo nivel combustible Fallido start Fallido stop Sovra/baja tensión Sovra/baja frecuencia Nivel de combustible Rotura de la correa Sobre intensidad Sobre/baja tension batería	Bassa pressione olio Alta temperatura acqua Basso livello carburante Mancato avviamento Mancato arresto Sovra/sotto frequenza Sovra/sotto voltaggio Livello di combustibile Rottura cinghia Sovraccorrente Sovra/sotto voltaggio batterie
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 hour counter Battery Volts	Voltmètre générateur (3 phases) Ampèremètre générateur (3 phases) Fréquencemètre générateur KW-mètre kVA- mètre Cos φ- mètre Tr/min mètre Totalisateur d'heures de marche Voltmètre batterie	Voltios del generador (3 fases) Amperios del generador (3 fases) Frecuencia del generador kW kVA Cosφ RPM Horas de funcionamiento del grupo Tensión baterías	Volt generatore (3 fasi) Ampere generatore (3 fasi) Frequenza del generatore kW kVA Cosφ RPM Ore di funzionamento del gruppo Volt batteria

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

ACP 0411 ATS



COMPLETE CONTROL PANEL FREE STANDING TYPE

Equipment: control unit, frequency and voltage indicators, genset/mains supply contactors, automatic battery charger.

COFFRET ELECTRIQUE COMPLET TYPE ARMOIRE SEPRE DU GROUPE

Equipement : unité de contrôle, indicateurs fréquence et tension, inverseur de source, chargeur de batterie automatique.

CUADRO ELECTRICO COMPLETO EN ARMARIO SEPARADO DEL GRUPO

Equipamiento: ficha de control, indicadores frecuencia y tensión, contactores grupo/red, cargador de batería automático.

QUADRO ELETTRICO COMPLETO SEPARATO DAL GRUPPO

Equipaggiamento: unità di controllo, indicatori di frequenza e tensione, contattori gruppo/rete, carica batteria automatico.




0411

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

GB	F	E	I
With a generating set wired to ACP 0411 ATS control panel, the power can be switched automatically to electrical services within few seconds (15-20) after activation of the signal indicating a cut in the mains supply.	Un groupe électrogène équipé avec un coffret électrique ACP 0411 ATS peut être démarré automatiquement dans quelques seconds (15-20) à partir de l'activation du signal d'arrêt dans la fourniture du secteur.	Un grupo electrógeno equipado con un cuadro electric ACP 0411 ATS puede ser arrancado automáticamente dentro de algunos segundos (15-20) de la activación de la señal de falta de la erogación de la red eléctrica.	Un gruppo elettrogeno collegato con un quadro automatico ACP 0411 ATS può essere avviato automaticamente entro pochi secondi (15-20) dall'attivazione del segnale che indica un arresto nella fornitura della linea principale.
MAIN PERFORMANCES	PERFORMANCES	PRESTACIONES	PRESTAZIONI
<ul style="list-style-type: none"> • 4 impulses automatic start • Immediate or delayed start after mains failure • Genset unit automatic anomaly surveillance • Weekly autotest • Immediate or delayed stop after mains voltage return • Engine protections • Current and voltage controlled battery recharging • Clock for programming the start up or stopping of the genset 	<ul style="list-style-type: none"> • Démarrage automatique à 4 impulsions • Démarrage immédiat ou retardé après manqué tension réseau • Surveillance automatique des anomalies • Autotest hebdomadaire • Arrêt immédiat ou retardé au retour de la tension réseau • Protections moteur • Recharge batterie contrôlée en courant et en tension • Horloge pour la programmation de le démarrage et de l'arrêt 	<ul style="list-style-type: none"> • Arranque automático a 4 impulsados • Arranque inmediato o retrasado después falta red eléctrica • Monitorización automática faltas grupo • Autotest semanal • Parada inmediata o retrasada después de la vuelta del voltaje red • Protecciones motor • Cargamiento batería con control de corriente y de voltaje • Reloj para la programación del arranque o de la parada del generador 	<ul style="list-style-type: none"> • Avviamento automatico con 4 impulsi • Avviamento immediato o ritardato dopo mancanza rete • Sorveglianza automatica anomalie gruppo elettrogeno • Autotest settimanale • Arresto immediato o ritardato al ritorno tensione rete • Protezioni del motore • Ricarica batteria controllata in corrente e in voltaggio • Orologio per la programmazione dell'avviamento o dello spegnimento del generatore
INDICATORS	INDICATEURS	INDICADORES	INDICATORI
Mains voltmeter Generator voltmeter (1 phase) Generator ammeter (as option) Generator frequency meter Hour meter Battery voltmeter Fuel level indicator	Voltmètre secteur Voltmètre générateur (1 phase) Ampèremètre générateur (en option) Fréquencemètre générateur Compteur horaire Voltmètre batterie Niveau combustible	Voltmetro red Voltmetro generador (1 fase) Amperímetro generador (como opción) Frecuencímetro generador Medidas horas de marcha Voltmetro batería Nivel carburante	Indicatore tensione rete Indicatore tensione generatore (1 fase) Amperometro generatore (in opzione) Indicatore frequenza generatore Contatore Indicatore tensione batteria Livello carburante
PROTECTIONS	PROTECTIONS	PROTECCIONES	PROTEZIONI
Generator failure High engine temperature (as option) Overfrequency Low oil pressure Overcrank Battery not charged Low fuel level	Anomalie générateur Haute temperature moteur (en option) Surfréquence Basse pression huile moteur Surcharge groupe Batterie non chargée Bas niveau carburant	Anomalía grupo Elevada temperatura motor (como opción) Sobre frecuencia Baja presión aceite Sobrecarga Batería sin carga Bajo nivel combustible	Anomalie generatore Alta temperatura motore (in opzione) Sovrafrequenza Bassa pressione olio Sovraccarico Batteria non carica Livello di carburante basso

