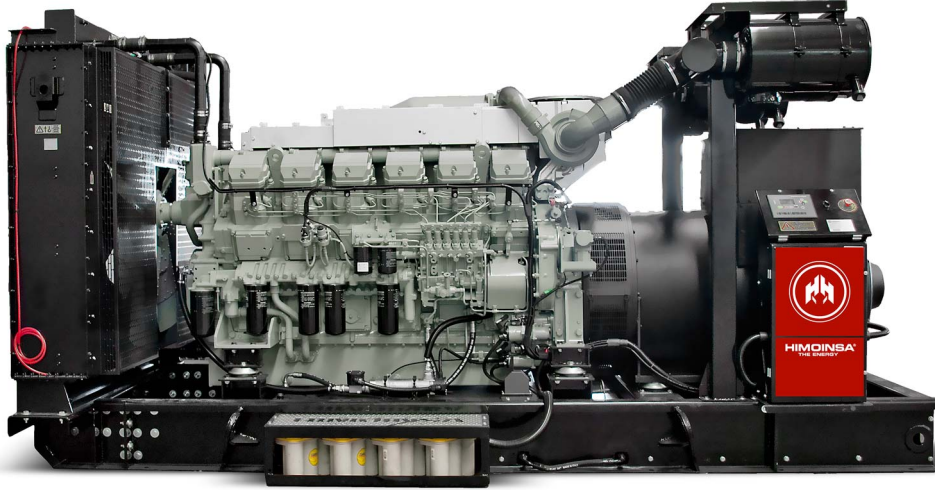




HIMOINSA®
THE ENERGY

Model: **HTW-1390 T5**

HEAVY RANGE
Open Skid
Powered by MITSUBISHI



- OPEN SKID
- WATER-COOLED
- THREE PHASE
- 50 HZ
- DIESEL

Generating Rates



| SERVICE | | PRP | STANDBY |
|-----------------------|---------|-------------------------------|---------|
| Power | kVA | 1382 | 1500 |
| Power | kW | 1106 | 1200 |
| Rated Speed | r.p.m. | 1.500 | |
| Standard Voltage | V | 400 | |
| Available Voltages | V | 400/230 - 415/240 - 380/220 V | |
| Rated at power factor | Cos Phi | 0,8 | |



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, 25°C, 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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Subsidiaries:

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Engine Specifications 1.500 r.p.m.

| ENGINE | | PRP | STANDBY |
|--------------------------------|-------|-------------------------------|---------|
| Rated Output | Kw | 1165 | 1285 |
| Manufacturer | | MITSUBISHI | |
| Model | | S12R PTA2 | |
| Engine Type | | Diesel 4 strokes-cycle | |
| Injection Type | | Direct | |
| Aspiration Type | | Turbocharged and aftercooled | |
| Cylinders Arrangement | | 12V | |
| Bore and Stroke | mm | 170x180 | |
| Displacement | L | 49,03 | |
| Cooling System | | Water | |
| Engine Specifications | | API CD or CF SAE 30 or SAE 40 | |
| Compression Ratio | | 13,5:1 | |
| Fuel Consumption Stand By | l/h | 310,91 | |
| Fuel Consumption 100% PRP | l/h | 280,03 | |
| Fuel Consumption 75 % PRP | l/h | 211,41 | |
| Fuel Consumption 50 % PRP | l/h | 150,15 | |
| Fuel Consumption 25 % PRP | l/h | 87,51 | |
| Lube Oil consumption full load | g/kwh | 0,8 | |
| Total Oil Capacity | L | 150 | |
| Total Coolant Capacity | L | 305 | |
| Governor | Type | Electrical | |
| Air Filter | Type | Dry | |
| Inner diameter exhaust pipe | mm | 304 | |



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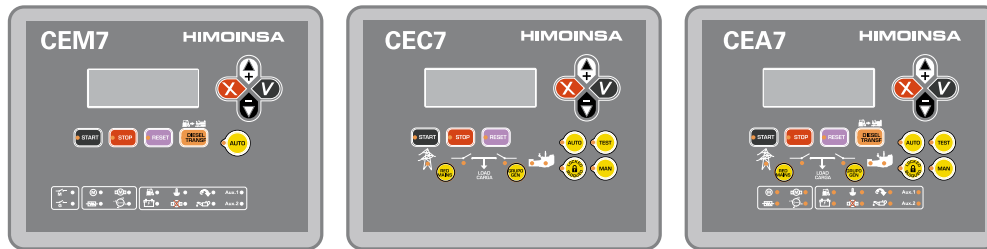
Generator

| Generator | | |
|--------------------------------|-------|-------------------------------|
| Poles | Num | 4 |
| Winding Conections (standard) | | Star |
| Frame Mounting | | S-0 21" |
| Insulation | Class | H class |
| Enclosure (according IEC-34-5) | | IP23 |
| Exciter System | | self-excited, brushless |
| Voltage Regulator | | A.V.R. (Electronic) |
| Steady Voltage Precision | | ± 1% |
| Bearing | | Single bearing |
| Coupling | | Flexible disc |
| Coating type | | Standar (Vacuum impregnation) |





Control Panel Models



CEM7

CEC7

CEA7

| FUNCTIONALITY | 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 intercommunication 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 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
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 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. 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.



