# QUICK START
GENSYS COMPACT PRIME

The purpose of this document is to allow a fast and easy handling of the product, nevertheless it is essential that you refer to the technical documentation (latest version always available on our website www.cretechnology.com) for the commissioning.

For any further information on this product, please contact your local distributor or agent or directly our support team.

- All our products have a 1 year warranty
- Help desk: +33 492 38 86 86
- E-mail: support@cretechnology.com
- SKYPE: support-cretechnology.com

ACTIVE DISPLAY

FUNCTIONING MODES/MANUAL MODE
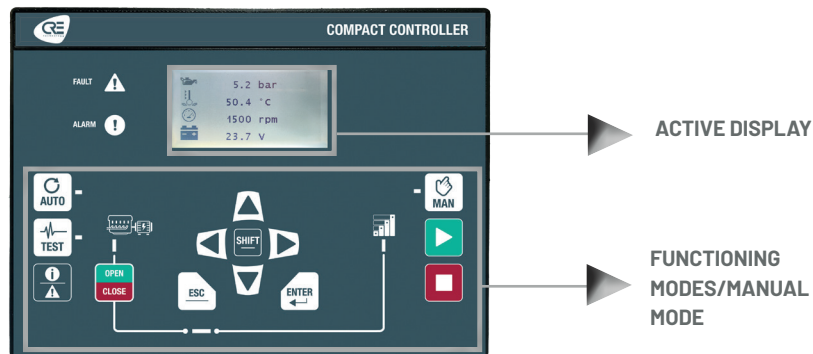
OPERATIONNAL MODES

The **GENSYS COMPACT PRIME** can be configured and controlled with the front panel, which is separated into two parts:
1. The top end and middle part: dedicated to the navigation, monitoring and measure display.
2. The bottom end part: dedicated to the 3 functioning modes selection:
   - AUTO - This mode makes the **GENSYS COMPACT PRIME** operate the installation in a fully automatic mode according to its settings and configuration, external action to start : "remote start digital input" or TCP ModBus.
   - TEST - This mode simulates the start of the Auto mode with the requested sequences, to exit from the TEST mode, simply press AUTO again or press MANUAL mode.
   - MANU - This mode allows you to manage your installation with the front panel buttons manually: you will be able to start/stop the generator, open/close the breakers while still benefiting from the active protections of the **GENSYS COMPACT PRIME** and the automatic synchronization and load/unload sequences.

MENUS

Once the **GENSYS COMPACT PRIME** is switched on, you can access the menu on 3 different levels (*to access the password page, press ESC or ENTER.):*
- **Level 0** : No password required, just press «ENTER» to access the display,
- **Level 1** : Just press «ENTER» to go on Display menu. Press «↓» to select «configuration» or «system» of the **GENSYS COMPACT PRIME**. Press «ENTER» to switch to password mode. Press «↑» to change the character; press «→» to move to the next character. Level 1 password is «1»

NOTE : The Level 1 password gives you access to the minimum settings recommended to start your commissioning on your power plant. This level "1" is equivalent to "standard mode" on the i4Gen Suite software.

- **Level 2** : Just press «ENTER» to go on Display menu. Press «↓» to select «configuration» or «system» of the **GENSYS COMPACT PRIME**. Press «ENTER» to switch to password mode. Press «↑» to change the character; press «→» to move to the next character. Level 2 password is «1234».

NOTE : The level 2 password gives you access to all settings to commission your power plant. This level "2" is equivalent to "advanced mode" on the i4Gen Suite software. For complex settings, which are not available through the front panel of the module, you can use i4Gen Suite (Analogue inputs, Easyflex, Scheduler,etc ..).

THE DIFFERENT MENUS WILL APPEAR AS FOLLOW

DISPLAY	
POWER PLANT	Electrical information on the power plant : kW /kVAR. Nominal values. Breakers status, and generator state.
GENERATOR	Electrical measures on generator : general, voltage, powers, currents, powers per phase and power factor.
MAINS	Electrical measures on Mains : general, voltage, powers and currents.
SYNCHRO.	Electrical measures on synchronization : phase, frequency, voltage, phase sequence.
ENGINE	Mechanical measures on engine : oil pressure, water temp, speed, battery voltage, running hours, starts attemps, etc …
INPUTS/ OUTPUTS	Real time displays for digital I/Os, and CANopen digital I/Os
MAINTENANCE	Real time displays for maintenance counters on hours, and days.
ABOUT	Information on hardware product: serial number, firmware version.

SYSTEM (*LEVEL 2 ONLY)	
EVENTS*	Events personalized list to configure.
DATE/TIME	Regional settings, on date and time.
SCREEN SETUP	Screen settings about contrast, backlight, screen saver.
ETHERNET	Ethernet communication settings, IP, etc..