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

<p>1)</p> <p>ACP 6120 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. 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.</p>
<p>2)</p> <p>ACP 6120 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. 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.</p>
<p>3)</p> <p>ACP 6120 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. 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.</p>

 **DSE 6120**
**CONTROL BOARD
CARTE ELECTRONIQUE DE CONTROL
CARTA ELECTRONICA DE CONTROL
SCHEDA ELETTRONICA DI CONTROLLO**

GB	F	E	I
The DSE6120 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 DSE6120 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 DSE6120 es una carta de control para arranquar 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 DSE6120 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 Electronic control module DSE6120 Circuit breaker Battery charger Emergency stop button	EQUIPEMENT Fiche électronique de contrôle DSE6120 Disjoncteur de protection Chargeur de batterie Bouton poussoir arrête d'urgence	EQUIPMENT Ficha electrónica de control DSE6120 Interruptor magnetotermico Cargador de batería Boton de parada de emergencia	EQUIPAGGIAMENTO Scheda elettronica di controllo DSE6120 Interruttore magnetotermico Carica batteria Pulsante stop emergenza
DIGITAL MEASURING 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	MESURES NUMERIQUES 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	MEDIDAS DIGITALES 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	MISURAZIONI DIGITALI 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
INDICATORS Mains live Generator live Mains contactor closed Generator contactor closed	INDICATEURS Présence secteur Présence tension générateur Inverseur secteur fermé Inverseur générateur fermé	INDICADORES Presencia tensión de red Presencia tensión grupo Transferencial red cerrado Transferencial grupo cerrado	INDICATORI Presenza tensione di rete Presenza tensione generatore Erogazione da rete Erogazione da gruppo
PROTECTIONS 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	PROTECTIONS 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	PROTECCIONES 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	PROTEZIONI 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

SOUNDPROOF CANOPY
CAPOTE D'INSONORISATION
CAPOTA DE INSONORIZACION
CABINA INSONORIZATA

GB	F	E	I
<p>The TecnoGen 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 canopy 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 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 tiene sido planeada con el objetivo de alcanzar el menor nivel de rumorosidad posible y un perfecto enfriamiento del motor. El soplo 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 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 10 points
Notre qualité résumée en 10 points
Nuestra calidad en 10 puntos
La nostra qualità in 10 punti

<p>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</p>
<p>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</p>
<p>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</p>
<p>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</p>
<p>5 Galvanized bolts Boulons galvanisés Pernos cincados Bulloni zincati</p>
<p>6 Emergency stop button Interrupteur d'arrêt d'urgence Botón parada de emergencia Pulsante arresto di emergenza</p>
<p>7 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</p>
<p>8 High serviceability level Haut niveau d'accessibilité pour la manutention Alto nivel de accesibilidad para la manutención Alto livello di accessibilità per la manutenzione</p>
<p>9 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</p>
<p>10 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</p>

TENAX K series - SOUND PROOF VERSION DRAWING
Série TENAX k - DESSIN VERSION INSONORIZÉE
Serie TENAX k - DIBUJO VERSION INSONORISADA
Serie TENAX k - DISEGNO VERSIONE INSONORIZATA

OUT AIR
↑ ↑ ↑ ↑

IN AIR
↓ ↓ ↓ ↓

OUT AIR
↑ ↑ ↑ ↑

EXHAUST GAS Ø 45
GAS DI SCARICO Ø 45

COOLING AIR INLET
INGRESSO ARIA DI RAFFR.

COOLING AIR EXIT
USCITA ARIA DI RAFFR.

Dimensions: 760, 1170, 45, 622, 45, 740, 230, 90, 285, 965, 373, 55, 138, 328, 285, 655, 30.5, 285, 1900, 760, 1130, 750, 1455.

