Rugged Series
LP/Natural Gas
Gensets

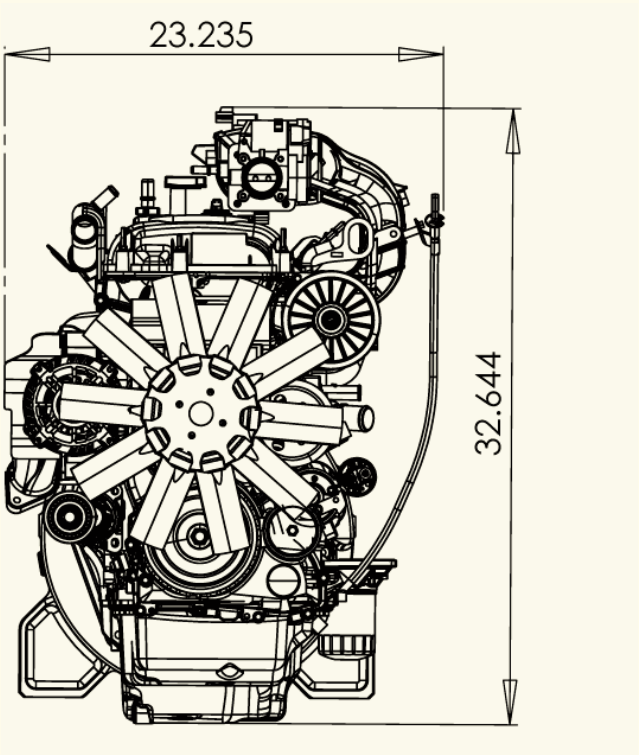
Optional sound enclosure pictured

25-35 kW @ 1800 RPM

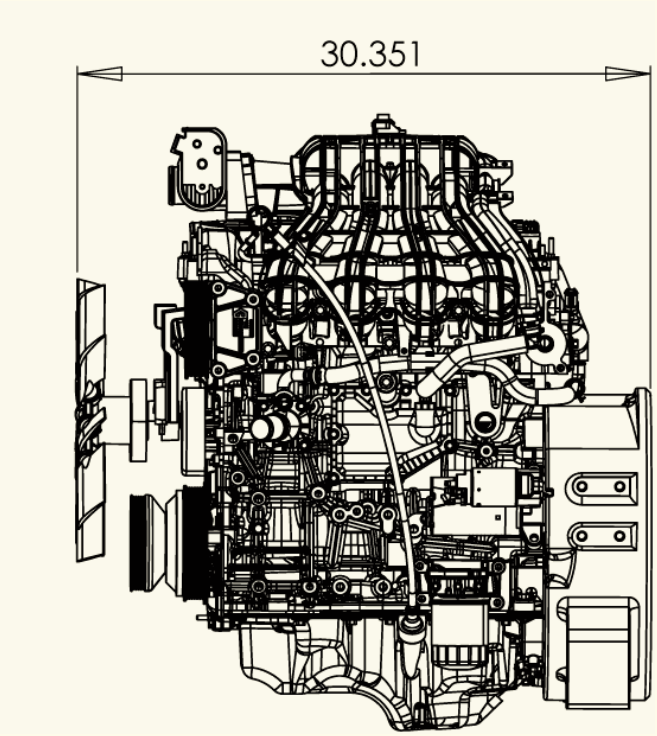
Powerhouse Diesel Generators
Rugged. Reliable. Powerful.

