With over two decades of experience designing and manufacturing advanced control systems for generator sets, HIMOINSA offers a complete range of panels and controllers for diesel and gas generators.

**MANUAL PANELS**
Manual control panels, manufactured with high-quality components, designed for applications that involve manual start-up and management of the generator set.

**AUTOMATIC PANELS**
Designed for generator sets that require automatic control. This configuration includes a battery charger and a preheating resistance that allows the generator to be ready for sudden start.

**AUTOMATIC TRANSFER SWITCH**
ATS panels manufactured by HIMOINSA to transfer the power supply between the grid and the generator set. Their comprehensive electric mechanism provides a rapid response to supply demands in the stand-by market.

**DIESEL & GAS CONTROLLERS**
Controllers for diesel generators, as well as other controllers especially for gas generator sets. The main purpose of this differentiation is to guarantee the utmost safety when running your equipment. All HIMOINSA controllers incorporate a multi-language graphic display.

**ELECTRONIC OPTIONALS**
Multitude of optionals available to adapt the generator set to the needs of each project and application.
The illustrations represent specific models. Your canopy may vary depending on the construction version of the generator set and the ampereage of the circuit breaker.
AUTOMATIC CONTROL AND POWER PANELS

AS5

MAIN COMPONENTS
1. CEM7 control unit
2. On/off switch
3. Emergency stop
4. Differential relay
5. Circuit breaker protection
6. Battery charger
7. Preheating resistance

AS7

MAIN COMPONENTS
1. M7X control unit
2. On/off switch
3. Emergency stop
4. Differential relay
5. Circuit breaker protection
6. Battery charger
7. Preheating resistance

THE ILLUSTRATIONS REPRESENT SPECIFIC MODELS. YOUR CANOPY MAY VARY DEPENDING ON THE CONSTRUCTION VERSION OF THE GENERATOR SET AND THE AMPERAGE OF THE CIRCUIT BREAKER.
AUTOMATIC TRANSFER SWITCH

HIMOINSA MANUFACTURES AUTOMATIC TRANSFER SWITCH PANELS (ATS) WHICH TRANSFER POWER BETWEEN THE MAINS AND THE GENERATOR SET. A PIECE DESIGNED WITH A COMPREHENSIVE ELECTRICAL MECHANISM THAT ALLOWS A RAPID RESPONSE TO THE DEMAND FOR POWER ON THE STAND-BY MARKET.

HIMOINSA AUTOMATIC TRANSFER SWITCH PANELS HAVE A MANUAL EMERGENCY STOP AND HAVE BEEN MANUFACTURED IN COMPLIANCE WITH REQUIRED QUALITY STANDARDS. WITH AN AMPERAGE RANGE OF 30 TO 3150 A, THE HIMOINSA ATS HAS AN IP55 PROTECTION RATING WHICH GUARANTEES SEALING AND INSULATION LEVELS.
AUTOMATIC TRANSFER SWITCH DIAGRAMS

CC2 + GENERIC GENERATOR SET

1 km (*1)

(*) CAN communication up to 1 km away. HIMOINSA shall not provide communication or power cables.

AC5 + HIMOINSA GENERATOR SET

6 m Standard extension.

ELECTRICITY NETWORK

FINAL SUPPLY

SELECTION OF POWER SOURCE

GENERIC GENERATOR SET

VOLTAGE FREE / DRY CONTACT

ELECTRICITY NETWORK

FINAL SUPPLY

SELECTION OF POWER SOURCE

HIMOINSA GENERATOR SET

ELECTRICITY NETWORK

FINAL SUPPLY

SELECTION OF POWER SOURCE

Standard extension.
**Contactors 30-250A**

- **1** IP55 cabinet
- **2** Controller
- **3** Emergency stop
- **4** Measurements module
- **5** Contactors
- **6** Grounding line connection

**Main Components**

**Automatic Transfer Switch Using A Pair Of Mechanically Interlocked Contactors And With Status Contacts.**

---

**Switches 400-3150A**

- **1** IP55 cabinet
- **2** Controller
- **3** Emergency stop
- **4** Measurements module
- **5** Key for manual transfer switch
- **6** Motorised switch
- **7** Grounding line connection
- **8** Plinth for cabinets >800A

**Main Components**

**Automatic Transfer Switch Using Motorised Switches With Manual Activation Option.**

---

**HIMOINSA**
AUTOMATIC TRANSFER SWITCH PANELS

30-125 A
4-pole contactors. CEC7 controller. Power failure detection. Emergency stop. Voltage measurement.