00	07/03/16	Emissione			TV	ER	RB
E.M. Rev.	Date.	Descrizione		Materiale			
		Il presente disegno è di proprietà TECNIGEN che ne tutela i propri diritti a termini di legge, quindi non può essere riprodotto o comunicato a terzi senza autorizzazione		Redatto/Controllato / Approvato			
		Sostituisce disegno		Trattamento			
		Disperihertale		Denominazione			
		PONTENURE-PIACENZA-ITALY		Modello			
		Massa Kg.		N°disegno			
		Volume lt.		E00-06-V1-29751			
		Scala 1/1		codice Int. T1116472			
		N°Pezzi 1		Foglio 1/1			

400 Series 403D-11G ElectropaK

9.2 kWm @ 1500 rpm
 11.4 kWm @ 1800 rpm
 18.1 kWm @ 3000 rpm

The Perkins® 400 Series engine family continues to set new standards in the compact engine market. Developed alongside customers to fulfill their needs in the generator set, compressor, agricultural and general industrial markets.

The 400D range of ElectropaKs has been designed to fully comply with stringent EU and EPA emissions regulations, providing an emissions compliant power solution for the future

These ElectropaKs provide compact power, from a robust family of 3 and 4 cylinder diesel engines designed to provide economic and durable operation at prime and standby duties, hitting the key power nodes required by the power generation industry.

Powered by your needs

- The 403D-11G ElectropaK is a powerful but quiet 1.1 litre naturally aspirated 3-cylinder compact package

Compact, clean, efficient power

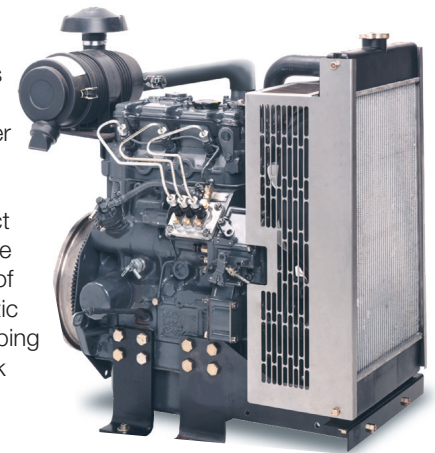
- Design features on the 400D range of ElectropaKs ensures clean rapid starting in all conditions whilst delivering impressive performance with low operating costs in a small, efficient package size

Lower operating costs

- Approved for operation on biodiesel* concentrations of up to 20%
- Oil and filter changes are 500 hours, dependent on load factor
- Engine durability and reliability, the warranty offering and ease of installation combine to drive down the cost of ownership

Product support

- With highly trained Perkins distributors in thousands of communities in over 180 countries, you are never far away from expert product knowledge, genuine parts and a range of advanced diagnostic technology for keeping your engine in peak condition



Warranties and Service Contracts

We provide one-year warranties for constant speed engines and two-year warranties for variable speed models, as standard. These are supported by multilevel Extended Service Contracts that can be bought additionally

Discover more

www.perkins.com
www.tier4air.com

www.perkins.com/distributor
 To find your local distributor

Engine speed	Type of Operation	Typical Generator Output (Net)		Engine Power				Low Idle
				Gross		Net		
		kVA	kWe	kWm	hp	kWm	hp	
1500	Prime power	9.0	7.2	8.6	11.5	8.4	11.3	n/a
	Standby power	10.0	8.0	9.5	12.7	9.3	12.4	n/a
1800	Prime power	11.2	9.0	10.7	14.3	10.3	13.9	n/a
	Standby power	12.4	9.9	11.8	15.8	11.4	15.3	n/a
†3000	Prime power	17.7	14.2	17.9	24.0	16.5	22.1	1600 ± 25
	Standby power	19.5	15.6	19.7	26.4	18.1	24.3	1600 ± 25

*Subject to conformance with ASTM D6751 and EN14214.

† Regarding gen sets ≥ 3000 rev/min: 'The U.S. EPA has certified this engine as a **constant speed** engine, with engine speed controlled by a solenoid that allows operation only at idle or full power position. The solenoid is a required element of design. **It is the responsibility of the equipment manufacturer to install the proper solenoid.** Installation of this engine in equipment without the required solenoid (or in any manner that allows variable speed operation) is not covered by EPA certification, voids the emissions warranty, and may subject the equipment manufacturer to penalties under U.S. law'.

The above ratings represent the engine performance capabilities to conditions specified in ISO 8528/1, ISO 3046/1:1986, BS 5514/1. **Derating may be required for conditions outside these; consult Perkins Engines Company Limited.** Generator powers are typical and are based on typical alternator efficiencies and a power factor (cos θ) of 0.8.

Fuel specification: BS 2869: Part 2 1998 Class A2 or ASTM D975 D2.

