

GENSYS 2.0 CORE



Core unit for all-in-one genset control and paralleling unit with integrated PLC

- Rear mounted control and paralleling module
- To use with the remote display module : RDM 2.0, programmable by equations
- I/O flexibility
- Isolated communication ports: RS485, 4 CAN bus,
- SD card reader, Ethernet
- Fully compatible with all speed governors and AVR's
- Engineering services for specific applications



The GENSYS 2.0 CORE is an easy-to-use rear-mounted, control and paralleling module which can synchronize up to 32 generators.

The modules are designed to work with independent remote display module RDM 2.0 which are connected through Ethernet. GENSYS 2.0 CORE is configured with CRE Config software or via its embedded Web site.

The kit GENSYS 2.0 CORE and RDM 2.0 packs all standard features of a classic GENSYS 2.0 and adds to it remote display possibilities. It is an extendable system that can be optimized to your space facility.

PROGRAMMING BY EQUATIONS

The GENSYS 2.0 CORE module is a real PLC unit where equations and sequences can be programmed directly by the user with text editor software or Easy PLC software.

INPUTS / OUTPUTS EXTENSION

The number of inputs/outputs that can be added is one of the most important on the market. Extension modules (DIN rail mounting) can be added on the CAN bus. This extends a large number and a large diversity of inputs/outputs up to 128 digital inputs, 64 digital outputs, 44 analog inputs, 32 analog outputs and CANopen standard module.

MINIMUM OPTIONS

The GENSYS 2.0 CORE is offered full features with a minimum of options to fit all types of application without expensive add-on packages. For specific needs, the following options are available:

- Mains paralleling
- Phase shift compensation (ie: Dyn11)

added value

EQUATIONS : Embed your knowledge!

GENSYS 2.0 CORE integrates a real PLC unit in which user equations and sequences can be written using a simple text editor or graphically designed using the Easy PLC software.

Thanks to its versatile connectivity the GENSYS family is compatible with peripheral devices:

- Electronic engines: CAN bus J1939/MTU MDEC
- Speed governors: $\pm 10 V_{dc}$ /Pulse k Ω /PWM 500Hz
- AVR: 0-10 Pulse
- PLC/HMI: Modbus RTU RS485/ Modbus TCP Ethernet
- Power transducers: 4-20mA
- CANopen I/O extensions (only for GENSYS 2.0 and GENSYS 2.0 CORE)
- Mains: CAN inter-GENSYS
- Analog load sharers: parallel lines

INTER-UNIT ISOLATED CAN BUS

The GENSYS 2.0 CORE features an isolated CANbus dedicated to inter-module communication (dead busbar management, static paralleling, kW and kVAR load sharing...).

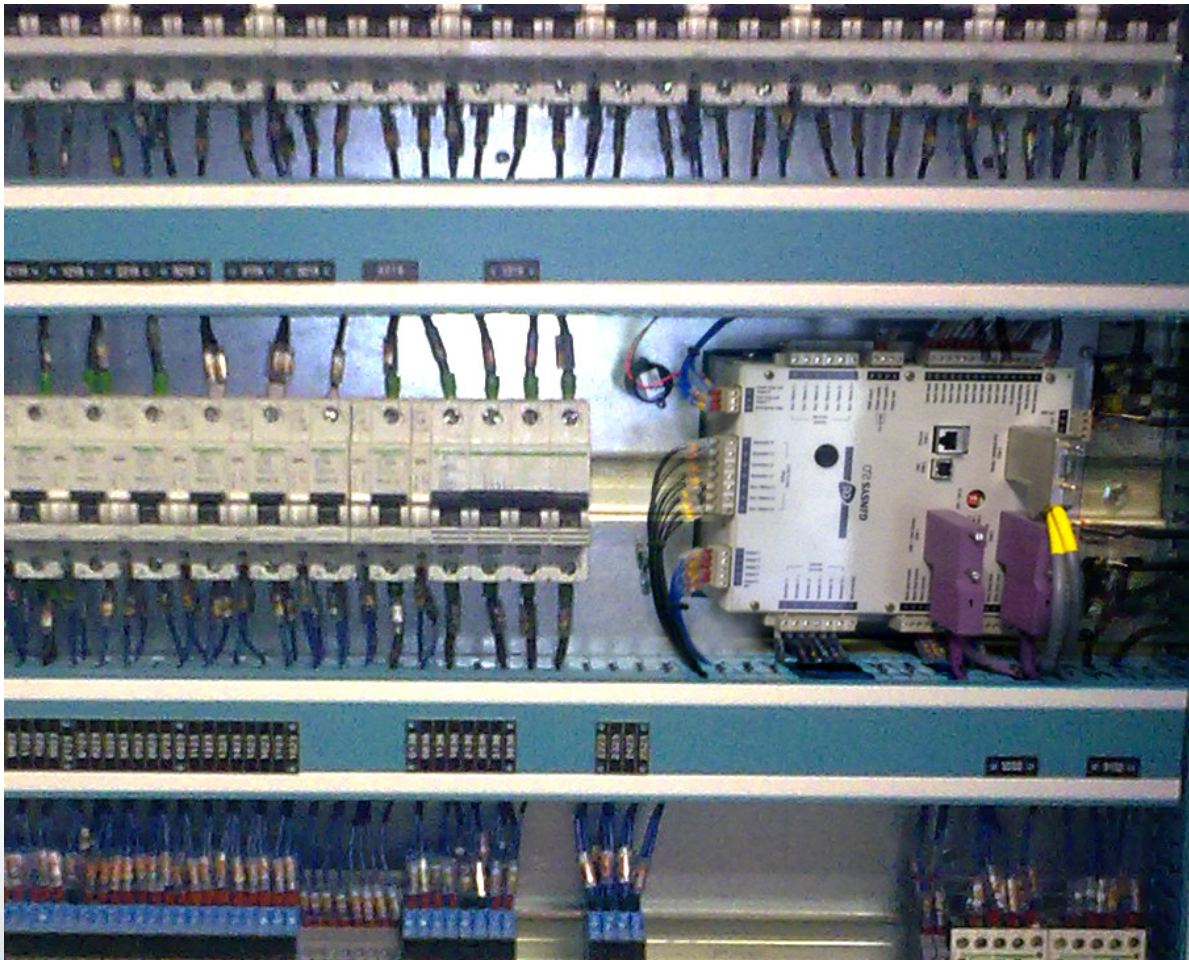
CANbus technology provides high reliability communication while maintaining low wiring cost and complexity.

