



**HIMOINSA®**  
THE ENERGY

MODEL  
**HMW-2230 T6**  
HEAVY RANGE  
Open Skid  
Powered by MTU



- K33
- WATER-COOLED
- THREE PHASE
- 60 HZ
- DIESEL

## Generating Rates



SERVICE		PRP	STANDBY
Power	kVA	2600	2785
Power	kW	2080	2228
Rated Speed	r.p.m.	1.800	
Standard Voltage	V	480/277	
Available Voltages	V	380/220 - 416/240 - 440/254 - 460/265 - 600/346	
Rated at power factor	Cos Phi	0,8	

01

### HIMOINSA Company with quality certification ISO 9001

HIMOINSA gensets are compliant with EC mark which includes the following directives:

- 2006/42/CE Machinery safety.
- 2006/95/EC Low voltage.
- 2004/108/CE Electromagnetic compatibility.
- 2000/14/EC Sound Power level. Noise emissions outdoor equipment. (amended by 2005/88/EC)
- EN 12100, EN 13857, EN 60204

Ambient conditions of reference according to ISO 8528-1:2005 normative: 1000 mbar, 25°C, 30% relative humidity.

#### Prime Power (PRP):

According to ISO 8528-1:2005, Prime power is the maximum power which a generating set is capable of delivering continuously whilst supplying a variable electrical load when operated for an unlimited number of hours per year under the agreed operating conditions with the maintenance intervals and procedures being carried out as prescribed by the manufacturer. The permissible average power output (Ppp) over 24 h of operation shall not exceed 70 % of the PRP.

#### Emergency Standby Power (ESP):

According to ISO 8528-1:2005, Emergency standby power is the maximum power available during a variable electrical power sequence, under the stated operating conditions, for which a generating set is capable of delivering in the event of a utility power outage or under test conditions for up to 200 h of operation per year with the maintenance intervals and procedures being carried out as prescribed by the manufacturers. The permissible average power output over 24 h of operation shall not exceed 70 % of the ESP

#### HIMOINSA HEADQUARTERS:

Fábrica: Ctra. Murcia - San Javier, Km. 23,6 | 30730 SAN JAVIER (Murcia) Spain  
Tel.+34 968 19 11 28 Fax +34 968 19 12 17 Fax +34 968 19 04 20 info@himoinsa.com www.himoinsa.com

#### Manufacture facilities:

SPAIN • FRANCE • INDIA • CHINA • USA • BRASIL

#### Subsidiaries:

ITALY | PORTUGAL | POLAND | GERMANY | SINGAPORE | UAE | MEXICO | PANAMÁ | ARGENTINA | UK



Ctra. Murcia - San Javier, km. 23,6 | 30730 San Javier (Murcia) SPAIN | Tel.: +34 902 19 11 28 / +34 968 19 11 28  
Fax: +34 968 19 12 17 | Export Fax +34 968 19 04 20 | E-mail:info@himoinsa.com | www.himoinsa.com





## Engine Specifications 1.800 r.p.m.

ENGINE		PRP	STANDBY
Rated Output	kW	2220	2448
Manufacturer		MTU	
Model		16V4000G83	
Engine Type		Diesel 4 strokes-cycle	
Injection Type		Direct	
Aspiration Type		Turbocharged and aftercooled	
Ciylanders Arrangement		16V	
Bore and Stroke	mm	170 x 210	
Displacement	L	76,3	
Cooling System		coolant	
Lube Oil Specifications		S10 W40	
Compression Ratio		16,5	
Fuel Consumption StandBy	l/h	609,5	
Fuel Consumption 100% PRP	l/h	535,53	
Fuel Consumption 75 % PRP	l/h	397,67	
Fuel Consumption 50 % PRP	l/h	277,05	
Fuel Consumption 25 % PRP	l/h	159,07	
Lube Oil Consumption Full Load		1 % of fuel consumption	
Total oil capacity including tubes, filters	L	300	
Total Coolant Capacity	L	735	
Governor	Type	Electrical	
Air Filter	Type	Dry	
Inner diameter exhaust pipe	mm	251	

## 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)
Bearing		Single bearing
Coupling		Flexible disc
Coating type		Standard (Vacuum impregnation)



## Application Data

Exhaust System		
Maximum exhaust temperature	°C	505
Exhaust Gas Flow	m3/min	504
Maximum allowed back pressure	mbar	85

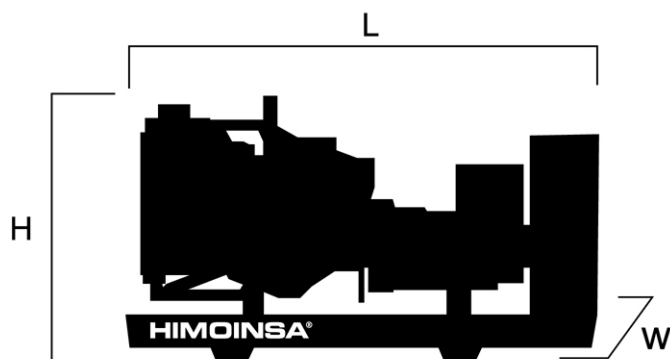
Air Inlet System		
Intake Air Flow	m3/h	11520
Cooling Air Flow	m3/s	41,67
Alternator fan air flow	m3/s	3,45

