POWER FACTOR

Energy Solutions for a brighter future...

PPU1400 Portable Generator

60Hz at 0.8 Power Factor - 400V 3-Phase Rated Voltage
1000kW / 1250kVa

GENERATOR SET PERFORMANCE

Application
A factory designed generator set equipped with a standard AC/DC generator control panel. The generator set is ready to be connected to your fuel and power line to start up once the installation completed.

Applicable Definitions
Prime: Applicable for supplying emergency power at varying load in the event of normal utility power interruption. 10% overload is allowed.

Applicable Standard
Generator sets design, assembly and testing meet or exceed many international standards. The power rating is set in accordance with ISO 8528, ISO 3046-1 and SAEJ1995/J1349.

Structure Outline
The generator set has selected materials and equipment of high performance, which are durable and anti-vibration. The assembly work meets the quality control system.

The concept of the design and manufacturing is for easy operation and maintenance, to be compact and light weight too.

The single bearing alternator frame is coupled to the engine housing directly. With one end of the rotor is supported by bearing and the other end of rotor shaft is connected to the engine flywheel with a steel laminate plates.

All components and necessary equipment are mounted on the common skid base.

Rubber Isolator Mounting
The rubber isolators are mounted between engine, alternator and its common skid base.

Applicable Conditions

Installation Place	: Indoor/Outdoor
Ambient Temperature	: 0°C ~ 40°C
Ambient Humidity	: Below 99%
Altitude	: Maximum 1,000 m

Painting Color

Engine and Alternator	: Green
Generator Control Panel	: Black
Skid Base	: Green

Dimensions and Weight (PPU Generator Set)

Overall Length	: 6,060 mm
Overall Width	: 2,438 mm
Overall Height	: 2,591 mm (w/o silencer)
Weight	: Approx. 13,200kg

Control System

Panel Model	: V500
Controller Model	: AMF25
Controller Brand	: ComAp

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TECHNICAL DATA

ENGINE BODY	Maker and Model		Powered by a Cummins engine KTA50-G3
	Rating Type		Prime
	Engine Output	BHP	1,541
		kWm	1,150
	Engine Load Acceptance	kWe	640 (64%)
	Aspiration		Turbocharged and Aftercooled
	Cylinder Arrangement		16 Vee
	Type		Water Cooled, 4 Cycles, Overhead Valve
	Bore x Stroke		159 x 159
	Piston Displacement	mmxmm	50.3
	Starting Method	Liter	Electric Motor, 24V – 8.95kW*2
	Charging Alternator		DC 24V – 35A (Brushless)
	Cooling Fan and Diameter		8 Blades Pusher Type, 1524
	Oil Cooler		Water Cooled, Multi-plate Type
	Air Cleaner	mm	Dry Type, Cyclopac 2 Stage Paper Element
	Stop Solenoid		Energized to Run Mode
	Flywheel Housing / Flywheel		SAE #0 / SAE #18 (Metric Tread)
	Flywheel Ring Gear Teeth	%	142
	Battery (Lead Acid Type)		DC 1 2V – 200Ah x 4 pcs
	Frequency Regulation,Stead State		≤±0.5
	Frequency Regulation,Transient State	%	≤±10
	Frequency Stable Time	s	2
	Frequency Waving	%	≤±0.25
	Frequency Regulation Range	%	±5.0
ENGINE LUBRICANT	Oil Pan (High / Low Level)	Liter	151 / 121
	Oil Filter /By-pass Filter	Liter	20
	System Total	Liter	177
	Grade		SAE #15W-40
			API, Class CH, CI
ENGINE COOLANT	Radiator and Ambient Temp.	°C	Corrugate Fin Type, 40
	Cooling System		Forced Circulation by Centrifugal Water Pump
	Engine Capacity	Liter	161
	Radiator Capacity	Liter	152
	Radiator Heat Rejection	kWm	680
ENGINE DATA	Pressure Mean Effective (PME)	kPa	1,744.0
	Mean Piston Speed	m/s	7.9
	Sound Level (Average at 1m)		
	Full Load	dB(A)	103
	Speed Regulation	%	Cummins PT, within 5
	Thermostat (Wax Type)		
	Water Coolant	°C	Cracking 82, Fully Open 93
	Engine Shutdown Device		
	Coolant Temp (Sensor Type)	°C	102 + 3%
	Oil Pressure (Sensor Type)	kPa	98 + 3% (1.0 + 3% bar)
FUEL CONSUMPTION	BSFC (at 100% Load)	g/kWh	202
	Lubricating Oil (Nominal Value)	Liter/h	0.83
	Fuel Rate	Liter/h	274

