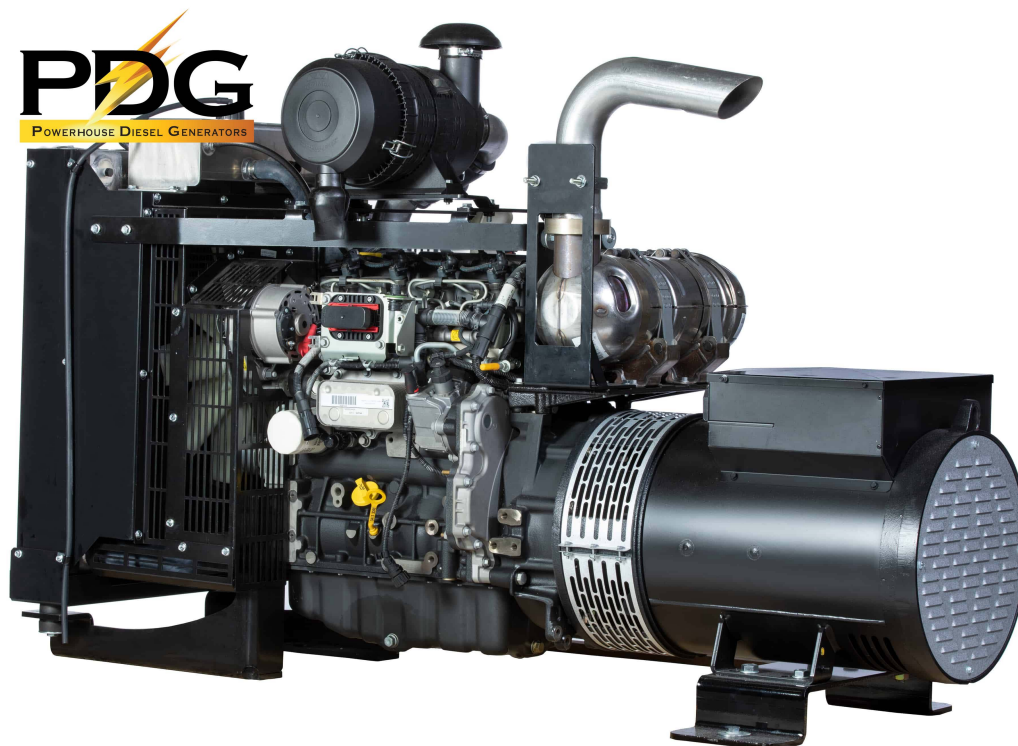




PDG is the pinnacle of industrial grade, American built power generation. PDG generators are purpose built to your specifications utilizing the highest in manufacturing standards.



Tier 4 40-45 kWe

POWERHOUSE DIESEL GENERATORS
RUGGED. RELIABLE. POWERFUL.

HYUNDAI

DP024CAV



GENERATOR



2.4L / 4 CYLINDERS



50/60Hz
Multi Frequency
Generator



ECO

SWITCHABLE

EU STAGE V

DESCRIPTION

- HD Hyundai Infracore’s compact electronic engines, DP024C- Series is one of the key products.
- When compared to other engines of equivalent capacity, it displays a higher output, better fuel efficiency, higher safety, and easier maintenance.
- It has been recognized in the market even with the high emission standard EU Stage V and EPA/CARB Tier4F and satisfied its customers.



FEATURES & BENEFITS

[Low Emission]

- Meet EU Stage V

[Performance & Fuel Economy Improvement]

- Bosch 1,800bar common rail system
- Ultra low fuel consumption
- Air management improved through optimization of valve timing & turbocharger matching

[Convenience & TCO]

- Maintenance free for valve clearance
- Auto tensioner belt drive system
- Oil level sensor option for 1,000hrs exchange interval

OUTPUT

1,500 RPM (50Hz)						1,800 RPM (60Hz)					
Standby			Prime			Standby			Prime		
kWm	kWe	kVA	kWm	kWe	kVA	kWm	kWe	kVA	kWm	kWe	kVA
48.1	42.8	53.5	45.8	40.7	50.8	55.0	48.6	60.7	49.5	43.6	54.5

- Generator efficiency (typical) : 90.0%
- kWm= kilo Watt mechanical, Gross power; kWe= kilo Watt electric = (kWm-Fan loss) x Generator eff.
kVA= kilo Volt Ampere
- Calculations based on a 0.8 power factor = kWe/0.8

