



MAKAWA POWER BY PERKINS



MODEL: MKW-20PS



PERKINS Series Diesel Generator Sets

Stand by	kVA	22
	kW	18
Prime	kVA	20
	kW	16



Water Cooled



Modular type
sound-proof canopy



Easy maintenance



50 hz



Remote control
system



Diesel



Warning system for
decreasing fuel with
electronic fuel level sender



3 phase

Standby Rating for a standby engine should be sized for a maximum of 70% average load factor and roughly 200 hours per year. Standby power ratings should never be applied except in true emergency outage situations. With standby rated generators there is no overload capability built into the units.

Prime Power is the maximum power accessible at the variable load for an unlimited number of hours per year in a variable load setting. It is not advisable that the variable load exceed 70% average of the prime power rating during any operational period. If the engine is running at 100% prime power, yearly hours should not exceed 500. Overload situations should be avoided however a 10% overload capability is available for a 1 hour period within a 12 hour cycle of operation.

Continuous Power is used in applications where supplying power is at a constant 100% load for an unlimited number of hours each year. Continuous power rated units are most widely used in applications where the power grid is unreachable.



ENGINE SPECIFICATIONS

- Flexible fuel pipe
- Oil discharge valve and extention pipe
- Industrial type silencer, exhaust spiral or compensator
- Engine block water heater (in automatic models)
- Diesel gen-set maintenance and operating instructions and electrical circuit diagram
- PERKINS series heavy duty diesel engine
- 4 cycle, water cooling system, turbocharged aftercooler induction
- Electronic governor system
- 12/24 volt self-starter and charger alternator
- Changeable air, fuel and oil filter
- Maintenance free battery

MODEL	PERKINS/404A-22G1	
POWER	STAND BY kW	20.3
	PRIME kW	18.4
SPEED (rpm)	1500	
CYCLE	4	
DISPLACEMENT (lt)	2.216	
NUMBER OF CYLINDERS	4	
BORE AND STROKE	4 x 100	
COMPRESSION RATIO	23.3 : 1	

GOVERNOR TYPE	Electronic	
INDUCTION	TURBOCHARGED AFTERCOOLER	
COMBUSTION SYSTEM	DIRECT	
COOLING SYSTEM	WATER	
FUEL CONSUMPTION (lt/h)	100% OF PRIME POWER	5.3
	75% OF PRIME POWER	4
	50% OF PRIME POWER	2.9
TOTAL LUBRICATION SYSTEM CAPACITY (lt)	10.6	
TOTAL COOLANT CAPACITY (lt)	7	



ALTERNATOR SPECIFICATIONS

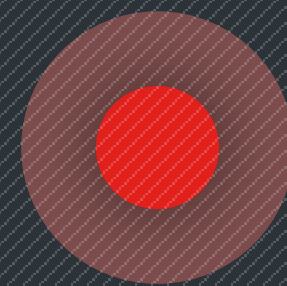
- Stator 2/3 step for harmonic failure
- The alternator windings are protected byinsulating varnish against oil and acid
- Brushless, single bearing, flexible disc4 poles alternator for harmonic failure
- H type isolation class
- IP 21-23 protection class
- Self exciter
- Electronic automatic voltage regulator

BRAND	STAMFORD/LEROY SOMER
MODEL	N20G4/TAL-A40-F
FREQUENCY (HZ)	50
SPEED (RPM)	1500
DESIGN	4 pole, brushless
CONNECTION TYPE	STAR
VOLTAGE (V)	400

PHASE	3
Stand by	22 kVA
Prime	20 kVA
VOLTAGE REGULATION (+/-)	± 1%
INSULATION SYSTEM	Class H
PROTECTION	IP23
RATED POWER FACTOR	0,8



