POWER FACTOR

Energy Solutions for a brighter future...

MTU – VGS1875 Diesel Generator

3-Phase Rated – 400v, 50Hz, 0.8 pf
Prime Power
1,360 kWe / 1,700 kVA

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 lines and start 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 the highest quality performance, which are durable and vibration resistant. The assembly work meets the highest quality standards. This concept of the design and manufacturing is for easy operation and maintenance, to be compact, light weight and highly portable.
The single bearing alternator frame is coupled to the engine housing directly. With one end of the rotor supported by the main bearing, and the other connected to the engine flywheel with steel laminate plates, rugged durability is achieved.
All components and necessary equipment are mounted on a common skid base if heavy gauge steel.

Rubber Isolator Mounting

The rubber isolators are mounted between the engine, alternator and its common skid base.

Applicable Conditions

Installation Place	: Indoor/Outdoor
Ambient Temperature	: 0-40°C
Air Intake Temperature	: ~40°C
Altitude	: Max 1,000 m

Painting Color

Engine	: MTU Blue
Alternator	: Blue / Black
Generator Control Panel	: Black
Skid Base	: Black

Dimensions and Weight (PPU Generator Set)

Overall Length	: 5,944 mm
Overall Width	: 2,196 mm
Overall Height	: 2,507 mm
Weight	: Approx. 12,800kg

Control System

Panel Model	: V500-G
Controller Model	: IG-NT
Controller Brand	: ComAp
Mounted	: Set Mounted

* *The generator set package is not offered with an engine driven radiator. The addition of an engine Driven fan will reduce the output below the Rating.*

* Materials and specifications are subjected to change without prior notice.

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50Hz Containerized Generator Set - 400V 3-Phase Rated Voltage

TECHNICAL DATA

ENGINE BODY	Maker and Model	MTU 12V4000G23
	Rating Type	Prime
	Engine Output	1,904 HP
	Engine Load Acceptance	1,420 kWm 952 kWe (70%)
	Aspiration	Turbocharged and Water Charge Air Cooling
	Cylinder Arrangement	12 Vee
	Type	Water Cooled, 4 Cycles, Overhead Valve
	Bore x Stroke	170mm x 210mm
	Piston Displacement	57.2 Liters
	Starting Method	Electric Motor, 24V – 9.0kW x 2
	Charging Alternator	DC 24V – 35A (Brushless)
	Cooling Fan and Diameter	8 Blades Pusher Type, 1800mm
	Oil Cooler	Water Cooled, Multi-plate Type
	Air Cleaner	Dry Type, Cyclopac Two Stage Paper Element
	Stop Solenoid	Energized to Run Mode
	Flywheel Housing / Flywheel ,	SAE #00 / SAE #21 (Metric Tread)
	Flywheel, Ring Gear Teeth	182
	Battery (Lead Acid Type)	DC 12V – 200Ah x 4
	Frequency Regulation,Steady State	≤±0.5%
	Frequency Regulation, Transient State	≤±10%
	Frequency Stable Time	2 sec
	Frequency Waving	≤±0.25%
	Frequency Regulation Range	±5.0%
ENGINE LUBRICANT	Oil Pan (High / Low Level)	200 / 160 liters
	Oil Filter /By-pass Filter	60 liters
	System Total	260 liters
	Grade	SAE #15W-40 API, Class CH, CI
ENGINE COOLANT	Fan Motor & Radiator Intake Temp.	Corrugated Fin Type, 40
	Cooling System	Forced Circulation by Centrifugal Water Pump
	Engine Capacity	200 liters
	Radiator Capacity	270 liters
	Heat Dissipation	740kW
ENGINE DATA	Mean Effective Pressure (MEP)	19.9 bar
	Mean Piston Speed	10.5 m/s
	ınd Level (Average at 1m) Full Load	102dBA
	Speed Regulation	Electronically controlled injection; Common Rail System
	Thermostat (Wax Type)	Cracking 79C, Fully Open 87C
	Water Coolant	
	Engine Shutdown Device	
	Coolant Temp (Sensor Type) Oil Pressure (Sensor Type)	102 C plus 3% 1.0 bar plus 3% (98kPa plus 3%)
FUEL CONSUMPTION	BSFC (at 100% Load)	192 g/kWh
	Lubricating Oil (Nominal)	0.3%
	Fuel Rate	330 liter/hr