Rating Definitions: **Prime Power:** Power available at variable load in lieu of a main power network. Overload of 10% is permitted for 1 hour in every 12 hours operation. **Standby (maximum):** Power available at variable load in the event of a main power network failure. No overload is permitted.

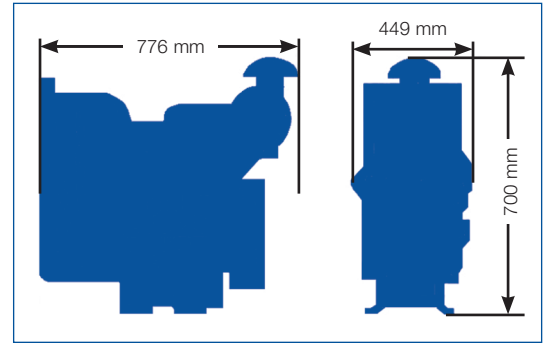
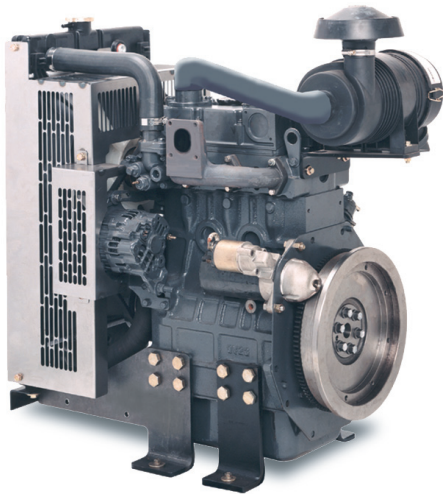
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400 Series 403D-11G ElectropaK

9.2 kWm @ 1500 rpm
 11.4 kWm @ 1800 rpm
 18.1 kWm @ 3000 rpm



Standard electropaK specification

Air inlet

- Mounted air filter

Fuel system

- Mechanically governed cassette type fuel injection pump
- Split element fuel filter

Lubrication system

- Wet steel sump with filler and dipstick
- Spin-on full-flow lub oil filter

Cooling system

- Thermostatically-controlled system with belt driven coolant pump and pusher fan
- Mounted radiator, piping and guards

Electrical equipment

- 12 volt starter motor and 12 volt 15 amp alternator with DC output
- Oil pressure and coolant temperature switches
- 12 volt shut-off solenoid energised to run
- Glow plug cold start aid and heater/starter switch

Flywheel and housing

- 1500/1800 rev/min
High inertia flywheel to SAE J620 Size 6½ Heavy
Flywheel housing SAE 5 Long
- 3000 rev/min
High inertia flywheel to SAE J620 Size 6½ Light
Flywheel housing SAE 5 Short

Mountings

- Front and rear engine mounting brackets

Optional equipment

- Parts book

Fuel Consumption

Engine Speed	1500 rpm		1800 rpm	
	g/kWh	l/hr	g/kWh	l/hr
Standby	261	2.9	268	3.6
Prime power	252	2.6	248	3.0
75% of prime power	258	2.0	257	2.3
50% of prime power	286	2.0	280	1.7

General Data

Number of cylinders	3
Cylinder arrangement	Vertical in-line
Cycle	4 stroke
Aspiration	Naturally aspirated
Combustion system.....	Indirect injection
Compression ratio	23:1
Bore and Stroke	77 x 81 mm (3 x 3.2 in)
Displacement	1.131 litres (69 cubic in)
Direction of rotation	Anti-clockwise viewed on flywheel
Cooling system.....	Water cooled
Total coolant capacity.....	5.2 litres (1.4 US gals)
Total lubrication system capacity	4.9 litres (1.3 US gals)
Dimensions	
Length	776 mm (30.5 in)
Width (including mounting brackets)	449 mm (17.6 in)
Height.....	700 mm (27.5 in)
Total weight (dry).....	129.2 kg (284.8 lb)
Final weight and dimensions will depend on completed specification.	

Option groups

A selection of optional items is available to enable you to prepare a specification precisely matched to your needs.

Emissions statement

Constant Speed Engines for use in Industrial, IOPU and ElectropaK applications: Certified against the requirements of EU Stage IIIA (Directives 97/68/EC, as last amended, for mobile applications); and US EPA Tier 4 Interim (40 CFR Parts 60 for stationary applications and 40 CFR Part 1039 for mobile applications).