DP024CAV

GENERAL DATA

Type	Diesel, Water cooled, Turbo charged & Intercooled
Bore	90mm
Stroke	94mm
Displacement liter	2.39
Cylinders and Arrangement	Cast iron, 4 cylinder, In-line Type
Battery charging alternator	12V x 90A
Starting voltage	12V
Fuel system	Common Rail, Direct Injection Controlled by ECU
Fuel filter	Full flow, cartridge type
Lube oil filter type (s)	Full flow, cartridge type
Lube oil capacity (l)	Max. 8.6 liters , Min. 4.5 liters
Flywheel dimensions	Clutch 10"(SAE J620)

COOLING SYSTEM

Cooling method		Fresh water forced circulation
Cooling ratio		50% ethylene glycol; 50% water
Water capacity (L)	with radiator	9.3 liters
	Without radiator	3.8 liters
Fan power (kW)		0.6 kW (50Hz), 1.1 kW (60Hz)
Cooling system air flow (m³/min)		-

FUEL CONSUMPTION

1,500 RPM (50Hz)

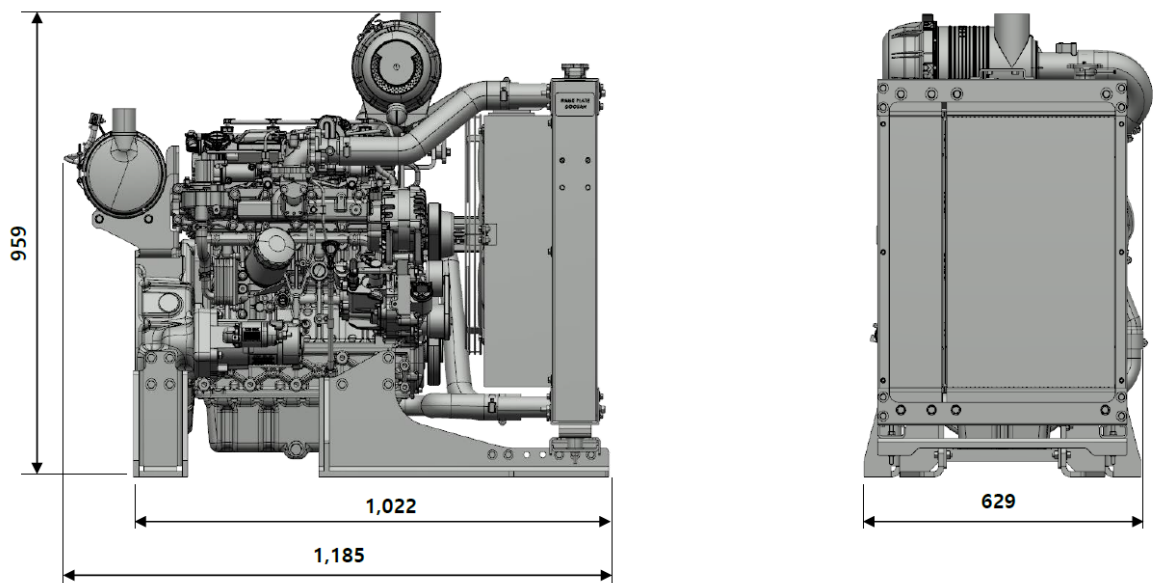
%	kWm	BHP	Liters/hr	USgal/hr
Standby Power				
100	48.1	64.5	12.1	3.20
Prime Power				
100	45.8	61.4	11.3	2.99
75	34.3	46.0	8.4	2.22
50	22.9	30.7	5.7	1.51
25	11.4	15.3	3.2	0.85
Continuous Power				
100	32.0	42.9	-	-

1,800 RPM (60Hz)

%	kWm	BHP	Liters/hr	USgal/hr
Standby Power				
100	55.0	73.8	-	-
Prime Power				
100	49.5	66.4	-	-
75	37.1	49.8	-	-
50	24.8	33.2	-	-
25	12.4	16.6	-	-
Continuous Power				
100	34.7	46.5	-	-

DP024CAV

DIMENSIONS



Weights and Dimensions				
Item	Length (mm)	Width (mm)	Height (mm)	Dry Weight (kg)
Engine with ATS	840	554	775	250
G-Pack	1,185	629	959	-

* Except Mounting Bracket

POWER RATING GUIDE

The power ratings of Emergency Standby and Prime are in accordance with ISO 8528. Fuel Stop power in accordance with ISO 3046. Electric power (kWe) must be considered cooling fan loss, alternator efficiency, altitude derating and ambient temperature.