Installation Drawings

Front End View

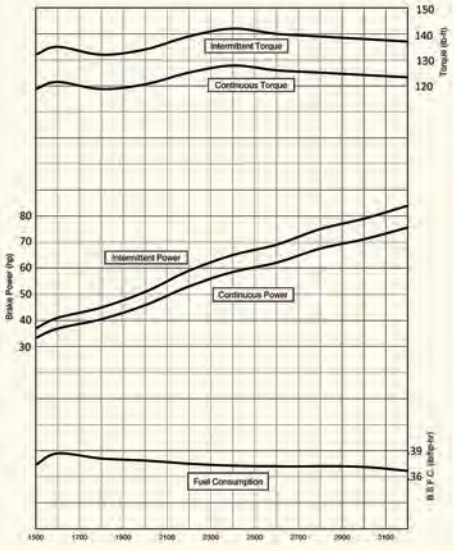


Left Side View

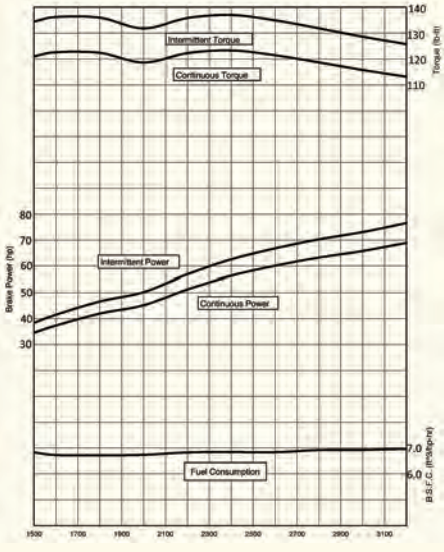


Power Curves (corrected per SAE J1349)

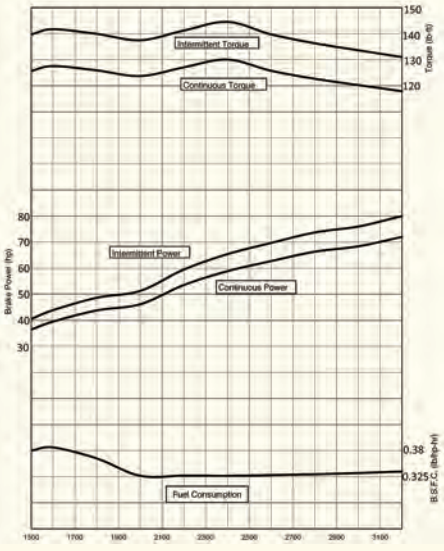
Gasoline



Natural Gas



Liquefied Petroleum Gas



Ford Power Products

Powertrain Assemblies
& Components
Provided By Ford
Component Sales

For additional information Contact:

MSG-425 EFI

2.5 Liter 4-Cylinder

Options

Engine Cooling Fans
- 15" (381mm) diameter suction
- 15" (381mm) diameter pusher

Flywheels
- 10" (254mm) SAE over-center clutch
- flat face flywheel

Flywheel Housings
- SAE #4

Exhaust Manifold
- rear dump down

Power Steering Pump

Wiring Harnesses

Discrete Speed Switch

Variable Speed Hand Throttle

Variable Speed Foot Pedal

Engine Mounts
- Automotive with insulators
- Open power unit

Electronic Instrument Panel, Gauges

Three Way Catalyst / Muffler Standard

Transmissions

6R80 electronic shift
C6 Mechanical

Emissions Information

California Air Resources Board (CARB)
Environmental Protection Agency (EPA)
Emission Certified Packages Available.

Warranty

Contact Engine Distributors, Inc for warranty details.

Ford Power Products

Powertrain Assemblies & Components Provided By Ford Component Sales

Specifications

Engine Type	I-4
Bore and Stroke	3.5"x 3.93" (89mm x 100mm)
Displacement	2.5L Liter (152.5 CID)
Compression Ratio	9.7:1
Oil Capacity	7 qts. including filter
Net Weight	351 Lbs. with accessories (159 Kgs.)
Dimensions	L 30.3" x W 23.3" x H 32.6" (769 mm x 589 mm x 828 mm)

Gasoline (corrected per SAE J1349)

Unleaded 87 or 89 octane

Intermittent Power	84 [HP] @ 3200rpm	(62 [kW] @ 3200rpm)
Continuous power	75 [HP] @ 3200rpm	(56 [kW] @ 3200rpm)
Intermittent Torque	137 [ft-lbs] @3200rpm	(185 [N-m] @ 3200rpm)
Continuous Torque	123 [ft-lbs] @3200rpm	(166 [N-m] @ 3200rpm)

Natural Gas (corrected per SAE J1349)