FEATURE



GENSET CONTROLLERS DATAKOM/DEEPSEA

D300/D500



DSE6020



- Diesel and gas genset support
- 400Hz operation support
- 400 event logs, full snapshot
- All parameters front panel editable
- 3 level configuration password
- 128x64 graphical LCD display
- Downloadable languages
- Waveform display of V & I
- Harmonic analysis of V & I
- 16Amp MCB & GCB outputs
- 8 configurable digital inputs
- Inputs expandable to 40
- 6 configurable digital outputs
- Outputs expandable to 38
- 3 configurable analog inputs
- Both CANBUS-J1939 & MPU
- 3 configurable service alarms
- Multiple automatic exerciser
- Weekly operation schedule
- Dual mutual standby with equal aging of gensets
- Manual "speed fine adjust" on selected ECUs
- Automatic fuel pump control
- Disable protections feature
- Excess power protection
- Reverse power protection
- Overload IDMT protection

- Load shedding, dummy load
- Multiple load management
- Current unbalance protection
- Voltage unbalance protection
- Fuel filling & fuel theft alarms
- Battery back-up real time clock
- Idle speed control
- Battery charge run enabled
- Combat mode support
- Multiple nominal conditions
- Tactor & MCB drive
- 4 quadrant genset power counters
- Mains power counters
- Fuel filling counter
- Fuel consumption counter
- Modem diagnostics display
- Configurable through USB, RS-485 and GPRS
- Free configuration program
- Allows SMS controls
- Ready for central monitoring
- Mobile genset support
- Automatic GSM geo-location
- GPS connectivity (RS232)
- Easy USB firmware upgrade
- IP65 rating with standard gasket

GENSET CONTROLLERS DATAKOM/ DEEPSEA

MEASUREMENTS ●

- Mains & genset PN/PP voltages Mains & genset frequency
- Mains & genset phase currents Mains & genset neutral currents Mains & genset, phase & total, kW, kVA, kVAr, pf
- Engine speed Battery voltage

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COMMUNICATIONS ●

- 4-band GPRS modem (optional)
- USB Device
- RS-485 (2400-115200baud)
- RS-232 (2400-115200baud)
- J1939-CANBUS
- Geo-locating through GSM
- GPS support (RS-232)
- Internet Central Monitoring
- SMS message sending
- E-mail sending
- Free PC software: Rainbow Plus
- Modbus RTU

FUNCTIONALITIES ●

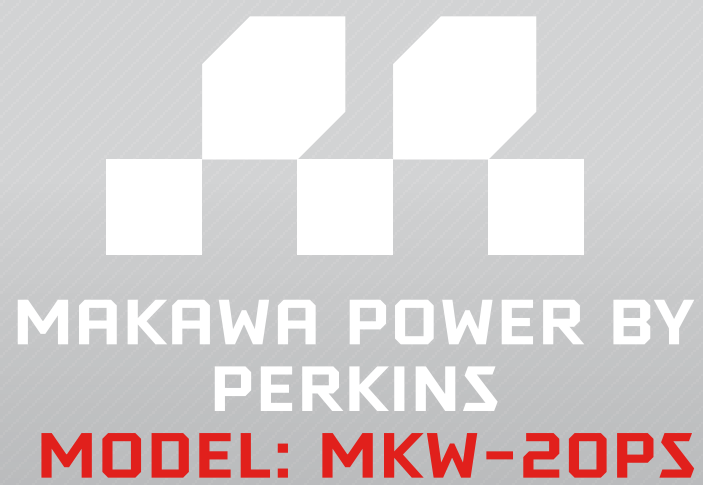
- AMF unit
- ATS unit
- Remote start controller
- Manual start controller
- Engine controller
- Remote display panel
- Harmonic analysis of V & I
- Internal battery (optional)

TOPOLOGIES ●

- 3 ph 4 w, star & delta
- 3 ph 3 w, 2 CTs
- 2 ph 3 w
- 1 phase 2 wires

OPTIONAL

OPTIONAL GENSET CONTROLLERS



Next generation single gen-set controllers for Stand-by and Primepower applications combining multi-functionality and wide communication with EFI engines.