ESP(STANDBY POWER) is applicable for supplying emergency power for the duration of the utility power outage. No overload capability is available for this rating. A standby rated engine should be sized for a maximum of an 70% average load factor and 200 hours of operation per year. This includes less than 25 hours per year at the Standby Power rating.

PRP(PRIME POWER) is available for an unlimited number of hours per year in variable load application. Variable load should not exceed a 70% average of the Prime Power rating during any operating period of 24 hours. The Total operating time at 100% Prime Power shall not exceed 500 hours per year. A 10% overload capability is available for a period of 1 hour within a 12 hours period of operation. Total operating time at the 10% overload power shall not exceed 25 hours per year.

COP(CONTINUOUS POWER) is defined as being the maximum power which the generating set is capable of delivering continuously whilst supplying a constant electrical load when operated for an unlimited number of hours per year under the agreed operating conditions with the maintenance intervals and procedures being carried out as prescribed by the manufacturer.

※ Specifications are subject to change without prior notice.

WEG INDUSTRIAL ALTERNATORS



1800 rpm single bearing
Self exciting - Brushless, Synchronous.
1 phase 60 Hz 120/240
3 Phase 60 Hz 120/208, 120/240, or 277/480

100% PURE AMERICAN ESSEX® COPPER

2/3 Pitch Copper Windings are double dipped for extreme environment durability, providing the smooth, clean power needed for sensitive electronics as well as the raw power required for heavy motor applications.

WEG Industrial alternators are designed and built to withstand extreme conditions. They conform to IEC 34-1/34-2, BS 4999/5000 and IS: 4722-2001. The enclosure rating is IP 23 with Class H insulation, satisfying IEC 34-5/IS: 4691/DIN VDE 0530-5 requirements. They are dynamically balanced, brushless, and screen protected. They are self-excited and self-regulated through an AS440 AVR.

Our alternators have the following features:

1. +- 1.0 % Voltage regulation (max.) in static conditions
2. IP: 23 protections with Insulation class H
3. Permissible overload of 10% for one hour in 12 hours of operation.
4. Excitation boost system (EBS) for unparallelled motor starting capability.

DATA SHEET

Synchronous Alternator



Customer	:	Notes:
Customer reference	:	
Product line	: GTA201AIHV	Product code : 13943281
Area classification	: Safe	1011326724