Fuel Specification	1050 BTU/FT3	
Intermittent Power	76 [HP] @ 3200rpm	(56 [kW] @ 3200rpm)
Continuous power	68 [HP] @ 3200rpm	(50 [kW] @ 3200rpm)
Intermittent Torque	125 [ft-lbs] @3200rpm	(169 [N-m] @ 3200rpm)
Continuous Torque	113 [ft-lbs] @3200rpm	(153 [N-m] @ 3200rpm)

Liquefied Petroleum Gas (corrected per SAE J1349)

Fuel Specification	HD-5	
Intermittent Power	80 [HP] @ 3200rpm	(59 [kW] @ 3200rpm)
Continuous power	72 [HP] @ 3200rpm	(53 [kW] @ 3200rpm)
Intermittent Torque	131 [ft-lbs] @3200rpm	(177 [N-m] @ 3200rpm)
Continuous Torque	118 [ft-lbs] @3200rpm	(160 [N-m] @ 3200rpm)

Standard Features / Benefits

Set-for-life valvetrain

Deep skirted, ribbed cylinder block casting for rigidity

Aluminum AA319 cylinder block cast with the Cosworth process, including cast-in-place iron cylinder liners.

Chain driven dual camshafts with automatic tensioning system

Structural front cover and oil pan

Alternate fuel ready valvetrain components

Individual coil on plug electronic ignition

Cast aluminum camshaft cover to ensure warp-free sealing

Sintered metal connecting rods

Nodular iron crankshaft, featuring five main bearings, eight counterweights

Broadband knock sensor, calibrated for individual cylinder use

Gasoline Sequential Port Fuel Injection

Closed loop fuel control for all fuels

Electronic engine management system with built-in engine protection against detonation, high coolant temperature, low oil pressure, over speed shutdown and starter lockout

Next generation governing – discrete speeds, variable speeds, drive by wire – using the highest quality components.

PDG INDUSTRIAL ALTERNATORS

PDG Industrial 184G - 30 kW
3 Phase PF .8 – 30 kW / 1 Phase PF .8 – 20 kW
1 Phase PF 1.0 – 30 kW

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.

PDG 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 unparalleled motor starting capability.

3-PHASE CLASS H TEMPERATURE-RISE（125℃）											1-PHASE CLASS H TEMPERATURE-RISE（125℃）					
VOLTAGE		50HZ 1500RPM				60HZ 1800RPM					50HZ 1500RPM			60HZ 1800RPM		
STAR-SERIES		380	400	415	440	416	440	460	480	600	220	230	240	220	230	240
STAR-PARALLEL		190	200	208	220	208	220	230	240	300	110	115	120	110	115	120
Δ-SERIES		220	230	240	254	240	254	266	277	346						
184G	Rated Capacity(KVA)	31.3	31.3	31.3	31.3	35	37.5	37.5	37.5	37.5	21	21	21	25	25	25
	Rated Power(KW)	25	25	25	25	28	30	30	35	30	16.8	16.8	16.8	20	20	20
	Efficiency(%)	86.6	87	87.3	87.6	86.7	87	87.3	87.6	87.8	83.7	83.9	83.9	83	83	83.8
	Input power(KW)	28.9	28.8	28.7	28.6	32.3	34.5	34.4	34.2	34.2	20.1	20	20	24.1	24.1	23.9

*Chart is based on PF .8

Our generators have been designed for use in a maximum ambient temperature of 104°F/40℃ and altitude less than 3280'/1000M above sea level.

Engine requirements: 45 HP Diesel / 60 HP Gasoline

PDG Industrial Alternator Warranty

Prime - 36 Months Prorated / Unlimited Hours
Standby – 60 Months Prorated / 2500 Hours (500 Hours max per year)
Complete warranty available upon request

PDG INDUSTRIAL ALTERNATORS
MAXIMUM ENGINEERING. MAXIMUM POWER.

Ask your local PDG Authorized Dealer about availability!