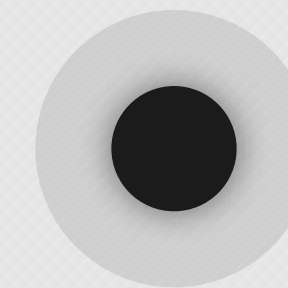


	Datakom SMART 200	Datakom SMART500-MK2	Datakom D500	Datakom D500-GSM	DEEPSEA 6120	DEEPSEA 7320	ComAp AMF25
AUTOMATIC MAINS MONITORING	✓	✓	✓	✓	✓	✓	✓
MANUEL START	✓	✓	✓	✓	✓	✓	✓
REMOTE START	✓	✓	✓	✓	✓	✓	✓
REMOTE MONITORING WITH SIM CARD	Optional	Optional	Optional	✓	✗	Optional	Optional
1 ADDITIONAL OPTION (HORN, OIL-FUEL HEATER ETC.)	✗	Optional	Optional	Optional	Optional	Optional	Optional
LIGHT WARNING AND MIMIC DIAGRAM	✓	✓	✓	✓	✓	✓	✓
BATTERY CHARGER	✓	✓	✓	✓	✓	✓	✓
RS-485 COMMUNICATION	Optional	Optional	✓	✓		✓	Optional
ETHERNET (TCP-IP) COMMUNICATION	✗	✓	✓	✓	✗	Optional	Optional



GENSET CONTROLLERS FOR SYNCHRONIZATION SYSTEMS

OPTIONAL



Next generation synchronizing genset controller capable of every communication and functionality.



DEEPSEA 8610



DEEPSEA 8620



DEEPSEA 8660



COMAP INTELIGEN
BASEBOX



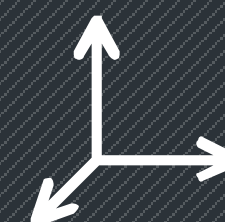
COMAP INTELIGEN 200



CANOPY

- Modular type sound-proof canopy
- Canopy installation executed with screw and nut, without welding process
- Epoxy and polyester powder painted canopy
- Weatherproof canopy rating is IP 23
- Canopy designed for easy maintenance

- Lockable doors on both sides of canopy
- Emergency stop button
- Transparent panel inspection window
- Insulation details: Non-flammable acoustic foam
- Nano tech cleaning system
- Container optional



Dimensions
(W x L x H) mm

900*1950*1337

900*1600*1145



Weight
(Kg)

630.8

446



Fuel tank
capacity (lt)

82

82

SILENCER OPTIONS

- Standard industrial type
- Critical type
- Hospital type

CANOPY OPTIONS

- Standard canopy
- Super silent canopy
- Extra super silent canopy (thicker insulation)

GEN-SET SAFETY PROTECTION & ALARMS

- High water temperature
- Low oil pressure
- High & low engine speed
- Low radiator water level
- Over current load
- High & low genset voltage
- Start/stop failure

OPTIONAL EQUIPMENTS

- Charge ammeter
- Moulded case circuit breaker (in automatic models)
- Hospital/Critical type silencer
- Modular type sound-proof canopy
- Mobile - trailer
- Synchronization control panel for 2-16 gensets
- 3 pole/4 pole automatic transfer panel (A.T.S.)
- Fuel and oil heater
- Alternator heater
- Automatic fuel filling system
- Fuel-water separator filter
- PMG warning system

Makawa reserves the right to make changes in model, technical specifications, color, equipment & accessories without prior notice.

makawa68@gmail.com
makawa.vn

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CONTACT US



MAKAWA
TECHNOLOGY
EQUIPMENT CO., LTD.

Handico Tower, Pham Hung str, Nam Tu
Liem District, Hanoi, Vietnam
Tel: +84 982.722.883
Email: makawa68@gmail.com

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makawa68@gmail.com
makawa.vn