General data Frame (IEC) : 200 Insulation Class : 180°C (H) Total Harmonic Distortion (no load) : ≤ 3% Stator winding pitch : 2/3 Altitude : up to 1000 m.a.s.l Number of Leads : 12 Power factor : 0.8 to 1.0 Excitation system : Brushless with Auxiliary Coil Cooling : IC01	Degree of protection : IP23 Mounting style : B15T Number of poles : 4 Type of Pole : Salient Nominal rotation - 50 Hz : Nominal rotation - 60 Hz : Overspeed : rpm Alternator mass : 245 kg Overload : 1.1x In per 1h each 6h Momentary Overload : 1.5x In per 30s
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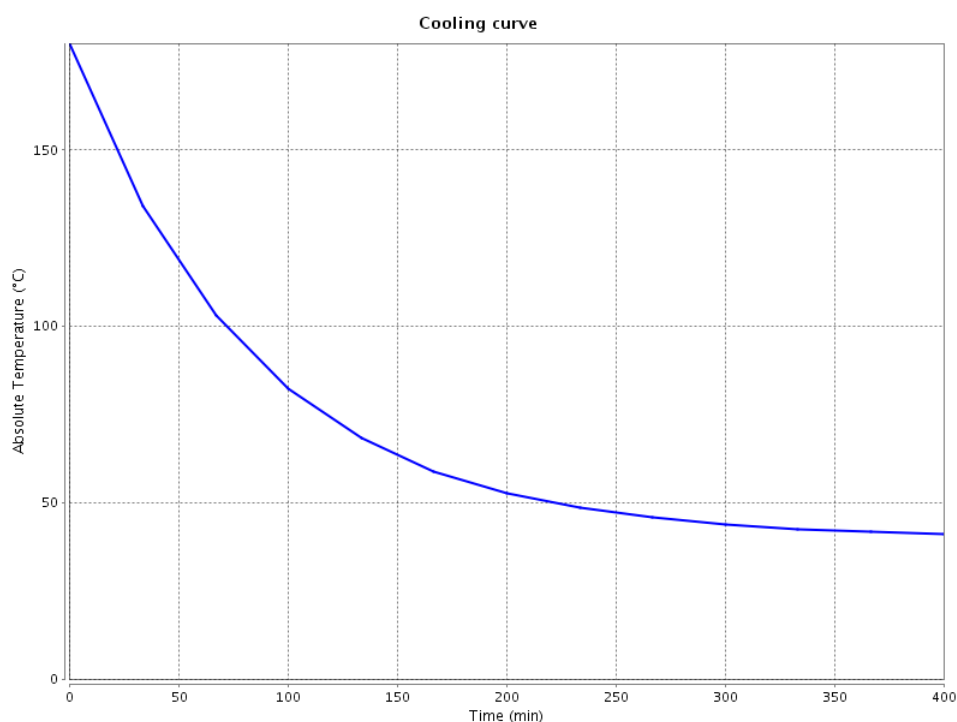
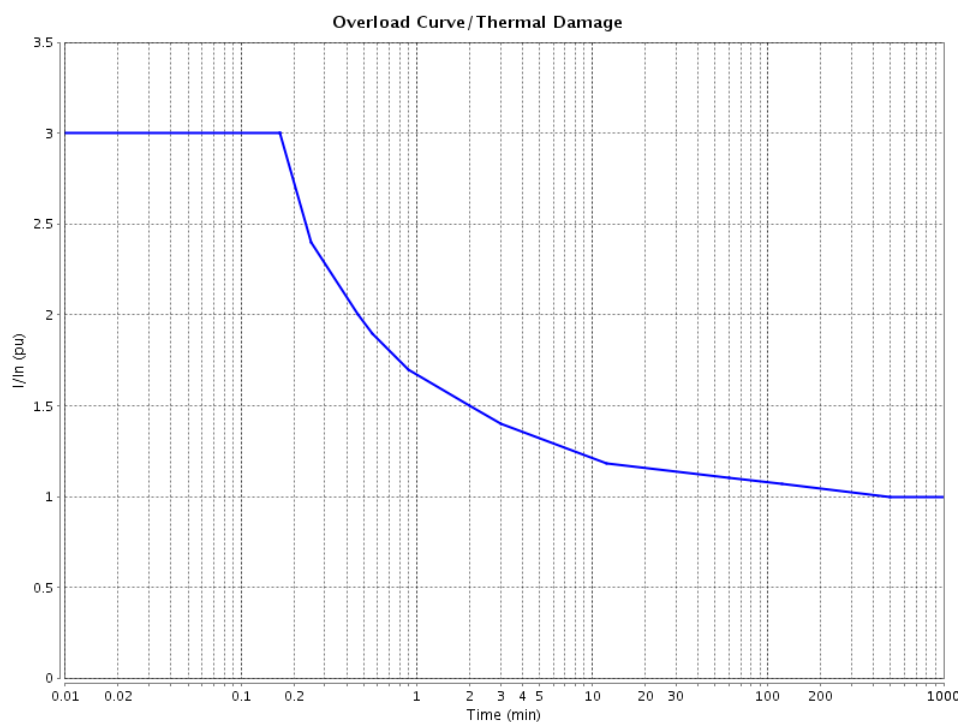
Frequency and number of phases		50 Hz				60 Hz			
		Three-phase		Single-phase		Three-phase		Single-phase	
Voltages (V)	Y connection	380	400	-		380	440	480	-
	YY connection	190	200	-		190	220	240	-
	Δ connection	220	230	-		220	254	277	-
	ΔΔ connection	110	115	-		110	127	138	-
	Single phase low zig-zag or single phase delta	-	-	190 - 200		-	-	-	220 - 240
Output power (kVA)	ΔT=80°C (Ta=40°C)	42.0	42.0	23.3		47.3	54.5	56.4	31.0
	ΔT=105°C (Ta=40°C)	48.5	48.5	26.7		54.2	62.4	64.6	35.5
	ΔT=125°C (Ta=40°C)	53.0	53.0	29.2		59.1	68.1	70.5	38.8
	ΔT=150°C (Ta=40°C)	56.0	56.0	31.9		63.2	72.8	77.2	42.5
	ΔT=163°C (Ta=27°C)	57.5	57.5	33.3		71.0	75.7	81.0	44.3
Electrical data (FP=0.8 / ΔT=125°C / Ta=40°C)	(%) Xd Direct axis synchronous reactance	280.13	245.76	373.51		361.8	312.41	272.43	416.54
	(%) X'd Direct axis transient reactance	24.81	21.74	33.08		32.14	27.68	24.1	36.91
	(%) X''d Direct axis subtransient reactance	20.87	18.31	27.83		27.04	23.29	20.29	31.05
	(%) Xq Quadrature axis sync. reactance	107.02	93.89	142.69		138.19	119.34	104.08	159.13
	(%) X''q Quadrature axis subtrans. reactance	18.47	16.19	24.62		23.95	20.61	17.94	27.48
	(%) X2 Negative sequence reactance	19.6	17.18	26.13		25.4	21.87	19.05	29.16
	(%) X0 Zero sequence reactance	3.48	3.05	4.64		4.51	3.88	3.38	5.18
	(ms) T'd Direct axis trans. short circ. time constant	56.53	56.63	75.37		56.44	56.53	56.63	75.37
	(ms) T''d Direct axis sub. short circ. time constant	1.05	1.05	1.4		1.05	1.05	1.05	1.4
	(ms) T'do Transient open circuit time constant	649.05	650.01	865.4		645.52	648.48	650.01	864.64
	(ms) T''do Subtrans. constant of opened circuit	1.24	1.24	1.66		1.24	1.24	1.24	1.66
	(ms) Ta Short circuit time const. of armature	7.52	7.53	10.03		7.51	7.52	7.53	10.03
	(V) uc Full load excitation voltage	48.66	49.01	48.66		42.79	47.42	50.57	47.42
	(A) ic Full load excitation current	5.06	5.09	5.06		4.45	4.93	5.26	4.93
	(A) ic No load excitation current	0.7	0.9	0.93		0.4	0.6	0.8	0.8
	(A) Icc Sustained short-circuit current	241.58	241.58	322.1		269.38	269.38	269.38	359.17
	Kcc Short-circuit ratio	0.38	0.46	0.5		0.27	0.33	0.42	0.44
Efficiency (%)	Power factor	0.8	1.0	0.8	1.0	0.8	1.0	0.8	1.0
	25% of load	89.7	92.4	89.1	92	82.5	85	90.4	93
	50% of load	89.1	92.1	89.2	92.2	82	84.8	89.6	92.3
	75% of load	87	90.6	87.5	91	80	83.4	87.4	90.5
	100% of load	84.7	88.9	85.5	89.5	77.9	81.8	84.9	88.5
	125% of load	82.4	87.1	83.4	88	75.8	80.1	82.5	86.5

