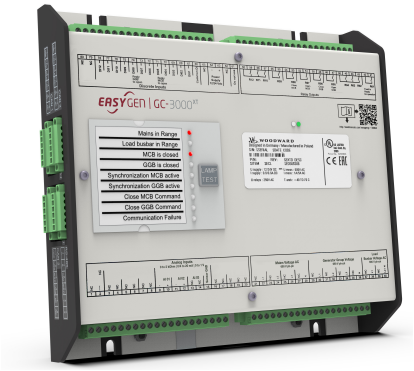
Released

WOODWARD EASYGEN | GC-3000XT

Product Specification
B37921



easYgen | GC-3400XT

easYgen-3500XT

Salient Features

- ✔ Command up to 496 gensets sorted into 16 groups of 31 gensets each
- ✔ Cascaded control architecture with
  - • Peer-to-peer communication
  - • Communication line redundancy at each level
- ✔ Connects to easYgen XT and easYgen | LS-6XT
- ✔ PC based emulation tool for testing load dependent start/stop sequence
- ✔ Direct connect up to 690 Vac

Group Controller for large fleet of gensets

Description

Woodward's group controller, GC-3400XT together with easYgen-3400/3500XT genset controller and easYgen | LS-6XT circuit breaker controller is designed to manage virtually any large scale power generation system you can imagine. The trio enables you to command up to 496 gensets, with complete genset management, synchronization, dead bus prioritization, load share, load dependent start/stop and segmenting capabilities to name a few. These controllers come with stand-ardized software that is simple to configure, yet easily customizable for individual applica-tions. Peer-to-peer communication between the controls and load share line redundancy at each level ensures single-fail-safe op-eration of your power generation control system.

The GC-3400XT is based on a scalable multi-master control concept to combine up to 31 easY-gen-3000XT equipped gensets with one group controller in a group. The groups are scaled up to 16, i.e. a total up to 496 gensets can be managed in an application. The data flow within the group is handled by CAN or Ethernet or CAN & Ethernet bus. The group controller collects and sorts the data of its group and acts like a "Big Genset" control to the other GCs. The data flow among the group controllers is handled by second communication bus Ethernet B or Ethernet C or Ethernet B & C. Through the decoupling of the overall data flow, the bus bandwidth is kept low and the single genset operation is kept safe, should a group controller become the point of failure. Furthermore, the group controller may handle a group breaker, to synchronize or prioritize dead busbar closing. Additionally, the group controller supports the synchronization and soft loading/ unloading of a tie- or mains breaker. Comprehensive diagnostics, monitoring and system update function are implemented to help fast com-missioning of the system.

Woodward's easYgen-3400XT/3500XT is an exceptionally versatile genset control with complete engine-generator control and protection, genset breaker synchronization, dead bus arbitration and isochronous/droop load share capabilities. The easYgen-3500XT is available in two packages, P1 and P2, both are compatible to work with GC-3400XT. Both the packages are available without a display in a rugged metal housing suitable for back panel installations. A sophisticated touch screen remote panel (RP-3000XT) complements them as an operator control panel.

Features

- Full connectivity of up to 496 gensets sorted into 16 groups of 31 gensets each. One GC-3400XT per group
- Redundant or single load share communication over CAN/Ethernet between easYgen and group controller
- Redundant or single load share communication over Ethernet among group controllers
- Redundant or single load share communication over Ethernet between GC and LS-6XT.
- Dedicated Ethernet Modbus TCP communication line to external Modbus master (PLC, SCADA etc.)
- Active and reactive load sharing and load dependent start/stop (LDSS) management of the whole fleet
- LDSS algorithm is emulated with a PC software and the final settings are transferred directly to the GC
- Supports synchronization and soft loading/unloading of a tie- or mains breaker
- Phase angle compensation (Vector group adjustment) in case transformers are used in the application
- Comprehensive monitoring of all interfaces, loss of redundancy and breaker feedback plausi-bility check
- "System Update" function for troubleshooting and fast commissioning
- Time / Date synchronization over Simple Network Time Protocol (SNTP)
- Woodward ToolKit™ software for flexible setup from a single connection to the network. The ToolKit can be accessed either via USB, or via Ethernet, or via CAN ports..

