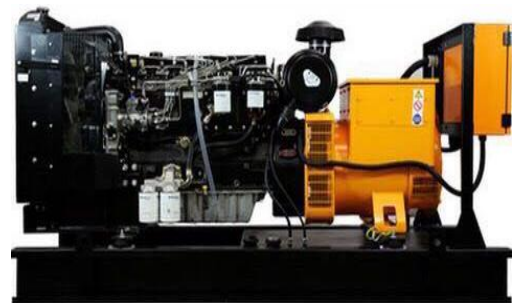


# PERKINS GENERATOR

245 KVA ( 196 KW )

(UK)



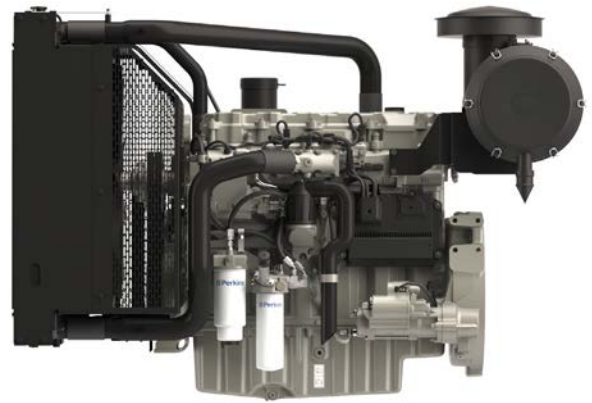
# 1500 Series 1506A-E88TAG1 ElectropaK

239 kWm standby net power @ 1800 rpm

Building upon Perkins proven reputation within the power generation industry the Perkins® 1500 Series ElectropaK engines now fit even closer to our customer's needs.

The 1506A-E88TAG1 ElectropaK is a 6 cylinder, fully electronic, turbocharged, air-to-air charge cooled diesel engine. It is economical, quiet and reliable and provides the high performance that is demanded by our customers for their power generation needs.

Focusing on the Perkins common platform theme, changes to engine envelope dimensions and connection points have been kept to a minimum, making for easy installation across the ratings.



Specification		
Number of cylinders	6 vertical in-line	
Bore and stroke	112 x 149 mm	4.5 x 5.8 in
Displacement	8.8 litres	537 in <sup>3</sup>
Aspiration	Turbocharged aftercooled	
Cycle	4 stroke	
Combustion system	Direct injection	
Compression ratio	16.1:1	
Rotation	Anti-clockwise, view on flywheel	
Total lubricating capacity	41 litres	9.01 US gal
Cooling system	Liquid	

[www.perkins.com](http://www.perkins.com)

Photographs are for illustrative purposes only and may not reflect final specification. All information in this document is substantially correct at time of printing and may be altered subsequently. Final weight and dimensions will depend on completed specification.

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 **Perkins®**

THE HEART OF EVERY GREAT MACHINE

# 1500 Series 1506A-E88TAG1 Electropak

239 kWm standby net power @ 1800 rpm

## Features and benefits

### Dependable power

- The 1506A-E88TAG1 delivers greater productivity through an improved power to weight ratio
- The world-class power density has been achieved from an 8.8 litre turbocharged engine using a hydraulic actuated unit injection (HEUI) fuel system; making this engine robust for all markets due to its ability to cope with the variation of fuel quality around the world
- In its class, the 1506A-E88TAG1 has been designed to provide dependable power even in extreme ambient climates

### Low operating costs

- Oil change service intervals are set at 500 hours as standard
- Designed to provide low cost of ownership, simple maintenance and reduced downtime
- 12 months unlimited warranty with 24 months on Major items. For low use applications <500 hours per year warranty is extended by a further 12 months. See Perkins Warranty Policy for further details
- Extended Service Contracts – protect and plan the cost of ownership  
Go to [www.perkins.com/esc](http://www.perkins.com/esc) for more information

### Flexibility

- The 1506-E88TAG1 has been designed to hit the power node requirements of our customers
- Switchability functionality from 50 Hz/1500 rpm to 60 Hz/1800 rpm and vice versa is available to provide greater flexibility for frequency selection

### World class product support

- Our experienced global network of distributors and dealers, fully trained engine experts deliver total service support around the clock, 365 days a year. They have a comprehensive suite of web based tools at their disposal, covering technical information, parts identification and ordering systems, all dedicated to maximising the productivity of your engine
- Perkins actively pursues product support excellence by insisting our distribution network invest in their territory to provide customers with a consistent quality of support across the globe
- Throughout the entire life of a Perkins engine, we provide access to genuine OE specification parts giving 100% reassurance that you receive the very best in terms of quality for lowest possible cost, wherever your Perkins powered machine is operating in the world
- To find your local distributor: [www.perkins.com/distributor](http://www.perkins.com/distributor)

[www.perkins.com](http://www.perkins.com)

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THE HEART OF EVERY GREAT MACHINE

# 1500 Series 1506A-E88TAG1 Electropak

239 kWm standby net power @ 1800 rpm

## Technical information

### Air inlet system

- Mounted air filter and turbocharger

### Fuel system

- HEUI fuel system with full authority electronic control
- Electronic governing to ISO 8528-5 with stand-alone isochronous and load-sharing capabilities
- Fuel filter, fuel transfer pump, fuel priming pump
- Spin on primary, secondary and water filter separator

### Lubrication system

- Wet full aluminium sump with filler and dipstick
- Full-flow spin-on filters
- Oil pump, gear driven

### Cooling system

- Thermostatically controlled with belt driven, circulating pump and belt-drive fan
- Mounted belt driven pusher fan
- Radiator supplied loose with all guards and pipes
- Air-to-air charge cooler incorporated in radiator

### Electrical equipment

- 24V starter motor and 24V, 45 amp alternator with DC output
- Electronic Control Module (ECM) mounted on engine with wiring looms and sensors

### Flywheel and housing

- High inertia flywheel to SAE 1 J620 Size 355.6 mm (14 in)
- Aluminium SAE 1 flywheel housing

### Mountings

- Front engine mounting bracket

[www.perkins.com](http://www.perkins.com)

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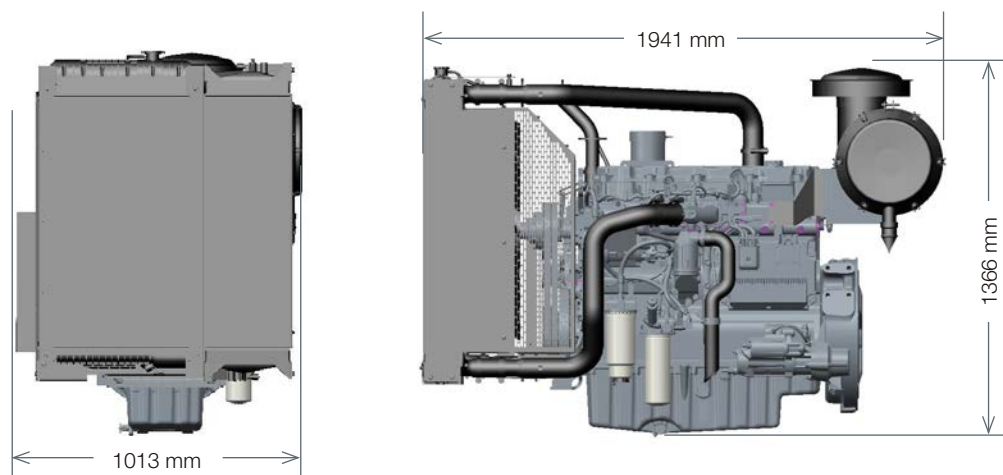
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THE HEART OF EVERY GREAT MACHINE

# 1500 Series 1506A-E88TAG1 Electropak

239 kWm standby net power @ 1800 rpm



Engine package weights and dimensions

Length (including air cleaner)	1941 mm	76 in
Width	1013 mm	40 in
Height	1366 mm	54 in
Weight (dry)	1135 kg	2502 lb

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THE HEART OF EVERY GREAT MACHINE

# 1500 Series 1506A-E88TAG1 Electropak

239 kWm standby net power @ 1800 rpm

Speed rpm	Type of operation	Typical generator output		Engine power (Net)	
		kVA	kWe	kWm	hp
1800	Prime power	245	196	218	292
	Standby power	269	215	239	320

[www.perkins.com](http://www.perkins.com)

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THE HEART OF EVERY GREAT MACHINE



**PRO**

*Catalogo - catalogue - catàlogo* גב-גב



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## **LINZ ELECTRIC,**

azienda specializzata nella realizzazione degli alternatori, fa parte del gruppo Pedrollo, leader mondiale nella produzione di elettropompe e di prodotti elettromeccanici. La missione aziendale è quella di creare soluzioni originali ed innovative nella trasformazione dell'energia nel rispetto dello sviluppo sostenibile. La decennale esperienza dei progettisti unita ad una forte propensione per l'innovazione permette di soddisfare i clienti con prodotti affidabili e di elevate prestazioni. Caratteristica fondamentale dell'azienda è la flessibilità garantita dalla forte integrazione verticale dei processi produttivi: i principali componenti dei nostri prodotti tra cui avvolgimenti, componenti pressofusi, alberi, regolazioni elettroniche ed inverter sono interamente realizzati all'interno dei nostri stabilimenti.

## **LINZ ELECTRIC,**

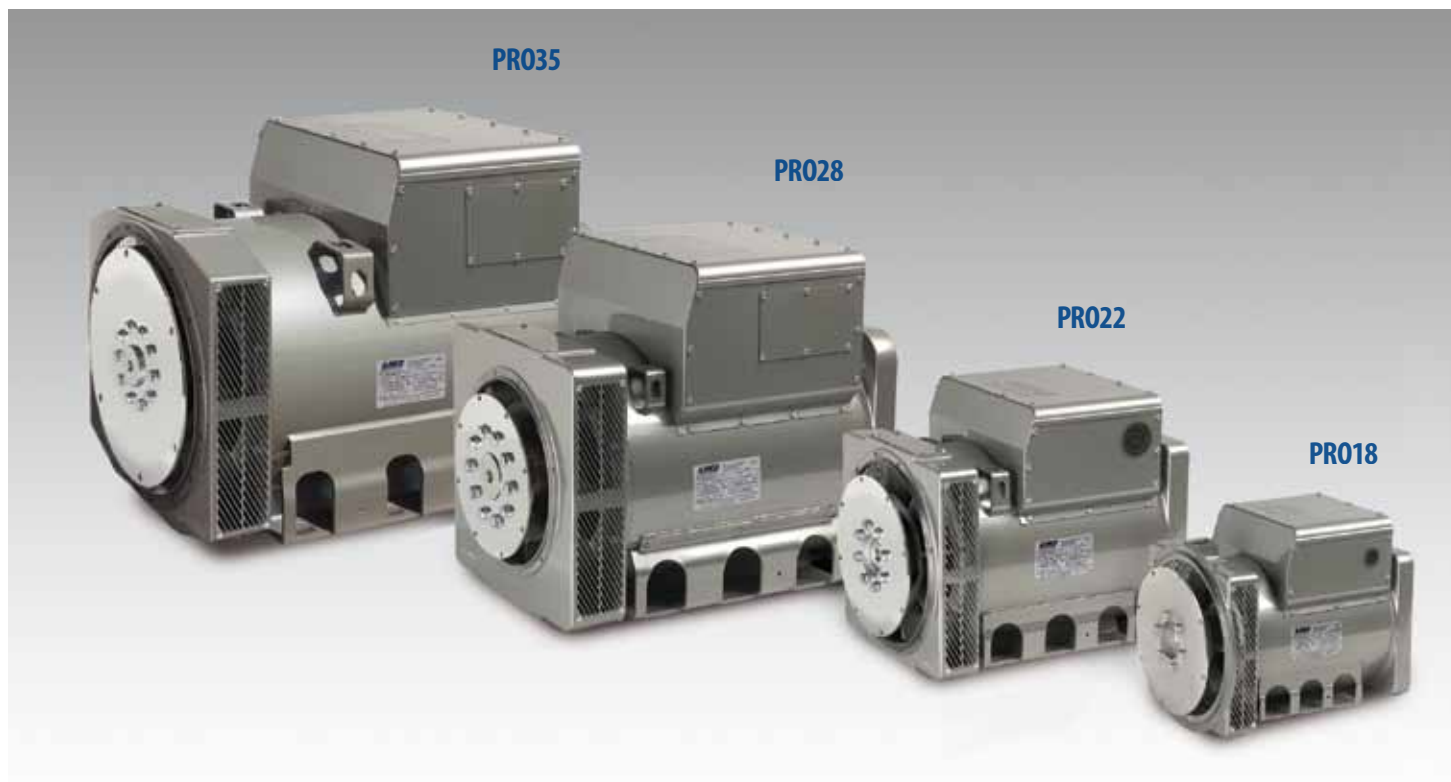
*a firm specialising in the manufacturing of alternators, belongs to the Pedrollo group, world leader in the production of electric pumps and electromechanical products. The corporate mission is devising original and innovative solutions in energy transformation with a strong commitment to sustainable development. The decade-long experience of the engineers and a strong inclination for innovation leads to meeting the customers' needs by means of reliable and high-performing products. Main feature of Linz Electric S.r.l. is the flexibility assured by a complete vertical integration of all production processes: the most important components of our products like windings, die-cast aluminium parts, shafts, electronic regulators and inverters, are produced in our plants.*