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TECHNICAL DATA

		60Hz (1800RPM)
Model		PI734A1
Construction		Single Bearing, Self Ventilated
Control System		MX321 with PMG Excited
Insulation / Temperature Rise		Class H
Protection		IP23
Rated Power Factor		0.8
Efficiency (Cont. 100%)		94.4 at 1008kW (400V)
No of Pole and Phase		4 Poles 3 Phase 4 Wire
Stator Winding		Double Layer lab
Winding Pitch		2/3
Winding Leads		6
Voltage Regulation,Stead State		≤±0.5
Voltage Regulation,Transient		+20 ~ -I5
State		≤0.5
Voltage Stable		≤±0.5
Time Voltage		95 ~ 105
Waving		< 1.5
Voltage Regulation(at No Load)		< 5.0
Voltage Waveform Distortion		2250
No Load		THF<2 / TIF<50
Non-Distorted Balanced		840kVA
Linear Load		1190kVA
Combustion Air	m^3/min	96.3
Flow Cooling Fan	m^3/min	1,818.0
Air Flow Alternator	m^3/min	161.4
Air Flow Total	m^3/min	2,075.7
Gas Flow (at Full Load)	m^3/min	223.68
Temperature (at T/C Outlet)	°C	520
Allowable Back Pressure	mm Hg	51
Bellow Size (Inner Dia.)	mm	200 x 2
Diesel Fuel (Grade)		ASTM D975, 1-D or 2-D
Fuel Line Size		
Supply (Minimum)	Inch	2 1/16
Return (Minimum)	Inch	7/8
Gen set Controller		ComAp AMF25
Analog Measurement		Coolant Temperature Engine Oil Pressure Engine Speed Battery Voltage Hour Run Fuel Level (Optional) Gen U1 – U3 Gen I1 – I3 Gen Frequency
AC Measurement		Gen Active Power Gen Reactive Power Gen Power Consumption Mains U1 – U3 Mains Frequency Mains Voltage (L1-L2, L2-L3, L3-L1)

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GENERATOR CONTROL PANEL	Default Protection Settings Low Oil Pressure High Coolant Temperature Over Speed Fail to Start Low / High Battery Voltage Charge Fail Under / Over Gen Voltage Under / Over Gen Frequency Over Current	<1.5> °C 100 > 10% of Rated Speed Sec. > 39 (failed to start up after 3 attempts) V 18 / 30 < 18 70% / V 110% of Rated Voltage A 85% / 110% of Rated Frequency > 120% (IDMTL)
	Push Buttons MODE → MODE ← HORN RESET FAULT RESET START STOP MCB ON/OFF GCB ON/OFF PAGE △ ▽ ENTER	Cyclic forward selection of Gen set operation mode (OFF → MAN → AUT → TEST) Cyclic backward selection of Gen set operation mode (TEST → AUT → MAN → OFF) Deactivates the "HORN" Acknowledges faults and alarms Start Gen set Stop Gen set Manual open/close the Mains CB Manual open/close the Gen CB Cyclic selection of the display mode (MEASUREMENT ←→ ADJUSTMENT) Select set point, screen or increase set point value Select set point, screen or decrease set point value Confirm set point value
	LED's (from left to right)	MAINS FAILURE: RED LED starts flashing when the mains failure occurs and Gen set does not run; steady light when Gen set starts; off when Mains restores. MAINS PRESENT: GREEN LED is on, if mains is present and within limits. MCB ON: GREEN LED is on, if MCB is closed. Driven by feedback signal. GCB ON: GREEN LED is on, if GCB is closed. Driven by feedback signal. GEN VOLTAGE PRESENT: GREEN LED is on, if Gen voltage is present and within limits. GEN SET FAILURE: RED LED starts flashing when gen set failure occurs. After FAULT RESET button is pressed, it should become steady light (if an alarm is still active) or is off (if no alarm is active).
	Emergency Stop Button Key Switch LED Buzzer	Stop Gen set in case of emergency ON/OFF Power to the control panel Common Engine Fault LED Audible alarm