160-250 A
4-pole contactors. CEC7 controller. Power failure detection. Emergency stop. Voltage measurement.

400-630 A

800 A

1000-1250 A

1600 A

2500-3150 A

POWER SUPPLY
The power supply is equipped with an auxiliary battery that maintains the power supply in both modules, from the time when a power failure occurs until the generator sets start.

For communications of over 100 metres a supplemental power supply is necessary.

CC2 ATS PANELS

<table>
<thead>
<tr>
<th>CONTACTORS</th>
<th>SWITCHES</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>30</td>
</tr>
<tr>
<td>Weight kg</td>
<td>27</td>
</tr>
<tr>
<td>Height mm</td>
<td>700</td>
</tr>
<tr>
<td>Length mm</td>
<td>500</td>
</tr>
<tr>
<td>Width mm</td>
<td>250</td>
</tr>
</tbody>
</table>

POWER PANEL X3 TERMINAL CONNECTION DIAGRAMS

HIMOINSA GENSET
Connection to HIMOINSA ASS/MS type panel with CEM7 control unit. Start and stop via CAN communication.

GENERIC GENSET
Connection to generic panel, start and stop via voltage-free contact.
30-125 A
4-pole contactors. CEA7 controller. Detection of mains failure and genset control. Emergency stop. Current and voltage measurement.

160-250 A
4-pole contactors. CEA7 controller. Detection of mains failure and genset control. Emergency stop. Current and voltage measurement.

400-630 A

800 A

2500-3150 A

1600 A

AC5 control panels are only compatible with HIMOINSA gensets.

AC5 CONTROL PANELS

<table>
<thead>
<tr>
<th>Amperage</th>
<th>CONTACTORS</th>
<th>SWITCHES</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>30</td>
<td>40</td>
</tr>
<tr>
<td>Weight</td>
<td>kg</td>
<td>40</td>
</tr>
<tr>
<td>Length</td>
<td>mm</td>
<td>600</td>
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<tr>
<td>Width</td>
<td>mm</td>
<td>300</td>
</tr>
</tbody>
</table>

Flexible connection, compact hose, resistant to impacts and hydrocarbons. Transmits information from the engine and the alternator to the control unit. The length of the standard hose supplied by HIMOINSA is 6 metres and is optionally available up to 19 metres.

Multi-pin quick connector 16/24 pins. Robust and secure device used in our ATS with AC5 configuration.
HIMOINSA OFFERS CONTROLLERS FOR DIESEL GENERATORS, AS WELL AS OTHER CONTROLLERS ESPECIALLY FOR GAS GENERATOR SETS. THE MAIN PURPOSE OF THIS DIFFERENTIATION IS TO GUARANTEE THE UTMOST SAFETY WHEN RUNNING YOUR EQUIPMENT.

Gas control units incorporate gas train management, control all safety systems and include an alarm to signal insufficient fuel pressure. In addition, during start-up the control units also carry out a safety check of the gas train, checking the tightness of the solenoid valve and indicating this by means of a light signal.

**CEM7 | CEM7G**
Generator set control.
The CEM7 and CEM7G control units monitor the operation of the engine and the quality of the electrical signal it generates. They have a 4-line graphic display with language selection to show the status of the generator set. They have a communication bus to incorporate external devices that extend the functionality of the control unit. In addition, they allow you to connect electronic engines to a J1939 bus (optional).