## **LINZ ELECTRIC,**

*empresa especializada en la fabricación de alternadores, forma parte del grupo Pedrollo, líder mundial en la producción de electrobombas y productos electromecánicos. La misión empresarial es crear soluciones originales e innovadoras para la transformación de energía, con un fuerte compromiso por el desarrollo sostenible. La experiencia decenal de los proyectistas y una fuerte tendencia a la innovación nos permiten satisfacer a nuestros clientes con productos confiables y de elevadas prestaciones. Característica fundamental de la empresa es la flexibilidad, garantizada por una fuerte integración vertical de los procesos productivos: los principales componentes de nuestros productos como los bobinados, fundición de aluminio, ejes, reguladores electrónicos e invertis, son totalmente realizados dentro de nuestros establecimientos.*



## Gamma degli alternatori PRO - PRO alternators series - Gama de alternadores PRO



### I punti di forza - Strengths - Los puntos fuertes

- **Alto rendimento**  
High efficiency  
Alto rendimiento
- **Eccellente forma d'onda**  
Excellent wave form  
Excelente forma de onda
- **Compattezza e resistenza meccanica**  
Compactness and mechanical strength  
Compacidad y resistencia mecánica
- **Design esclusivo**  
Exclusive design  
Diseño exclusivo

Caratteristiche Tecniche  
Technical particulars - Características técnicas



### CARATTERISTICHE MECCANICHE:

La cassa è realizzata in acciaio, lo scudo L.A. in ghisa, lo scudo L.O.A. è realizzato in lega di alluminio resistente alle vibrazioni (PRO18) o in ghisa (PRO22, PRO28 e PRO35) e l'albero in acciaio ad alta resistenza. Il rotore è particolarmente robusto per resistere alla velocità di fuga dei motori di trascinamento ed è dotato di una gabbia di smorzamento che permette un buon funzionamento anche con carichi monofase distorti e squilibrati. I cuscinetti sono lubrificati a vita.

#### *Mechanical features:*

Casing is made of steel, drive end side cover made of cast iron while non drive end side cover is made of aluminium alloy which holds out against vibrations (PRO18) or of cast iron (PRO22, PRO28 and PRO35). The shaft is made of high-tensile steel. The rotor is particularly sturdy to hold out against the runaway speed of the drive motors. It is equipped with a damping cage which allows satisfactory operation even with single-phase, distorted loads. Bearings have lifelong lubrication.

#### *Características mecánicas:*

La carcasa es de acero, la brida del lado acoplamiento (L.A.) es de fundición, la brida del lado opuesto al acoplamiento (L.O.A.) es de aleación de aluminio de alta resistencia a las vibraciones (PRO18) y fundición (PRO22, PRO28 y PRO35). Eje en acero de alta resistencia. Rotor robusto, apto para resistir la velocidad de fuga del motor, posee además jaula de amortiguamiento que permite un buen funcionamiento de la máquina aun con cargas de alta distorsión. Rodamientos lubricados de por vida.

## CARATTERISTICHE ELETTRICHE:

Gli isolamenti sono realizzati con materiali in classe H sia nello statore che nel rotore e gli avvolgimenti sono tropicalizzati. Il lamierino magnetico utilizzato è del tipo a basse perdite. La regolazione della tensione avviene mediante un regolatore elettronico alimentato da un avvolgimento ausiliario isolato dal principale. L'avvolgimento di erogazione è del tipo a 12 terminali e permette la realizzazione dei collegamenti riportati nello schema elettrico (pag. 19).

### Electric characteristics:

*Insulation is obtained with H class material for both stator and rotor and the windings are tropicalized. Low-loss lamination is used. Voltage is adjusted by means of an electronic regulator, fed by an auxiliary winding isolated from the main one. The main winding with 12 terminals allows to obtain the connection shown in the Electric diagram (page 19).*

### Características eléctricas:

*Los aislantes son en clase H tanto en el rotor como en el estator. Los bobinados están tropicalizados. La lámina magnética es del tipo a bajas pérdidas. La regulación de la tensión se produce a través de un regulador electrónico alimentado por un bobinado auxiliar aislado galvánicamente del bobinado principal. Los bobinados de suministro son del tipo a 12 terminales que permiten las conexiones indicadas en el esquema eléctrico (pag.19).*

## NORME DI RIFERIMENTO:

Gli alternatori della serie **PRO** sono costruiti in conformità a quanto previsto dalle norme EN 60034-1, EN 60204-1, EN61000-6-2, EN61000-6-4, EN 55014-1, EN 55011 ed alle direttive 2006/95/CE, 2004/108/CE, 2006/42/CE.

### Reference standards:

*The PRO series alternators are manufactured pursuant to the provisions of the EN 60034-1, EN 60204-1, EN61000-6-2, EN61000-6-4, EN 55014-1, EN 55011 standards and 2006/95/CEE, 2004/108/CEE, 2006/42/CEE directives.*

### Normas de referencia:

*Los alternadores de la gama PRO han sido fabricados en conformidad con lo previsto por las normas EN 60034-1, EN 60204-1, EN61000-6-2, EN61000-6-4, EN 55014-1, EN 55011 y a las directivas 2006/95/CEE, 2004/108/CEE, 2006/42/CEE.*

## CONDIZIONI DI UTILIZZO:

I dati sulle prestazioni riportati nel presente catalogo sono dichiarati per un funzionamento ad un altitudine non superiore ai 1000 m s.l.m. e con temperatura ambiente fino a 40°C. Per utilizzi in condizioni diverse consultare la tabella di sotto riportata.

### Operating conditions:

*The performance datas reported in the present catalogue are valid for operation at an altitude not exceeding 1000 m a.s.l. and ambient temperature*

*not exceeding 40°C. If operation takes place in different conditions, consult the table below.*

### Condiciones de uso:

*Los datos sobre las prestaciones mencionados en el presente catálogo se refieren al funcionamiento a una altitud no superior a los 1000 m s.n.m. y con temperatura ambiente de hasta 40°C. Para usos en condiciones distintas, consultar la tabla que se muestra a continuación.*

Variazione di potenza con la temperatura e l'altitudine Power variation according to temperature and altitude					
ALTITUDINE ALTITUDE m	Temperatura ambiente Ambient temperature				
	25 °C	40 °C	45 °C	50 °C	55 °C
< 1000	1.09	1	0.96	0.93	0.91
1000 - 1500	1.01	0.96	0.92	0.89	0.87
1500 - 2000	0.96	0.91	0.87	0.84	0.83
2000 - 3000	0.9	0.85	0.81	0.78	0.76

## ACCOPIAMENTI:

Sono previsti tutti gli standard di accoppiamento ai motori primi presenti nel mercato.

### Couplings:

*All the motor coupling standards available on the market are supported.*

## Acoplamientos:

*Están previstos todos los tipos de acoplamiento a los principales motores presentes en el mercado.*

## GRADO DI PROTEZIONE:

Standard IP 23.

### Drip proof:

Standard IP 23.

## Grado de protección:

Estándard IP 23.

## MORSETTIERA E SCATOLA MORSETTI:

La scatola morsetti è realizzata in lamiera e contiene la morsettiera principale ed il regolatore elettronico di tensione. Gli ingombri della scatola morsetti sono tali da consentire un facile accesso per il collegamento dei terminali sulla morsettiera. Un'apposita apertura laterale permette di raggiungere il potenziometro del regolatore e di effettuare le operazioni di taratura della tensione senza dover aprire la scatola morsetti.

### Terminal board and terminal box:

*Terminal box is made of sheet steel; it contains the main terminal board and the automatic voltage regulator. The dimensions of the terminal box allows an easy access for connecting the terminals on the terminal board. A lateral*

opening allows to reach the potentiometer on the regulator and set the voltage without opening the terminals box.

#### **Bornera y caja de bornes:**

La caja de bornes es de chapa; en ella son alojados la bornera principal y el regulador electrónico de tensión.

Las dimensiones de la misma permiten un fácil acceso para la conexión de los terminales.

Con una especial abertura lateral se accede a los trimmers del regulador para las operaciones de ajuste de la tensión del alternador sin necesidad de abrir la caja de bornes.

#### **SOVRACCARICHI:**

Sono consentiti sovraccarichi pari al 10% della potenza nominale per 1 ora ogni 6 ore.

Il sovraccarico breve può essere anche molto elevato (3 volte la corrente nominale).

#### **Overloads:**

A 10% overload for 1 hour every 6 hours is normally accepted. Short overloads can be very high (3 times the rated current).

#### **Sobrecargas:**

Son permitidas sobrecargas del 10% de la potencia nominal por 1 hora cada 6 horas. La sobrecarga breve admisible es de 3 veces el valor nominal.

#### **PRECISIONE DELLA TENSIONE:**

$\pm 1\%$  della tensione nominale da vuoto a pieno carico con  $\cos\phi$  compreso tra 0.8 e 1 e velocità di rotazione costante.

#### **Voltage accuracy:**

$\pm 1\%$  of rated voltage, from no load to full load with  $\cos\phi$  ranging from 0.8 to 1 and constant rotation speed.

#### **Precision de la tension:**

$\pm 1\%$  del valor nominal de tensión entre vacío y plena carga con  $\cos\phi$  entre 0.8 y 1, y velocidad de rotación constante al valor de tarjeta.

#### **FORMA D'ONDA DELLA TENSIONE:**

La forma d'onda della tensione concatenata a vuoto o con un carico trifase equilibrato e non deformante, è sinusoidale con un contenuto armonico inferiore al 3%.

#### **Output voltage waveform:**

The waveform of the no-load line voltage or applying a balanced linear three-phase load is sinusoidal with an harmonical residual less than 3%.

#### **Forma de onda de tension:**

La distorsión harmónica de la tensión de salida en vacío o con carga trifásica equilibrada lineal es menor del 3%.

#### **AVVIAMENTO DI MOTORI ASINCRONI:**

E' possibile avviare 1 HP per ogni kVA del generatore.

#### **Asynchronous motor starting:**

1 HP for each kVA of the alternator can be started.

#### **Arranque de motores asincronos:**

Es posible arrancar 1HP de motor por cada kVA de generador.

#### **CORRENTE DI CORTO CIRCUITO:**

La corrente permanente in caso di corto circuito trifase simmetrico è superiore al 250% della corrente nominale.

#### **Short circuit current:**

In case of three-phase symmetric short circuit, the permanent current exceeds the rated current by 250%.

#### **Corriente de corto circuito:**

La corriente permanente de corto circuito trifásico simétrico es superior al 250% del valor nominal.

#### **FUNZIONAMENTO MONOFASE:**

E' possibile alimentare un carico monofase con una potenza pari al 40% della potenza nominale trifase se si utilizza una sola fase (collegamento a stella), oppure pari al 65% della potenza nominale trifase se si utilizza un collegamento a triangolo.

#### **Single phase duty:**

The single-phase output power is approximately 40% of the three-phase rated power in case of star connection (using phase voltage) or 65% of three-phase rated power in case of delta connection.

#### **Funcionamiento monofásica:**

La potencia monofásica que el alternador puede suministrar en servicio continuo es del 65% del valor nominal del funcionamiento trifásico utilizando la tensión línea-línea, y del 40% del valor nominal si se utiliza la tensión de fase en la conexión en estrella.

