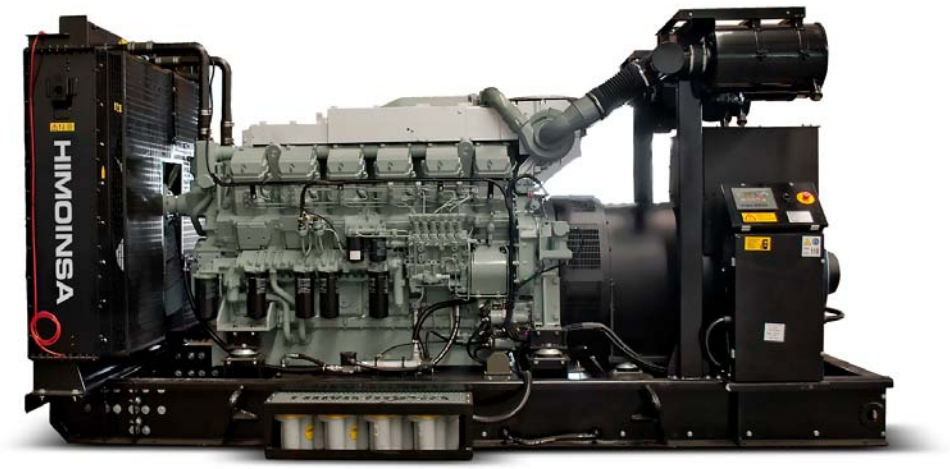
HIMOINSA®
THE ENERGY

Model: HTW 780 T5

Powered by MITSUBISHI



- SOUNDPROOF GENSETS
- OPEN SKID GENSETS
- WATERCOOLED
- THREE-PHASES
- 50 Hz FREQUENCY
- EMI COMPLIANT

Generating Rates

SERVICE		PRP	STANDBY
	kVA	775	853
Power	kW	620	682
Rated Speed	r.p.m	1500	
Standard Voltage	V	400/230	
Voltage Available	V	380/220-415/240	
Rating at 0.8 power factor			

ISO 9001 BUREAU VERITAS Certification

HIMOINSA Company with quality certification ISO 9001
HIMOINSA gensets are compliant with EC mark which includes the following directives:

- EN ISO 13857:2008 Machinery safety.
- 2006/95/EC Low voltage.
- 89/336/EEC Electromagnetic compatibility.
- 2000/14/EC Sound Power level. Noise emissions outdoor equipment. (amended by 2005/88/EC)
- 97/68/EC Emissions of gaseous and particulate pollutants. (amended by 2002/88/EC & 2004/26/EC)

Ambient conditions of reference: 1000 mbar, 25ºC, 30% relative humidity. Power according to ISO 3046 normative.

P.R.P. Prime Power - ISO 8528 : prime power is the maximum power available during a variable power sequence, which may be run for an unlimited number of hours per year, between stated maintenance intervals. The permissible average power output during a 24 hours period shall not exceed 80% of the prime power. 10% overload available for governing purposes only.

Standby Power (ISO 3046 Fuel Stop power): power available for use at variable loads for limited annual time (500h), within the following limits of maximum operating time: 100% load 25h per year – 90% load 200h per year. No overload available. Applicable in case of failure of the main in areas of reliable electrical network.

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Engine Specifications 1.500 r.p.m.

SERVICE		PRP	STANDBY
Rated Output	Kw	679	746
Manufacturer		MITSUBISHI	
Engine Model		S12A2 PTA	
4 Stroke Diesel Engine - Injection Type		Direct	
Aspiration Type		Turbocharged aftercooler	
Cylinders Arrangement		12V	
Bore and Stroke	mm	150 x 160	
Displacement	L	33,93	
Cooling System		Water	
Lube Oil Specifications		API CD ó CF-SAE 30 ó SAE 40	
Compression Ratio		14.5:1	
Fuel Consumption 100% (Stand By)	l/h	186	
Fuel Consumption 75% (Stand By)	l/h	139	
Fuel Consumption 100% (PRP)	l/h	169	
Fuel Consumption 75% (PRP)	l/h	126	
Lube Oil consumption full load	l/h	0,68	
Total Oil Capacity	L	120	
Total Coolant Capacity	L	215	
Engine governor	Type	Electronic	
Air Filter	Type	Dry	