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****Gen Set Output Data Display and Protection**

****Gen Set Status Display and Protection**

****Gen Set Remote Start-up and Auto Start-up**

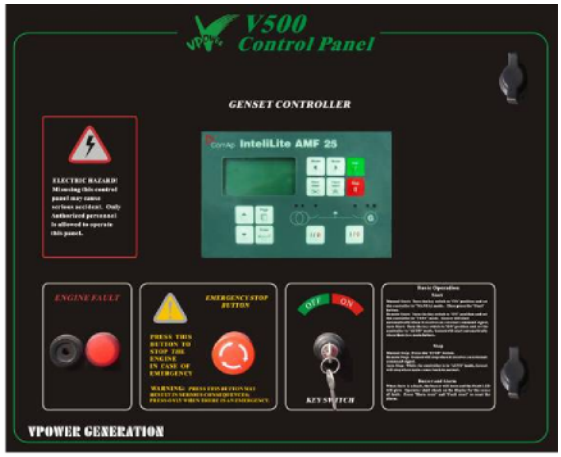
****Power Monitoring System**

****Fault LED Indicators**

****Modular design & expandable**

V500 Gen Set Control System Features:

InteliLite® Gen Set Controller features with multiple functions for Gen Set control,operation and protection. It provides logical control and Graphical LCD display for local or remote applications. These features include:



(1) Auto/Manual Start-Stop

(2) Phase sequence detects and protection

(3) 128*64 LCD display

(4) Gen set overspeed protection

(5) Oil pressure display and protection

(6) Water Temperature display and protection

(7) DC Volt measurement and Over/Under Volt protect

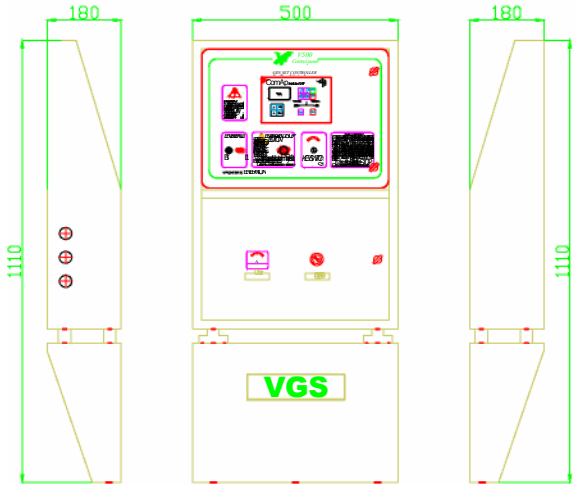
(8) Fuel Level detect and alarm

(9) Engine Idle support

(10) Lube Oil Timer

(11) Electrical Measurement

- a. Active Power
- b. Reactive Power
- c. Voltage(L-L/L-N)
- d. Frequency
- e. Line Currents
- f. kWh
- g. kVAh



(12) Protections:

- a. Over/Under Voltage
- b. Over/Under Frequency
- c. IDMT Over-current

(13) LED Indicator for Normal/Breaker Close/Breaker Open/Alarm

(14) Programmable I/O s

(15) Hour-run meter

(16) 100 Event Log

(17) Support RS232 / Modbus Protocol

(18) Front Panel IP65 Protection

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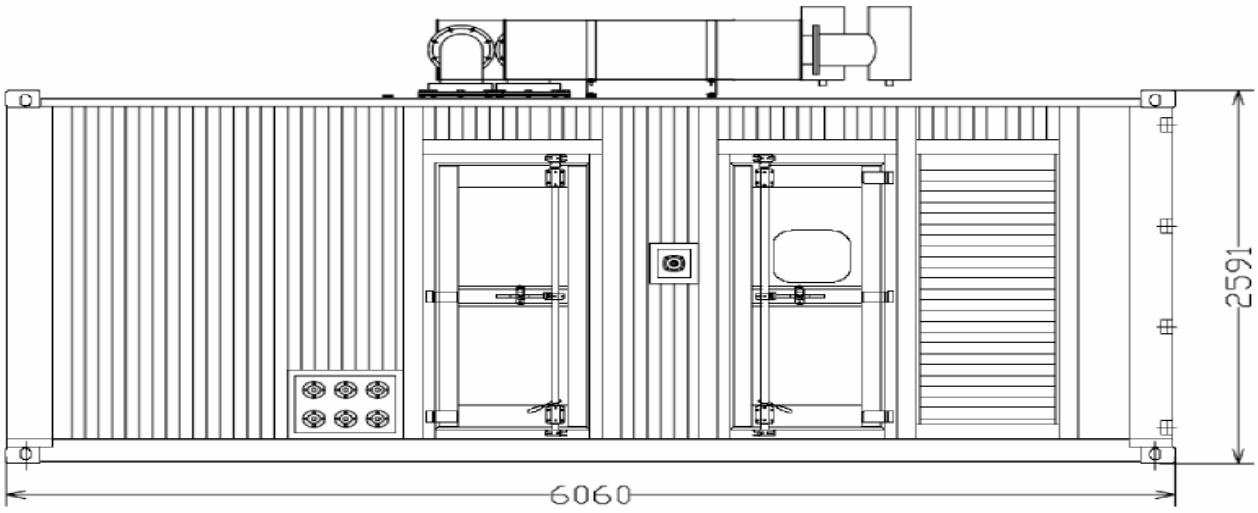
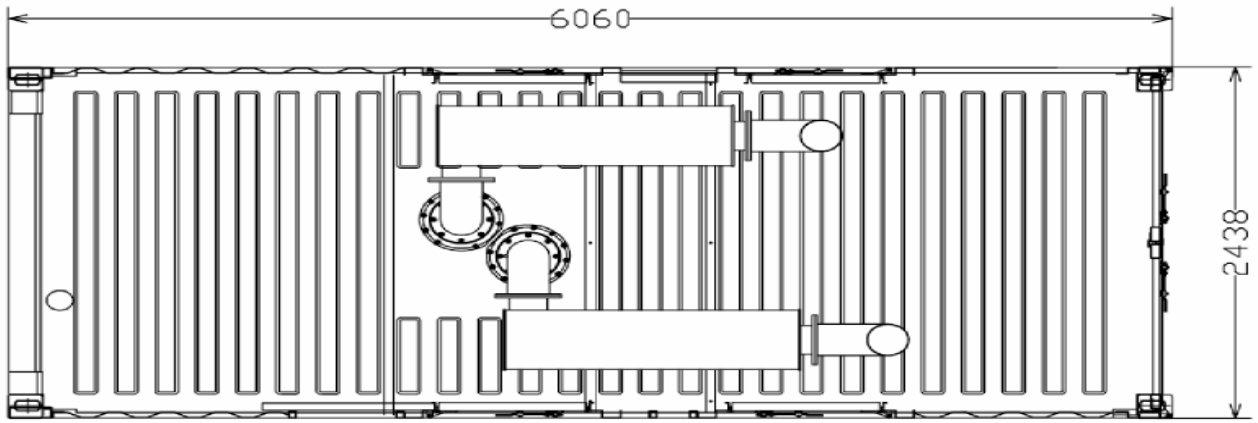
GENERATOR SET DRAWING



FRONT VIEW



TOP VIEW

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