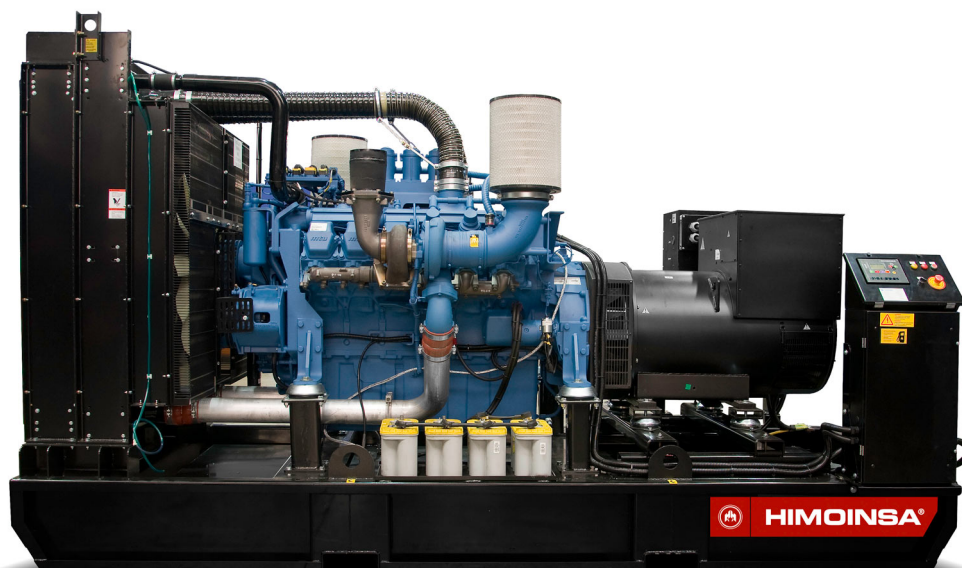




**HIMOINSA**<sup>®</sup>  
THE ENERGY

MODEL  
**HMW-400 T5**  
INDUSTRIAL RANGE  
Open Skid  
Powered by MTU



- K9
- WATER-COOLED
- THREE PHASE
- 50 HZ
- STAGE 3A
- DIESEL

## Generating Rates



SERVICE		PRP	STANDBY
Power	kVA	400	446
Power	kW	320	357
Rated Speed	r.p.m.	1.500	
Standard Voltage	V	400/230	
Available Voltages	V	230 - 230/132	
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)
- 97/68/EC Emissions of gaseous and particulate pollutants. (amended by 2002/88/EC & 2004/26/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 1.500 r.p.m.

ENGINE		PRP	STANDBY
Rated Output	kW	348,4	384,4
Manufacturer		MTU	
Model		8V1600G20F	
Engine Type		Diesel 4 strokes-cycle	
Injection Type		Direct	
Aspiration Type		Turbocharged and aftercooled	
Ciylanders Arrangement		8V	
Bore and Stroke	mm	122 x 150	
Displacement	L	14	
Cooling System		coolant	
Lube Oil Specifications		S10 W40	
Compression Ratio		17,5	
Fuel Consumption StandBy	l/h	93,46	
Fuel Consumption 100% PRP	l/h	86,59	
Fuel Consumption 75 % PRP	l/h	66,81	
Fuel Consumption 50 % PRP	l/h	48,7	
Fuel Consumption 25 % PRP	l/h	28,62	
Lube Oil Consumption Full Load		0,5 % of fuel consumption	
Total oil capacity including tubes, filters	L	46	
Total Coolant Capacity	L	84	
Governor	Type	Electrical	
Air Filter	Type	Dry	
Inner diameter exhaust pipe	mm	106	

02

## Generator

Generator		
Poles	Num	4
Winding Conections (standard)		Star-serie
Frame Mounting		S-1 14"
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	511
Exhaust Gas Flow	m <sup>3</sup> /min	78
Maximum allowed back pressure	mbar	150

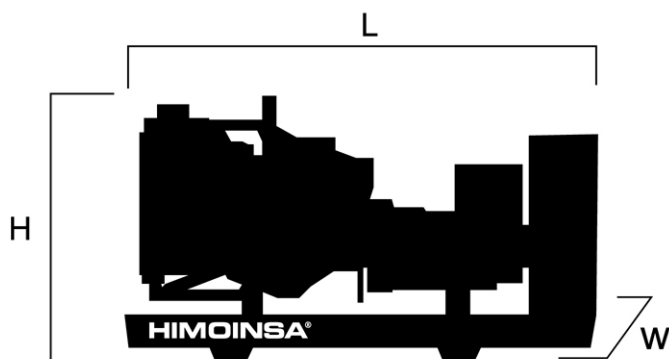
Air Inlet System		
Intake Air Flow	m <sup>3</sup> /h	1620
Cooling Air Flow	m <sup>3</sup> /s	6,5
Alternator fan air flow	m <sup>3</sup> /s	0,8

