GENSYS COMPACT PRIME

All-in-one synchronizing and paralleling controller

The **GENSYS COMPACT PRIME** is made for generators used in power plant applications requiring synchronizing, active and reactive load sharing and electrical/mechanical protections.
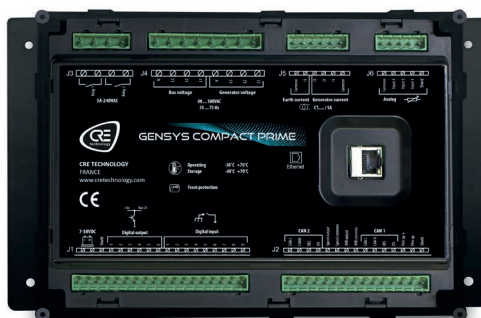
GENSYS COMPACT PRIME offers flexibility and time saving thanks to its simple wiring, all features included (no option), and easy programming.

HARDWARE AND DISPLAY

GENSYS COMPACT PRIME is available in both switchboard panel mounted version with display, or core base mounted version and compatible with **i4GEN** touchscreen color display.

SOFTWARE

GENSYS COMPACT PRIME is configurable from its front panel display, from **i4GEN**, or through the free **CRE PC** software.

**CORE BASE
MOUNTED VERSION**

**SWITCHBOARD MOUNTED VERSION
WITH DISPLAY**

FEATURES

CONTROL AND MANAGEMENT

- Complete engine control of diesel, gasoline or gas generators (preheating, pre-glow, ignition, start/stop…).
- Alternative or consecutive multiple starter management.
- Warm-up and cool down at idle or nominal speed.
- Remote start and test mode available On/Off load.
- Compatible with all J1939 electronic engines.
- Isochronous and Iso-voltage active and reactive load sharing.
- Fixed KW/KVAR load or droop mode.
- Frequency and voltage control compensation for generators with droop governors and/or AVR/DVR.
- Synchronization and dead Bus management
- Static synchronization: generators breakers closing without excitation.
- Dynamic synchronization: Frequency, Phase and Voltage synchronization (Synch display available on screen). Synch check (ANSI 25) + Phase sequence protection.
- New optimized PID loop with exceptional performance in synchronization, KW and KVAR control.
- Override mode (protections inhibition + dedicated hour meter) following NFE 37-312 certification.
- Non-essential load control on overload.
- Battery boost management.
- Configurable maintenance cycle.
- 2 password levels.
- Automatic clock synchronization by CANbus.

DISPLAYED INFORMATIONS

- Engine parameters: oil pressure, coolant temperature, speed, hour run meters (normal and override), number of start attempts, battery voltage… and all J1939 values available on ECUs.
- Generator electrical parameters:
  - Voltage (3 phases RMS, L-L and L-N)
  - Current (3 phases RMS)
  - Frequency
  - Active power (3 phases + total)
  - Reactive power (3 phases + total)
  - Power factor (3 phases + total)
  - Calculated active energy (KWh)
  - Calculated reactive energy (KWARh)

- Bus electrical parameters:
  - Voltage (3 phases RMS, L-L and L-N)
  - Frequency
  - Active and reactive power (calculated)
  - Power factor (calculated)
- Synchroscope and synch check relay authorization values.
- Log of alarms/faults with timestamp and real-time value.
- Configurable event logger and info pages.

EVENTS LOGGER

- 1350 logged events with timestamp and real-time value, on a non volatile memory.
- The last 30 logged alarms/faults and 15 active alarms/faults are available on front panel display.

ELECTRICAL PROTECTIONS

- Generator electrical protections:
  - <F, >F : ANSI Code 81L, 81H
  - <U, >U : ANSI Code 27, 59
  - >I, >>I, >In, Ig : ANSI Code 50, 51, 50N, 51G
  - <KW, >KW, -KW : ANSI Code 37P, 32P, 32RP
  - <KVAR, >KVAR, -KVAR : ANSI Code 37Q, 32Q, 32RQ

BREAKERS CONTROL

- Adjustable pulses or latched contact for breaker closing.
- Adjustable pulses or latched contact for breaker opening.
- MN/MX coil management.

PROGRAMMING FEATURES

- Alternative selection: up to 16 parameters values can be modified by triggering any digital input or Modbus TCP variable.
- Scheduler: Specific functions or modes (ex: auto start, test mode, Boost…) can be programmed on scheduled operation (cyclic or one-time).
- Easy Flex®:
  - 50 lines of programming with logic and arithmetic operators and conditions
  - All inputs/outputs and variables available
- Generic filling feature:
  - High and low set point from digital or analog input

- Up or down direction configurable

AUTOMATIC FIRMWARE UPDATE

When module is connected to **CRE PC** software, you will automatically be asked for a firmware update to the latest version if applicable.