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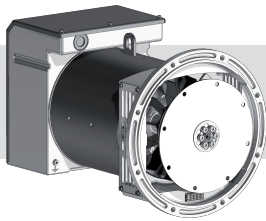
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THE HEART OF EVERY GREAT MACHINE



meccalte



ECP3

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 Tel. +39 0444/396111 - Fax +39 0444/396166 - e-mail : info@meccalte.it
 web site: www.meccalte.com

3 PHASE 4 POLE IP 23

AVR - Brushless Generators

CHARACTERISTICS

INDUSTRIAL RATINGS

ambient 40° C

Type	KVA - cosφ 0.8 - 3 Phase continuous							EFFICIENCY			1 Phase KVA COSφ = 1 CL. H (ΔT = 125°C) DELTA
	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 Y Y	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				
ECP3-1S/4	6,5	6,5	6,5	5,5	6	6	6	78,9	82,4	81,8	4,4
ECP3-2S/4	8	8	8	6,5	7,5	7,5	7,5	80,4	84,7	83,7	5,5
ECP3-1L/4	11	11	11	9	10	10	10	84,4	86,4	85,9	7,5
ECP3-2L/4	13,5	13,5	13,5	11	12,5	12,5	12,5	85,1	86,7	86,1	9
ECP3-3L/4	15	15	15	12	14	14	14	85,4	86,9	86,3	10

Type	CL. H (ΔT = 125°C)				CL. F (ΔT = 105°C)			EFFICIENCY			1 Phase KVA COSφ = 1 CL. H (ΔT = 125°C) DELTA
								η % CL. H (ΔT = 125°C)			
Series Star Y	440	460	480		440	460	480	2/4	3/4	4/4	
Parallel Star Y Y	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				
ECP3-1S/4	7,8	7,8	7,8	6,6	6,5	7,2	7,2	80,4	83,9	83,3	5,3
ECP3-2S/4	9,6	9,6	9,6	7,8	8	9	9	81,9	86,3	85,4	6,6
ECP3-1L/4	13,2	13,2	13,2	10,8	11	12	12	85,4	87,8	87,7	9
ECP3-2L/4	16,2	16,2	16,2	13,2	13,5	15	15	86,1	88	87,9	10,8
ECP3-3L/4	18	18	18	14,7	15	16,5	16,5	86,4	88,4	88,2	12

STANDBY RATING

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°
ECP3-1S/4	7	6,8	6,8	8,4	8	8
ECP3-2S/4	8,8	8,3	8,3	10,5	10	10
ECP3-1L/4	11,8	11,4	11,4	14,3	13,8	13,8
ECP3-2L/4	14,5	14	14	17,5	16,9	16,9
ECP3-3L/4	16	15,5	15,5	19,3	18,8	18,8

Type	J (Kgm²)			Weight (Kg)			Air Volume (m³/min)		Noise dB(A)				Coupling discs	
	B3/B14	B3/B9	MD35	B3/B14	B3/B9	MD35	50 Hz	60 Hz	50 Hz		60 Hz		SAE N°	J (kgm²)*
ECP3-1S/4	0,05231	0,05219	0,05261	56	54	59	3,5	3,9	72	58	78	60	6½	0,00495
ECP3-2S/4	0,05933	0,05921	0,05963	62	60	65	3,5	4,1					7½	0,00769
ECP3-1L/4	0,07231	0,07227	0,07270	76	74	79	3,3	4					8	0,01114
ECP3-2L/4	0,08409	0,08405	0,08448	84	82	87	3	3,5					10	0,02220
ECP3-3L/4	0,09027	0,09023	0,09066	90	88	93	3	3,5					11½	0,03524

*The J value of form MD35 is obtained by summing the J of the MD35 form with the J of the chosen SAE coupling discs.

