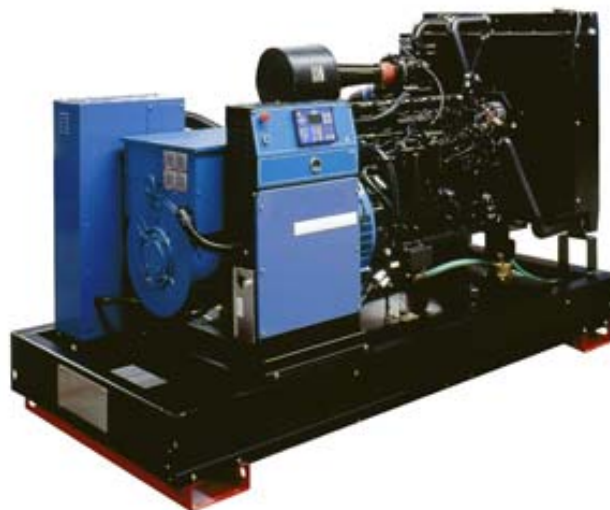


NORTHSTAR

Power Systems

NSPS 300

PRIME RATING:	320 KW
STANDBY RATING:	350 KW
ENGINE TYPE:	PERKINS
ALTERNATOR TYPE:	NEWAGE
OPERATING SPEED:	1800 RPM
VOLTAGE:	460 V
PHASE:	60 HZ



KEY FEATURE

- Easy to operate and maintain.
- Designed for long term, reliable operation.
- Rubber mounted engine and generator. Minimizes vibration and extends the life of the batteries and housing.
- Camlock connections for easy connect and disconnect.
- Welded steel skid with built in fuel tank.
- Includes industrial muffler, batteries, and block heater.
- Full load tested prior to shipment.
- 1- Year Limited Warranty.

ENGINE

- Perkins
- State of the art design, reliable engine.
- Low emissions. EPA Tier III and EU Stage II standards.
- Excellent fuel economy.
- Low operating costs.
- Global support network.

GENERATOR

- Standby rated.
- Brushless rotating field.
- Class H winding insulation for maximum protection.
- Meets or exceeds BS EN 600034, BS 5000, VDE 0530; NEMA MG1-32, ICE 34, CSA C22.2, AS 1359.

CONTROLS

- JCAN Controls, by Controls Inc.
- Full display for engine and generator.
- Manual & Auto Start.
- Fault Code Reader.
- Large and easy to read display.
- Simple to operate.
- NFPA Compliant

NORTHSTAR

Power Systems

GENERAL SPECIFICATIONS

ENGINE

MANUFACTURER:	PERKINS	ROTATION:	ANTI-CLOCKWISE
MODEL:	22066D-E13TAG2	COOLING SYSTEM:	WATER
TYPE:	DIESEL	AIR INLET:	MOUNTED AIR FILTER AND TURBOCHARGER
NO. CYLINDERS:	6 VERT IN-LINE	LUBRICATION SYSTEM:	WET PUMP WITH FILLER AND DIPSTICK
BORE AND STROKE:	130MM X 157 MM	COOLING SYSTEM:	RADIATOR AND WATER PUMP
DISPLACEMENT:	12.5 LITERS	ELECTRICAL EQUIPMENT:	24 V STARTER, ALTERNATOR, GLOW PLUGS, GOVERNOR
ASPIRATION:	TURBOCHARGED AIR- AIR CHARGE COOLED	FLYWHEEL AND HOUSING:	SAE 1 FLYWHEEL HOUSING
CYCLE:	4 STROKE		
COMBUSTION SYSTEM:	DIRECT INJECTION		
COMP. RATIO:	16.3:1		

ALTERNATOR

MANUFACTURER:	NEWAGE	SPEED:	1800 RPM
MODEL:	HC1434D	NO. OF LEADS:	12
OUTPUT RATING:	300KW CONTINUES	AVR:	MX341
VOLTAGE:	480 V	EXCITATION:	BRUSHLESS
PHASE:	60 HZ	INSULATION:	CLASS H
POWER FACTOR:	0.8	TEMP. RISE:	125 C

GENERATOR CONTROLLER

MANUFACTURER:	CONTROLS INC.	INPUTS	
POWER CONSUMPTION:	7.5 VDC – 36 VDC	VOLTAGE INPUT:	(3) 0 – 600VAC
OPS. TEMPERATURE:	-20C TO 70C	TRANSFORMER INPUT:	(3) 5A
STORAGE TEMP:	-30C TO 80C	FREQUENCY INPUT:	50HZ – 6-HZ
HUMIDITY:	95% NON-CONDENSING	EMERGENCY STOP:	YES
POLARITY PROTECTION:	REVERSE PROTECTION	OUTPUTS	
TRAN. VOLTAGE PROT:	YES	RUN OUTPUT:	10A RELAY
DISPLAY:	LCD, 1" H X 4" W	CRANK OUTPUT:	10A RELAY
ENCLOSURE:	COATED STEEL	PRE ALARM OUTPUT:	10A RELAY
OVERLAY/INTERFACE:	AUTOTEX POLYESTER	ALARM OUTPUT:	10A RELAY
PANEL FUSE:	10A		

OPTIONS AND ACCESSORIES

- 220 GAL – 700 GAL UL FUEL TANKS.
- DOT FUEL TANK BAFFLES AND CAPS.
- DOT TRAILERS
- AUTOMATIC TRANSFER SWITCH.
- STEEL, OR ALUMINUM ENCLOSURES.
- SOUND ATTENUATION ENCLOSURES.