Standard Equipment

- Engine
- Diesel 4 cycle, water cooled, Turbo charged after cooler.
- Electric start 24V.
- Radiator with pusher fan.
- Medium duty air ailter filter.
- Standard fuel filter.
- Standard oil filter.
- Electronic engine governor.
- HWT/LOP senders.
- Oil temperature sender.
- Hot & rotating components (exhaust, fan,…) protections and radiator guards.
- Oil drain pump (manual).
- Low coolant level sensor.
- Water Jacket Heater (automatic version)
- Exhaust gas compensator.

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Generator

GENERATOR		
Poles	Nº	4
Winding Connections (standard)		Star
Frame Mounting		S0 18"
Insulation	Class	H
Enclosure (according IEC-34-5)		IP23
Exciter System		Self-regulating brushlees
Voltage Regulator		AVR (electronic)
Steady Voltage Precision		Within +-1,5% from no load to full load with cos 0,8
Bearing		Single bearing sealed
Coupling		Flexible disc
Vacuum Impregnation		Standard

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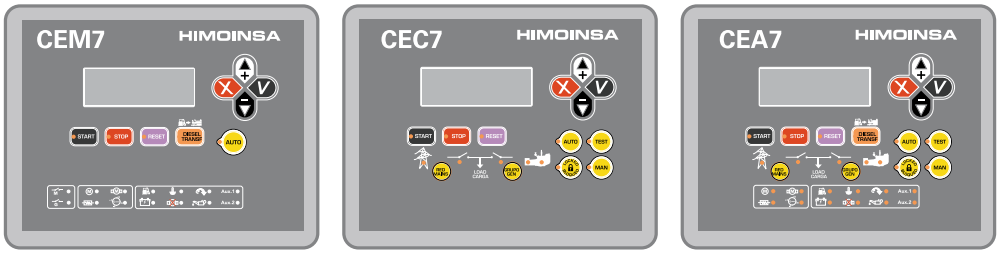
Control Panel Models



CEM7 CEC7 CEA7

FUNCIONALITY	PANEL MODEL	CONTROLLER MODE
Auto-start	M5	CEM7
Automatic Control Panel Without Mains Control	AS5	CEM7**
Automatic Control Panel With Mains Control (customer change over contactors)	AS5	CEA7
Automatic Control Panel With Mains Control (Himoinsa change over contactor with display)	AS5XCC2	CEM7+CEC7
Automatic Mains Failure (wall mounted panel)	AC5	CEA7

(**) Pre-heating resistance in the Genset and Battery charger in the control panel included.

Option available: Auto-start control panel without circuit breaker

General Description

CEM 7

The CEM7 controller unit is a device able to control de operation, monitoring and protection of a generating set. The controller unit consists of 2 different modules:
1. The VISUALIZATION module
2. The MEASUREMENTS module

VISUALIZATION MODULE
Provides information about the status of the device and, at the same time, allows the user to interact with it. It consists on a backlit display and various LEDs for monitoring the status of the controller and buttons that allow the user to control, program and configure the functions of the unit.

MEASUREMENTS MODULE
Controls and monitors the control board. It is located in the rear part of the panel, in order to reduce the wiring and to avoid electromagnetic disturbances. Every signal, sensor and actuator is connected to this module.

The connexion between the visualization module and the measurements module is made with a CAN communication bus. This feature allows the intercommunion of other modules to the main controller with a scalability warranty.

CEC 7

The CEC7 controller unit is a net sings supervision equipment, and control and supply supplier through generating set. The controller unit consists of 2 different modules:
1. The VISUALIZATION module
2. The MEASUREMENTS module

VISUALIZATION MODULE
The visualization module provides information about the status of the device and, at the same time, allows the user to interact with it. With this visualization module the user is able to control, program and configure the functions of the unit. It consists on a backlight display and various LEDs for monitoring the status of the controller and buttons that allow the user to control, program and configure the functions of the unit.