GENERATORS WITH MAINS

The GENSYS 2.0 CORE allows paralleling applications for one generator with mains.

When several generators are paralleled with mains, the MASTER 2.0 is used (connection via inter-module CAN bus) for:

- Three phase mains failure
- Paralleled gensets with several mains control
- Electrical protection for power plant and mains
- Electrical parameters display for power plant and mains
- Manual and automatic paralleling with mains (frequency, phase and voltage)
- Power factor control when paralleling with mains.
- kW multiple power management modes:
 - No break change over with load transfer
 - Permanent paralleling in base load
 - Permanent paralleling in peak shaving mode (export/import)



GENSYS 2.0 CORE



FEATURES

Control and management

- Manual and automatic engine control.
- Automatic start/stop control depending on load demand.
- Dead busbar management.
- Isochronous or droop kW load sharing control (via CAN bus serial port, up to 32 generators)
- Constant voltage (or droop) kVAR load sharing control (via CAN bus, up to 32 generators)
- Power factor control when paralleling with mains.
- kW control (base load or peak shaving) when paralleling with mains.

Protections

- Generator electrical protections: <F, >F, <U, >U, >I, >In, >P, <P, <-P, >Q, <Q, <-Q
- Mains electrical protections (option) : <F, >F, <U, >U, >P, <P, <-P, >Q, <Q, <-Q, phase shift, df/dt.
- Phase sequence protection, phase shift compensation.

Synchronization

- Manual and automatic frequency and phase synchronization (differential frequency meter + synchroscope available on screen).
- Manual and automatic voltage synchronization (differential voltmeter available on screen).

Alarms and events

- The last 50 alarms and last 50 shutdowns are recorded on non volatile memory.
- Data logging.

Other

- "Watchdog" digital output for microprocessor life signal.

CHARACTERISTICS

Current, voltage and frequency

- DC voltage power supply input: 8 to 40V_{DC}, 600mA at 12V_{DC} and 300mA at 24V_{DC}.
- AC voltage inputs: 100 to 480V_{AC}, 100mA max. Neutral terminal does not need to be connected.
- AC current inputs: 0 to 5A, 1VA. Each phase is isolated from the others.
- AC current overload: 15A during 10s.
- Frequency measurement: 45 to 70 Hz – 15V_{AC} minimum between phase and neutral.
- Voltage control signal: The voltage control (AVR) is made either by a +/-5V_{DC} output with adjustable span and offset or by digital outputs +/- pulses.

Environment

- Operating temperature: -20 to +70°C
- Storage temperature: -30 to +80°C
- Humidity: 5 to 95%. Tropic-proof circuits for normal operation in humid conditions.
- IP20

Inputs, outputs

- Emergency stop input: normally closed 24V.
- Relay outputs (crank and fuel): 5A. The 24V is provided through the emergency push button.
- Relay outputs (breakers): 5A, 230V_{AC} max. NO + NC available.
- Transistor outputs: 350mA, over-current protected.
- Analog inputs (oil pressure and water temp): 0 to 400 Ω. Calibration is configurable.
- Analog inputs (spare 1 and spare 2): 0 to 10KΩ.
- Calibration for speed and frequency control is made either by a +/-10V_{DC} output with adjustable span and offset or by speed+/speed- contacts.