#### **REGOLATORE ELETTRONICO:**

Gli alternatori della serie PRO sono dotati dei seguenti regolatori elettronici:

- HVR-11 su PRO18 e PRO22 con riferimento di tensione monofase
- HVR-30 su PRO28 e PRO35 con riferimento di tensione trifase

I regolatori elettronici sono costruiti con componenti elettronici di ultima generazione e che garantiscono prestazioni ed affidabilità elevate.

Entrambi i modelli sono dotati di trimmer per la regolazione del valore della tensione, trimmer per il controllo di stabilità della regolazione, trimmer per la taratura della protezione di bassa frequenza e trimmer per la regolazione della protezione di sovraccarico. Il modello HVR-30, dotato di riferimento di tensione trifase, garantisce un'ottima regolazio-

ne anche nel caso di carichi fortemente squilibrati.

**ELECTRONIC REGULATOR:**

*PRO series alternators are equipped with the following electronic regulators:*

*- HVR-11 on PRO18 and PRO22, with single phase sensing*

*- HVR-30 on PRO28 and PRO35, with three-phase sensing*

*Our electronic regulators are made with state-of-the-art electronic components that assure high performances and reliability. They are equipped with an output voltage regulator trimmer, a stability control trimmer, a low frequency protection trimmer and an overload protection trimmer.*

*Model HVR-30 is a three phase sensing regulator with three voltage inlets, to assure the best regulation also in case of unbalanced load.*

**REGULADOR ELECTRONICO:**

*Los alternadores de la serie PRO poseen los siguientes reguladores electrónicos*

*- HVR-11 en PRO18 y PRO22, con referencia de tensión monofásica*

*- HVR-30 en PRO28 y PRO35, con referencia de tensión trifásica*

*Los reguladores electrónicos están realizados con componentes electrónicos de última generación, con lo cual se permite obtener altas prestaciones y confiabilidad. Los dos modelos tienen un trimmer para la regulación de la tensión de salida, trimmer para el control de la estabilidad, trimmer para tarar el umbral de protección de baja frecuencia y trimmer para tarar la protección de sobrecarga. El modelo HVR-30 posee tres entradas para ingreso de tensión de referencia trifásica, de manera de garantizar una buena regulación en el uso con cargas muy desequilibradas.*

---

**DISPOSITIVO DI PARALLELO**

Su richiesta gli alternatori della serie PRO possono essere dotati di dispositivo di parallelo DP01 che consente un facile collegamento in parallelo di più alternatori evitando il manifestarsi di correnti di ricircolo tra gli stessi.

**Parallel device:**

*On demand, PRO series alternators can be equipped with a parallel device DP01, that permits a parallel connection of generators of the same type, avoiding the circulation of current among them.*

**Dispositivo de paralelo:**

*Bajo pedido los alternadores de la serie PRO pueden ser equipados con un dispositivo de paralelo DP01, permitiendo con el mismo la entrada en paralelo de alternadores del mismo tipo, evitando la circulación de corriente entre generadores.*

# PRO18

## Alternatori sincroni trifase senza spazzole con regolazione elettronica - 4 poli

Three-phase brushless synchronous alternators with electronic regulation - 4 poles

Alternadores síncronos trifásicos sin escobillas con regulación electrónica - 4 polos



### POWER RANGE

#### PRO18S

50 Hz

20 ◀▶ 30

60 Hz

24 ◀▶ 36

#### PRO18M

50 Hz

35 ◀▶ 42

60 Hz

42 ◀▶ 50

#### PRO18L

50 Hz

50 ◀▶ 60

60 Hz

60 ◀▶ 72

Gli alternatori della serie **PRO18** sono trifase a 4 poli senza spazzole, dotati di regolazione elettronica (AVR) con riferimento di tensione mono-fase. Sono costruiti in conformità a quanto previsto dalle norme EN 60034-1, EN 60204-1, EN61000-6-2, EN61000-6-4, EN 55014-1, EN 55011 ed alle direttive 2006/95/CE, 2004/108/CE, e 2006/42/CE.

The alternators of **PRO18** series are three phase, brushless, with electronic regulation (AVR) with single phase sensing.

They are produced in conformity with EN 60034-1, EN 60204-1, EN61000-6-2, EN61000-6-4, EN 55014-1, EN 55011 standards and 2006/95/CEE, 2004/108/CEE, 2006/42/CEE directives.

Los alternadores de la serie **PRO18** son trifásicos sin escobillas, con regulación electrónica (AVR) con referencia de tensión monofásica.

Están contruidos en conformidad con las normas EN 60034-1, EN 60204-1, EN61000-6-2, EN61000-6-4, EN 55014-1, EN 55011 y a las directivas 2006/95/CEE, 2004/108/CEE, 2006/42/CEE.

TIPO - TYPE	Potenza resa / Rating (kVA)					
	50 Hz			60 Hz		
	Cl. H T. amb 40°C	Cl. F T. amb 40°C	Stand by Cl. H T. amb 27°C	Cl. H T. amb 40°C	Cl. F T. amb 40°C	Stand by Cl. H T. amb 27°C
<b>PRO18S A/4</b>	20	18.5	23	24	22	27
<b>PRO18S B/4</b>	25	23	28	30	27.5	34
<b>PRO18S C/4</b>	30	28	34	36	33.5	38
<b>PRO18M D/4</b>	35	32	39	42	38.5	47
<b>PRO18M E/4</b>	42	39	47	50	47	55
<b>PRO18L F/4</b>	50	45	55	60	54	66
<b>PRO18L G/4</b>	60	55	65	72	66	78

TIPO - TYPE	Potenza resa Rating (kVA)		Mom. di inerzia Mom. of inertia (kgm <sup>2</sup> )					Peso Weight (kg)		Volume aria Air volume (m <sup>3</sup> /min)	
	50 Hz	60 Hz	B2	B2	B2	B2	B3/B14	B2 SAE	B3/B14	50 Hz	60 Hz
			SAE 7 ½	SAE 8	SAE 10	SAE 11 ½					
<b>PRO18S A/4</b>	20	24	0.205	0.213	0.231	0.250	0.197	131	133	12.6	14.7
<b>PRO18S B/4</b>	25	30	0.239	0.248	0.265	0.284	0.231	144	146	12.5	14.6
<b>PRO18S C/4</b>	30	36	0.279	0.288	0.306	0.325	0.272	159	161	12.3	14.3
<b>PRO18M D/4</b>	35	42	0.321	0.330	0.347	0.365	0.313	180	181	12.1	14.2
<b>PRO18M E/4</b>	42	50	0.375	0.384	0.401	0.419	0.367	206	206	12.0	14.0
<b>PRO18L F/4</b>	50	60	0.445	0.456	0.477	0.498	0.436	240	235	11.8	14.2
<b>PRO18L G/4</b>	60	72	0.534	0.547	0.572	0.598	0.523	271	260	11.7	14.0

TIPO - TYPE	50 Hz - 1500 rpm - cosφ = 0,8 - S1					60 Hz - 1800 rpm - cosφ = 0,8 - S1				
	Pot. resa Rating (kVA)	Rendimento Efficiency (%)		Potenza assorbita Driving power		Pot. resa Rating (kVA)	Rendimento Efficiency (%)		Potenza assorbita Driving power	
		4/4	3/4	(kW)	(HP)		4/4	3/4	(kW)	(HP)
<b>PRO18S A/4</b>	20	86.1	86.3	18.6	25.3	24	87.8	88.1	21.9	29.8
<b>PRO18S B/4</b>	25	86.5	86.9	23.1	31.5	30	88.2	88.6	27.2	37.0
<b>PRO18S C/4</b>	30	87.1	87.5	27.6	37.5	36	88.8	89.3	32.4	44.1
<b>PRO18M D/4</b>	35	88.6	89.1	31.6	43.0	42	90.4	90.9	37.2	50.6
<b>PRO18M E/4</b>	42	89.3	89.9	37.6	51.2	50	91.1	91.7	44.2	60.2
<b>PRO18L F/4</b>	50	89.4	90.0	44.7	60.9	60	91.2	92.0	52.6	71.6
<b>PRO18L G/4</b>	60	89.6	90.1	53.6	72.9	72	91.4	92.2	63	85.7

TIPO - TYPE	Potenza resa Rating (kVA)		Reattanze e costanti di tempo / Reactances and time constants							Resist. avv. princ. Main Wind. resistance (Ω a 20 °C)	
	50 Hz	60 Hz	pcc	Xd	X'd	X''d	Xq	T'do	T'd		T''d
				(%)	(%)	(%)	(%)	(ms)	(ms)		(ms)
<b>PRO18S A/4</b>	20	24	0.57	242	19	9	133	103	7	5	0.460
<b>PRO18S B/4</b>	25	30	0.57	240	20	9	134	101	8	5	0.246
<b>PRO18S C/4</b>	30	36	0.58	243	19	8	135	125	10	5	0.234
<b>PRO18M D/4</b>	35	42	0.58	240	18	7	133	147	11	6	0.152
<b>PRO18M E/4</b>	42	50	0.60	253	20	8	141	180	14	8	0.128
<b>PRO18L F/4</b>	50	60	0.62	255	20	7	146	188	14	9	0.105
<b>PRO18L G/4</b>	60	72	0.63	260	21	7	148	195	15	9	0.082

# PRO22

## Alternatori sincroni trifase senza spazzole con regolazione elettronica - 4 poli

*Three-phase brushless synchronous alternators with electronic regulation - 4 poles*

*Alternadores síncronos trifásicos sin escobillas con regulación electrónica - 4 polos*



### POWER RANGE

#### PRO22S

50 Hz

63 ◀▶ 100

60 Hz

76 ◀▶ 120

#### PRO22M

50 Hz

130 ◀▶ 150

60 Hz

156 ◀▶ 180

Gli alternatori della serie **PRO22** sono trifase a 4 poli senza spazzole, dotati di regolazione elettronica (AVR) con riferimento di tensione monofase. Sono costruiti in conformità a quanto previsto dalle norme EN 60034-1, EN 60204-1, EN61000-6-2, EN61000-6-4, EN 55014-1, EN 55011 ed alle direttive 2006/95/CE, 2004/108/CE, e 2006/42/CE.

*The alternators of **PRO22** series are three phase, brushless, with electronic regulation (AVR) with single phase sensing. They are produced in conformity with EN 60034-1, EN 60204-1, EN61000-6-2, EN61000-6-4, EN 55014-1, EN 55011 standards and 2006/95/CEE, 2004/108/CEE, 2006/42/CEE directives.*

*Los alternadores de la serie **PRO22** son trifásicos sin escobillas, con regulación electrónica (AVR) con referencia de tensión monofásica. Están construidos en conformidad con las normas EN 60034-1, EN 60204-1, EN61000-6-2, EN61000-6-4, EN 55014-1, EN 55011 y a las directivas 2006/95/CEE, 2004/108/CEE, 2006/42/CEE.*

TIPO - TYPE	Potenza resa / Rating (kVA)					
	50 Hz			60 Hz		
	Cl. H T. amb 40°C	Cl. F T. amb 40°C	Stand by Cl. H T. amb 27°C	Cl. H T. amb 40°C	Cl. F T. amb 40°C	Stand by Cl. H T. amb 27°C
<b>PRO22S B/4</b>	63	59	71	76	70.5	85.5
<b>PRO22S C/4</b>	85	79	96	102	95	115
<b>PRO22S D/4</b>	100	93	113	120	111.5	135.5
<b>PRO22M E/4</b>	130	121	147	156	145	176
<b>PRO22M F/4</b>	150	139.5	169.5	180	167.5	203.5

TIPO - TYPE	Potenza resa Rating (kVA)		Mom. di inerzia Mom. of inertia (kgm <sup>2</sup> )			Peso Weight (kg)		Volume aria Air volume (m <sup>3</sup> /min)		
	50 Hz	60 Hz	B2	B2	B2	B3/B14	B2 SAE	B3/B14	50 Hz	60 Hz
			SAE 10	SAE 11 ½	SAE 14					
<b>PRO22S B/4</b>	63	76	0.662	0.681	0.830	0.599	280	291	18.2	21.3
<b>PRO22S C/4</b>	85	102	0.857	0.876	1.025	0.794	341	343	18.0	21.1
<b>PRO22S D/4</b>	100	120	0.995	1.014	1.163	0.932	379	381	17.9	20.8
<b>PRO22M E/4</b>	130	156	1.223	1.242	1.391	1.160	454	456	17.6	20.7
<b>PRO22M F/4</b>	150	180	1.388	1.407	1.556	1.324	499	501	17.5	20.4