MEASUREMENTS MODULE
The measurements module controls and monitors the control board. It is located in the rear part of the panel, in order to reduce the wiring and to avoid electromagnetic disturbances.
Every signal, sensor and actuator is connected to this module

The connection between the measure module and visualization mode is made by means of a CAN BUS (Communication Bus). This produces an interconnection between additional modules which guarantees the proper working of the controller.

CEA 7

CEA7 controller is a supervision equipment for mains signal and also a supervision and electrical supply through the genset. This controller is composed by 2 different modules:
1. VISUALIZATION module
2. MEASUREMENTS module

VISUALIZATION MODULE
The visualization module provides information about the status of the device and, at the same time, allows the user to interact with it. With this visualization module the user is able to control, program and configure the functions of the unit.

MEASUREMENTS MODULE
The measurements module controls and monitors the control board. It is located inthe rear part of the panel, in order to reduce the wiring and to avoid electromagnetic disturbances. Every signal, sensor and actuator is connected to this module.

Connection between the measure module and visualization mode is made by means of a CAN BUS (Communication Bus). This produces an interconnection between additional modules which guarantees the proper working of the controller.

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Control & Power Panel

1. CM Control Panel.
2. CP Power Panel.
3. On/Off Switch..
4. Emergency Stop.
5. Main Line Circuit Breaker for overload protection.
6. Main bus /hardwire connection panel with safety protection.

CE-7 Auto-start multilingual control panel

1. Voltage between each Phase & Neutral
2. Voltage between Phases
3. Current (amps) on each Phase
4. Frequency
5. Active, Aparent & Reactive Power
6. Power Factor
7. Instant Power (KwH) and Accumulative power)
8. Fuel level
9. Oil pressure, coolant temperature, oil temperature
10. Battery voltage, battery charging alternator voltage
11. Engine Speed
12. Hours running
13. Multilingual (Spanish, English, French, Italian, Portuguese, Polish, German, Chinesse, Russian)

Engine Alarms

1. High coolant temperature.
2. Low oil pressure.
3. Battery charge alternator
4. Start failure.
5. Low water level.
6. Fuel storage.
7. Overspeed.
8. Underspeed.
9. Low battery voltage.
10. High coolant temperature by sensor.
11. Low oil pressure by sensor.
12. Low fuel level by sensor.
13. Unexpected shutdown.
14. Stop failure.
15. Low engine temperature.
16. Genset voltage drops.
17. Emergency stop.

Generator Alarms

1. Over-load
2. Unbalanced voltage
3. Over voltage
4. Under voltage
5. Over frequency
6. Under frequency
7. Over load
8. Short-circuit
9. Inverse Power
10. Incorrect phase sequence
11. Asymmetry among phases
12. Emergency stop

Mains Alarms

1. Maximum Mains Voltage.
2. Minimum Mains Voltage.
3. Maximum Mains Frequency.
4. Minimum Mains Frequency.
5. Mains phase sequence failure.
6. Mains power failure.
7. Mains contactor switching failure.

Three Programmable Alarms
There are three programmable alarms that can be associated with engine alarms and be indicated by the LEDs Aux1 and Aux2 of the display.