MODBUS TCP SLAVE COMMUNICATION PORT

- All data are accessible by Modbus TCP locally or remotely (web, GPRS).
- Read and write functions + 300 free Modbus TCP address available for custom mapping.

REMOTE SUPERVISION WITH BSD 2.0 MODULE (CLOUD TECHNOLOGY)

- Geolocalisation: you can see from your PC or smartphone the localization of your complete generators fleet.
- Geo Fencing: In case of generator moving beyond a configurable limit, you will be informed by message.
- Monitoring and control of the generator.
- Alert messages (SMS, emails).
- Up to 8 users access levels.
- Free Cloud license.

Part numbers:
A56-PRIME-10-A Core base mounted version
A56-PRIME-00-A Switchboard mounted version with display

RELATED PRODUCTS AND CABLES

i4GEN Touchscreen color display – Ref A56Vxx
MASTER COMPACT – A56-MAST
Additional I/O – Ref LC5100 + KL1488 + KL2408 …
PC Connection Ethernet cable – Ref A53W1
CANbus J1939/CRE/CANopen communication cable – Ref A40xx
Remote monitoring gateway BSD2.0 – Ref A61Y2
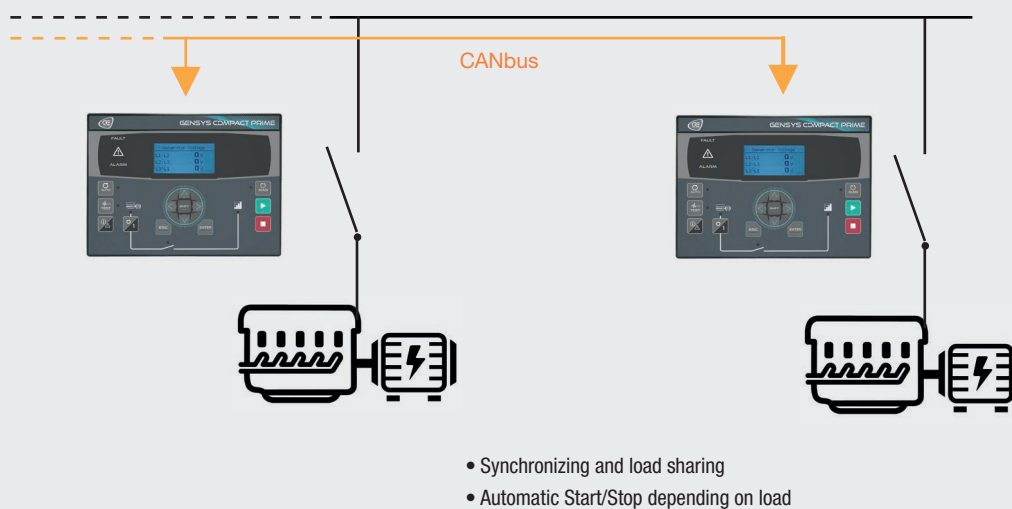Demonstration suitcase – Ref A56X1

APPLICATIONS

GENSYS COMPACT PRIME is well-suited for any application requiring paralleling of 2 generators or more (up to 32), and an automatic management of load control, synchronization process (on live Bus bar or dead Bus bar), load dependent start/stop and protections.

GENSYS COMPACT PRIME is able to manage diesel, gasoline or gas engine start and stop sequences, as well as interfacing with Auto-Start controllers and ECUs, by using I/Os or J1939 CANbus protocol. **GENSYS COMPACT PRIME** offers also an Ethernet port for PC connection and Modbus TCP connection for supervising purposes (BMS).

Up to 32 generators in parallel

CANbus

• Synchronizing and load sharing
• Automatic Start/Stop depending on load

CRE TECHNOLOGY - 130, allée Charles-Victor Naudin - Zone des Templiers - SOPHIA ANTIPOLIS - 06410 BIOT - FRANCE
Phone : + 33 (0)4 .92.38.86.82 - www.cretechnology.com - info@cretechnology.com

GENSYS COMPACT PRIME_SALES DOCUMENTATION_EN_A2019

All-in-one synchronizing and paralleling controller

SPECIFICATIONS

ELECTRICAL SYSTEM

Compatible with 3 or 4 wires three-phase, or two-phase or single phase systems.