ACCESSORIES

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

● = Standard

□ = Optional

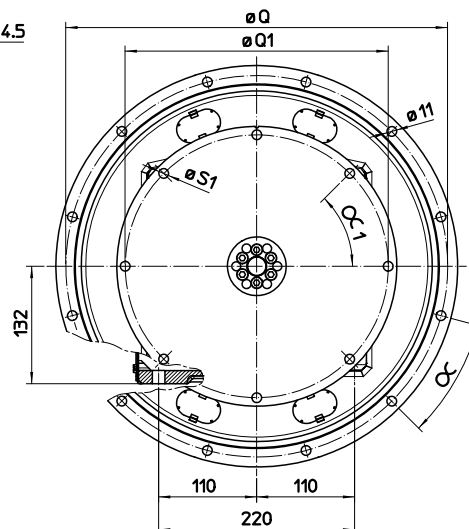
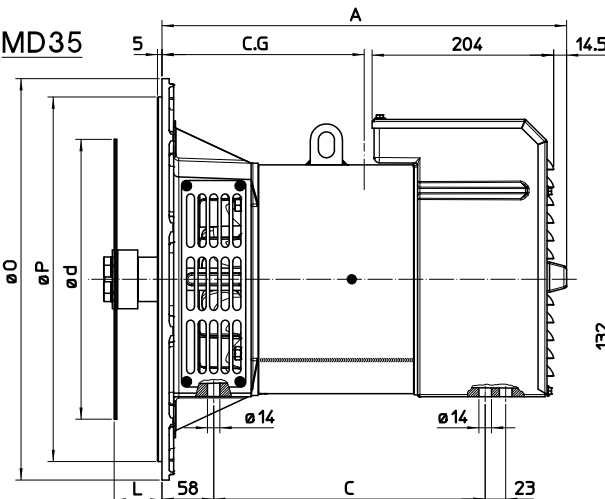
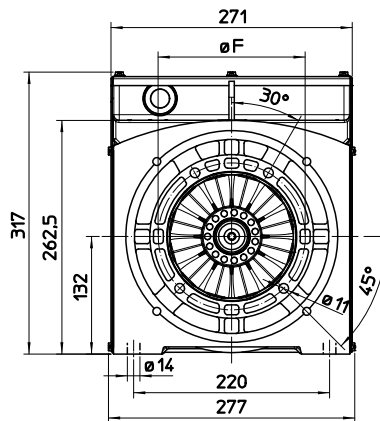
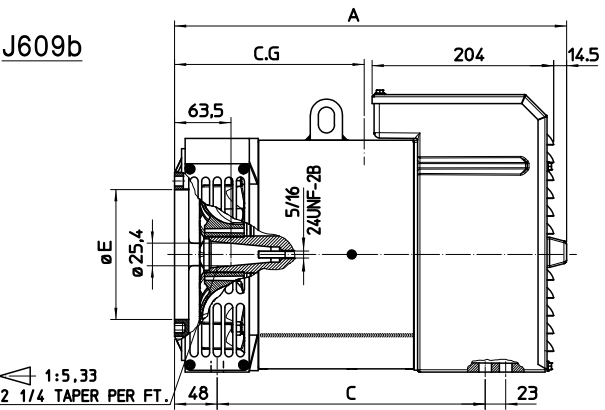
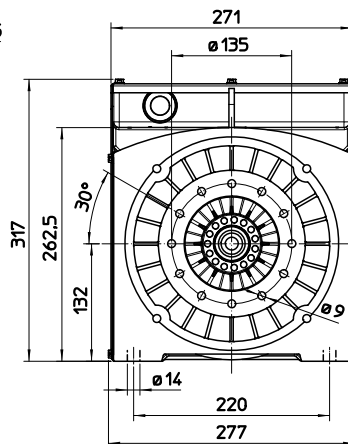
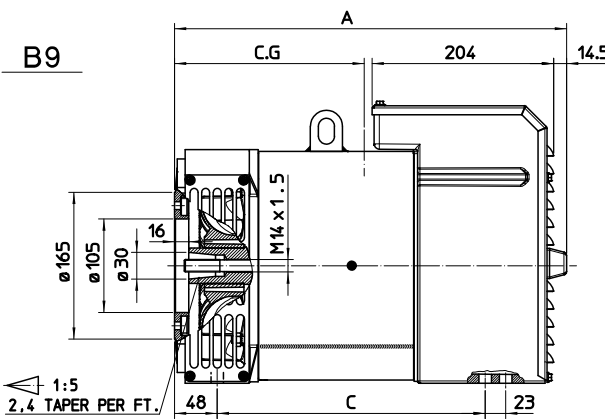
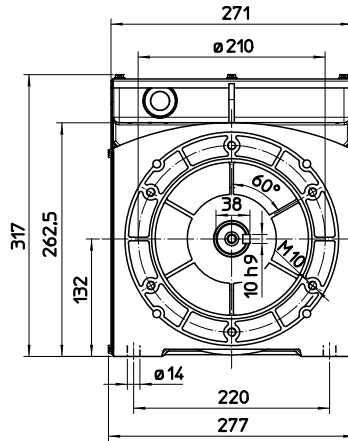
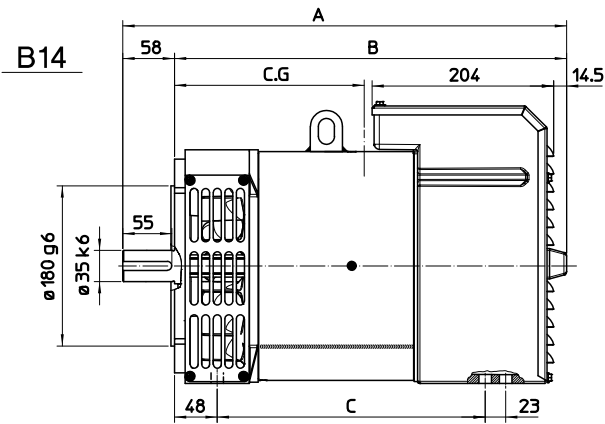
* available if requested when placing the order