- Applications
  - Prime Power
  - Peak shaving
  - Emergency standby
  - Import-Export
  - Island parallel
  - Mains parallel
- Redundant CAN-Ethernet communication between GC-3400XT and easY-gen-3400/3500XT
- Redundant Ethernet-Ether-net communication among GC-3400XT
- Redundant Ethernet-Eth-ernet communication between GC-3400XT and LS-6XT
- Generator Group Breaker (GGB) synchronization and busbar arbitration
- Mains Circuit Breaker (MCB) synchronization and soft loading / unloading
- Load dependent start / stop (LDSS) for the entire fleet
- Comprehensive diag-nostics, monitoring and system update function
- LDSS Emulation tool
  - Emulate generator sequencing on a PC
  - Transfer the final settings directly to the GC-3400XT
- UL 61010, UL 6200, CSA, and CE compliance

Specifications

Power supply ..... 12/24 V_{DC} (8 to 40 V_{DC})
Intrinsic consumption ..... max. 22 W

Ambient temperature (operation) ... -40 to 70 °C / -40 to 158 °F
Ambient temperature (storage) ... -30 to 80 °C / -22 to 176 °F
Ambient humidity ..... 95%, non-condensing

Voltage (software configurable) ..... (⅄ / △)
100 V_{AC} Rated (V_{rated}) ..... 69/120 V_{AC}
Max. value (V_{max}) ..... 86/150 V_{AC}
and 400 /600 V_{AC} Rated (V_{rated})* ..... 400/690 V_{AC}
Max. value (V_{max}) ..... 520/897 V_{AC}
Rated surge volt. (V_{surge}) ..... 6.0 kV

Accuracy ..... Class 0.5
Measurable alternator windings
..... 3p-3w, 3p-4w, 3p-4w OD, 1p-2w, 1p-3w
Setting range primary ..... 50 to 650,000 V_{AC}
Linear measuring range ..... 1.25×V_{rated}
Measuring frequency ..... 50/60 Hz (30 to 85 Hz)
High Impedance Input; Resistance per path ..... 2.5 MΩ
Max. power consumption per path ..... < 0.15 W

Discrete inputs ..... isolated
Input range ..... 12/24 V_{DC} (8 to 40 V_{DC})
Input resistance ..... approx. 20 kΩ