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, Chinese, Russian, Swedish, Norwegian)

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.

Genset 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. Asymmetry among phases
11. Genset contactor Failure

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.

Programmable Alarms:
There are 5 programmable alarms on text and action that could be associated to any engine alarms and showed on the auxiliary led 1 and 2 of the display



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 | • | • | • |
| Apparent 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 coolant 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"



Controllers Features

| | CEM 7 | CEC 7 | CEA 7 | CEM7 + CEC7 |
|------------------------------------|----------------|-------|----------------|----------------|
| COUNTERS | | | | |
| Total hour counter | • | • | • | • |
| Partial hour counter | • | • | • | • |
| Kilowattmeter | • | • | • | • |
| Starts valid counters | • | • | • | • |
| Starts failure counters | • | • | • | • |
| Maintenance | • | • | • | • |
| COMMUNICATIONS | | | | |
| 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 incorporated 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 functionality plus CEC7 mains readings.



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Generating Sets Standard and Optional Features

Engine

- Standard air filter
- Standard fuel filter
- Standard oil filter
- Oil temperature sensor
- Low coolant level sensor
- Exhaust gases compensator
- Diesel engine
- 4 strokes-cycle
- Water-cooled
- 24V Electrical system
- Radiator with blowing fan
- Electronic governor
- Sender WT
- Senders OP
- Hot components and radiator guards
- Mobile components guards

Alternator

- Self-excited and Self-regulated
- IP23 protection degree
- Insulation H class

Electrical system

- Control and power electric panel, with measurements devices and controller (according to necessity and configuration)
- Connection panel wired to the safety protection (open thermalmagnetic protection and alarm)
- Maintenance-free and anti-explosion battery
- Battery disconnecter
- 4 poles circuit breaker
- Battery charger (standard on automatic control panels)
- Pre-heating resistance (standard on automatic control panels) / water jacket heater
- Battery charge alternator with ground connection
- Starting battery/ies installed and connected to the engine (supports included)
- Ground connection electrical installation with connection ready for ground pike (not supplied)

Open set version

- Steel made chassis
 - Oil sump extraction kit
 - Emergency stop button
 - Antivibration shock absorber
 - Chassis with integrated fuel tank
 - Fuel level sensor
 - Drain cap fuel tank
 - Steel made residential silencer -15db(A) attenuation
- Optional :
- Fuel transfer pump
 - Steel made residential silencer -35db(A) attenuation.





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Application Data

Exhaust System

| | | |
|---|--------|-----|
| Maximum exhaust temperature 100% Stand By | °C | 520 |
| Exhaust Gas Flow 100% Stand By | m3/min | 279 |
| Maximum allowed back pressure | mm H2o | 600 |

Air Inlet System

| | | |
|--------------------------------|------|------|
| Intake Air Flow 100% Stand By | m3/h | 6300 |
| Cooling Air Flow 100% Stand By | m3/s | 30 |
| Alternator fan air flow | m3/s | 2,69 |

Starting System

| | | |
|------------------------------|-----------|----------|
| Starting Motor | Kw | 7,5 x 2 |
| Starting Motor | CV | 10,2 x 2 |
| Recommended Battery Capacity | Ah | 400 |
| Auxiliary Voltage | Vcc | 24 |
| Starting current | Peak | 1250 |
| Starting current | Intensity | 400 |

Fuel System

| | | |
|----------------------------|-------|--------|
| Fuel Oil Specifications | | Diesel |
| Maximum power suction pump | mm Hg | 75 |
| Maximum return feed pump | mm Hg | 150 |
| Fuel Tank | L | 400 |