CURRENT, VOLTAGE AND FREQUENCY

- DC Power supply: 7…38VDC, Max voltage 45VDC during 15mn, current consumption at 24VDC = 130mA + the sum of maximum consumption of each logic ouput.
- AC Voltage inputs: 80…500VAC. Consumption = 100mA max. Accuracy: 1%. 3ph + N for generator / 3ph + N for Bus. Neutral terminal does not need to be connected.
- AC Current inputs: 4 wires. (3ph) for generator / 2 wires (1ph) for Earth. 0…5A. 1VA. Overload 15A during 10s. Accuracy: 0.5%.
- AC Frequency measurement: 35…75 Hz; 15VAC minimum between phase and neutral.

INPUTS, OUTPUTS

- 9 x Digital inputs: NO or NC to ground. Adjustable timer On and Off.
- 32 x Digital inputs expansion via CANopen.
- 3 x Analog inputs: Resistive (0…500Ω) or 0…20mA (with external resistor). Could be used as digital input.
- 6 x Digital outputs: NE or ND. 1.8A, over-current protected.
- 32 x Digital outputs expansion via CANopen.
- 2 x Relay outputs (breaker control): 5A, 240VAC.
- 2 x Analog outputs: Speed/Frequency and Voltage control: +/-10VDC isolated output with adjustable span and offset.
- Magnetic pick up input: Frequency from 50Hz…10kHz, Voltage 0.5…40VAC.

COMMUNICATION PORTS

3 isolated com ports are available:
- 1 CANbus: J1939 electronic engine and I/O extensions.
- 1 CANbus: **CRE** protocol.
- 1 Ethernet: PC communication/Modbus TCP.

FREQUENCY AND KW CONTROL

- Configurable +/-10VDC analog output.
- Pulses outputs control (+f/-f).
- J1939 CANbus port for Caterpillar, Cummins, Detroit, Deutz, Iveco, John Deere, MTU, Perkins, Scania, Volvo electronic engine…
- Protection of speed control output abnormal deviation.

VOLTAGE AND KVAR AND POWER FACTOR CONTROL

- Configurable +/-10VDC analog output.
- Pulses outputs control (+U/-U).
- Compatible with: AEM, AVK, Basler Electric, Caterpillar, Kia, Leroy Sommer, Marathon, Marelli Motori, Meccalte, Sincro, Stamford…
- Protection of volt control output abnormal deviation.

ENVIRONMENT

- Operating temperature: -20…70°C (-4…158°F).
- Storage temperature: -40…70°C (-40…158°F).
- Humidity: 95% non-condensing.
- Altitude: Up to 4000m for 480VAC. Up to 5000m for 400VAC.
- IP Front: IP65/NEMA rating 4 - IP20/NEMA rating 1 for core base version.
- IP Rear: IP20/NEMA rating 1.

DIRECTIVES

- EMC Directive 2014/30/UE - EMC General Requirements EN 61326-1: Immunity according with EN 61000-6-2 and Emission according with EN 61000-6-4.
- Electrical Safety Directive 2014/35/UE: According with EN 60950-1.
- Vibrations and shocks: According with EN(IEC) 60068-2-6 and IEC 60068-2-27.
- Temperature: EN (IEC) 60068-2-30; EN (IEC) 60068-2-1 EN (IEC) 60068-2-2; EN 60068-2-78.