Other characteristics Air flow : 0.6 m³/s Exciter stator winding resistance at 20°C : 10.55 ohm Stator winding resistance at 20°C : 0.15532 ohm Rotor winding resistance : 0.82 ohm Stator winding layers : 2 Inertia WR² : 0.4 kgm² NDE Bearing : 6210-2RS DE bearing : Flange : SAE 3 Coupling disc : SAE 11,5	Automatic voltage regulator Accuracy (stability) : +/- 0.5% Rated current : 5 A Analog input : Yes Digital input : No Peak current : 7 A/10 s Droop / TC : Yes Dynamic recovery : 8 to 500 ms U/F : Yes Internal voltage adjustment : +/- 15% External voltage adjustment : +/- 10% Transient recovery time for ΔU=20% : 500 ms	According to: IEC 60034 NBR 5117 NEMA MG1 VDE530 ISO 8528 CSA
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Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page	Revision
Checked by			1 / 2	
Date	23/08/2021			

DATA SHEET

Synchronous Alternator



Rev.	Changes Summary		Performed	Checked	Date
Performed by				Page	Revision
Checked by				2 / 2	
Date	23/08/2021				

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PwrNano AMF 5



Controller for single gen-set applications

Datasheet

Product description

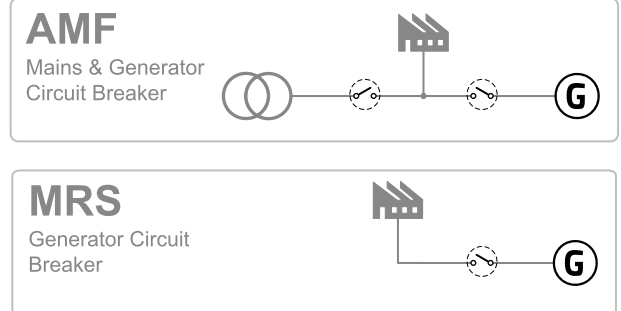
- > Single Gen-set controller for stand-by and prime-power applications
- > All-in-one intuitive and powerful PC tool for configuration, monitoring and control, locally or remotely
- > Easy to install, configure, use and monitor