TIPO - TYPE	50 Hz - 1500 rpm - cosφ = 0,8 - S1					60 Hz - 1800 rpm - cosφ = 0,8 - S1				
	Pot. resa Rating	Rendimento % Efficiency %		Potenza assorbita Driving power		Pot. resa Rating	Rendimento % Efficiency %		Potenza assorbita Driving power	
		(kVA)	4/4	3/4	kW		HP	(kVA)	4/4	3/4
<b>PRO22S B/4</b>	63	90.1	90.4	55.9	76.1	76	90.4	90.6	67.3	91.5
<b>PRO22S C/4</b>	85	90.3	90.6	75.3	102.5	102	90.6	90.8	90.1	122.6
<b>PRO22S D/4</b>	100	90.6	90.9	88.3	120.1	120	90.9	91.1	105.6	143.7
<b>PRO22M E/4</b>	130	92.3	92.5	112.7	153.3	156	92.5	92.7	134.9	183.6
<b>PRO22M F/4</b>	150	92.6	92.8	129.6	176.3	180	92.8	93.0	155.2	211.2

TIPO - TYPE	Potenza resa Rating (kVA)		Reattanze e costanti di tempo / Reactances and time constants							Resist.avv. princ. Main Wind. resistance (Ω a 20 °C)	
	50 Hz	60 Hz	ρcc	Xd	X'd	X''d	Xq	T'do	T'd		T''d
			-	(%)	(%)	(%)	(%)	(ms)	(ms)	(ms)	
<b>PRO22S B/4</b>	63	76	0.48	302	19	9.5	191	236	20	12	0.104
<b>PRO22S C/4</b>	85	102	0.45	300	19	9.5	202	258	21	11	0.056
<b>PRO22S D/4</b>	100	120	0.47	298	18	9	194	277	22	11	0.044
<b>PRO22M E/4</b>	130	156	0.45	295	19	8.5	195	298	23	10	0.028
<b>PRO22M F/4</b>	150	180	0.44	290	18	8.5	193	310	23	10	0.024

# PRO28

## Alternatori sincroni trifase senza spazzole con regolazione elettronica - 4 poli (riferimento trifase)

*Three-phase brushless synchronous alternators with electronic regulation - 4 poles (three-phase sensing)*

*Alternadores síncronos trifásicos sin escobillas con regulación electrónica - 4 polos (referencia trifásica)*



### POWER RANGE

#### PRO28S



#### PRO28M



#### PRO28L



Gli alternatori della serie **PRO28** sono trifase a 4 poli senza spazzole, dotati di regolazione elettronica (AVR) con riferimento di tensione trifase. Sono costruiti in conformità a quanto previsto dalle norme EN 60034-1, EN 60204-1, EN61000-6-2, EN61000-6-4, EN 55014-1, EN 55011 ed alle direttive 2006/95/CE, 2004/108/CE, e 2006/42/CE.

*The alternators of **PRO28** series are three phase, brushless, with electronic regulation (AVR) with three phase sensing.*

*They are produced in conformity with EN 60034-1, EN 60204-1, EN61000-6-2, EN61000-6-4, EN 55014-1, EN 55011 standards and 2006/95/CEE, 2004/108/CEE, 2006/42/CEE directives.*

*Los alternadores de la serie **PRO28** son trifásicos sin escobillas, con regulación electrónica (AVR) con referencia de tensión trifásica.*

*Están contruidos en conformidad con las normas EN 60034-1, EN 60204-1, EN61000-6-2, EN61000-6-4, EN 55014-1, EN 55011 y a las directivas 2006/95/CEE, 2004/108/CEE, 2006/42/CEE.*

TIPO - TYPE	Potenza resa / Rating (kVA)					
	50 Hz			60 Hz		
	Cl. H T. amb 40°C	Cl. F T. amb 40°C	Stand by Cl. H T. amb 27°C	Cl. H T. amb 40°C	Cl. F T. amb 40°C	Stand by Cl. H T. amb 27°C
<b>PRO28S B/4</b>	180	160	200	215	190	240
<b>PRO28S C/4</b>	210	180	230	250	215	275
<b>PRO28S D/4</b>	250	210	280	300	250	335
<b>PRO28M E/4</b>	300	250	325	360	300	390
<b>PRO28M F/4</b>	350	300	375	420	360	450
<b>PRO28L G/4</b>	400	360	420	480	430	500

TIPO - TYPE	Potenza resa Rating (kVA)		Mom. di inerzia Mom. of inertia (kgm <sup>2</sup> )			Peso Weight (kg)		Volume aria Air volume (m <sup>3</sup> /min)	
	50 Hz	60 Hz	B2 SAE 11 ½	B2 SAE 14	B3/B14	B2 SAE	B3/B14	50 Hz	60 Hz
			Mom. di inerzia Mom. of inertia (kgm <sup>2</sup> )			Peso Weight (kg)			
<b>PRO28S B/4</b>	180	215	2.261	2.407	2.092	603	608	32.0	38.0
<b>PRO28S C/4</b>	210	250	2.503	2.649	2.335	650	655	31.0	37.0
<b>PRO28S D/4</b>	250	300	2.832	2.979	2.664	735	740	30.5	36.5
<b>PRO28M E/4</b>	300	360	3.248	3.394	3.079	813	818	30.0	36.0
<b>PRO28M F/4</b>	350	420	3.871	4.017	3.702	930	935	29.0	35.0
<b>PRO28L G/4</b>	400	480	4.885	5.032	4.737	1042	1047	28.0	34.0

TIPO - TYPE	50 Hz - 1500 rpm - cosφ = 0,8 - S1					60 Hz - 1800 rpm - cosφ = 0,8 - S1				
	Potenza resa Rating (kVA)	Rendimento Efficiency (%)		Potenza assorbita Driving power		Potenza resa Rating (kVA)	Rendimento Efficiency (%)		Potenza assorbita Driving power	
		4/4	3/4	kW	HP		4/4	3/4	kW	HP
<b>PRO28S B/4</b>	180	92.0	92.4	157	213	215	92.7	93.1	186	252
<b>PRO28S C/4</b>	210	92.3	92.7	182	248	250	92.9	93.3	215	293
<b>PRO28S D/4</b>	250	92.7	93.1	216	294	300	93.2	93.6	258	350
<b>PRO28M E/4</b>	300	92.9	93.3	258	351	360	93.3	93.7	309	420
<b>PRO28M F/4</b>	350	93.7	93.9	299	407	420	94.0	94.2	357	486
<b>PRO28L G/4</b>	400	93.8	94	341	464	480	94.2	94.4	408	555

TIPO - TYPE	Potenza resa Rating (kVA)		Reattanze e costanti di tempo / Reactances and time constants							Resist.avv. princ. Main Wind. resistance (Ω a 20 °C)	
	50 Hz	60 Hz	pcc	Xd	X'd	X''d	Xq	T'do	T'd		T''d
			-	(%)	(%)	(%)	(%)	(ms)	(ms)		(ms)
<b>PRO28S B/4</b>	180	215	0.39	350	19.0	10.0	215	1800	110	16	0.0220
<b>PRO28S C/4</b>	210	250	0.41	335	19.0	9.5	213	1820	112	15	0.0186
<b>PRO28S D/4</b>	250	300	0.38	350	18.0	10.0	212	1850	115	14	0.0138
<b>PRO28M E/4</b>	300	360	0.39	352	18.5	9.0	210	1850	116	14	0.0106
<b>PRO28M F/4</b>	350	420	0.40	340	18.0	8.5	212	1870	115	13	0.0080
<b>PRO28L G/4</b>	400	480	0.41	330	18.0	9.0	210	1910	116	14	0.0061

# PRO35

## Alternatori sincroni trifase senza spazzole con regolazione elettronica - 4 poli (riferimento trifase)

*Three-phase brushless synchronous alternators with electronic regulation - 4 poles (three-phase sensing)*

*Alternadores síncronos trifásicos sin escobillas con regulación electrónica - 4 polos (referencia trifásica)*



### POWER RANGE

#### PRO35S

50 Hz

450 ◀▶ 550

60 Hz

540 ◀▶ 660

#### PRO35M

50 Hz

620 ◀▶ 725

60 Hz

744 ◀▶ 870

Gli alternatori della serie **PRO35** sono trifase a 4 poli senza spazzole, dotati di regolazione elettronica (AVR) con riferimento di tensione trifase. Sono costruiti in conformità a quanto previsto dalle norme EN 60034-1, EN 60204-1, EN61000-6-2, EN61000-6-4, EN 55014-1, EN 55011 ed alle direttive 2006/95/CE, 2004/108/CE, e 2006/42/CE.

The alternators of **PRO35** series are three phase, brushless, with electronic regulation (AVR) with three phase sensing.

They are produced in conformity with EN 60034-1, EN 60204-1, EN61000-6-2, EN61000-6-4, EN 55014-1, EN 55011 standards and 2006/95/CEE, 2004/108/CEE, 2006/42/CEE directives.

Los alternadores de la serie **PRO35** son trifásicos sin escobillas, con regulación electrónica (AVR) con referencia de tensión trifásica.

Están contruidos en conformidad con las normas EN 60034-1, EN 60204-1, EN61000-6-2, EN61000-6-4, EN 55014-1, EN 55011 y a las directivas 2006/95/CEE, 2004/108/CEE, 2006/42/CEE.

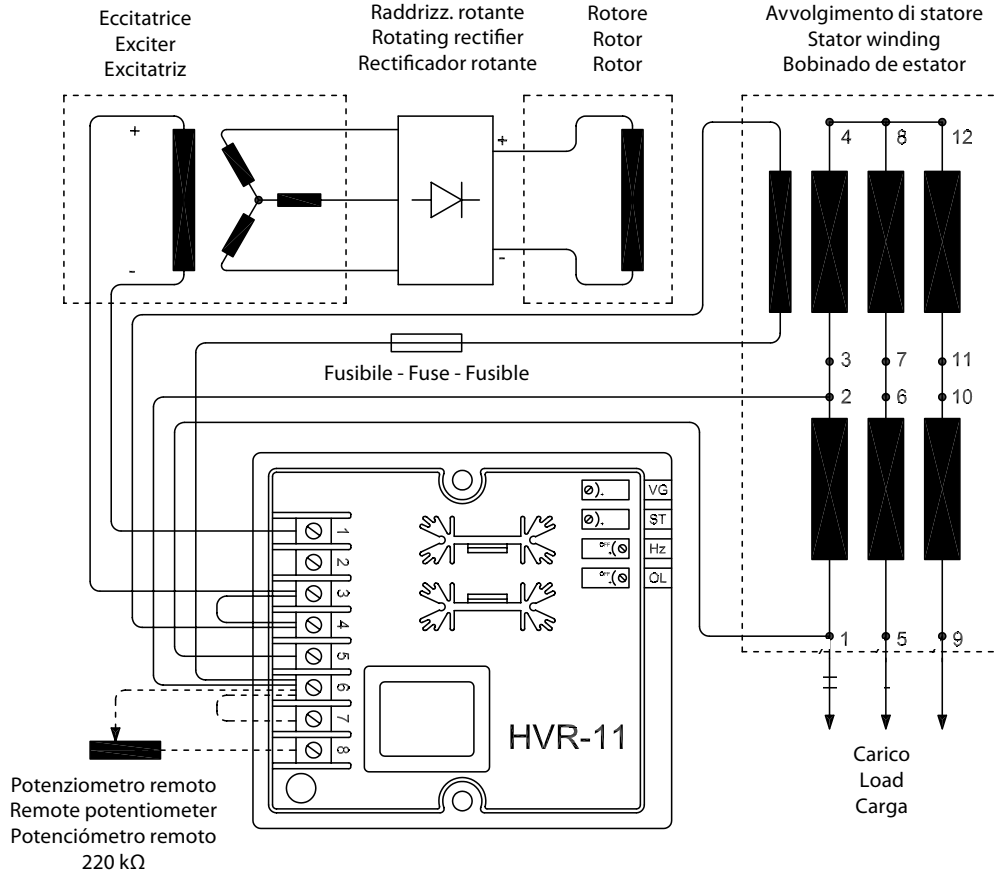
TIPO - TYPE	Potenza resa / Rating (kVA)					
	50 Hz			60 Hz		
	Cl. H T. amb 40°C	Cl. F T. amb 40°C	Stand by Cl. H T. amb 27°C	Cl. H T. amb 40°C	Cl. F T. amb 40°C	Stand by Cl. H T. amb 27°C
<b>PRO35S B/4</b>	450	405	495	540	485	590
<b>PRO35S C/4</b>	500	450	550	600	540	660
<b>PRO35S D/4</b>	550	495	605	660	590	725
<b>PRO35M E/4</b>	620	555	680	744	665	815
<b>PRO35M F/4</b>	680	610	745	816	730	890
<b>PRO35M G/4</b>	725	650	795	870	780	950