PwrNano AMF 5

Controller for single gen-set applications

Datasheet

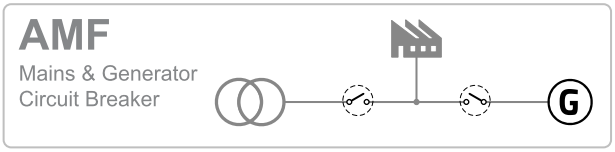
Product description

- 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

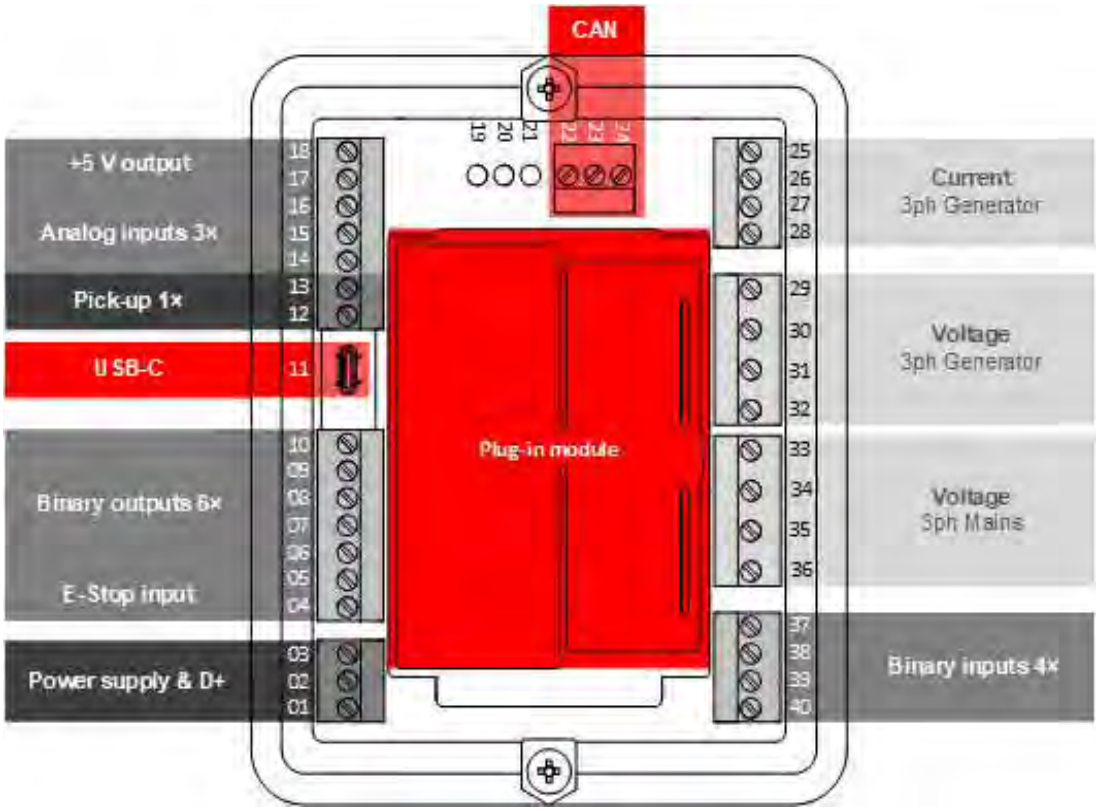
Key features

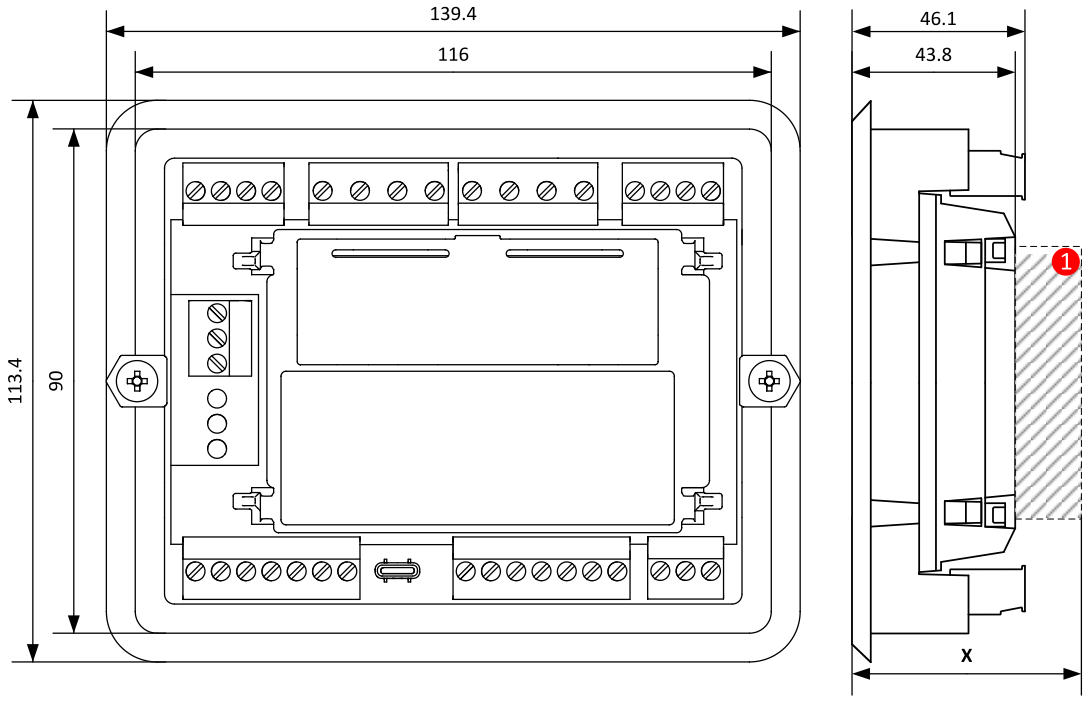
- Stand-by and prime-power application in one unit
- Auto Mains Failure application functionality
- Manual (or) Remote Start/Stop application functionality
- Large graphic monochromatic backlighted LCD display with contrast adjustment
- Full 3-phase current and voltage measurement
- 6 binary outputs, 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, InteliScada)
- 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 × 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