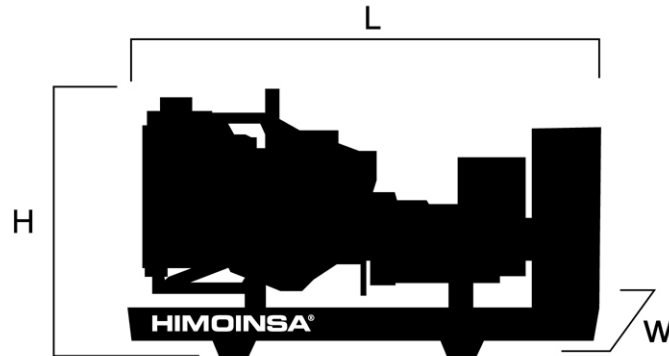


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Dimensions



| Weight and Dimensions | | |
|---|----------------|--------|
| (L) Length | mm | 4.450 |
| (H) Height | mm | 2.335 |
| (W) Width | mm | 2.050 |
| Shipping Volume seaworthy (standard supplier) | m ³ | 21,3 |
| (*) Wet weight | Kg | 12.250 |
| (*) Dry weight | Kg | 11.787 |
| Fuel tank capacity | L. | 400 |
| Autonomy | Hours | 2 |

(*) (with standard accessories)

STANDARD VERSION

Himoinsa reserve the right of modify any characteristic without prior notice.

Weights and dimensions based on products standar and dry / illustrations may include optional equipment.

Technical data here described correspond with the available information at the moment of printing.

Industrial design under patent.

Local Distributor





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PDF Summary

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Page 2. Engine Specifications

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Page 5. Control box and power, CE7 Panel, Alarms

Page 6. Controller features (I)

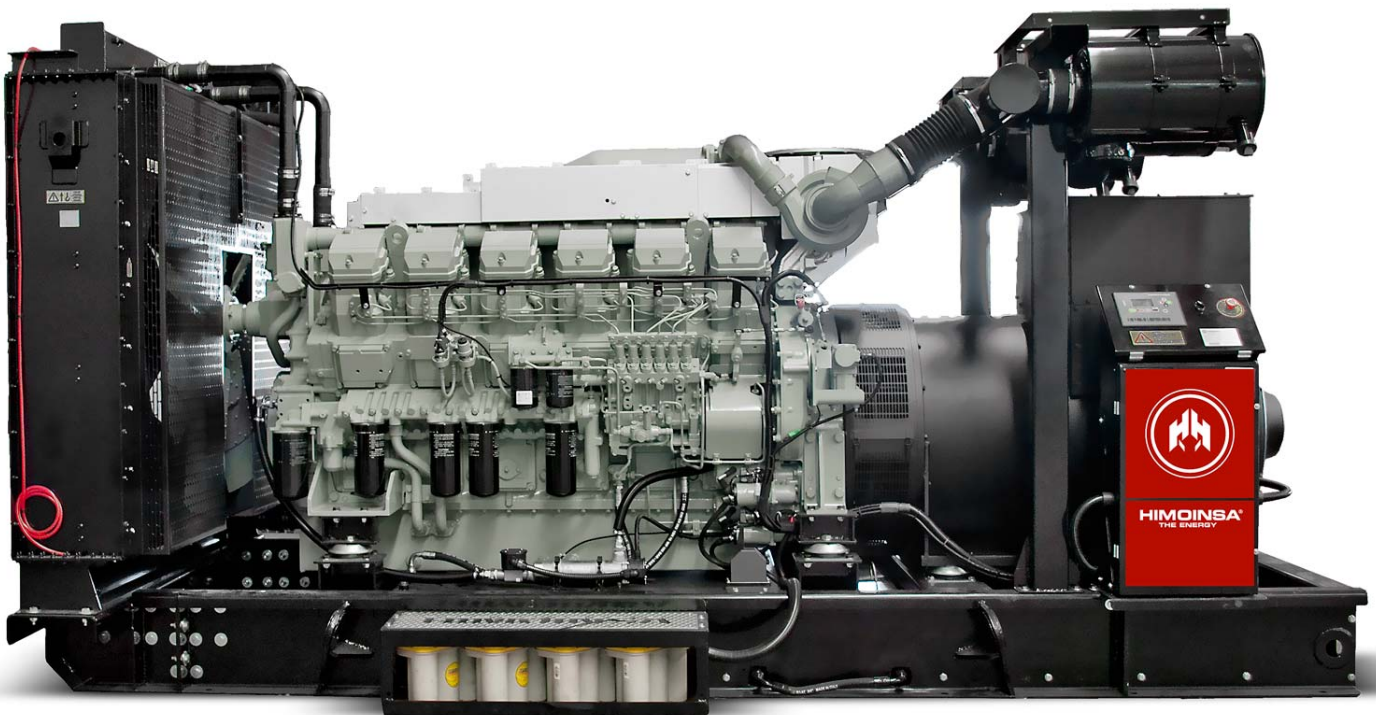
Page 7. Controller features (II)

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