Key features

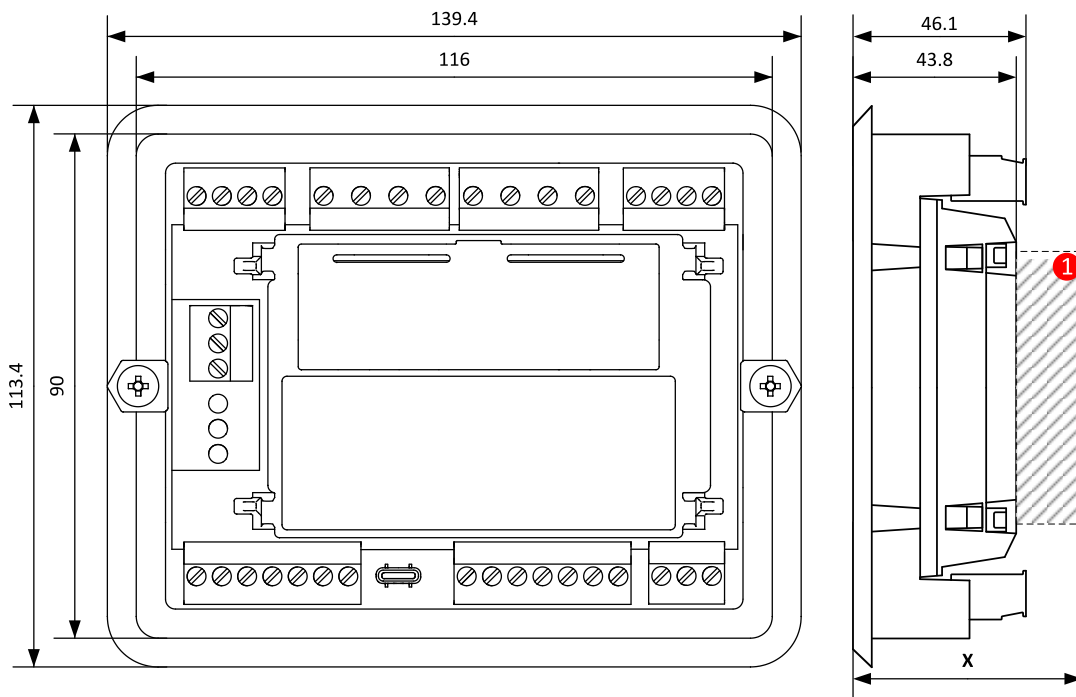
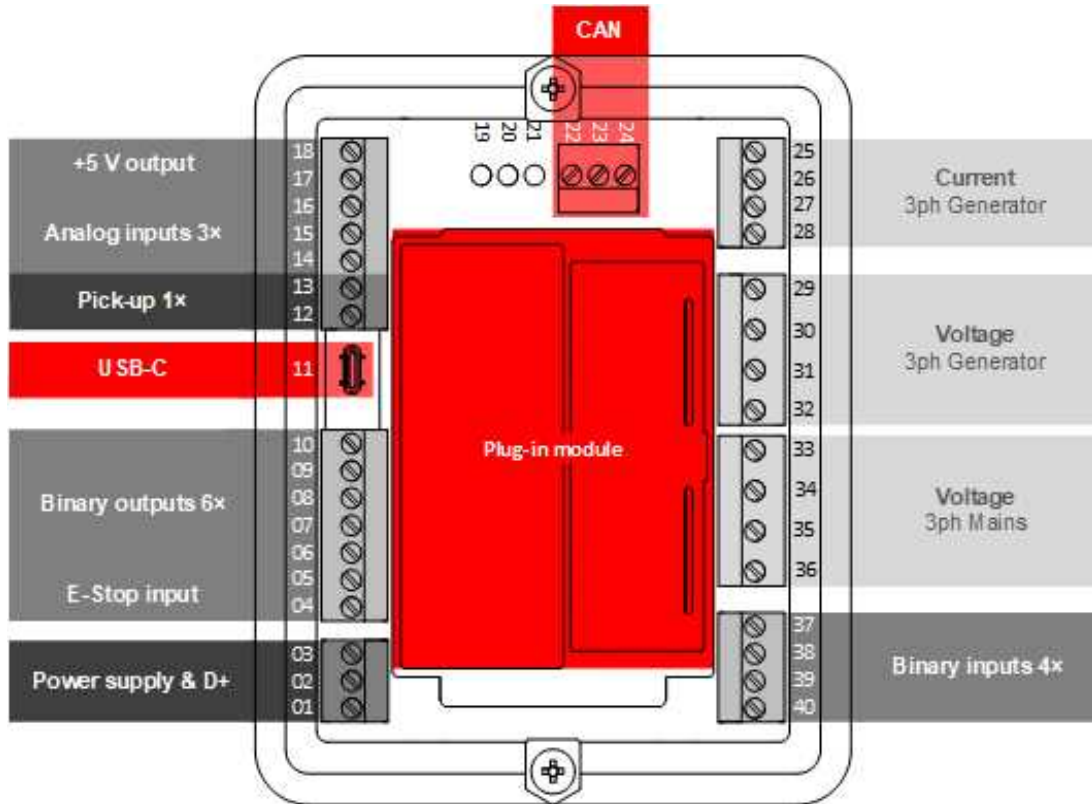
- > Stand-by and prime-power application in one unit
- > Auto Mains Failure application functionality
- > Manual (or) Remote Start/Stop application functionality
- > Large graphic monochromatic backlit LCD display with contrast adjustment
- > Full 3-phase current and voltage measurement
- > 6 binary outputs, 4 + 1 binary inputs, 3 analog inputs (2x R + 1x R/U/I)
- > +5V output reference for analog inputs
- > Emergency Stop functionality (E-Stop)
- > Slot for extension plug-in module (Modbus, Internet)
- > ECU support (Tier 4 Final, Stage V)
- > Real Time Clock with battery backup (full calendar)
- > Power over USB-C for controller configuration and firmware update
- > Low power mode
- > True RMS measurement
- > Remote monitoring support (AirGate 2.0, WSV, IntelliScada)
- > Individually calibrated and checked
- > Internet access using Ethernet/4G-GPS plug-in module, Modbus RTU