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 MΩ ph-ph , 0.36 MΩ 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 backlighted 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

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 InteliNano 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

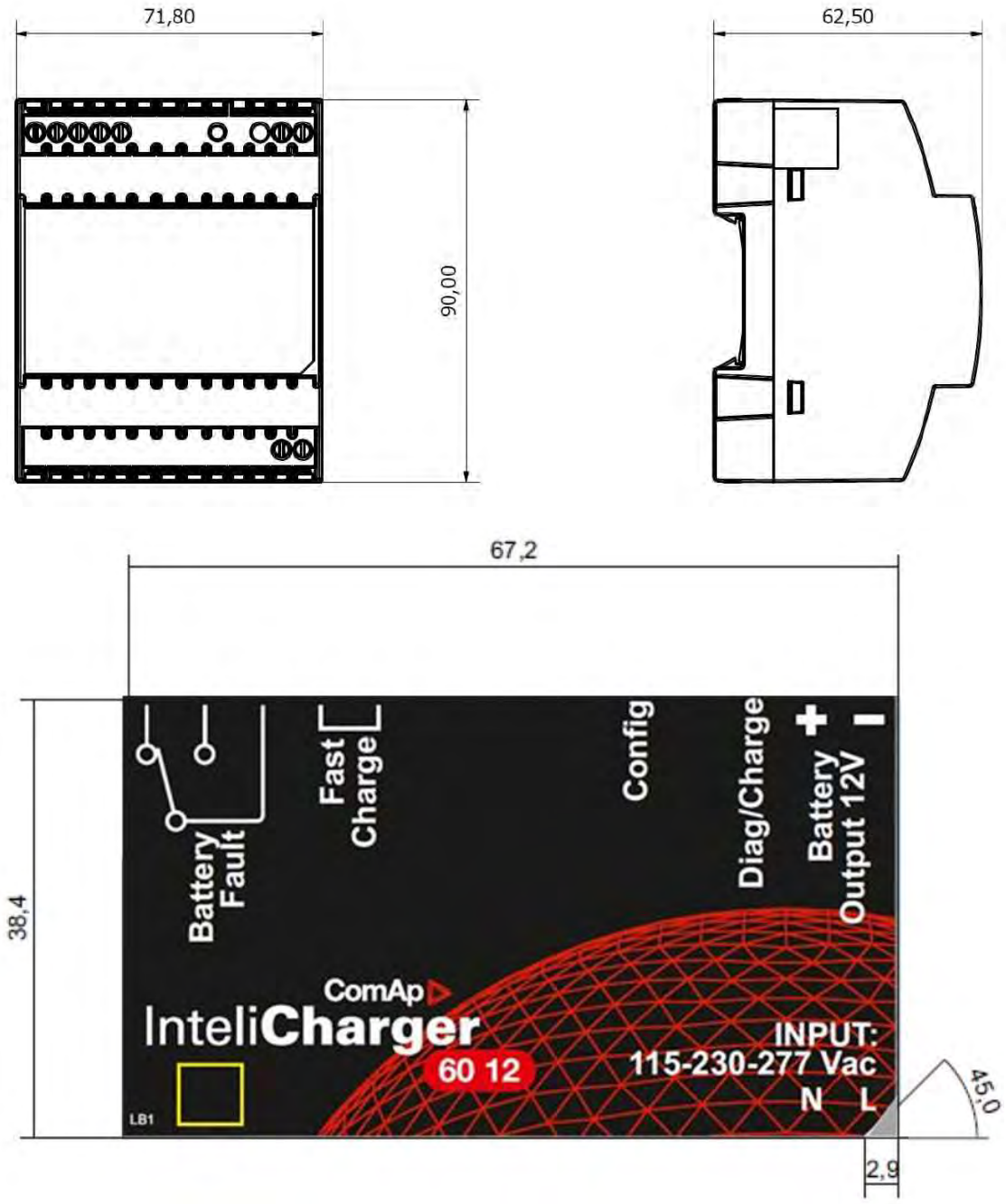
- EN 61000-6-2
- EN 61000-6-4
- EN 61010-1
- EN 60068-2-1 (-20 °C/16 h)
- EN 60068-2-2 (70 °C/16 h)
- EN 60068-2-6 (2÷25 Hz / ±1,6 mm; 25÷100 Hz / 40 m/s^2)
- EN 60068-2-27 (a=500 m/s^2; T=6 ms)
- EN 60068-2-30:2005 25/55°C, RH 95%, 48hours
- EN 60529 (front panel IP50, front panel IP65 with gasket,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