ISO 9001 BUREAU VERITAS Certification

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Controllers Features

	CEM 7	CEC 7	CEA 7	CEM7 + CEC7
GENERATOR READINGS				
Voltage among phases	•	•	•	•
Voltage among phases and neutral	•	•	•	•
Amperage	•	•	•	•
Frequency	•	•	•	•
Apparent power (kVA)	•	•	•	•
Active power (kW)	•	•	•	•
Reactive power (kVAr)	•	•	•	•
Power factor	•	•	•	•
MAINS READINGS				
Voltage among phases	x	•	•	•
Voltage among phase and neutral	x	•	•	•
Amperage	x	•	•	•
Frequency	x	•	•	•
Aparent power	x	x	•	•
Active power	x	x	•	•
Reactive power	x	x	•	•
Power factor	x	x	•	•
ENGINE READINGS				
Coolant temperature	•	x	•	•
Oil pressure	•	x	•	•
Fuel level (%)	•	x	•	•
Battery voltage	•	x	•	•
R.P.M.	•	x	•	•
Battery charge alternator voltage	•	x	•	•
ENGINE PROTECTIONS				
High water temperature	•	x	•	•
High coolant temperature by sensor	•	x	•	•
Low engine temperature by sensor	•	x	•	•
Low oil pressure	•	x	•	•
Low oil pressure by sensor	•	x	•	•
Low coolent level	•	x	•	•
Unexpected shutdown	•	x	•	•
Fuel storage	•	x	•	•
Fuel storage by sensor	•	x	•	•
Stop failure	•	x	•	•
Battery voltage failure	•	x	•	•
Battery charge alternator failure	•	x	•	•
Overspeed	•	x	•	•
Underspeed	•	x	•	•
Start failure	•	x	•	•
Emergency Stop	•	•	•	•
ALTERNATOR PROTECTIONS				
High frequency	•	•	•	•
Low frequency	•	•	•	•
High voltage	•	•	•	•
Low voltage	•	•	•	•
Short-circuit	•	x	•	•
Asymmetry among phases	•	•	•	•
Incorrect phase sequence	•	•	•	•
Inverse power	•	x	•	•
Overload	•	x	•	•
Genset signal droop	•	•	•	•

- • Standard
- x Not included
- • Optional

NOTE: All protections are programmable to make “warning” or “stop with cooling time” or “without”

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Controllers Features

	CEM 7	CEC 7	CEA 7	CEM7 + CEC7
COUNTERS				
Total hour counter	•	•	•	•
Partial hour counter	•	•	•	•
Kilowatimeter	•	•	•	•
Starts valid counters	•	•	•	•
Starts failure counters	•	•	•	•
Maintenance	•	•	•	•
COMUNICATIONS				
RS232	•	•	•	•
RS485	•	•	•	•
Modbus IP	•	•	•	•
Modbus	•	•	•	•
CCLAN	•	x	•	•
Software for PC	•	•	•	•
Analogic modem	•	•	•	•
GSM/GPRS modem	•	•	•	•
Remote screen	•	x	•	•
Telesignal	•(8+4)		•(8+4)	•(8+4)
J1939	•	x	•	•
FEATURES				
Alarms history	(10) / (•+100)	-10	(10) / (•+100)	(10) / (•+100)
External start	•	•	•	•
Start inhibition	•	•	•	•
Mains failure start	•(CEC7)	•	•	•
Start under normative EJP	•	x	•	•
Genset contactor activation	•	x	x	•
Main & Genset contactor activation	x	•	•	•
Fuel transfer control	•	x	•	•
Engine temperature control	•	x	•	•
Manual override	•	x	•	•
Programmable alarms	•	x	•	•
Genset start function in test mode	•	x	•	•
Programmable outputs	•	x	•	•
Multilingual	•	•	•	•
SPECIAL FUNCTIONS				
Positioning GPS	•		•	•
Synchronization with mains	•		•	•
Mains Synchronism	•		•	•
Second Cero suppression	•		•	•
RAM 7	•		•	•
Remote screen	•		•	•
Timer	•		•	•

- • Standard
- x Not included
- • Optional

CEC7: available when the controller CEC7 is incorparted to the installation
MPS 5.0: available application when the module MPS 5. has been incorporated to the panel.
Note: AS5 + CC2 configuration, will have all CEM7 funcionality plus CEC7 mains readings.

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Generating Sets Standard Features

Power Panel

- Main Line Circuit Breaker for overload protection.
- Main bus / Hardwire connection panel with safety protection (open thermal magnetic protection and alarm)
- Electric Equipment
- Battery charging alternator.
- Heavy-duty Starting battery(s) installed and connected to the engine include cables and rack.
- Dry battery and explosion proof.
- Battery isolator.
- Ground connection prepared for ground spike (not supplied).