Rating



OVERALL DIMENSIONS

dimensions in mm



FORM	TYPE	A	B	C	E	F
B3B14	S	498	440	301	/	/
	L	568	510	371	/	/
B9	S	440	/	301	/	/
	L	510	/	371	/	/
J609b	S	440	/	301	146.1	165.1
	L	510	/	371	163.6	196.8
MD35	S	454	/	305	/	/
	L	524	/	375	/	/

		C.G. = GRAVITY CENTER			
		B3B14	B9	J609b	MD35
4 POLE	1S	237	241	243	235
	2S	228	231	232	228
	1L	270	277	278	273
	2L	256	261	262	261
	3L	249	254	255	255

FLANGE					
SAE	O	P	Q	Fori N° Holes N°	α
6	308	266.7	285.75	8	22°30'
5	356	314.3	333.4	8	22°30'
4	403	362	381	12	15°
3	451	409.6	428.6	12	15°

COUPLING DISCS						
SAE	L	d	Q1	Holes N°	S1	α ₁
6 †	30.2	215.9	200	6	9	60°
7 †	30.2	241.3	222.25	8	9	45°
8	62	263.52	244.47	6	11	60°
10	53.8	314.52	295.27	8	11	45°
11 †	39.6	352.42	333.37	8	11	45°

DSE6110/20

AUTO START & AUTO MAINS FAILURE CONTROL MODULES

FEATURES



The DSE6110 is an Auto Start Control Module and the DSE6120 is an Auto Mains (Utility) Failure Control Module suitable for a wide variety of single gen-set applications.

Monitoring speed, frequency, voltage, current, oil pressure, coolant temperature and fuel level, the modules will display warnings, shutdown and engine status information on the back-lit LCD screen and illuminated LED.

Both modules offer electronic (CAN) and non-electronic (magnetic pick-up/alternator sensing) engine versions and offer a number of flexible inputs, outputs and engine protections so the system can be easily adapted to suit a wide range of application demands.

The modules can be easily configured using the DSE Configuration Suite PC software. Selected front panel editing is also available.

ENVIRONMENTAL TESTING STANDARDS

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

ELECTRICAL SAFETY

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

TEMPERATURE

BS EN 60068-2-1
Ab/Ae Cold Test -30 °C
BS EN 60068-2-2
Bb/Be Dry Heat +70 °C

VIBRATION

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

HUMIDITY

BS EN 60068-2-30
Db Damp Heat Cyclic 20/55 °C @ 95% RH 48 Hours
BS EN 60068-2-78
Cab Damp Heat Static 40 °C @ 93% RH 48 Hours