2200 Series

2206D-E13TAG2

Diesel Engine - Electropak

381 kWm at 1800 rpm



Economic Power

- Mechanically operated unit fuel injectors with electronic control, combined with carefully matched turbocharging, provide excellent fuel economy and low emissions.

Reliable Power

- Developed and tested using the latest engineering techniques and finite element analysis for high reliability, low oil usage and low wear rates.
- High compression ratios ensure clean rapid starting in all conditions.
- Perkins global product support is designed to enhance the customer experience of owning a Perkins powered machine. We deliver this through the quality of our distribution network, extensive global coverage and a range of Perkins supported OEM partnership options. So whether you are an end-user or an equipment manufacturer our engine expertise is essential to your success.

Compact, Clean and Efficient Power

- Exceptional power to weight ratio and compact size give optimum power density for ease of installation and more cost effective transportation.
- Designed to provide excellent service access for ease of maintenance.

Product Support

- Perkins actively pursues product support excellence by ensuring our distribution network invest in their territory - strengthening relationships and providing more value to you, our customer
- Through an 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 fingertips covering technical information, parts identification and ordering systems, all dedicated to maximising the productivity of your engine
- Throughout the entire life of a Perkins engine, we provide access to genuine OE specification parts and service. We give 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

Certified against the requirements of Tier 3 (EPA 40 CFR Part 89 Tier 3) legislation for non-road mobile machinery, powered by constant speed engines.

The 2200 Series engine has been developed using the latest engineering techniques and builds on the strengths of the already very successful 2000 Series family and addresses today's uncompromising demands within the power generation industry. Developed from a proven heavy-duty industrial base, these products offer superior performance and reliability.

The 2206D-E13TAG range are 6 cylinder, turbocharged air-to-air charge cooled diesel engines. It's premium features provide exceptional power to weight ratio resulting in exceptional fuel consumption.

The overall performance and reliability characteristics make this the prime choice for today's power generation industry.

Engine Speed (rev/min)	Type of Operation	Typical Generator Output (Net)		Engine Power			
		kVA	kWe	Gross		Net	
				kWm	bhp	kWm	bhp
1800	Prime Power	400	320	373	500	349	468
	Standby Power	438	350	407	546	381	511

The above ratings represent the engine performance capabilities to conditions specified in ISO 8528/1, ISO 3046/1:1986, BS 5514/1, DIN 6271

Derating may be required for conditions outside these; consult Perkins Engines Company Limited.

Generator powers are typical and are based on an average alternator efficiency and a power factor (cos. θ) of 0.8.

Fuel specification: BS 2869: Part 2 1998 Class A2 or BSEN590 or ASTM D975 Class 1D and 2D. Lubricating oil: 15W40 to API C14.

Rating Definitions

Prime Power: Variable load. Unlimited hours usage with an average load factor of 70% of the published prime power rating over each 24 hour period. A 10% overload is available for 1 hour in every 12 hours of operation.

Standby Power: Variable load. Limited to 500 hours annual usage up to 300 hours of which may be continuous running. No overload is permitted.

2200 Series

2206D-E13TAG2

Standard ElectropaK Specification

Air inlet

- Mounted air filter

Fuel system

- Mechanically actuated electronically controlled unit fuel injectors with full authority electronic control
- Governing to ISO 8528-5 class G2 with isochronous capability
- Replaceable 'Ecoplus' fuel filter elements with primary filter/water separator
- Fuel cooler

Lubrication system

- Wet sump with filler and dipstick
- Full-flow replaceable 'Ecoplus' filter
- Oil cooler integral with filter header

Cooling system

- Gear-driven circulating pump
- Mounted belt-driven pusher fan
- Radiator incorporating air-to-air charge cooler, (supplied loose)
- System designed for ambients up to 50°C

Electrical equipment

- 24 volt starter motor and 24 volt 70 amp alternator with DC output
- ECM mounted on engine with wiring looms and sensors
- 3 level engine protection system

Flywheel and housing

- High inertia flywheel to SAE J620 size 14
- SAE 1 flywheel housing

Mountings

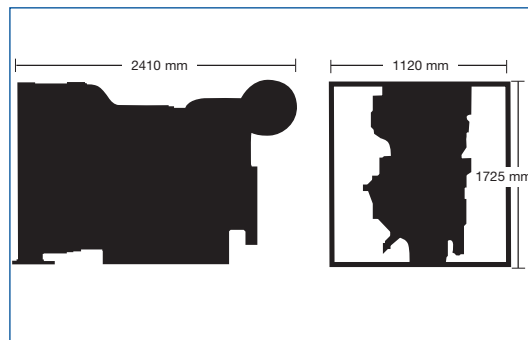
- Front engine mounting bracket

Literature

- User's Handbook and Parts Manual

Optional Equipment

- 110 volt/240 volt immersion heater
- Additional speed sensor
- Temperature and pressure sensors for gauges
- Air filter rain hood
- Twin starters/facility for second starter
- Tool kit