TIPO - TYPE	Potenza resa Rating (kVA)		Mom. di inerzia Mom. of inertia (kgm <sup>2</sup> )			Peso Weight (kg)		Volume aria Air volume (m <sup>3</sup> /min)	
	50 Hz	60 Hz	B2	B2	B3/B14	B2 SAE	B3/B14	50 Hz	60 Hz
			SAE 14	SAE 18					
<b>PRO35S B/4</b>	450	540	8.742	9.088	8.188	1255	1265	54.7	65.6
<b>PRO35S C/4</b>	500	600	9.530	9.875	8.975	1340	1340	54.4	65.3
<b>PRO35S D/4</b>	550	660	9.983	10.345	9.403	1340	1350	54.3	65.2
<b>PRO35M E/4</b>	620	744	10.639	10.985	10.085	1485	1495	54.0	64.8
<b>PRO35M F/4</b>	680	816	12.017	12.363	11.463	1630	1635	53.6	64.3
<b>PRO35M G/4</b>	725	870	12.589	12.951	12.009	1640	1645	53.0	63.6

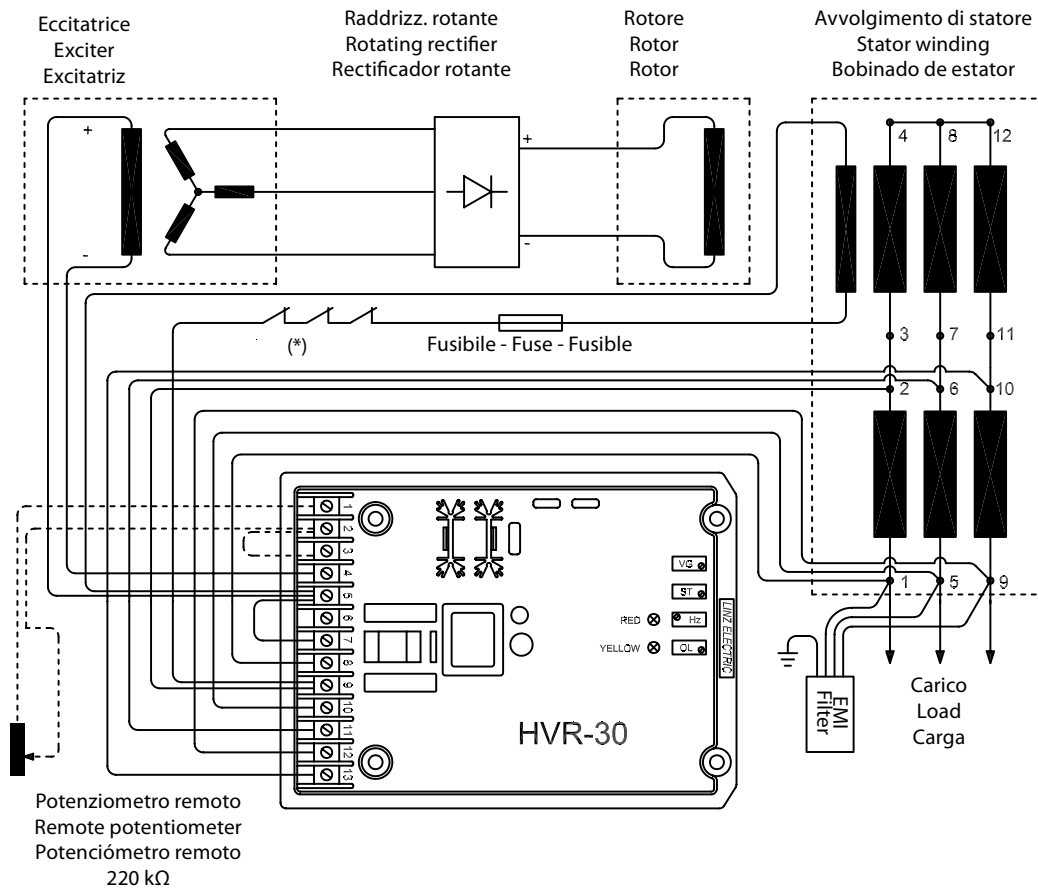
TIPO - TYPE	50 Hz - 1500 rpm - cosφ = 0,8 - S1					60 Hz - 1800 rpm - cosφ = 0,8 - S1				
	Potenza resa Rating (kVA)	Rendimento Efficiency (%)		Potenza assorbita Driving power		Potenza resa Rating (kVA)	Rendimento Efficiency (%)		Potenza assorbita Driving power	
		4/4	3/4	kW	HP		4/4	3/4	kW	HP
<b>PRO35S B/4</b>	450	94.2	94.7	382	513	540	95.2	95.5	454	609
<b>PRO35S C/4</b>	500	94.9	95.4	421	566	600	95.9	96.2	501	672
<b>PRO35S D/4</b>	550	95.0	95.5	463	622	660	95.9	96.5	551	739
<b>PRO35M E/4</b>	620	95.1	95.5	522	700	744	95.9	96.4	621	833
<b>PRO35M F/4</b>	680	95.2	95.7	571	767	816	96.1	96.7	679	912
<b>PRO35M G/4</b>	725	95.3	95.8	609	817	870	96.2	96.6	723	971

TIPO - TYPE	Potenza re0sa Rating (kVA)		Reattanze e costanti di tempo / Reactances and time constants							Resist.avv. princ. Main Wind. resistance (Ω a 20 °C)	
	50 Hz	60 Hz	pcc	Xd	X'd	X''d	Xq	T'do	T'd		T''d
			-	(%)	(%)	(%)	(%)	(ms)	(ms)		(ms)
<b>PRO35S B/4</b>	450	540	0.33	348	19	13	207	2156	118	12	0.0057
<b>PRO35S C/4</b>	500	600	0.34	338	17.5	12	209	2230	115	11	0.0049
<b>PRO35S D/4</b>	550	660	0.32	359	17	11	210	2298	109	10	0.0047
<b>PRO35M E/4</b>	620	744	0.33	348	17.5	11	213	2344	118	10	0.0045
<b>PRO35M F/4</b>	680	816	0.34	338	18	10	214	2425	129	9	0.0035
<b>PRO35M G/4</b>	725	870	0.35	329	19	10	215	2500	145	9	0.0033

PRO18  
PRO22

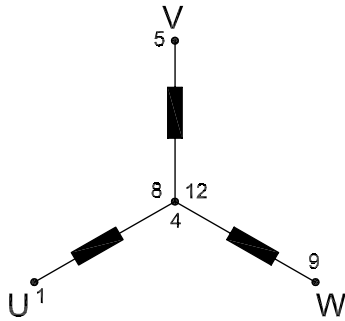


PRO28  
PRO35



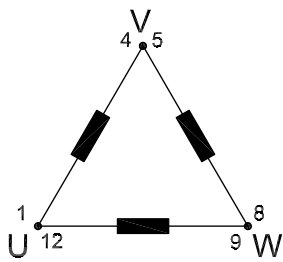
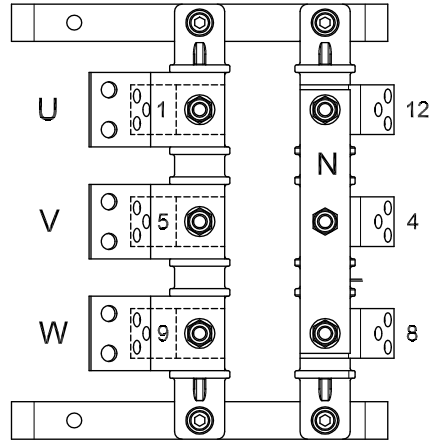
(\*) Protettore termico a richiesta - Thermal protector on demand - Protectores térmicos a pedido

<p>Collegamento stella serie + neutro Star serie connection + neutral Conexión serie estrella + neutro</p> <p>230/400V - 50Hz (277/480V - 60Hz)</p>	<p>Collegamento stella parallelo + neutro Star parallel connection + neutral Conexión paralelo estrella + neutro</p> <p>115/200V - 50Hz (138/240V - 60Hz)</p>
<p>Collegamento triangolo serie Delta serie connection Conexión serie triángulo + neutro</p> <p>230V - 50Hz (277V - 60Hz)</p>	<p>Collegamento triangolo parallelo Delta parallel connection Conexión paralelo triángulo + neutro</p> <p>115V - 50Hz (138V - 60Hz)</p>
<p>Collegamento zig - zag + neutro Zig - zag connection + neutral Conexión zig - zag + neutro</p> <p>200/346V - 50Hz (240/415V - 60Hz)</p>	<p>Collegamento monofase Single phase connection Conexión monofasica</p> <p>230V - 50Hz (276V - 60Hz)</p>



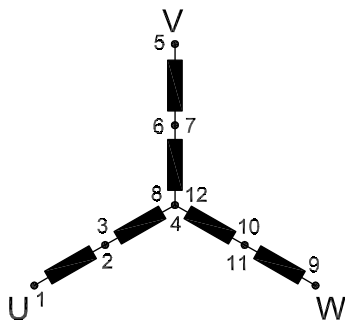
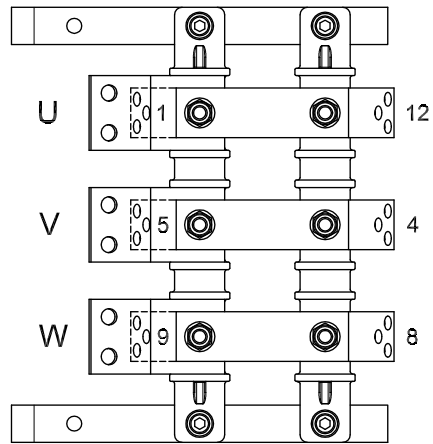
Collegamento stella + neutro  
Star connection + neutral  
Conexión estrella + neutro

230 / 400 V - 50 Hz  
276 / 480 V - 60 Hz



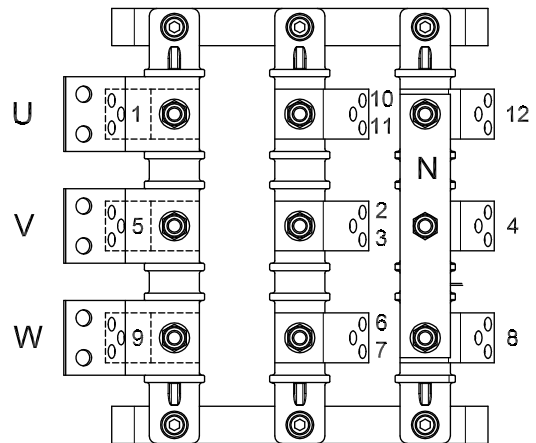
Collegamento triangolo  
Delta connection  
Conexión triángulo

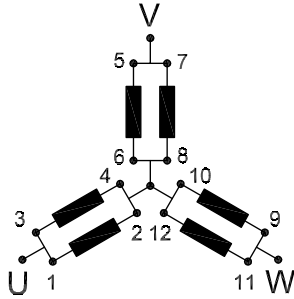
230 V a 50 Hz  
276 V a 60 Hz



Collegamento stella serie + neutro  
Star connection serie + neutral  
Conexión serie estrella + neutro