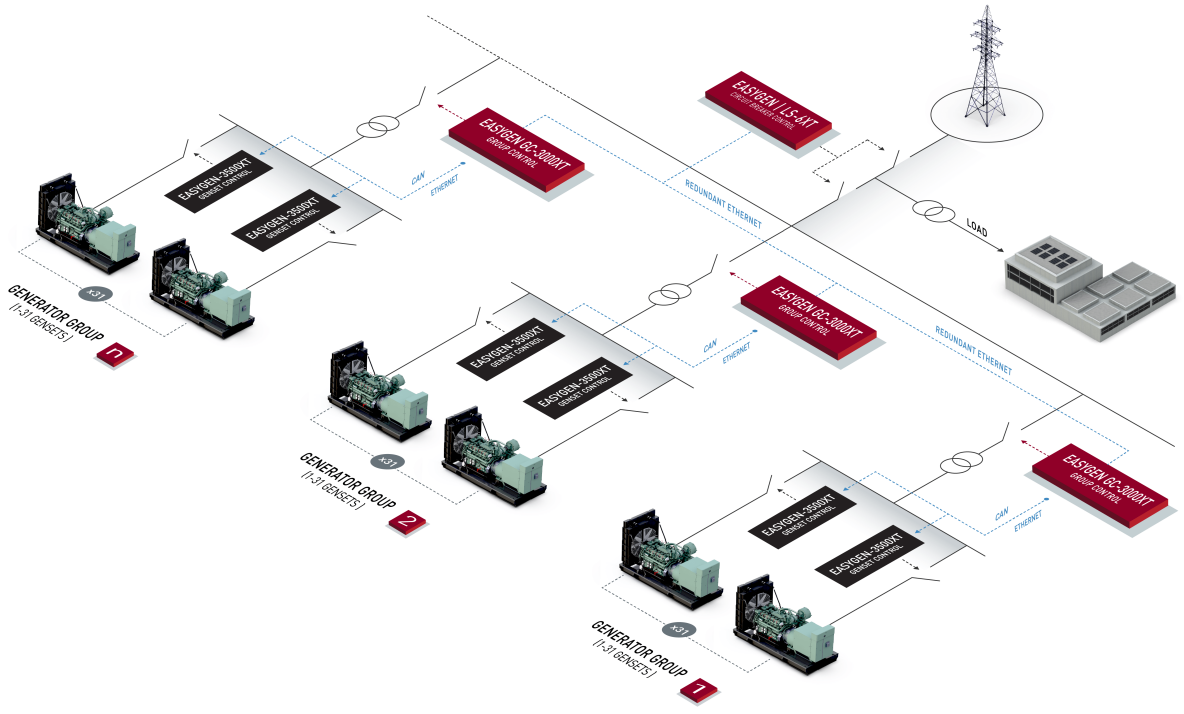
Relay outputs ..... isolated
Contact material ..... AgcdO
Load (GP) ..... 2.00 A_{AC}@250 V_{AC}
2.00 A_{DC}@24 V_{DC} / 0.36 A_{DC}@125 V_{DC} / 0.18 A_{DC}@250 V_{DC}
Analog inputs (isolated) ..... freely scalable
Type 1 ..... 0 to 1 V / 0 to 2 kΩ / 0 to 20 mA
Resolution ..... 16 Bit
Maximumpermissible voltage against genset Ground .... 9 V
Maximum permissible voltage genset Ground to PE ... 100 V

Housing ..... Back panel mounting,
Powder Coated Sheet metal housing
Dimensions W x H x D (P1): ..... 250 × 228 × 50 mm
Connection ..... screw/plug terminals 2.5 mm²
Protection system ..... IP 20
Weight ..... approx. 1,750 g