**CEC7**
Automatic transfer switch between grid and genset.
The CEC7 control unit monitors the quality of the grid signal and can order an external generator set to start up and to then handle its close-down once the grid supply has been reinstated. It is possible to integrate the management of the genset by using the CEM7 (or CEM7G) control unit which allows you to view the status of the generator set (measurements, alarms, etc.) from the controller’s interface. If you use any other control unit model in the generator set, the generator set start-up is ordered by free voltage contact. It has a 4-line graphic display with language selection to show the status of the generator set.

**CEA7 | CEA7G**
Control of the generator set and automatic transfer switch between the grid and the genset.
The CEA7 and CEA7G control units order the start-up of the generator set in the event that the grid signal is outside the programmed operational range and they handle its close-down once the grid supply has been reinstated. They have a 4-line graphic display with language selection to show the status of the generator set. They have a communication bus to incorporate external devices that extend the functionality of the control unit. In addition, they allow you to connect electronic engines to a J1939 bus (optional).

**M7X**
Generator set or motor pump control.
The M7X control unit supervises the running of the engine and the quality of the electric signal that is generated. It has a graphical display that makes it possible to display the information through icons. It allows you to connect electronic engines to a J1939 bus (optional).

**M6**
Generator set control.
Control panel and protection with a three-position key and an auto-start function (possibility of starting the engine manually or automatically by using free voltage contact).

**CEM7PG**
Control and synchronisation of (gas-powered) generator sets.
The CEM7PG control unit has been designed for parallel applications to enable load management between gas-powered generator sets.
**Engine Protection Devices**

The AS5+CC2 configuration will have all the functionality of the CEM7 control unit plus the grid readings of the CEC7 control unit.

All the protections can be programmed to perform "Warning" or "Stop engine WITH or WITHOUT cooling".

Note: Feature available by adding CEC7 to the installation

**CEC7**
- Standard
- Optional
- Warning alarm without engine having stopped
- Alarm with engine stopped

**CEM7**
- Low frequency
- High frequency
- Low voltage
- High voltage
- Short-circuit
- Asymmetry among phases
- Internal phases sequence
- Reverse Power
- Power
- Overload
- Winding temperature
- Unit signal failure
- Total hour counter
- Partial hour counter
- Kilowatt meter
- Valid start-up counter
- Unsuccessful start-up counter
- Maintenance
- Power (Genset)
- Power (Main)

**CEM7+CEC7**
- Modbus TCP
- Modbus RS485
- Ocean Ethernet
- Fleet Manager (C2CLOUD required)
- C2CLOUD Modem GSM/3G
- Remote signal
- Remote alarm
- Start-up by load demand
- Load shedding
- Dummy load
- Multilingual
- GPS location

**CEM7G**
- Generator/Genset Synchronisation
- Genset/Grid Synchronisation
- RAM7
- Reprofile panel
- Timer

<table>
<thead>
<tr>
<th>FEATURES OF THE CONTROL UNITS</th>
<th>M6</th>
<th>CEM7</th>
<th>CEC7</th>
<th>CEA7</th>
<th>CEM7+CEC7</th>
<th>M7X</th>
<th>CEM7G</th>
<th>CEA7G</th>
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<tbody>
<tr>
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<tr>
<td>Voltage between phase and neutral</td>
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<td>Currents</td>
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<td>Battery charge alternator voltage</td>
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<td>High water temperature</td>
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<td>High water temperature by sensor</td>
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<td>Low engine temperature by sensor</td>
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<td>Low oil pressure</td>
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<td>Low water level</td>
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<td>Stop failure</td>
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<td>Battery-voltage failure</td>
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<td>Startup failure</td>
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<td>Emergency Stop</td>
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</tbody>
</table>

**CEC7** features available by adding CEC7 to the installation

**Note:** All the protections can be programmed to perform a "Warning" or "Stop engine WITH or WITHOUT cooling". The AS5+CC2 configuration will have all the functionality of the CEM7 control unit plus the grid readings of the CEC7 control unit.
**CE7 EXPANSIONS**