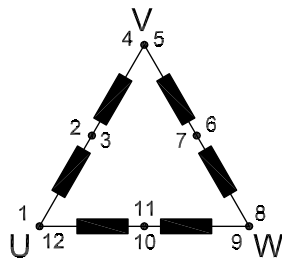
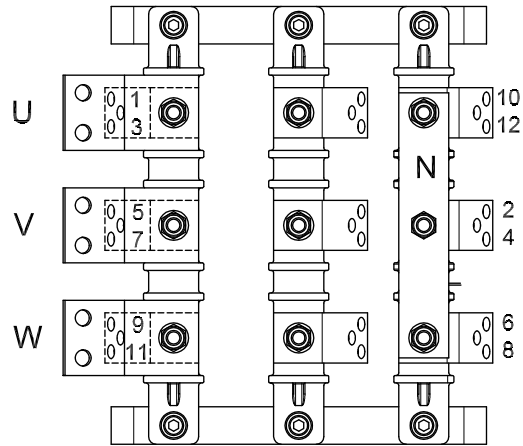
230 / 400 V - 50 Hz  
276 / 480 V - 60 Hz





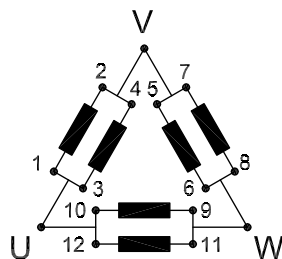
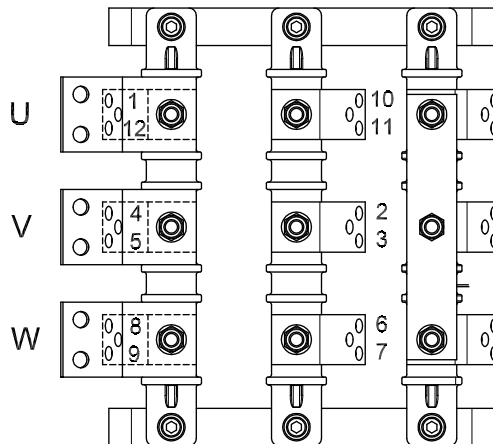
Collegamento stella parallelo + neutro  
Star connection parallel + neutral  
Conexión paralelo estrella + neutro

200/115 V a 50Hz  
240/138 V a 60Hz



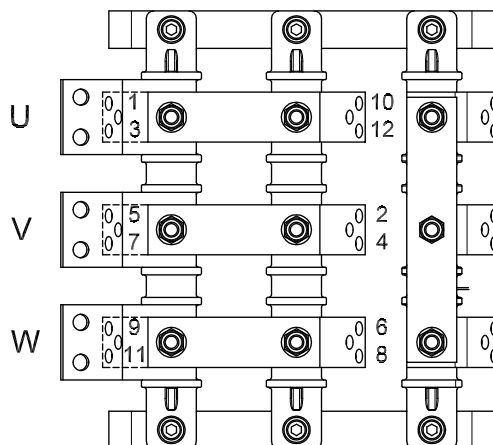
Collegamento triangolo serie  
Delta serie connection  
Conexión serie triángulo

230 V a 50 Hz  
276 V a 60 Hz

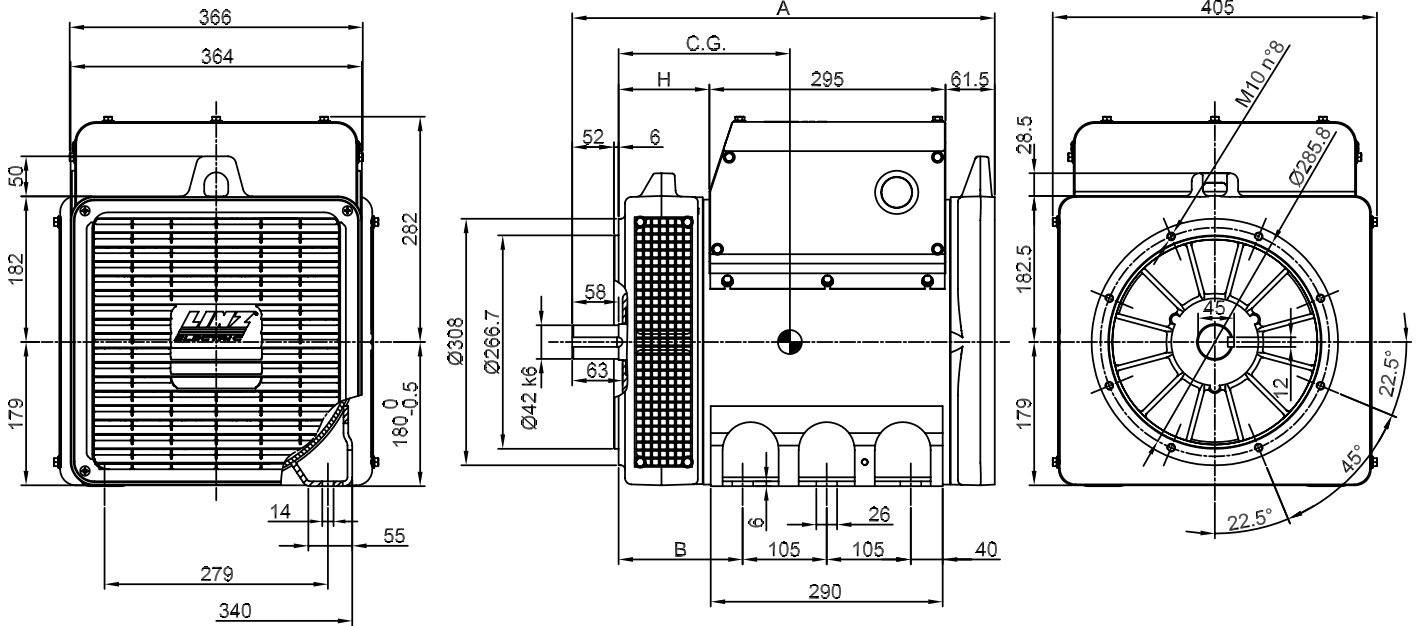


Collegamento triangolo parallelo  
Delta parallel connection  
Conexión paralelo triángulo

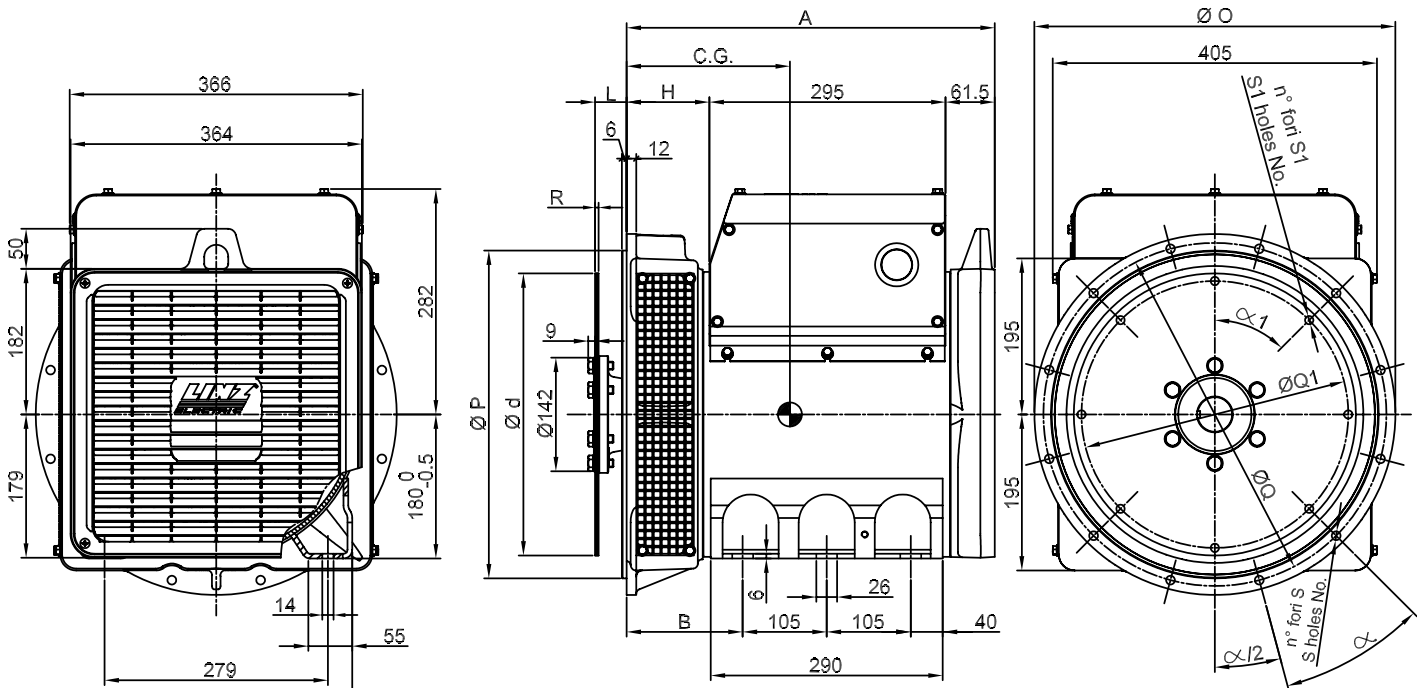
115 V a 50 Hz  
138 V a 60 Hz



### FORMA - FORM B3/B14



### FORMA - FORM MD35



FORMA - FORM		A	B	H
B3/B14	PRO18S	528	155	113.5
	PRO18M	598		183.5
	PRO18L	710	260	295.5
MD35	PRO18S	460	145	103.5
	PRO18M	530		173.5
	PRO18L	642	250	285.5

TIPO - TYPE	C.G.
PRO18S A/4 B3/B14	213
PRO18S B/4 B3/B14	217
PRO18S C/4 B3/B14	224
PRO18M D/4 B3/B14	247
PRO18M E/4 B3/B14	259
PRO18L F/4 B3/B14	298
PRO18L G/4 B3/B14	315

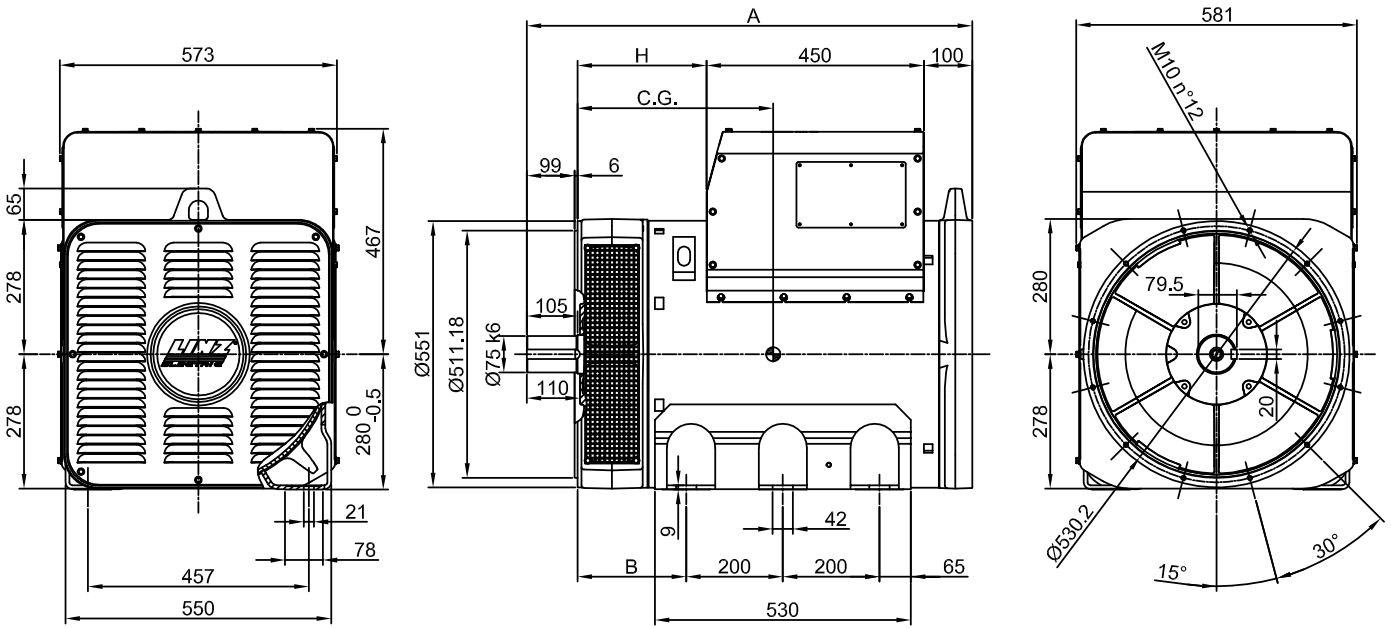
TIPO - TYPE	C.G.
PRO18S A/4 MD35	204
PRO18S B/4 MD35	208
PRO18S C/4 MD35	215
PRO18M D/4 MD35	238
PRO18M E/4 MD35	250
PRO18L F/4 MD35	289
PRO18L G/4 MD35	306