Disturbance test (CE)
..... tested according to applicable IEC standards

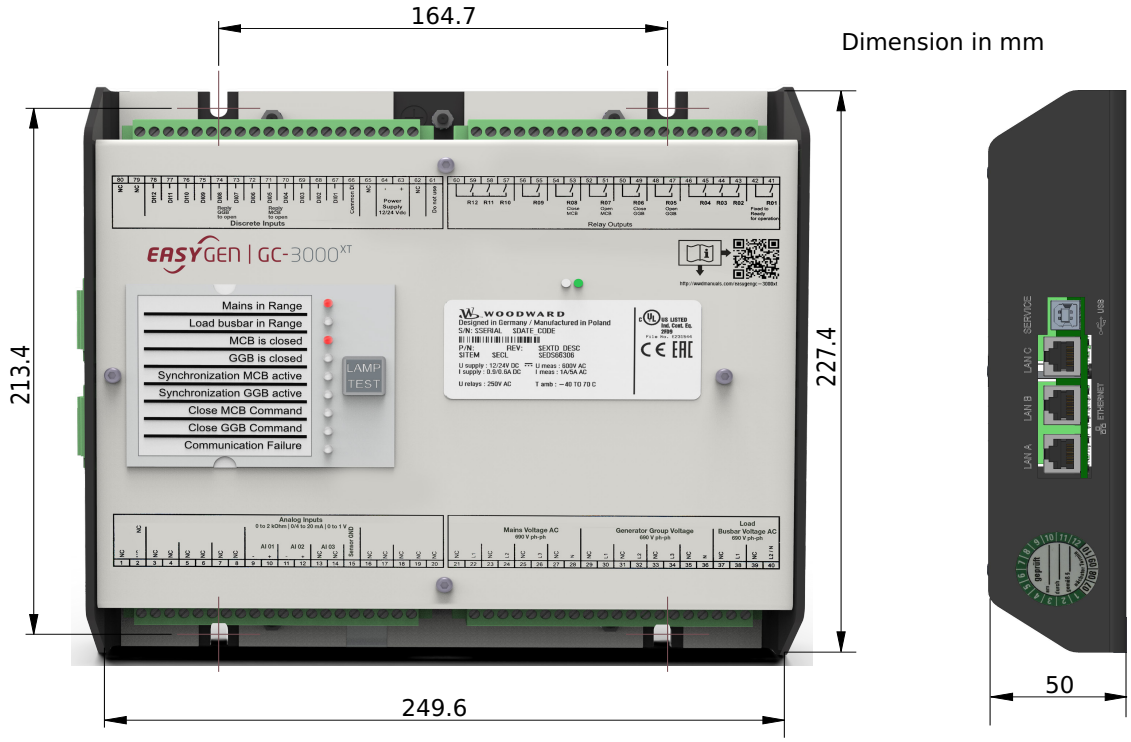
Listings ..... CE, UL, cUL, EAC , CSA

APPLICATION

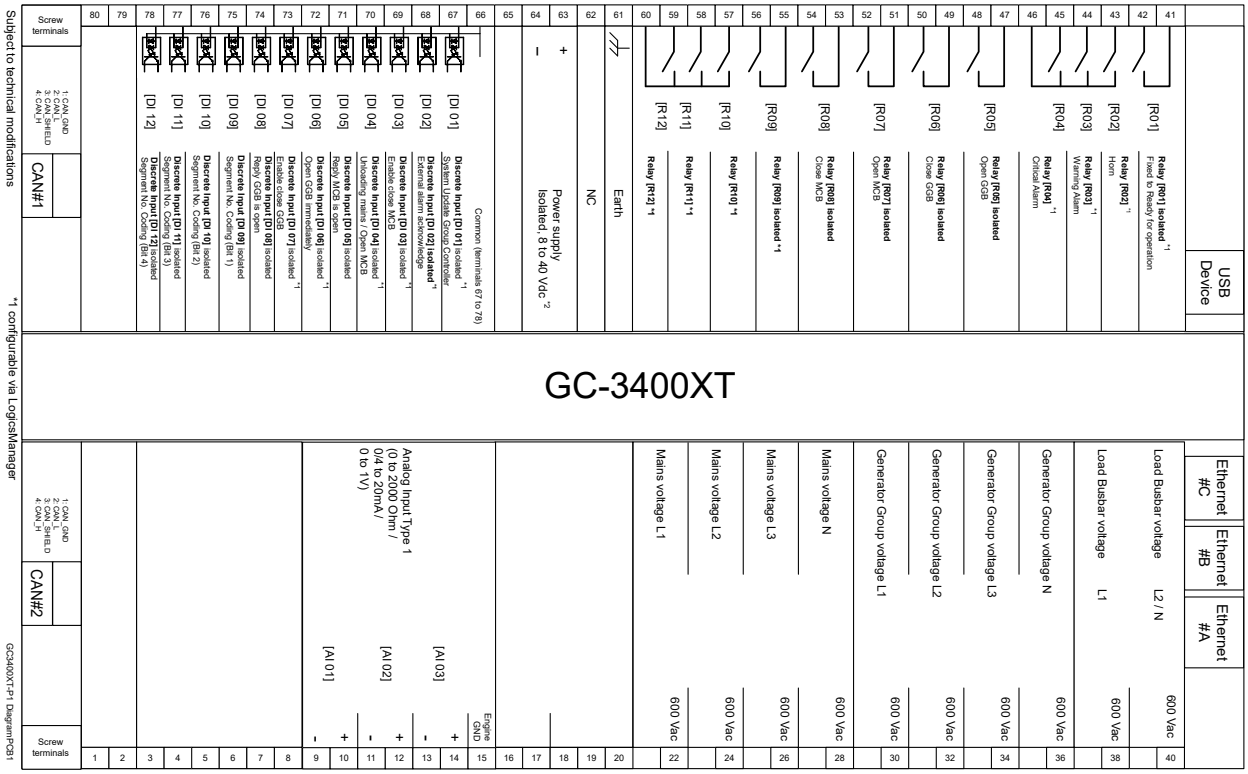


DIMENSIONS

Metal housing for cabinet mounting



TERMINAL DIAGRAM



RELATED PRODUCTS

- Genset Controller easYgen-3400/3500XT (Product Specification # 37583)
- Multi Circuit Breaker Controller easYgen | LS-6XT, (Product Specification #37913): P/N 8440-2222
- I/O Expansion Board IKD1 (Product Specification # 37171): P/N 8440-2116
- ToolKit (Product Specification # 03366)
- LDSS Emulation Tool (Product Specification #37897)

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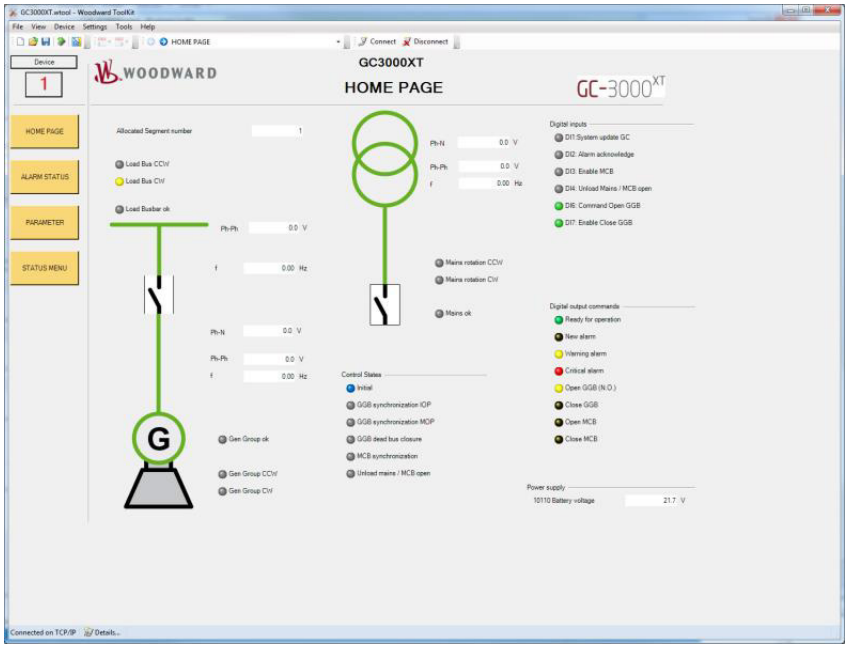
TOOLKIT CONFIGURATION & VISUALIZATION SOFTWARE

Woodward's ToolKit provides user-friendly configuration, commissioning assistance, visualization and the overview pages show what other controls the GC is communicating with. The GC-3400XT. Home Page is shown below.



LDSS EMULATION TOOL OVERVIEW

LDSS Emulation Tool allows emulating a number of easYgen-3000XT, GC-3000XT, loads and mains connections and their load dependent start/stop behavior. The tool allows access by Modbus/TCP master to r/w the parameter set. The final settings file can be directly transferred to the GC-3400XT or can be used offline by ToolKit.

PART NUMBER

Description	Order code
GC-3400XT-P1	8440-2267
Spare connector KIT	8923-2319