**EXPANSION MODULES**

<table>
<thead>
<tr>
<th>CE7 TELESIGNAL</th>
<th>VALID MODELS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• A plate with CAN communication and 12 relays.</td>
<td>Available in all generator set models with a CEM7</td>
</tr>
<tr>
<td>• Relays: 4 switch contacts and 6 single contacts.</td>
<td></td>
</tr>
<tr>
<td>• It allows you to enable remote signalling elements (alarms, pilots, additional equipment...).</td>
<td></td>
</tr>
<tr>
<td>• It allows you to program the relays according to the different variables.</td>
<td></td>
</tr>
</tbody>
</table>

**TIMER**

- It takes the control unit the current date and time. It allows the weekly programming of any event.
- Scheduled start-up.
- Scheduled shut-down.
- Scheduled engine and maintenance tests.
- Extended error history file by + 100
- Energy counters (day, month, year).

**POWER SUPPLY**

- The supply comes with a support battery to maintain the supply to the two modules from when the supply from the grid is cut off until the generator set starts up.
- We recommend that it should be installed in ATS panels, at distances between the genset and the ATS panel of at least 30m.
- It supplies two of the modules of the panel.

**REMOTE SCREEN**

- The remote screen is a CE7® display, which can be used as a second remote visual display unit to manage the generator set, provided that the generator control unit is in automatic mode.
- It has a detailed display of the status of the genset in real time.
- It sends a signal in the event of an alarm or maintenance operation.
- It has the support module of the genset.

**PTO KIT**

- A board that features CAN communications and analogue inputs.
- 4 PT100 temperature gauge inputs with display, alarm management and warning management.
- 4 configurable analogue inputs (0 to 10V, 4 at 20mA or resistive).
- The 4 configurable analogue inputs can be managed as an increase of the alarms of the control unit by free voltage contact.

**CCIB**

- Expansion of 8 programmable digital inputs.

**VO SECOND 0 SUPPRESSION MODULE**

The Second Zero suppression expansion is an electronic module designed to avoid the second zero that is produced in the switching when voltage is restored from the grid and the generator set disconnects. This module will communicate via CAN with the switching measurement module and will receive information from it as to the synchronisation of the grid and the genset. It will have two analogue outputs to control the speed of the engine (SPED signal) and of the regulation of the voltage of the alternator (AVR signal). The module includes an additional function, a series of digital and analogue inputs and digital outputs that are used to increase the input/output functionalities.

**COMMUNICATION MODULES**

<table>
<thead>
<tr>
<th>CAN R848 KIT</th>
<th>VALID MODELS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCRG848 converter, DB connector, remote control software.</td>
<td>Available in all generator set models that incorporate any control unit in the CE7 family.</td>
</tr>
<tr>
<td>Operating mode, the CANBUS device makes it possible to extract and incorporate certain values and data from the genset set to a closed control system.</td>
<td></td>
</tr>
</tbody>
</table>

**CAN USB KIT**

- CCUSB converter, USB cable, DB connector, remote control software, configuration software. 
- Through the CANBUS connection the CCUSB converter can control, monitor and schedule the CE7 control units.
- The CAN/USB device allows the following:
  - Connection via USB from the local control unit to a PC.
  - Integral handling of the configuration of the control unit.
  - Remote monitoring, control and configuration.

**REMOTE CONTROL IN LOCAL AND REMOTE MODE**

<table>
<thead>
<tr>
<th>CAN LAN KIT</th>
<th>VALID MODELS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCLAN converter, CCLAN configuration software</td>
<td>Available in all generator set models that incorporate any control unit in the CE7 family.</td>
</tr>
<tr>
<td>CE7 remote control software for PC, CE7 configuration software for PC.</td>
<td></td>
</tr>
</tbody>
</table>
| The CCLAN converter allows the following:
  - Total control via the PC.
  - Integral handling of the configuration of the control unit.
  - Remote monitoring, control and configuration. | |

**CAN PRO/FBUS KIT**

- The PROF/Can converter makes it possible to communicate with control units using the Profibus protocol. It works as a slave in a Profibus network.

**SNIAP KIT**

- Management and remote control using the SNIAP network protocol.
- Remote connection with the Genset Workbench application.

