



HIMOINSA®
THE ENERGY

Model: **HGE-185 T5 NG**

INDUSTRIAL RANGE

Open Skid

Powered by TEDOM



K7



WATER COOLED



THREE PHASE



50 Hz



NOT REQUIRED



NATURAL GAS

Generating Rates



| SERVICE | | COP | STANDBY |
|-----------------------|---------|-------------------------------|-------------|
| Power | kVA | 184 | Not allowed |
| Power | kW | 147 | Not allowed |
| Rated Speed | r.p.m. | 1.500 | |
| Standard Voltage | V | 400 | |
| Available Voltages | V | 380/220 - 400/230 - 415/240 V | |
| Rated at power factor | Cos Phi | 0,8 | |

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HIMOINSA, company with quality certification ISO 9001

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

- 2006/42/CE 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).
- EN 12100, EN 13857, EN 60204.

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

CONTINUOUS POWER (COP) – ISO 8528: it is defined as being the maximum power which the generating set is capable of delivering continuously whilst supplying a constant 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.

PRIME POWER (PRP) - ISO 8528: It is defined as being 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 over 24 h of operation shall not exceed 70 % of the PRP.

STANDBY POWER (ESP) - ISO 8528: It is defined as being the maximum power which a generating set is capable of delivering continuously whilst supplying 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 manufacturer. The permissible average power output over 24 h of operation shall not exceed 70 % of the ESP.

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Engine

| | | COP | STANDBY |
|-----------------------|--------|------------------------------|-------------|
| Rated Output | Kw | 173,2 | Not allowed |
| Manufacturer | | TEDOM | |
| Model | | TG170G5VTW86 | |
| Rated Speed | r.p.m. | 1.500 | |
| Fuel | | Natural Gas | |
| Engine Type | | 4 otto-cycle | |
| Ignition System | | Spark plug ignition | |
| Aspiration Type | | Turbocharged and intercooled | |
| Cylinders Arrangement | | 6 - L | |
| Bore and Stroke | mm | 130 x 150 | |
| Displacement | l | 11,946 | |
| Cooling System | | Liquid | |
| Compression Ratio | | 12 : 1 | |
| Governor | Type | Electronic | |
| Air Filter | Type | Dry | |

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Alternator

| | | |
|--------------------------------|-------|--------------------------------|
| Poles | Num | 4 |
| Winding Connections (standard) | | Star |
| Frame Mounting | | S-1 11 1/2" |
| 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) |



Cooling system

| | | |
|---------------------------------|-------------------|--------|
| Air Flow (Combustion + Cooling) | m ³ /h | 36.287 |
| Engine Coolant Capacity | l | 22 |
| Coolant Flow | m ³ /h | 24 |
| Heat rejection to Coolant | kW | 97,8 |

Exhaust system

| | | |
|---|------|-------|
| Exhaust Flow at Rated kW | kg/h | 936 |
| Exhaust Temperature at Rated kW | °C | 561 |
| Maximum Back Pressure | kPa | 4,2 |
| Exhaust Flange Size (external diameter) | mm | 120,7 |
| Heat rejection to Exhaust (to 120 °C) | kW | 123,9 |

Lubrication system

| | | |
|--------------------------------|---|--------|
| Lube Oil Specifications | | SAE 40 |
| Lube Oil Capacity with filters | l | 56 |

Air inlet system

| | | |
|------------------|-------------------|--------|
| Intake Air Flow | m ³ /h | 735 |
| Cooling Air Flow | m ³ /h | 35.552 |



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Starting system

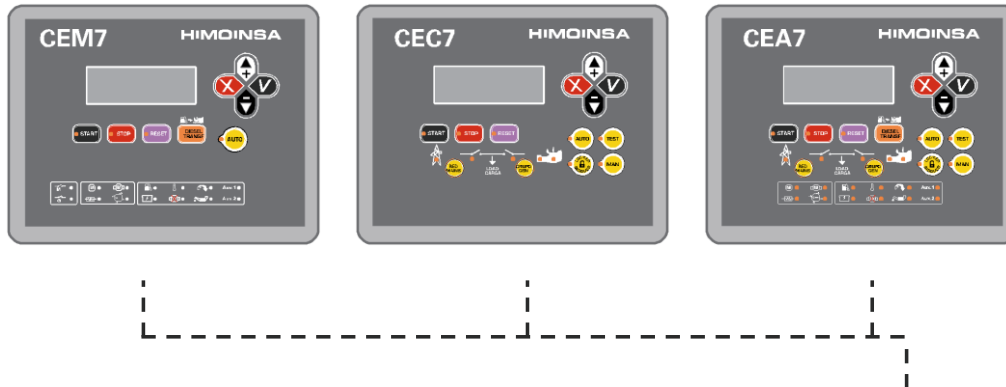
| | | |
|------------------------------|-----|-----|
| Starting Motor | Kw | 6,6 |
| Recommended Battery Capacity | Ah | 150 |
| Auxiliary Voltage | Vcc | 24 |

Fuel system

| | | |
|--|--------------------|-----------------|
| Natural Gas Specifications | | Refer to manual |
| Fuel Consumption StandBy | Nm ³ /h | Not allowed |
| Fuel Consumption 100% COP | Nm ³ /h | 46,1 |
| Fuel Consumption 75 % COP | Nm ³ /h | 36,6 |
| Fuel Consumption 50 % COP | Nm ³ /h | 26,1 |
| Fuel Supply Connection Size | inches | 2 |
| Fuel Supply Pressure | mbar | 30-300 |
| Auto Fuel Lock-Off Double Solenoid Valve | | Standard |