Starting System		
Starting Motor	kW	9 x 2
Starting Motor	CV	12,24 x 2
Recommended Battery Capacity	Ah	260
Auxiliary Voltage	Vcc	24

Fuel System		
Fuel Oil Specifications		Diesel
Fuel Tank	L	400



## Dimensions



### Weight and Dimensions

(L) Length	mm	6.744
(H) Height	mm	2.553
(W) Width	mm	2.150
Maximum shipping volume (standard supplier)	m <sup>3</sup>	37,02
(*) Wet weight	Kg	17.469
(*) Dry weight	Kg	16.685
Fuel tank capacity	L	400
Autonomy	Hours	1

(\*) (with standard accessories)

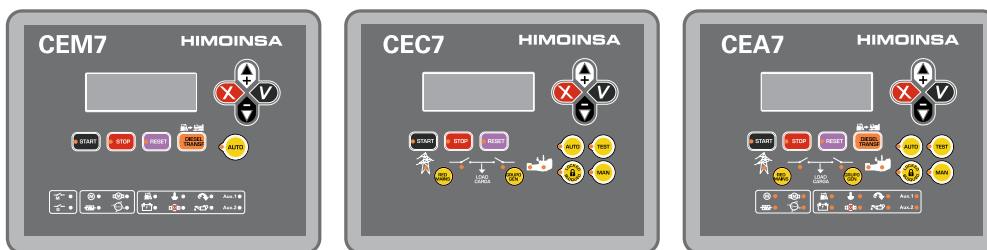
STANDARD VERSION

Himoinsa has the right to modify any characteristic without prior notice.  
Weights and dimensions based on standard products. Illustrations may include optional equipment.  
Technical data described here correspond with the available information at the moment of printing.  
Industrial design under patent.

Local Distributor



## 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

### CEM7

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.

### CEC7

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.

### CEA7

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
<b>GENERATOR READINGS</b>				
• Voltage among phases	•	•	•	•
• Voltage among phases and neutral	•	•	•	•
• Amperage	•	•	•	•
• Frequency	•	•	•	•
• Apparent power (kVA)	•	•	•	•
• Active power (kW)	•	•	•	•
• Reactive power (kVAr)	•	•	•	•
• Power factor	•	•	•	•
<b>MAINS READINGS</b>				
• 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	•	•
<b>ENGINE READINGS</b>				
• Coolant temperature	•	x	•	•
• Oil pressure	•	x	•	•
• Fuel level (%)	•	x	•	•
• Battery voltage	•	x	•	•
• R.P.M.	•	x	•	•
• Battery charge alternator voltage	•	x	•	•
<b>ENGINE PROTECTIONS</b>				
• 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	•	•	•	•
<b>ALTERNATOR PROTECTIONS</b>				
• 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
<b>COUNTERS</b>				
Total hour counter	•	•	•	•
Partial hour counter	•	•	•	•
Kilowattimeter	•	•	•	•
Starts valid counters	•	•	•	•
Starts failure counters	•	•	•	•
Maintenance	•	•	•	•
<b>COMMUNICATIONS</b>				
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	•	•
<b>FEATURES</b>				
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	•	•	•	•
<b>SPECIAL FUNCTIONS</b>				
Positioning GPS	•		•	•
Synchronization with mains	•		•	•
Mains Synchronism	•		•	•
Second Zero 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.





## Generating Sets Standard and Optional Features

### Engine

- Standard air filter
- Standard fuel filter
- Standard oil filter
- Electronic management (ADEC)
- Coolant level sender
- Exhaust gas compensator
- Diesel engine
- 4 strokes-cycle
- Water-cooled
- 24V Electrical system
- Radiator with blowing fan
- Sender WT
- Senders OP
- Hot parts protection
- Moving parts protection

### Alternator

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

### Electrical system

- Electric control panel with measurements devices and control display (according to necessity and configuration)
- 3 poles circuit breaker
- Connection panel wired to the safety protection (open thermalmagnetic protection and alarm)
- Maintenance-free and anti-explosion battery
- Battery charger (standard on automatic control panels)
- Pre-heating resistance (standard on automatic control panels) / water jacket heater
- Battery charger 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)
- Optional :
  - Battery isolator

### Open set version

- Steel made chassis
- Emergency stop button
- Oil sump extraction kit
- 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.



**HIMOINSA**<sup>®</sup>  
THE ENERGY

MODEL  
**HMW-2230 T6**  
HEAVY RANGE  
Open Skid  
Powered by MTU

## PDF Summary

Created : 14/10/2015 08:36

Author : Himoinsa

Number of pages : 10

Report Type: Data Sheet - Heavy range

Generated by: HIMOINSA Engineering Dept.

Page 1. Genset data

Page 2. Engine Specifications. Generator Specifications.

Page 3. Installation Data

Page 4. Dimensions

Page 5. Control Panels models + General Description

Page 6. Control box and power, CE7 Panel, Alarms

Page 7. Controller features (I)

Page 8. Controller features (II)

Page 9. Generator Features & Options

Page 10. PDF Summary (ID454E3236363131353238)

[http://www.himoinsa.com/generating-sets/266\\_22/diesel-generator-hmw-2230-t6-mtu-60hz-heavy-range-prp\\_2600kva.aspx](http://www.himoinsa.com/generating-sets/266_22/diesel-generator-hmw-2230-t6-mtu-60hz-heavy-range-prp_2600kva.aspx)