Starting System		
Starting Motor	kW	8
Starting Motor	CV	10,88
Recommended Battery Capacity	Ah	75 x 2
Auxiliary Voltage	Vcc	24
Current of starter (Rush)	A	800
Current of starter (Cranking)	A	250

Fuel System		
Fuel Oil Specifications		Diesel
Fuel Tank	L	740



## Dimensions



### Weight and Dimensions

(L) Length	mm	3.600
(H) Height	mm	2.121
(W) Width	mm	1.602
Maximum shipping volume (standard supplier)	m <sup>3</sup>	12,23
(*) Wet weight	Kg	3.632
Fuel tank capacity	L	740
Autonomy	Hours	11

(\*) (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 MODEL

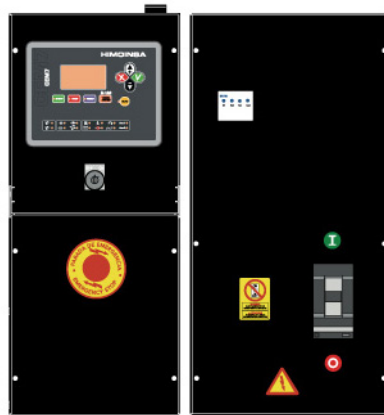
### M5

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



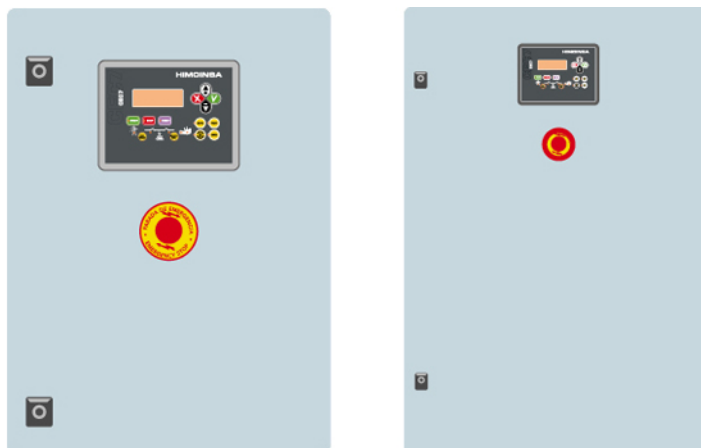
### AS5

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



### CC2

Himoinsa External ATS WITH visualization display. CEC7



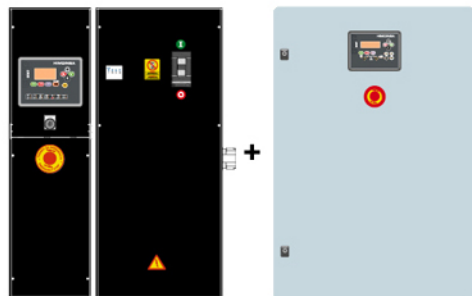


## CONTROL PANEL MODEL

### AS5 + CC2

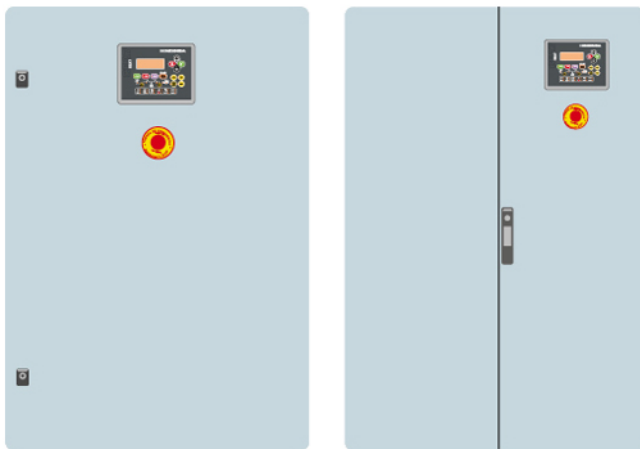
Automatic with mains control and ATS with visualization. The visualization will be in the genset and in the ATS box. CEM7+CEC7

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### AC5

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





## 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

- Diesel engine
- 4 strokes-cycle
- 24V Electrical system
- Radiator with blowing fan
- Water separator decanting filter (visible level)
- Electronic governor
- Sender WT
- Senders OP
- Radiator coolant level sender
- Dry air cleaner
- 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)
- 4 poles circuit breaker
- Battery isolator
- Earth leakage protection adjustable (time & sensibility) standard in M5 and AS5 configuration with MCCB
- 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)

### Open set version

- Steel made chassis
  - 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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INDUSTRIAL RANGE  
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## PDF Summary

Created : 14/10/2015 08:30

Author : Himoinsa

Number of pages : 10

Report Type: Data Sheet - Industrial 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 Panel Model

Page 6. Control Panel Model

Page 7. Controller features (I)

Page 8. Controller features (II)

Page 9. Generator Features & Options

Page 10. PDF Summary (ID454E36303737353131)

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