CONFIGURATION (*LEVEL 2 ONLY)	
APPLICATION	Installation description (my number, number of generator, number of MASTER/BTB). **Level 2:** segment number, dead bus management, voltage system, power up mode.
TIMERS	Timer settings for ramps, breakers, start sequence, stop sequence, Mains & gas engine sequences.
GENERATOR	Definition of the electrical measure ratios (PT, CT), generator nominal values (kW, kVAR,V) and kW mode. **Level 2:** Static paralleling.
BUS	Nominal voltage and PT ratio.
SYNCH CHECK RELAY*	Voltage, frequency, phase windows acceptance, and fail to synch timer.
POWER MNGT*	Load dependant settings (timers, threshold, and sequence). Load shedding : Under frequency and maximum load settings.
ENGINE	Engine definition : Engine type, speed sensor and setpoint. **Level 2:** Start/Stop settings, check before start and crank settings.
J1939 ECU/ECM	Engine J1939 configuration.
INPUTS/OUTPUTS	Digital inputs and outputs settings. Relays outputs settings.
BREAKERS	Generator breakers control settings.
GENERATOR PROTECTIONS*	Protections on frequency, voltage, current, reverse power, kW, kVAR, uneven sharing, unbalance, short-circuit and earth Fault.
OTHER PROTECTIONS*	Protections on speed, oil pressure, water temp, analogue inputs, battery, boost battery, outputs and J1939.
SPEED/AVR CONTROL	Easy Calib, AVR control (amplitude, offset). Speed control (amplitude, offset).
CONTROL LOOPS	Synchronization settings (Global gain Freq, phase, Volt). Power Control (Global gain kW, kVAR), and kW setpoint, power factor. **Level 2:** Same settings with proportional, integral, derivative.
MODIF BY VAR NUMBER*	Personalized settings (for experienced users only).

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WIRING CONNECTION

Wiring & Dimensions/Panel cut out, please check on the website, (www.cretechnology.com/en/paralleling/45/gensys-compact-prime) in the **technical documentations section.**
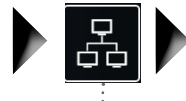
PC CONNECTION - WITH I4GEN SUITE SOFTWARE

Switch on the controller. Connect the Ethernet port (RJ45-LAN) of your computer to the Ethernet port of the controller. To be able to establish communication between the i4Gen Suite and the controller, the network addresses of both devices should be configured:

1. For PC network configuration, please refer to your Windows network settings.
2. The controller network configuration can be done from the controller front panel or via the i4Gen Suite software.
3. The network configuration of both devices has to be compatible: The IP address by default of CRE TECHNOLOGY controllers is: 192.168.11.1

Installation of the i4Gen Suite SOFTWARE

Download the latest version of the software on our website
www.cretechnology.com/en/c/33/products/software

Open the i4Gen Suite software and go on Easy connect menu (on the top right)
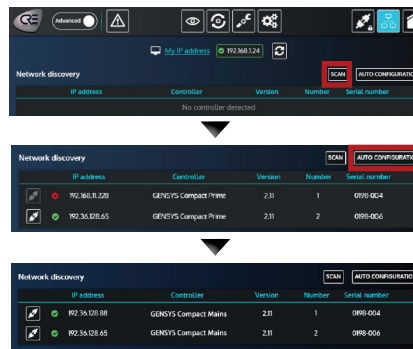
Click on the icon "**SCAN**".
Your GENSYS COMPACT MAINS will appear

Click on the icon "**AUTO CONFIGURATION**" to adapt IP addresses

Your system is ready
You can click to connect on the product.

ONCE CONNECTED, YOU WILL BE ABLE TO NAVIGATE THROUGH THE FOLLOWING MENUS

CONTROLLER SUPERVISION
(Visualization of all parameters)

CONTROLLER DYNAMIC SETTINGS
(Parameters settings with engine running)

CONTROLLER STATIC SETTINGS
(Parameters setting with engine stopped)

APPLICATION SETTINGS
(PC software settings)

NOTE

Before the commissioning or the operation of your equipment, please read carefully the user's manual and other related documentations.

Engines, turbines or any other type of Generator must be equipped with protections (overspeed, temperature, pressure… depending on your installation). We also offer personalized and specific training on our product range and software, as well as additional services such as: onsite support, application engineering or specific support.

⚠ **Carefully apply the safety instructions. Any misuse of your equipment can lead to human or machine damages.**

COMMISSIONING

- In Manu mode: Start/Stop the engine, and check protections (oil pressure, water temp, emergency stop, etc …). Open and close the generator breaker. Apply some load, and check that kW power are positive on each phase. Connect the controller analog outputs on speed governor and AVR products, and execute **Easy Calib** function to control and adjust automatically the 2 analog signals.
- Check that you have the right and accurate nominal frequency and nominal voltage. By increasing/decreasing the speed manually, check that you have a range of +/- 2,5 Hz. By increasing/decreasing the voltage manually, check that you have a range of +/- 8%.
- Disconnect the breaker relay output of the controller. Apply synchronization and check if frequency, phase and voltage difference are within the expected limits.
- Paralleling can be tested, and stability can be adjusted.
- After commissioning, products can be switched to AUTO mode.

CONTROL LOOPS ADJUSTMENT
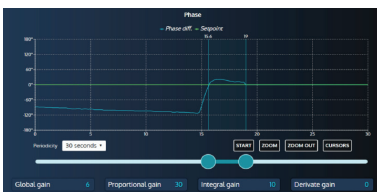
To adjust these parameters, we offer, on the same screen, the real time curves visualization of parameter setpoint and measurement. These 2 curves will help you to adjust PID for global stability. It is available for synchronization (Frequency, phase, and voltage), and power control (kW/kVAR).
- With level 1 of the controller (standard mode with i4Gen Suite), you have access and you can set the global gain G.
- With level 2 of the controller (advanced mode with i4Gen suite), you have access and you can set the proportional P, integral I and derivative D:
  - Increase P value to have measure curve close to setpoint curse, without hunting.
  - Increase I to decrease the static error (difference between setpoint and measure), without slow hunting.
  - Only if necessary, increase D, for oscillation attenuation.