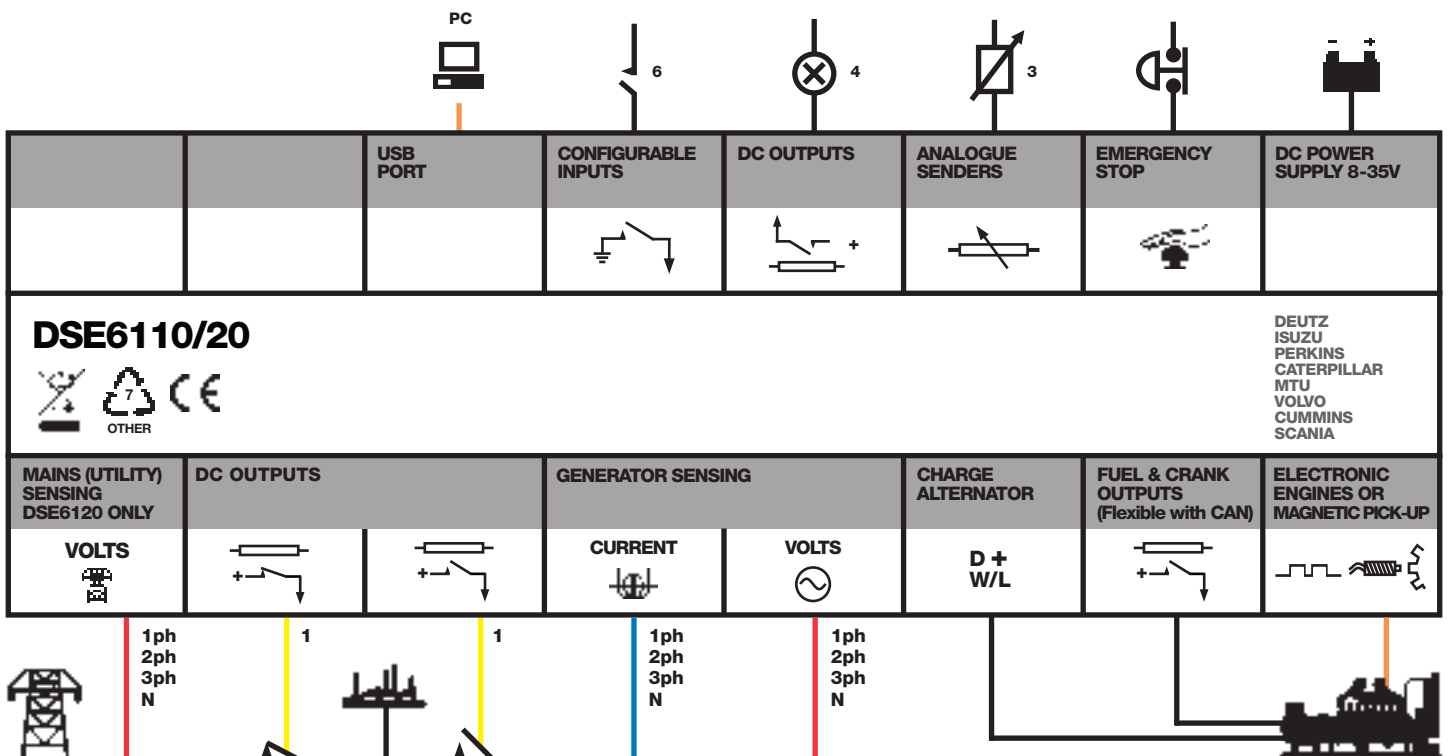
SHOCK

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

DEGREES OF PROTECTION PROVIDED BY ENCLOSURES

BS EN 60529
IP65 - Front of module when installed into the control panel with the optional sealing gasket.

COMPREHENSIVE FEATURE LIST TO SUIT A WIDE VARIETY OF GEN-SET APPLICATIONS



DSE6110/20

AUTO START & AUTO MAINS FAILURE CONTROL MODULES

FEATURES



DSE6120



DSE6110



KEY FEATURES

- Back-lit text LCD display
- Front panel editing
- LED and LCD alarm indication
- Power Save mode
- CAN and Magnetic Pick-up/Alt. versions available (specify on ordering)
- PC and front panel configuration
- 6 Digital inputs
- 3 Analogue inputs
- 6 Outputs (4 configurable on Magnetic Pick-up/Alt., 6 configurable on CAN version)
- Configurable timers and alarms
- Alternative configuration
- Event Log (10)
- Remote Start input
- 3 Phase generator monitoring

- Current Monitoring and protection
- 3 Phase Mains (Utility) monitoring (DSE6120 only)
- Test button (DSE6120 only)
- Battery voltage monitoring
- Engine pre-heat
- Hours counter
- Comprehensive shutdown or warning on fault condition

KEY BENEFITS

- Automatically transfers between mains (utility) and generator power (DSE6120 only)
- Hours counter provides accurate information for monitoring and maintenance periods
- User-friendly set-up and button layout

- Multiple engine parameters are monitored simultaneously
- Module can be configured to suit individual applications
- Compatible with a wide range of CAN engines
- Uses DSE Configuration Suite PC software for simplified configuration
- IP65 rating (with optional gasket) offers increased resistance to water ingress
- Licence-free PC software

SPECIFICATION

DC SUPPLY

CONTINUOUS VOLTAGE RATING
8 V to 35 V Continuous

CRANKING DROPOUTS

Able to survive 0 V for 50 mS, providing supply was at least 10 V before dropout and supply recovers to 5 V. This is achieved without the need for internal batteries. LEDs and backlight will not be maintained during cranking.

MAXIMUM OPERATING CURRENT

178 mA at 12 V, 95 mA at 24 V

MAXIMUM STANDBY CURRENT

88 mA at 12 V, 50 mA at 24 V

CHARGE FAIL/EXCITATION RANGE

0 V to 35 V

MAINS (UTILITY) DSE6120 ONLY

VOLTAGE RANGE
15 V - 333 V AC (L-N)

FREQUENCY RANGE

3.5 Hz to 75 Hz

OUTPUTS

OUTPUT A (FUEL)
2 A DC at supply voltage

OUTPUT B (START)
2 A DC at supply voltage

AUXILIARY OUTPUTS C,D,E & F
2 A DC at supply voltage

GENERATOR

VOLTAGE RANGE
15 V - 333 V AC (L-N)

FREQUENCY RANGE

3.5 Hz to 75 Hz

MAGNETIC PICK UP

VOLTAGE RANGE
+/- 0.5 V to 70 V

FREQUENCY RANGE

10,000 Hz (max)

DIMENSIONS

OVERALL
215 mm x 158 mm x 42 mm
8.5" x 6.2" x 1.6"

PANEL CUT-OUT

182 mm x 137 mm
7.2" x 5.4"

MAXIMUM PANEL THICKNESS

8 mm
0.3"

RELATED MATERIALS

TITLE

DSE6110 Installation Instructions
DSE6120 Installation Instructions
DSE6100 Quick Start Guide
DSE6100 Operator Manual
DSE6100 Configuration Suite PC Manual

PART NO'S

053-059
053-060
057-102
057-095
057-096

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