- > Geo-fencing using 4G-GPS plug-in module
- > Detailed history log with up to 100 records
- > User setpoints and protections
- > Two languages in the controller
- > Translator functionality
- > User Access Management
- > Cyber security improvement
- > Multi-purpose schedulers and timer
- > Maintenance timer
- > Modbus register mapping possibility
- > Cut-out: 118 x 92 mm
- > Low Noise EMC design

Application overview



Dimensions, terminals and mounting



Note: ① The final depth "X" of the controller depends on the selected plug-in module – it can vary between 43.8 mm and 62 mm. Mind also the size of connectors and cables (e.g. in case of RS232 connector, add about 60 mm more for standard RS232 connector and cable).

Note: The controller is to be mounted into panel doors as a standalone unit using provided holders. The requested cutout size is 118 × 92 mm. Use the screw holders delivered with the controller to fix the controller into the door.

Technical data

Power supply

Power supply range	8-36 VDC
Power consumption (without modules)	2 W
RTC battery	Replaceable (3 V)
Fusing power	2 A w/o BOUT consumption
E-Stop fusing	10 A
Max. power dissipation	5.5 W

Operating conditions

Protection degree (front panel)	IP50 , IP65 with optional gasket seal
Operating temperature	-20 °C to +70 °C
Max. operating altitude	2000 m above sea level
Storage temperature	-30 °C to +80 °C
Operating humidity	95 % non-condensing (EN 60068-2-30)
Vibration	5-25 Hz, ± 1.6 mm 25-100 Hz, $a = 400$ m/s ²
Shocks	$a = 500$ m/s ²
Surrounding air temperature rating 70 °C Suitable for pollution degree 2	

D+

Max. output current	250 mA
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Linear measurement and protection range

Measurement inputs	3ph-n Gen, 3ph-n Mains
Measurement range	10-277 V AC* / 10-480 V AC (EU) 10-346 V AC* / 10-600 V AC (US/Canada)
Max measured voltage	350 V AC Ph-N 660 V AC Ph-Ph
Accuracy	2 %
Frequency range	5-80 Hz guaranteed meas range 30-70 Hz (accuracy 0.1 Hz)
Input impedance	0.72 M Ω ph-ph , 0.36 M Ω ph-n

Note: *) Maximum effective voltage on the voltage terminals must be lower than 300 V against minus battery voltage and for overvoltage CAT III or lower.