- Magnetic pick up input: 100 to 10.000Hz, 2V_{AC} minimum.
- PWM output for CAT and Perkins engines

Ports

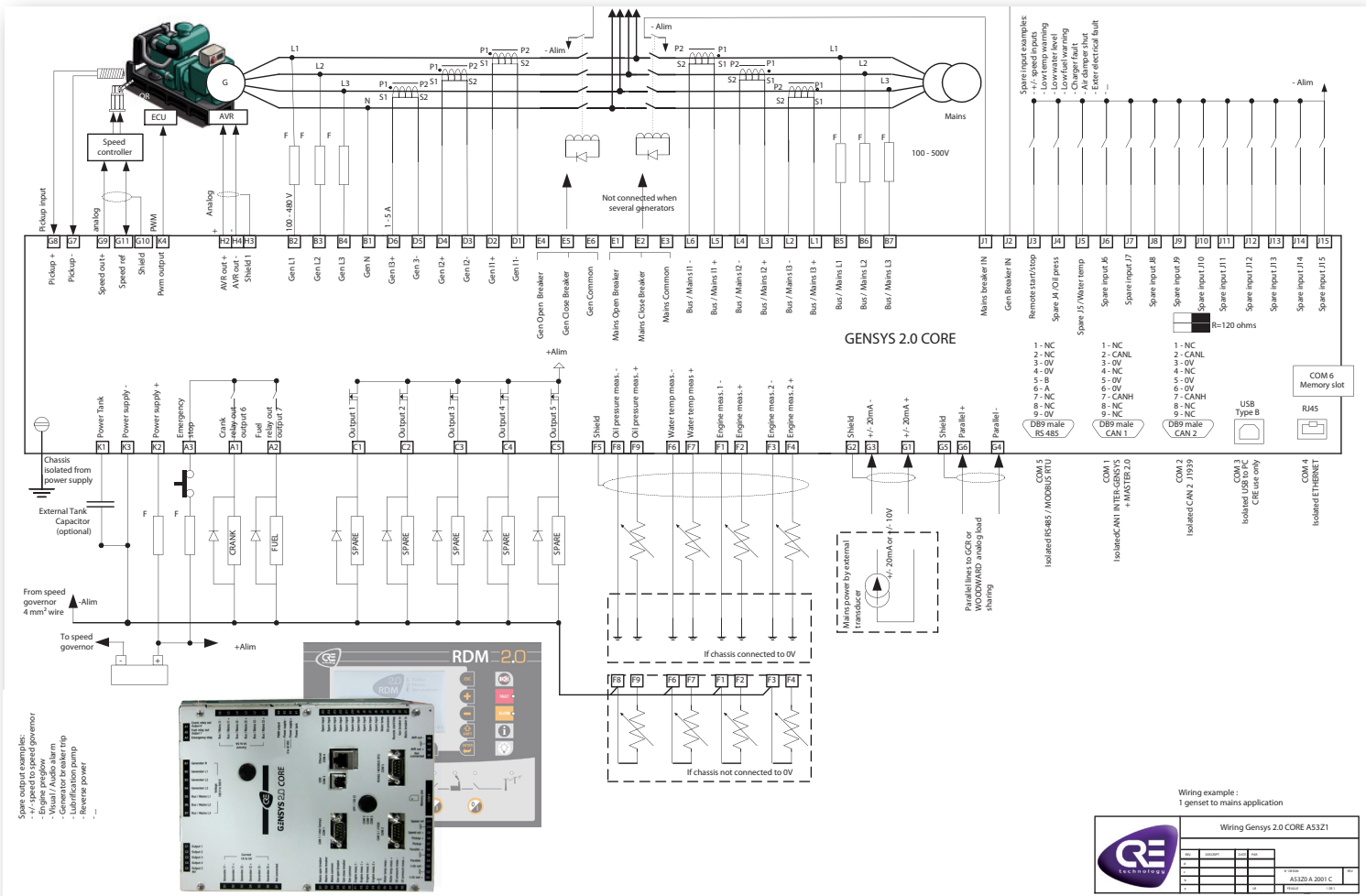
- Isolated communication ports are available:
 - RS485 for Modbus RTU (read and write)/ male Sub-D 9 pins 120 Ω resistors selected by micro-switch.
 - CAN bus for inter-GENSYS/ MASTER 2.0 connection: male Sub-D 9 pins 120 Ω resistors selected by micro-switch
 - CAN bus dedicated to options J1939, I/O extensions: male Sub-D 9 pins 120 Ω resistors selected by micro-switch
 - Ethernet: PC communication/ GENSYS 2.0 CORE and RDM 2.0 connection/ Modbus TCP
 - SD card reader

Size and weight

- Size: 248x197x57mm (9.76x7.76x2.24in)
- Back size: 250x200mm (9.84x7.878in)
- Weight: 1kg (2.2lb)

Certifications

- European Union Directives: EN 50081-2, EN 50082-2, 73/23EEC



PART NUMBER
A53Z1

SOFTWARE
CRE Config / Easy PLC

CABLE
A53W1

ASSOCIATED PRODUCTS
GENSYS 2.0
Complementary: RDM 2.0