SAE N.	FLANGIE - FLANGES - BRIDAS					
	Ø O	Ø P	Ø Q	n. fori holes No.	S	α
5	356	314.3	333.4	8	11	45°
4	402	362	381	12		30°
3	451	409.6	428.6	12		30°
2	490	447.7	466.7	12		30°

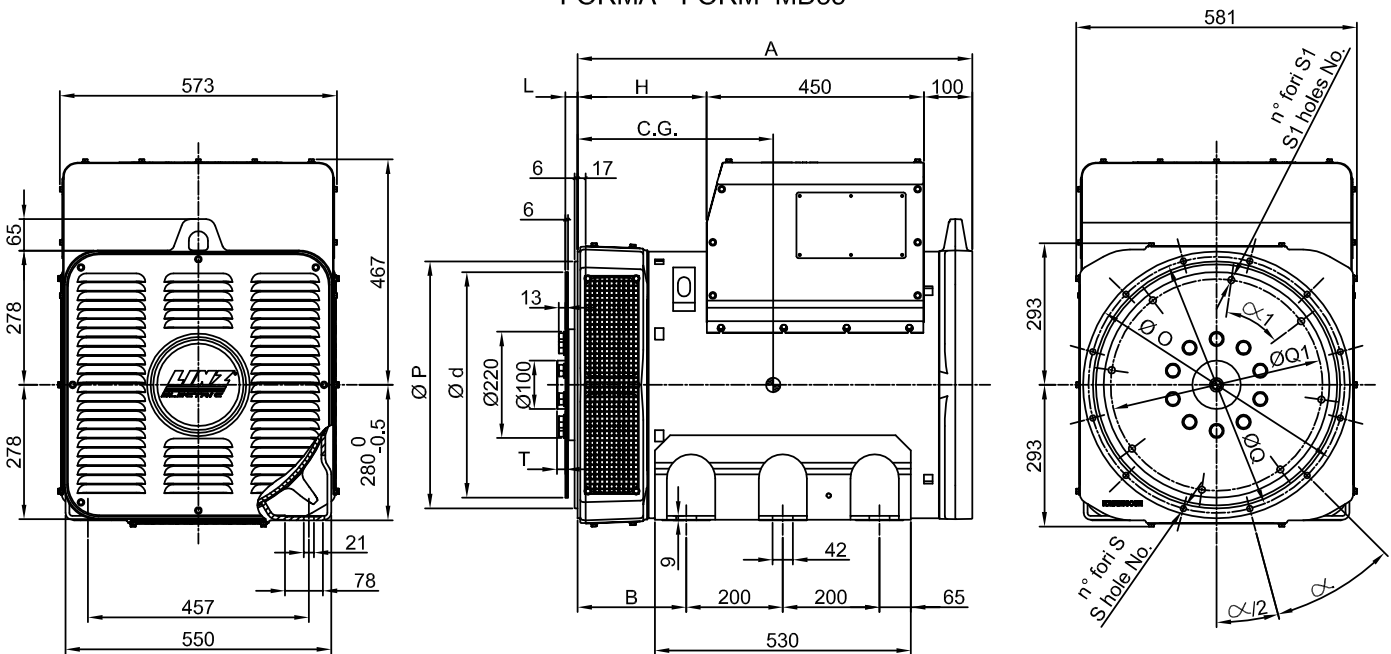
SAE N.	GIUNTI A DISCO - COUPLING DISCS - JUNTAS A DISCOS						
	L	Ø d	Ø Q1	n. fori holes No.	S1	α1	R
6 1/2	30.2	215.9	200	6	9	60°	3
7 1/2	30.2	241.3	222.25	8	9	45°	
8	62	263.52	244.47	6	10.5	60°	4.5
10	53.8	314.32	295.27	8	10.5	45°	
11 1/2	39.6	352.42	333.37	8	10.5	45°	



## FORMA - FORM B3/B14



## FORMA - FORM MD35



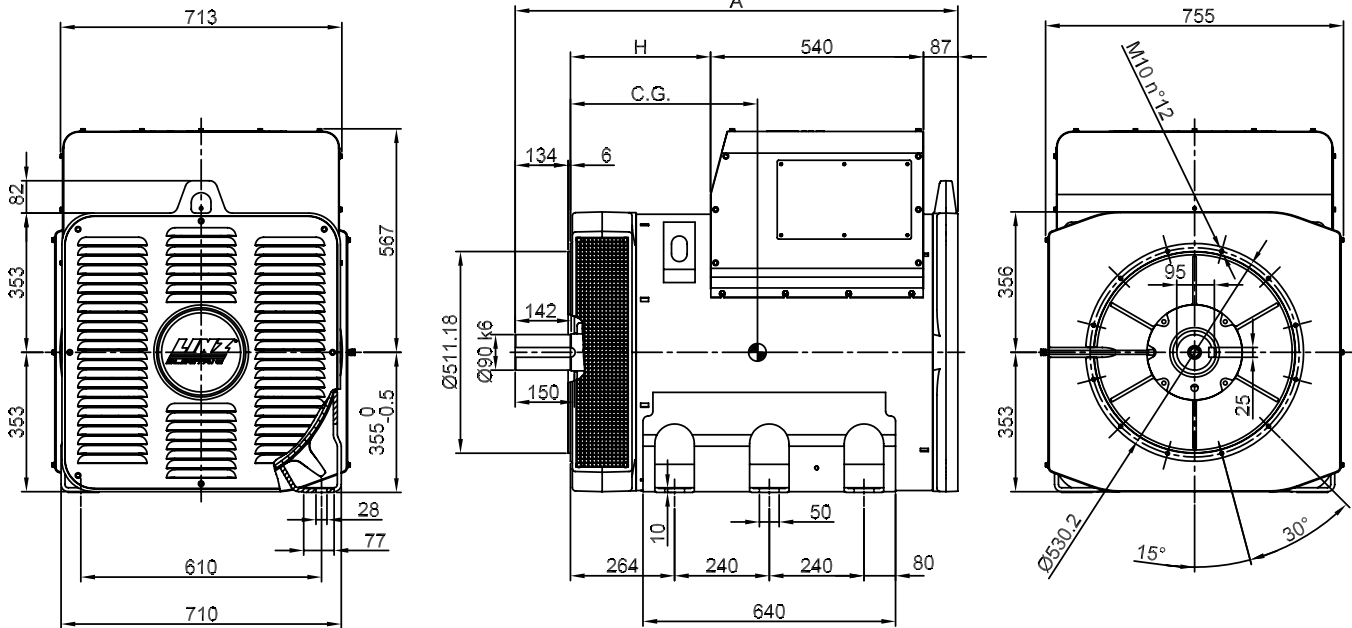
FORMA - FORM		A	B	H
B3/B14	PRO 28S	922	225	267
	PRO 28M	1072		417
	PRO 28L	1137		482
MD35	PRO 28S	817	225	267
	PRO 28M	967		417
	PRO 28L	1032		482

TIPO - TYPE	C.G.
PRO28S B/4	379
PRO28S C/4	393
PRO28S D/4	405
PRO28M E/4	451
PRO28M F/4	479
PRO28L G/4	513

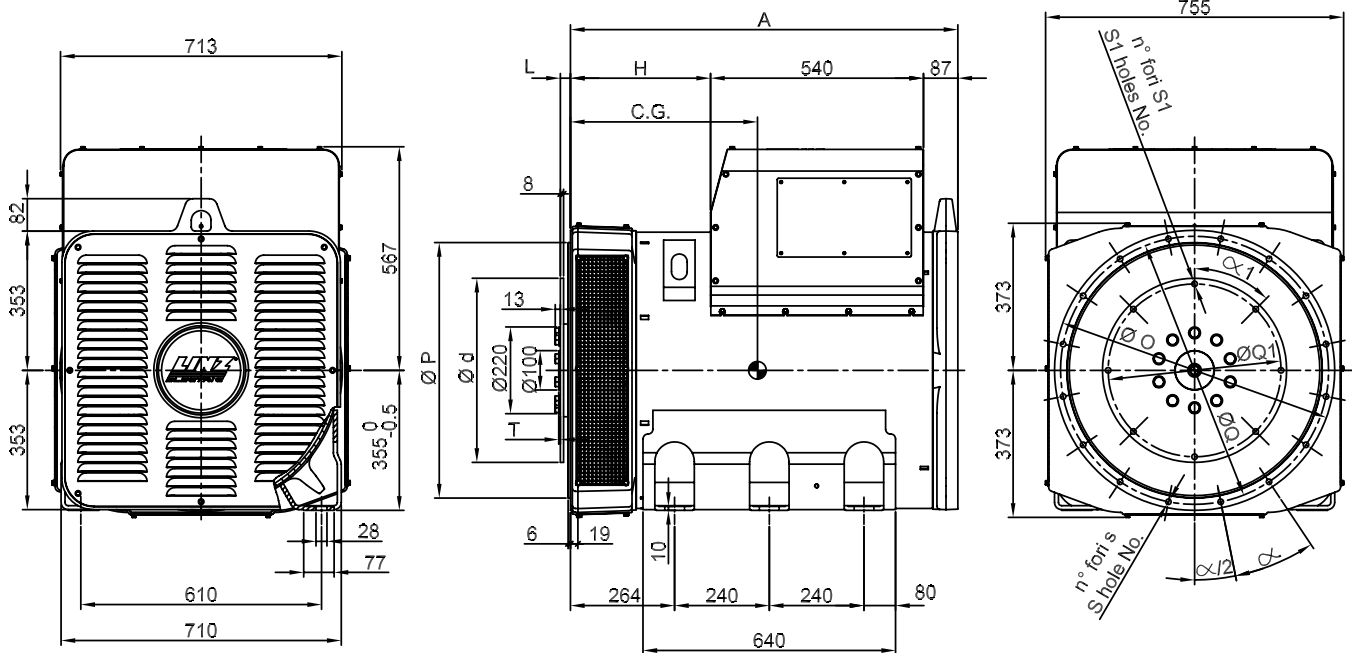
SAE N.	FLANGIE - FLANGES - BRIDAS					
	Ø O	Ø P	Ø Q	n. fori holes No.	S	α
3	451	409.6	428.6	12	12	30°
2	490	447.68	466.7			
1	552	511.18	530.2			

SAE N.	GIUNTI A DISCO - COUPLING DISCS - JUNTAS A DISCOS						
	L	Ø d	Ø Q1	n. fori holes No.	S1	α1	T
1 1/2	39.6	352.42	333.37	8	10.5	45°	0
14	25.4	466.72	438.15	8	14	45°	17.3