Control Panel



| FUNCIONALITY | PANEL MODEL | CONTROLLER MODE |
|---|-------------|-----------------|
| Auto-start | M5 | CEM7 |
| Automatic Control Panel without Grid Control | AS5 | CEM7** |
| Automatic Control Panel with Grid Control (customer change over contactors) | AS5 | CEA7 |
| Automatic Control Panel with Grid Control (Himoinsa change over contactor with display) | AS5XCC2 | CEM7+CEC7 |
| Automatic Grid 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 intercommunio 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 On/Off
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 supply.
7. Over-speed.
8. Under-speed.
9. Low battery voltage.
10. High coolant temp. by sensor.
11. Low oil pressure by sensor.
12. Low pressure fuel by sensor.
13. Unexpected shutdown.
14. Stop failure.
15. Low engine temperature.
16. Genset voltage drops.
17. Emergency stop.

Genset Alarms

1. Overload.
2. Unbalanced voltage.
3. Over-voltage.
4. Under-voltage.
5. Over-frequency.
6. Under-frequency.
7. Overload.
8. Short circuit.
9. Inverse Power.
10. Asymmetry among phases.
11. Genset contactor Failure.

Grid 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.



Control 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 | • | • | • | • |
| GRID 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 On/Off | • | 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".



Control Features

| | CEM 7 | CEC 7 | CEA 7 | CEM7 + CEC7 |
|------------------------------------|----------------|-------|----------------|----------------|
| COUNTERS | | | | |
| Total hour counter | • | • | • | • |
| Partial hour counter | • | • | • | • |
| Kilowatt meter | • | • | • | • |
| 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 supply 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 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.



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





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INDUSTRIAL RANGE

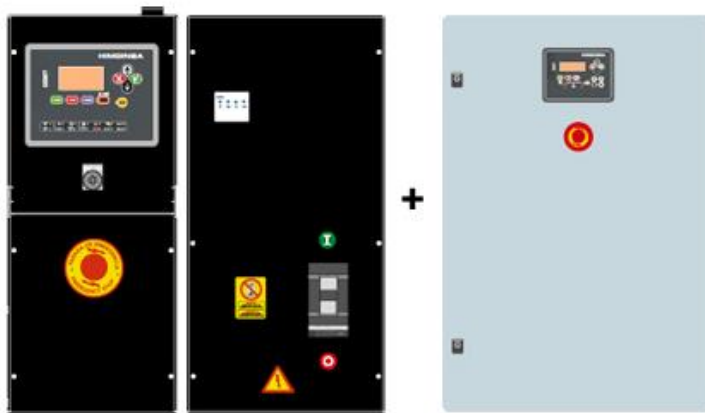
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Control Panel Model

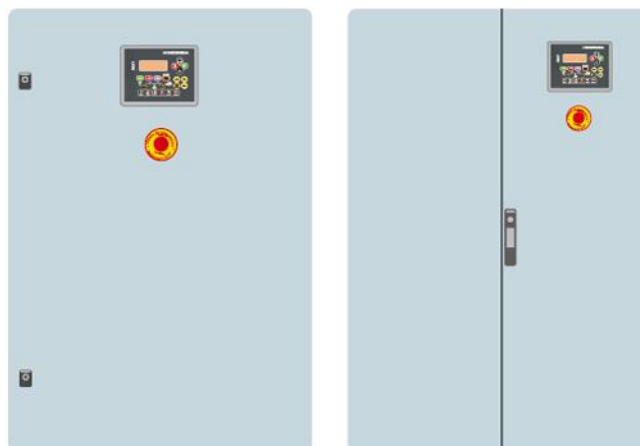
AS5 + CC2

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



AC5

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





Standard and Optional Features

Engine

- Natural gas engine
- 4 strokes cycle
- Water-cooled
- 24V Electrical system
- Radiator with blowing fan
- Water separator decanting filter (no visible level)
- Electronic governor
- Sender WT
- Senders OP
- Dry air cleaner
- Hot components and radiator guards
- Mobile components guards

Alternator

- Self-excited and Self-regulated
- 4 poles
- AVR governor
- IP23 protection degree
- Insulation H class
- Single drive-shaft
- Flexible disc coupling

Electrical system

- Control and power electric panel, with measurements devices and controller (according to necessity and configuration)
- 4 poles circuit breaker
- 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 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

Gas Train

- Ball valve
- Gas filter
- Double solenoid valve
- Gas pressure regulator
- Valve testing system
- Low pressure switch

Optional :

- Medium and high pressure regulator
- High pressure switch



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Standard and Optional Features

Open set version

- Emergency stop button
- Steel made chassis
- Anti-vibration shock absorber
- Chassis with integrated gas train
- Steel made residential silencer -15dB (A) attenuation

Optional:

- Supplementary oil system with pump
- Steel made residential silencer -35dB (A) attenuation



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Weight & Dimensions



WEIGHT AND DIMENSIONS

| | | |
|---|----------------|-------|
| Length (L) | mm | 3.000 |
| Height (H) | mm | 2.000 |
| Width (W) | mm | 1.160 |
| Shipping Volume Seaworthy (standard supplier) | m ³ | 6,96 |
| Wet Weight* | kg | 2.017 |

(*) (with standard accessories)

Himoinsa reserves the right to modify any characteristic without prior notice.

Weights and dimensions based on products standard.

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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THE ENERGY

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INDUSTRIAL RANGE

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PDF Summary

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