SIZE AND WEIGHT

- Switchboard mounted version with display:
  - Dimensions: 245x182x40mm (9.64x7.16x1.57in).
  - Panel cut out: 220x160mm (8.7x6.3in).
- Core base mounted version:
  - Dimensions: 260x157x44mm (10.24x6.18x1.73in) (depth with connectors).
  - Fixing dimensions (4 screws): 238x129mm (9.37x5.08in). Fixing hole: Ø5.24mm (0.21in).
  - Optional DIN rail mounting.
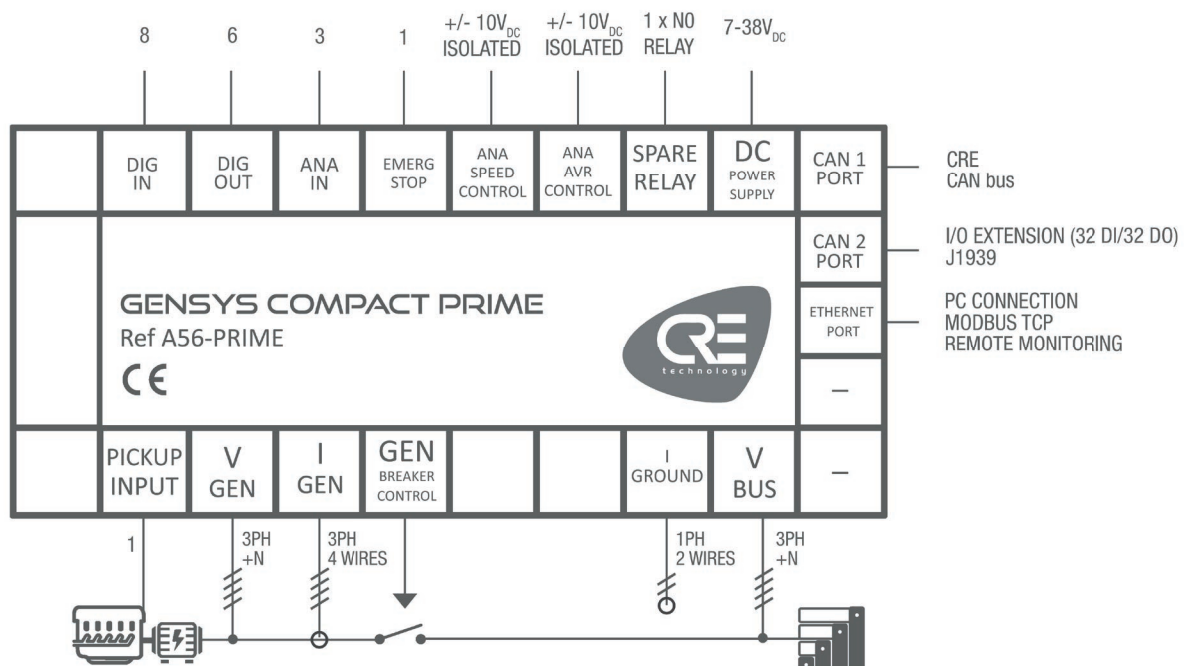- Weight: 0.7kg (1.54lb).

LCD DISPLAY CHARACTERISTICS

- Size: 40x70mm (1.50x2.75in).
- Pixels: 256x128. Back light: 50cd/m² typical, configurable.
- Contrast: configurable.

LANGUAGES

English, French, Italian, Spanish in standard. Custom languages available on request.

WIRING DIAGRAM

GENSYS COMPACT PRIME

All-in-one synchronizing and paralleling controller

ASSOCIATED MULTI-TOUCHSCREEN DISPLAY AND FEATURES HIGHLIGHTS

I4GEN

WIFI

3G/4G

INTERNET

CRE TECHNOLOGY SUPPORT

ETHERNET HUB

i4GEN
Up to 128 units
(4 displays per controller)

GENSYS COMPACT PRIME switchboard or core base version, up to 32 units

- The i4GEN touchscreen and color display is available for GENSYS COMPACT PRIME.
- i4GEN offers configuration, control, monitoring and logging (parameters, measures, events) of CRE TECHNOLOGY controllers.
- i4GEN display can be duplicated on computer locally by LAN or remotely by internet or GPRS
- i4GEN can be used as single GENSYS COMPACT PRIME monitoring display or as power plant interface by providing access on all controllers connected on the same Ethernet network.
- Thanks to its WIFI option, i4GEN offers also the capability of remote service and support by connecting your smartphone in connection sharing.

EASY FLEX® PROGRAMMING EXAMPLE

It is possible to customize your application by programming specific features with **Easy Flex®**, available directly from **CRE PC** software. **Easy Flex®** allow user to write up to 50 lines of equation trough an intuitive editor, giving the opportunity to fit with any specific application and to extend standard features.
Ex: Programmable relays, timers, sensor treatment, dynamic modification…

Easy flex

Equations

Input			Output			Line execution condition	
Value 1	Operator	Value 2	Variable	Forward/Reverse	Delay (s)	Variable	
Generator volt	Greater or eq	Nominal voltag	Digital output	Forward	1.5	Remote start c	Not equal 0
Remote start w	Equal	1	Remote alarm	Reverse	0	Emergency sto	Equal 0

CRE TECHNOLOGY - 130, allée Charles-Victor Naudin - Zone des Templiers - SOPHIA ANTIPOLIS - 06410 BIOT - FRANCE
Phone : + 33 (0)4 .92.38.86.82 - www.cretechnology.com - info@cretechnology.com

GENSYS COMPACT PRIME_SALES DOCUMENTATION_EN_A2019