



**HIMOINSA®**  
THE ENERGY

Model: **HLW1-20 M5**

INDUSTRIAL RANGE  
Soundproof  
Powered by LOMBARDINI



- B10
- WATER-COOLED
- SINGLE PHASE
- 50 HZ
- 97/68/EC (STAGE 2)
- DIESEL

## Generating Rates



SERVICE		PRP	STANDBY
Power	kVA	17,8	19,5
Power	kW	14,2	15,6
Rated Speed	r.p.m.	1.500	
Standard Voltage	V	230	
Available Voltages	V	230/115 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.

PR.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.

ENGINE		PRP	STANDBY
Rated Output	Kw	17,7	19,5
Manufacturer		LOMBARDINI	
Model		LDW 2204	
Engine Type		Diesel 4 strokes-cycle	
Injection Type		indirect	
Aspiration Type		Natural	
Cylinders Arrangement		4-L	
Bore and Stroke	mm	88x90,4	
Displacement	L	2,199	
Cooling System		coolant	
Lube Oil Specifications		API SJ/CF; MIL-L-46152 D/E	
Compression Ratio		22,5:1	
Fuel Consumption Stand By	l/h	5,96	
Total oil capacity including tubes, filters	L	6,4	
Governor	Type	Mechanical	
Air Filter	Type	Dry	
Inner diameter exhaust pipe	mm	34,7	





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## Generator

Generator		
Poles	Num	4
Winding Conections (standard)		Double delta
Frame Mounting		S-4 7,5"
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		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 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 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.



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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, 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	•	•	•	•
Kilowattmeter	•	•	•	•
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 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

- Diesel engine
- 4 strokes-cycle
- Water-cooled
- 12V Electrical system
- Radiator with blowing fan
- water separator decanting filter (visible level)
- Mechanical governor
- Dry air cleaner
- 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)
  - Earth leakage protection adjustable (time & sensibility) standard in M5 and AS5 configuration with MCCB
  - MCCB 2P
  - 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)
- Optional :      · Battery disconnecter

### Soundproofed version

- Oil sump extraction kit
  - Versatility to assemble high capacity metallic fuel tank chassis
  - Steel made chassis
  - Antivibration shock absorber
  - Fuel level sensor
  - Emergency stop button
  - Sound attenuated canopy made of high quality steel metal.
  - High mechanical strength
  - Low noise level
  - Attenuation through high density rock wool material
  - Powder coating
  - Easy access for service maintenance
  - Reinforced lifting eye to lift by crane
  - Bunded chassis (works as liquids retention tray)
  - Drain fuel tank cap
  - Drain chassis cap
  - Chassis ready for future mobile kit installation
  - Steel made residential silencer -35db(A) attenuation.
- Optional :      · Fuel transfer pump





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## Application Data

Exhaust System		
Exhaust Gas Flow	m3/min	3,2
Exhaust Flange Size (external diameter)	mm	65

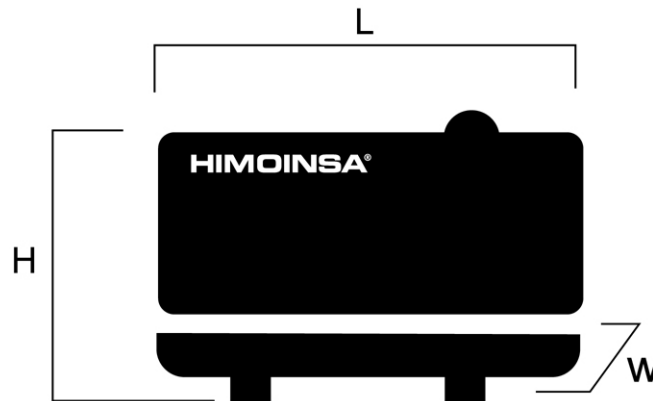
Air Inlet System		
Intake Air Flow 100% Stand By	m3/h	84
Alternator fan air flow	m3/s	0,09

Starting System		
Starting Motor	Kw	2,2
Starting Motor	CV	2,99
Recommended Battery Capacity	Ah	88
Auxiliary Voltage	Vcc	12

Fuel System		
Fuel Oil Specifications		Diesel
Fuel Tank	L	100
Other Fuel tank capacity	L	190, 330



**Dimensions**



B10 Weight and Dimensions		
(L) Length	mm	2.100
(H) Height	mm	1.349
(W) Width	mm	975
Shipping Volume seaworthy (standard supplier)	m3	2,76
(*) Wet weight	Kg	800
Fuel tank capacity	L.	100

(\*) (with standard accessories)

STANDARD VERSION

Himoinsa reserves the right to modify any characteristic without prior notice.  
Weights and dimensions based on products standar. 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



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## Another measures/dimensions of available versions