Chassis

- Heavy duty base frame.
- 300 lts fuel tanks to HTW670T5 - HTW760T5
- 350 lts fuel tanks to HTW-780T5 - HTW-930T5 - HTW-1030T5
- 400 lts fuel tanks to HTW-1260T5 - HTW-1390T5 - HTW-1530T5 - HTW-1745T5 - HTW-1900T5 - HTW-2030T5
- Easy access for chassis cleaning.
- Corrosion protected anti-vibration isolators between chassis and generator.

Enclosure

- Sound attenuated 20'-40'ISO container.
- Heavy-duty construction designed for prime or standby applications.
- Stainless steel hardware and fasteners.
- Ultra silent all weather enclosures with Rock-Wool insulation with minimum outside fasteners.
- Emergency stops.
- Door with window to view control panel.
- Easy access to radiator fill through roof on enclosure.
- Steel residential silencer of -35dBA attenuation, with rain cap for soundproof version (optional for Open Skid genset versions).

Exhaust

- Easy access to power connection. Exhaust
- Steel industrial silencer of -15dBA for Open Skid genset versions.
- Flexible pipe and flange for Open Skis version

Optional Features

Engine (optional)

- Water Jacket Heater
- Radiator tropicalized
- Fuel heater
- Oil drain pump
- Electric Fuel Transfer Pump.

Alternator (optional)

- Anti-condensation heater
- Insulation class F
- Optional voltages 380/220 - 415/240 50Hz

Exhaust

- Steel residential silencer of -35dBA attenuation, with rain cap for soundproof version for Open Skid genset versions.

Trailers (optional)

- Road trailers for ISO container versions.

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Application Data

EXHAUST SYSTEM		
Maximum exhaust temperature 100% Stand By	°C	500
Exhaust Gas Flow 100% Stand By	m3/min	170
Maximum allowed back pressure	mm H2O	600
Exhaust Flange Size (internal diameter)	mm	200

AIR INLET SYSTEM		
Intake Air Flow 100% Stand By	m3/min	64
Cooling Air Flow 100% Stand By	m3/min	1140

STARTING SYSTEM		
	Kw	7,5 x 2
Starting Motor	CV	10,2 X2
Recommended Battery Capacity	Ah	300
Auxiliary Voltage	Vcc	24
	Cranking	380A
Starter current	Rush	720A

FUEL SYSYEM		
Fuel Oil Specifications		ASTM D975NO.2-D or BS2869 class A
Maximum suction head of feed pump	mm Hg	75
Maximum static head of return & leak pipe	mm Hg	150
Open Skid Fuel Tank	L	350 lts
Container Fuel Tank	L	1350 lts

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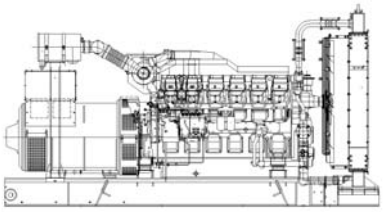
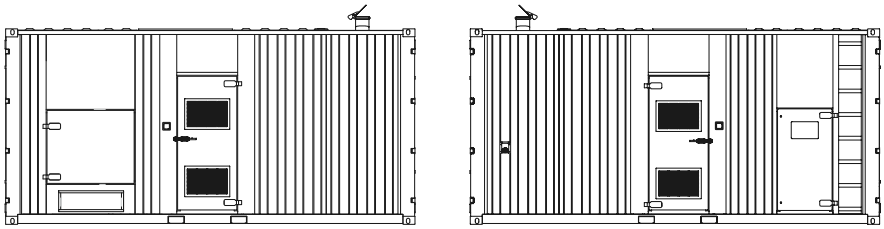
Dimensions



Weight and Dimensions Open Skid version		
Length	mm	4.100
Width	mm	1.725
Height	mm	2.080
Shipping Volume seaworthy (standard supply)	m3	14,71
Wet weight (with standard accesories)	Kg	7750
Dry weight (with standard accesories)	Kg	7429



Weight and Dimensions Container version		
Length	mm	6.096
Width	mm	2.440
Height	mm	2.896
Shipping Volume seaworthy (standard supply)	m3	46,45
Wet weight (with standard accesories)	Kg	11750
Dry weight (with standard accesories)	Kg	11429
Sound Level	db(A)@1m	80

local distributor