c UL us LISTED

CE

UK CA

Dimensions, terminals and mounting



Note: *All dimensions are in mm.*

Technical data

Input data

Nominal Input Voltage (2 x V AC)	115 – 230 – 277
Input Voltage range (V AC)	90 .. 305
Inrush Current (Vn and In Load) I^2t	≤ 16 A ≤ 5 ms
Frequency	47 .. 63 Hz ±6 %
Input Current (115 – 270 V AC)	1.2 .. 0.65 A (12 V 5 A version)
Internal Fuse	4 A
Internal Fuse (recommended)	10 A (MCB curve B)

Battery charger output

Fast Charge – Boost Charge	14.4 V DC (12 V 5A version)
Fast Charge – Boost Charge (Ni-Cd)	15 V DC (12 V 5A version)
Recovery Charge	3 ..8 V DC (12 V 5A version)
Charging Current Max I_{batt} < 30 °C (In)	5 A ± 5 %
Charging Current Max I_{batt} > 30 °C (In)	5..4 A ±5 % (12 V 5A version)

Climatic data

Ambient temperature (operation)	-25 .. +70 °C
De Rating Ta > 50 °C	-2.5 % (In) / °C
Ambient temperature Storage	-40 .. +85 °C
Humidity @ 25 °C no condensation	95% .. 25 °C
Cooling	Auto Convention
Auto Derating	Yes, above 30 °C

Dimensions

Dimensions (w × h × d)	72 × 90 × 61 mm
Weight	0.30 kg approx.
Protection Class	IP20

Certification

- IEC/EN 60335-2-29
- EN62368-1/UL1236
- Electrical safety 89/336/EEC
- EMC Directive 2014/35/UE (Low Voltage)
- DIN41773 (Charging cycle)
- Emission: IEC 61000-6-3
- Immunity: IEC 61000-6-2.CE

CE

- FCC

RUGGED. RELIABLE . POWERFUL.

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

Optional enclosure is PDG Tan
Additional colors are available upon request

Powerhouse Diesel Generators

Rugged. Reliable. Powerful.

1616 James P Rodgers Dr. Valdosta, GA. 31601
(229)671-9171 Fax:(229)244-5326
www.PDGPOWER.com