## FORMA - FORM B3/B14



## FORMA - FORM MD35

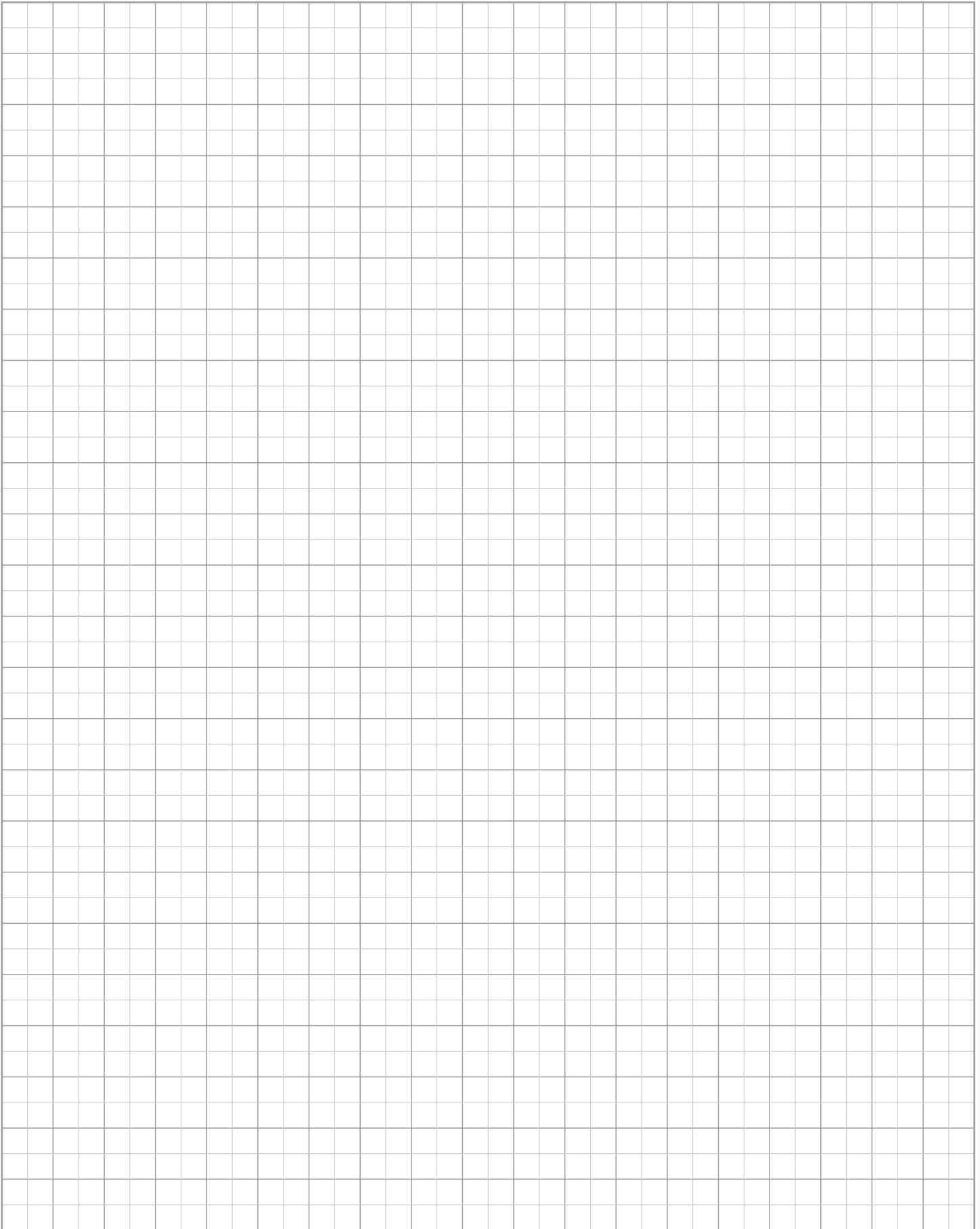


FORMA - FORM		A	H
B3/B14	PRO35S	1122	355
	PRO35M	1247	480
MD35	PRO35S	982	355
	PRO35M	1107	480

TIPO - TYPE	C.G.
PRO35S B/4	459
PRO35S C/4	472
PRO35S D/4	472
PRO35M E/4	510
PRO35M F/4	533
PRO35M G/4	533

SAE N.	FLANGIE - FLANGES - BRIDAS					
	Ø O	Ø P	Ø Q	n. fori holes No.	S	α
O	710	647.7	679.5	16	14	22.5°
1/2	650	584.2	619.2	12	14	30°
1	552	511.18	530.2	12	12	30°

SAE N.	GIUNTI A DISCO - COUPLING DISCS - JUNTAS A DISCOS						
	L	Ø d	Ø Q1	n. fori holes No.	S1	α1	T
14	25.4	466.72	438.15	8	14	45°	4.3
18	15.7	571.5	542.92	6	17	60°	14







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Linz Electric S.r.l - Viale del lavoro 30 - 37040 Arcole (Verona) Italia  
Tel. +39 045 7639201 - Fax +39 045 7639202  
<http://www.linzelectric.com> E-mail: [info@linzelectric.com](mailto:info@linzelectric.com)

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# DSE7310/20

## AUTO START & AUTO MAINS FAILURE CONTROL MODULES

### FEATURES



The DSE7310 is an Auto Start Control Module and the DSE7320 is an Auto Mains (Utility) Failure Control Module suitable for a wide variety of single, diesel or gas, gen-set applications.

Monitoring an extensive number of engine parameters, the modules will display warnings, shutdown and engine status information on the back-lit LCD screen, illuminated LEDs, remote PC and via SMS text alerts (with external modem).

The DSE7320 will also monitor the mains (utility) supply. The modules include USB, RS232 and RS485 ports as well as dedicated DSENet® terminals for system expansion.

Both modules are compatible with electronic (CAN) and non-electronic (magnetic pick-up/alternator sensing) engines and offer an extensive number of flexible inputs, outputs and extensive engine protections so the system can be easily adapted to meet the most demanding industry requirements.

The extensive list of features includes enhanced event and performance monitoring, remote communications, PLC functionality and dual mutual standby (DSE7310 only) to reduce engine wear.

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

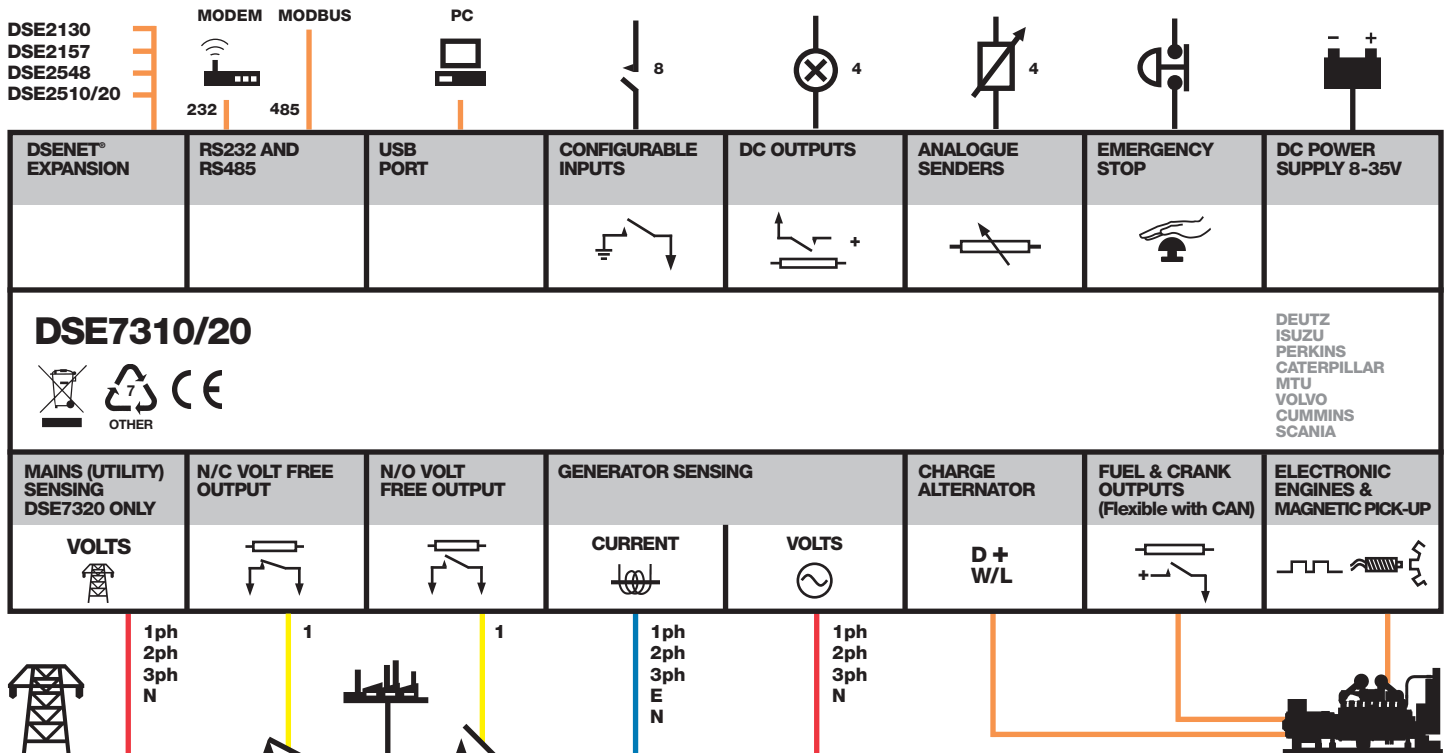
#### SHOCK

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 supplied sealing gasket.

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



# DSE7310/20

## AUTO START & AUTO MAINS FAILURE CONTROL MODULES

### FEATURES



#### DSE7310



#### KEY FEATURES

- 4-Line back-lit LCD text display
- Five key menu navigation
- Front panel editing with PIN protection
- Customisable status screens
- Power save mode
- Support for up to three remote display units
- 9 configurable inputs
- 8 configurable outputs
- Flexible sender inputs
- Configurable timers and alarms
- 3 configurable maintenance alarms
- Multiple date and time scheduler
- Configurable event log (250)
- Tier 4 CAN engine support
- Integral PLC editor
- Easy access diagnostic page
- CAN and Magnetic Pick-up/Alt. sensing
- Fuel usage monitor and low fuel alarms
- Charge alternator failure alarm
- Manual speed control (on compatible CAN engines)
- Manual fuel pump control
- Engine exerciser
- "Protections disabled" feature
- kW & kV Ar protection

#### DSE7320



- Reverse power (kW & kV Ar) protection
- LED and LCD alarm indication
- Power monitoring (kW h, kV Ar, kV A h, kV Ar h)
- Load switching (load shedding and dummy load outputs)
- Automatic load transfer (DSE7320)
- Unbalanced load protection
- Independent Earth Fault trip
- True dual mutual standby with load balancing timer (DSE7310 only)
- USB connectivity
- Backed up real time clock
- Fully configurable via DSE Configuration Suite PC software
- Configurable display languages
- Remote SCADA monitoring via DSE Configuration Suite PC software
- User selectable RS232 and RS485 communications
- Configurable Gencomm pages
- Advanced SMS messaging (additional external modem required)
- Start & stop capability via SMS messaging
- Additional display screens to help with modem diagnostics
- Idle control for starting & stopping.
- DSENet® expansion compatible

#### KEY BENEFITS

- 132 x 64 pixel ratio display for clarity
- Real-time clock provides accurate event logging
- Multiple date and time scheduler
- Set maintenance periods can be configured to maintain optimum engine performance
- Ethernet communications (via DSE860/865 modules), provides advanced remote monitoring at low cost
- Modules can be integrated into building management systems (BMS)
- Increased input and output expansion capability via DSENet®
- Licence-free PC software
- IP65 rating (with supplied gasket) offers increased resistance to water ingress
- PLC editor allows user configurable functions to meet specific application requirements

### 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

340 mA at 12 V, 160 mA at 24 V

#### MAXIMUM STANDBY CURRENT

160 mA at 12 V, 80 mA at 24 V

#### CHARGE FAIL/EXCITATION RANGE

0 V to 35 V

#### MAINS (UTILITY) DSE7320 ONLY

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

#### FREQUENCY RANGE

3.5 Hz to 75 Hz

#### OUTPUTS

##### OUTPUT A (FUEL)

15 A DC at supply voltage

##### OUTPUT B (START)

15 A DC at supply voltage

##### OUTPUTS C & D

8 A 250 V (Volt free)

##### AUXILIARY OUTPUTS E,F,G,H

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

240 mm x 181 mm x 42 mm  
9.4" x 7.1" x 1.6"

##### PANEL CUT-OUT

220 mm x 160 mm  
8.7" x 6.3"

##### MAXIMUM PANEL THICKNESS

8 mm  
0.3"

### RELATED MATERIALS

#### TITLE

DSE7310 Installation Instructions  
DSE7320 Installation Instructions  
DSE7200/7300 Quick Start Guide  
DSE7200/7300 Operator Manual  
DSE7200/7300 Configuration Suite PC Manual

#### PART NO'S

053-028  
053-029  
057-101  
057-074  
057-077

### DEEP SEA ELECTRONICS PLC UK

Highfield House, Hunmanby Industrial Estate, Hunmanby YO14 0PH  
**TELEPHONE** +44 (0) 1723 890099 **FACSIMILE** +44 (0) 1723 893303  
**EMAIL** sales@deepseapl.com **WEBSITE** www.deepseapl.com

### DEEP SEA ELECTRONICS INC USA

3230 Williams Avenue, Rockford, IL 61101-2668 USA  
**TELEPHONE** +1 (815) 316 8706 **FACSIMILE** +1 (815) 316 8708  
**EMAIL** sales@deepseausa.com **WEBSITE** www.deepseausa.com