Display

Type	Graphical backlit monochromatic 3.2"
Resolution	132 × 64 px

Communications

USB Device	USB-C
CAN	Non-isolated, 250 / 50 kbps, Terminator impedance 120 Ω Fixed Internal Terminator

Current measurement

Measurement inputs	3ph Gen current
Measurement range	/1A or /5A
Max. allowed current	10 A
Accuracy	± 30 mA for 0-2 A; 2 % of value for 2-5 A
Input impedance	<0.1 Ω

E-Stop

Dedicated terminal for safe E-Stop input.
Physical supply for binary outputs 1 & 2.

Binary inputs

Number	4
Close/Open indication	0-2 VDC close contact 6-36 VDC open contact

Binary outputs

Number	6
Max. current	BO1,2=5 A (60 °C); BO3-6=0.5 A
Switching to	positive supply terminal

Analog inputs

Number	1x switchable (R/U/I) 2x R
Range	R = 0-2500 Ω ; U = 0-10 V; I = 0-20 mA
Accuracy	R: ± 3 % ± 7 Ω in range 0-250 Ω R: ± 6 % in range 250-2500 Ω U: ± 1.5 % ± 150 mV I: ± 1.5 % ± 0.3 mA

+5 V Power supply output

Max. current	25 mA
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Magnetic pickup

Voltage input range	4 Vpk-pk to 50 Vpk-pk in range 4 Hz to 1 kHz 6 Vpk-pk to 50 Vpk-pk in range 1 to 5 kHz 10 Vpk-pk to 50 Vpk-pk in range 5 to 10 kHz
Frequency input range	4 Hz to 10 kHz
Frequency measurement tolerance	0.2 % from measured value

Available accessories

Product	Description	
Gasket IN2	Additional gasket for IntelliNano AMF controllers, protection degree IP65 (front panel)	

Available plug-in modules

Product	Description	Order code
CM-RS232-485	Dual port (RS232 & RS485) plug-in communication module	
CM2-4G-GPS	4G & GPS plug-in communication module	
CM3-Ethernet	Internet / Ethernet plug-in communication module for AirGate connection only	

Note: Controller has one slot for plug-in modules.

Note: Plug-in module is supported on controller hardware version HW 2.0 or higher.

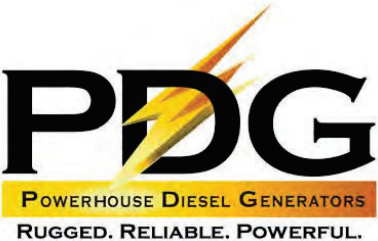
Functions and protections

Support of functions and protections as defined by ANSI (American National Standards Institute):

Description	ANSI code	Description	ANSI code
Master unit	1	Current unbalance	46
Stopping device	5	Negative sequence voltage	47
Multifunction device	11	Incomplete sequence relay	48
Underspeed	14	Overcurrent	50/50TD
Overspeed	12	Breaker failure	50BF
Starting-to-running transition contactor	19	Overvoltage	59
Thermal relay	26	Aux Over Voltage	59X
Undervoltage	27	Pressure switch	63
Aux Battery Under Voltage	27X	Liquid level switch	71
Annunciator	30	Reclosing relay	79
Overload (real power)	32P	Overfrequency	81O
Reverse Power	32R	Underfrequency	81U
Master sequence device	34	Auto selective control/transfer	83

Certifications and standards

> EN 61000-6-2 > EN 61000-6-4 > EN 61010-1 > EN 60068-2-1 (-20 °C/16 h) > EN 60068-2-2 (70 °C/16 h)	> EN 60068-2-6 (2+25 Hz / $\pm 1,6$ mm; 25+100 Hz / 40 m/s²) > EN 60068-2-27 (a=500 m/s²; T=6 ms) > EN 60068-2-30:2005 25/55°C, RH 95%, 48hours > EN 60529 (front panel IP50, front panel IP65 with gasket, back side IP20) > UL 6200		
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Enclosures Available



PDG Enclosures are made with Aluminum and are coated with industrial grade synthetic powder coat for maximum durability . All fasteners, hinges, hardware are stainless steel.

Fuel Tank Options Available



Custom D.O.T. and UL Tanks For all Applications
All PDG Tanks Are Made With 100% U.S. Steel



Standard Enclosure Color is PDG Tan. Additional Colors are Available Upon Request

POWERHOUSE DIESEL GENERATORS
RUGGED. RELIABLE. POWERFUL.

Lug and Camlock Connections Available



Various Optional D.O.T. Trailer Configurations Available



Various Optional D.O.T. Trailer Configurations Available

POWERHOUSE DIESEL GENERATORS
RUGGED. RELIABLE. POWERFUL.

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