Fuel Consumption (based on net power)		
Engine Speed	1800 rev/min	
	g/kWh	l/hr
Standby power	206	93
110% prime power	209	94
100% prime power	210	87
75% prime power	217	67
50% prime power	229	48

General Data

Number of cylinders	6
Cylinder arrangement	Vertical in-line
Cycle	4 stroke
Induction system	Turbocharged and air-to-air charge cooled
Combustion system	Direct injection
Cooling system	Water-cooled
Bore and stroke	130 x 157 mm
Displacement	12.5 litres
Compression ratio	16.3:1
Direction of rotation	Anti-clockwise, viewed on flywheel
Total lubrication system capacity	40 litres
Total coolant capacity	51.4 litres
Total dry weight	1478 kg
Dimensions	Length 2410 mm Width 1120 mm Height 1725 mm

Final weight and dimensions will depend on completed specification



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DESCRIPTION

The JCAN™ series is a microprocessor-based digital generator controller providing complete monitoring, control, and protection for SAE J1939 electronic engines. The large, backlit display provides complete, easy-to-read engine and generator information on a full-time basis. The flexible product platform allows for customer specific features and functions. For 12 and 24VDC applications. Manual & auto start.

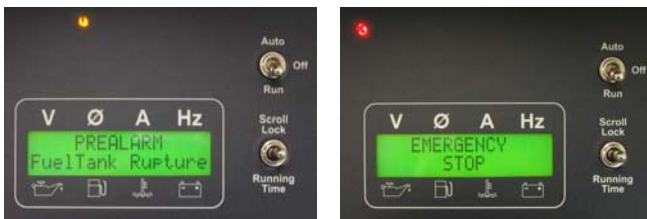
DISPLAY

Large 1"H x 4"W backlit display with ½" characters.



ALARMS & SHUTDOWNS

Engine and generator protection provided with easy-to-read display messages and indication lamps (red and yellow) for alarm and shutdown conditions. The controller serves as a trouble code reader displaying both active and stored pre alarm and fault codes.



ENCLOSURE

The standard enclosure is a 10"H x 14"W x 10" D powder coated steel enclosure. Other enclosure options are available.

SWITCHES

Three toggle switches are standard for Auto/Off/Run, Scroll Lock/Running Time and Speed Select (Run/Idle). Four membrane switch buttons are provided for accessing information and unit configuration. Additional options are available such as emergency stop or other customer specific buttons.

ACCESSORIES

For a complete installation, engine harnesses, extension harnesses and other accessories such as water temperature senders, oil pressure senders, magnetic pickups and current transformers are available. In addition, components such as relays, fuses, connectors and communication modules can be installed at the factory per customer request.

SPECIFICATIONS

GENERAL

OPERATING VOLTAGE.....	7.5VDC to 36 VDC
MAXIMUM POWER CONSUMPTION.....	200mA
OPERATING TEMPERATURE.....	-20°C to +70°C
STORAGE TEMPERATURE.....	-30°C to +80°C
HUMIDITY.....	95% Non-condensing
REVERSE POLARITY PROTECTION.....	Yes
TRANSIENT VOLTAGE SUPPRESSION.....	Yes
DISPLAY.....	LCD, 1"H x 4"W, 2 lines x 16 characters/line
ENCLOSURE.....	Powder Coated Steel
OVERLAY/INTERFACE.....	Autotex Polyester
PANEL FUSE.....	10A
APPROX. WEIGHT.....	14.5 lbs
APPROX. DIMENSIONS.....	10"H x 14"W x 10"D

ELECTRONIC ENGINE INPUTS

ENGINE COM PORT.....	CANBus J1939 Protocol
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GENERATOR INPUTS

VOLTAGE INPUTS.....	(3) 0-600VAC
CURRENT TRANSFORMER INPUTS.....	(3) 5A
FREQUENCY INPUT.....	.50Hz or 60Hz

DIGITAL INPUTS

EMERGENCY STOP (Normally Open).....	1
DIGITAL INPUTS (Normally Open).....	3
<i>(Low Water Level, Low Oil Level, Low Fuel Level – Modified per customer request)</i>	

OUTPUTS

RUN OUTPUT.....	10A Relay
CRANK OUTPUT.....	10A Relay
PRE ALARM OUTPUT.....	10A Relay
ALARM OUTPUT.....	10A Relay
REMOTE ANNUNCIATION COM PORT.....	Serial RS485

Extreme Cold Weather Option

OPERATING TEMPERATURE.....	-45°C to +85°C
STORAGE TEMPERATURE.....	-55°C to +95°C

OPTIONS

- Remote annunciator with duplicate display and start/stop
- Digital or analog inputs configured per customer request
- Interconnectivity to external communication systems & modules
- Extreme cold weather option