Weight and Dimensions		
(L) Length	mm	2.100
(H) Height	mm	1.409
(W) Width	mm	975
Shipping Volume seaworthy (standard supplier)	m3	2,88
(*) Wet weight	Kg	Ask
Fuel tank capacity	L.	190

(\*) (with standard accessories)

HIGH CAPACITY VERSION

Weight and Dimensions		
(L) Length	mm	2.100
(H) Height	mm	1.562
(W) Width	mm	975
Shipping Volume seaworthy (standard supplier)	m3	3,2
(*) Wet weight	Kg	937
Fuel tank capacity	L.	330

(\*) (with standard accessories)

HIGH CAPACITY VERSION



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## CONTROL PANEL MODEL

Model: **HLW1-20 M5**

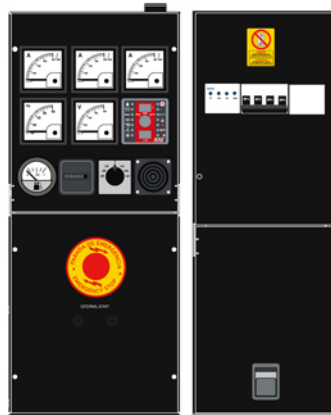
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### M6

Control panel of free voltage contactand tetra polar thermal magnetic protection or bipolar (depending on voltage) and differential relay. M6



### M5

Digital manual auto-start control panel and thermal magnetic protection (according to voltage and phase) and differential relay. CEM7



### AS5

Automatic control panel WITHOUT ATS (Automatic Transfer Switch) and WITHOUT mains control. (\*) As optional AS5 with CEA7. Automatic control panel without ATS (automatic transfer switch) and with mains control. CEM7





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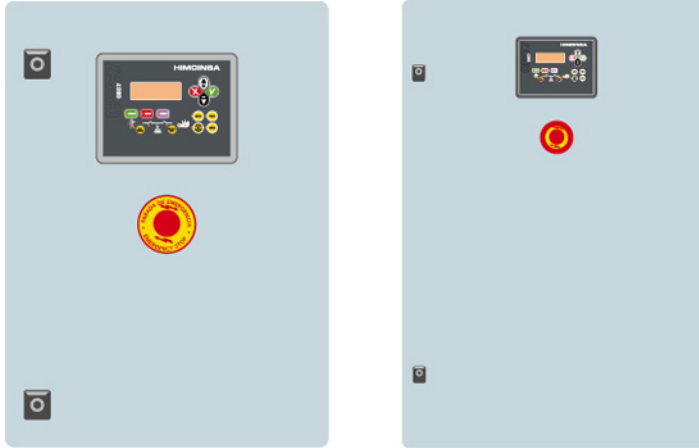
## CONTROL PANEL MODEL

Model: **HLW1-20 M5**

### CC2

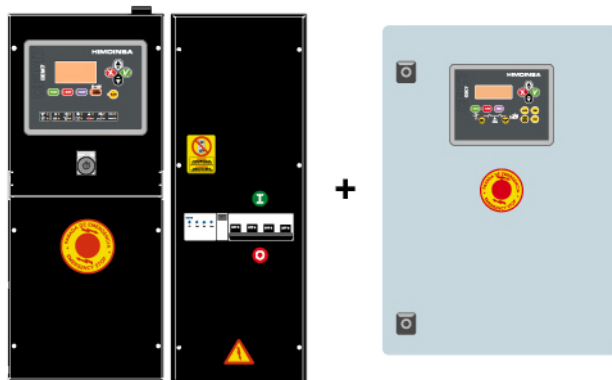
Himoinsa External ATS WITH visualization display. CEC7

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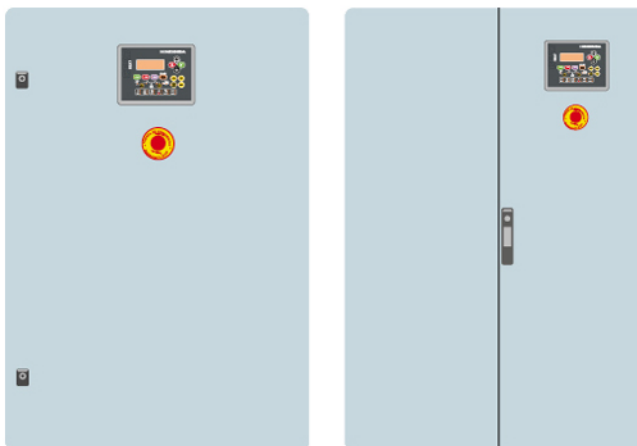
### AS5 + CC2

Automatic with mains control and ATS with visualization. The visualization will be in the genset and in the ATS box. CEM7+CEC7



### AC5

Automatic Mains Failure control panel. Wall mounted Automatic control panel including transfer switch with thermal magnetic protection (according to voltage and phase). CEA7





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## PDF Summary

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