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TECHNICAL DATA

ALTERNATOR	Model	PI734E1
	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%)	96.0
	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,Steady State	≤±0.5
	Voltage Regulation, Transient State	+20 ~ -I5v
	Voltage Stable Time	≤0.5%
	Voltage Waving	≤±0.5%
	Voltage Regulation(at No Load)	95 ~ 105%
	Voltage Waveform Distortion No Load	< 1.5%
	Non-Distorted Balanced Linear Load	< 5.0%
	Maximum Overspeed	2250 rpm
	Telephone Interference	THF<2 / TIF<50
	Voltage Dip. at 15%	1500kVA
	Voltage Dip. at 20%	2100kVA
AIR VENTILATION	Combustion Air Flow	96.0 m^3/min
	Cooling Fan Air Flow	1,440 m^3/min
	Alternator Air Flow	161.4 m^3/min
	Total	1,697.4 m^3/min
EXHAUST GAS	Gas Flow (at Full Load)	240 m^3/min
	Temperature (at T/C Outlet)	430 C
	Allowable Back Pressure	85 mbar
	Bellow Size (Inner Diameter)	250 x 2mm
RECOMMEND	Diesel Fuel (Grade)	ASTM D975, 1-D or 2-D
	Size of Fuel Line Supply / Return (Minimum)	1.5 / 1.0 In.
GENERATOR CONTROL PANEL	Gen Set Controller	ComAp IG-NT
	Analog Measurement	Coolant Temperature
		Engine Oil Pressure
		Engine Speed
		Battery Voltage
		Hour Run
		Fuel Level (Optional) Gen U1 – U3
	AC Measurement	Gen I1 – I3
		Gen Frequency
		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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TECHNICAL DATA

GENERATOR CONTROL PANEL

Default Protection Settings Low Oil Pressure High Coolant Temp Over Speed Fail to Start Low / Hi Battery Voltage Charge Fail Under / Over Voltage Under / Over Freq. Over Current	 < 1.5 bar > 100 C > 10% of Rated Speed > 39 Sec (failed to start after 3 attempts) 18 / 30 v < 18 v 70 / 110% of Rated Voltage 85 / 110% of Rated Freq. >120% (IDMTL)
Push Buttons MODE > MODE < HORN RESET FAULT RESET START STOP MCB ON / OFF GCB ON / OFF PAGE ^ v Enter	 Cycle Forward (OFF > MAN > AUT > TEST) Cycle Backward (TEST > AUT > MAN > OFF) Deactivates “HORN” Acknowledges Fault / Alarm Start Genset Stop Genset Manual Open / Close Main Breaker Manual Open / Close Gen Breaker Cycles Display Mode (MEASUREMENT < > ADJUSTMENT) Select Set Point / Increase Value Select Set Point / Decrease Value Confirm Set Point Value
LED’s (from left to right)	MAINS FAILURE: RED LED starts flashing when the mains failure occurs and Genset does not run; steady light when Genset 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. GENSET FAILURE: RED LED starts flashing when genset 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 Genset in case of emergency ON/OFF Power to the control panel Common Engine Fault LED Audible alarm

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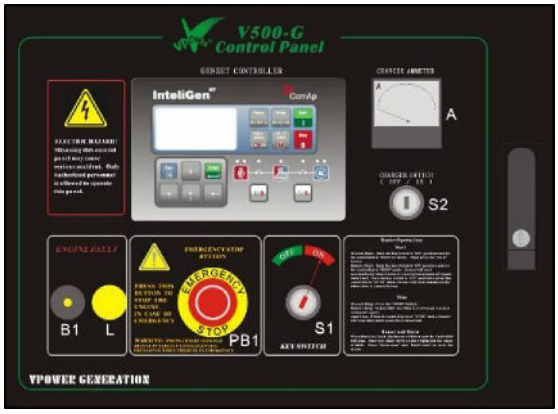
Diesel Power 50Hz
Open Type Generator Set

V500-G GENSET CONTROL SYSTEM

VPOWER V500-G SYN. Control System is a comprehensive control system for both single and multiple Gensets operation in standby or parallel modes.It has equipped with ComAp IG-NT module,which supports ECU type and Actuator type engine controller.Native cooperation of up to 32 Gensets.

General Features:



- Set Mount or Free Standing Configuration
- Indicator and Buzzer for common alarm
- Key Switch
- Emergency Stop Button
- LCD graphical Display
- AMF Ready
- Integrated fixed and configurable protections
- Automatic synchronization and flow control
- Expandable I/O's
- Programmable Logic Control
- RS232/RS485 Communication Port

Synchronization:

- Fully automatic synchronization and power control
- Support speed governor and ECU
- Baseload, Import/Export control
- Peak shaving
- Voltage and PF control

Measurement:

- Generator: U, I, Hz, kW, kVAr, kVA, PF, kWh, kVAhr
- Mains: U, I, Hz, kW, kVAr, PF

Protection:

- 3P integrated genset protection (U+f)
- IDMT O/L and Short Circuit Protection
- Overload Protection
- Reverse Power Protection
- E/F Protection
- 3P integrated mains protections (U+f)
- Vector Shift Protection
- Configurable I/O setpoints

Display:

- LCD graphical display with HMI
- LEC indicators for operation status
- Optional remote display

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GENERATOR SET DRAWING