**MODBUS TCP KIT**

- Management, configuration and remote control using the MODBUS/TCP protocol. Makes it possible to extract and incorporate certain values and data from the genset set to a closed control system.

**CIELOUN, FLEET MANAGER**

- Communications device. Configuration and monitoring of generator sets remotely and in real time.

**TECHNICAL FEATURES:**

- K-NOC/2 power supply
- 4 digital inputs
- 3 A digital outputs
- Connectivty by 3G and Ethernet
- SMS
- CAN
- SNMP
- Automation
- 3G
- R/S-485
- Accelerometer
- CAN
- Management by SMS

**PARALLEL**

**APPLICABLE TO ALL GENSETS WITH ELECTRIC ENGINE REGULATION**

Automatic parallel connection between generator sets and parallel operation of all generator sets in parallel. Full control device, load sharing and monitoring and protection and synchronisation device.

- Power circuit
  - Automatic 4-pole circuit breaker (time per generator) with suitable amperage, powered control, automatic closing/opening control for load supply and auxiliary contacts to provide information on the status of the circuit breaker.
  - Cables input underneath.
  - Frontal connections.

- Control and monitoring software
  - The control module that we employ undertakes all the necessary functions for the correct performance of the system; it can be configured using the keyboard on the front panel or a PC with software supplied by Himonsa SL (optioned). It includes the following functions:
    - Control, Protection and Display of engine parameters.
    - Control and Display of grid parameters
    - Synchronisation functions
    - Other functions such as storage of alarms and events, communication ports (optional), control of the sequences of the electricity plant.

- Operating modes
  - 1. Looked mode [OFF]. In this operating mode, the controller is disconnected from the system; it will be impossible for the genset to start up automatically or manually.
  - 2. Synchronisation test [TEST]. In this operating mode, the genset starts up until it reaches its rated voltage and frequency. It then synchs with the grid.
  - 3. Manual mode [MAN]. In this operating mode, the controller uses the manual controls to start the genset up.
  - 4. Generator on automatic [AUTO]
    a. Emergency mode when the grid returns WITH SYNCHRONISATION [EMERGENCY]. In this operating mode, the genset runs as a back-up in case a zero arises in the grid.
    b. Emergency mode when the grid returns WITHOUT SYNCHRONISATION [EMERGENCY]. In this operating mode, the genset runs as a back-up in case a zero arises in the grid.

- Power circuit connection
  - Automatic 4-pole circuit breaker (time per generator) with suitable amperage, powered control, automatic closing/opening control for load supply and auxiliary contacts to provide information on the status of the circuit breaker.
  - Cables input underneath.
  - Frontal connections.
FLEET MANAGER

CONFIGURATION AND MONITORING OF GENERATOR SETS REMOTELY AND IN REAL TIME

C2CLOUD COMMUNICATIONS DEVICE

GPS LOCATION.

The C2CLOUD kit uses GPS global positioning and accelerometer technology that makes it possible to locate the units and to detect any movements when the generator sets are switched off to raise the alarm in the event of a possible robbery.

CONFIGURATION AND MONITORING OF GENERATOR SETS REMOTELY AND IN REAL TIME

ONGOING DATA PROCESSING
Access the status of all your gensets at any time and supervise their event history.

DATABASE
The data generated by the generator sets are stored in the server. Statistics are created that allow you to understand how your units are running.

REPORT GENERATION
Information exportable to compatible formats (CSV). The system allows you to create an historical record of alarms, events, maintenance, consumption, etc. for subsequent processing and analysis.

ACCESSIBLE INFORMATION

The GenSet Manager automatically estimates the date on which each genset needs to be refuelled.

The HG Manager application generates an alert that machinery is being stolen and a fuel alert. The anti-theft management function makes it possible to receive an alert SMS and to pinpoint its location by GPS positioning.

It enumerates the different units that have been added to the management map and it helps you plan the maintenance schedule for each genset.

Accessible information

Statistics

CSV reports

Scheduled refuelling

Anti-theft alerts

Maintenance manager

Anti-theft alerts

Scheduled refuelling

CSV reports

Statistics