

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 standardized software that is simple to configure, yet easily customizable for individual applications. Peer-to-peer communication between the controls and load share line redundancy at each level ensures single-fail-safe operation of your power generation control system.

The GC-3400XT is based on a scalable multi-master control concept to combine up to 31 easYgen-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 commissioning 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 plausibility 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 easYgen-3400/3500XT
- Redundant Ethernet-Ethernet communication among GC-3400XT
- Redundant Ethernet-Ethernet 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 diagnostics, 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) (λ / Δ)
 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 primary50 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 path2.5 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}

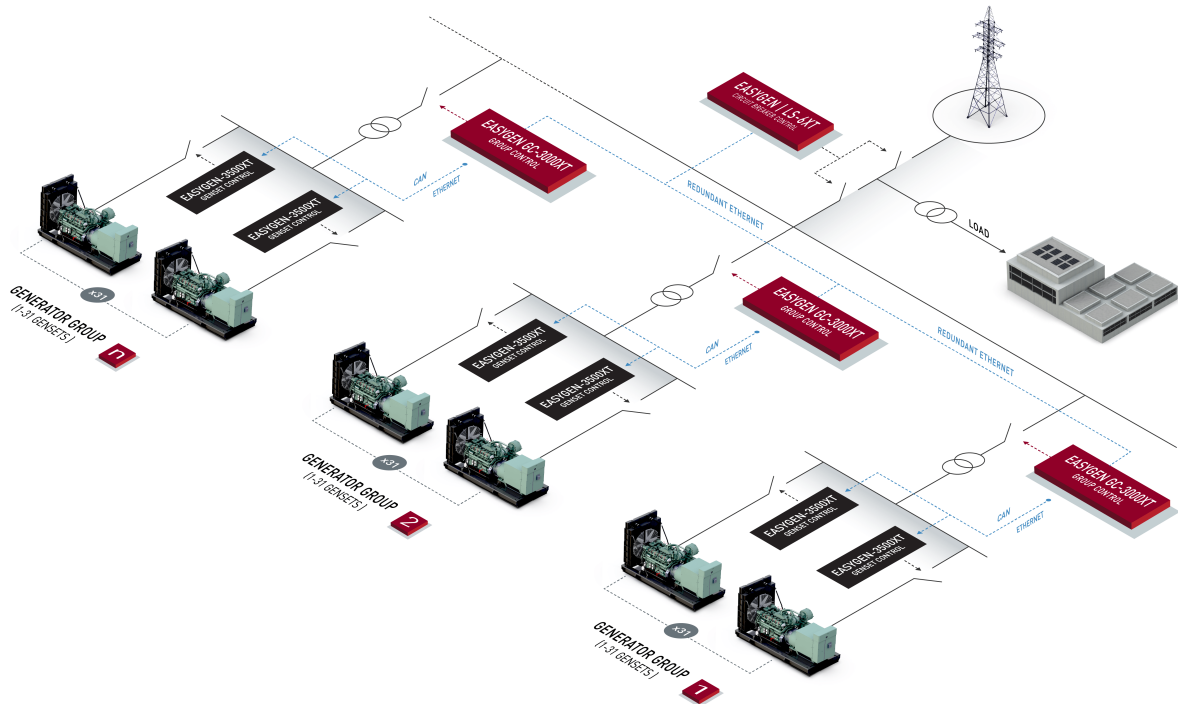
Analog inputs (isolated)..... freely scalable
 Type 1..... 0 to 1 V / 0 to 2 kΩ / 0 to 20 mA
 Resolution..... 16 Bit
 Maximum permissible voltage against genset Ground... 9 V
 Maximum permissible voltage genset Ground to PE ...100 V

Housing..... Back panel mounting,
 Powder Coated Sheet metal housing
 Dimensions W x H x D (P1):.....250 x 228 x 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

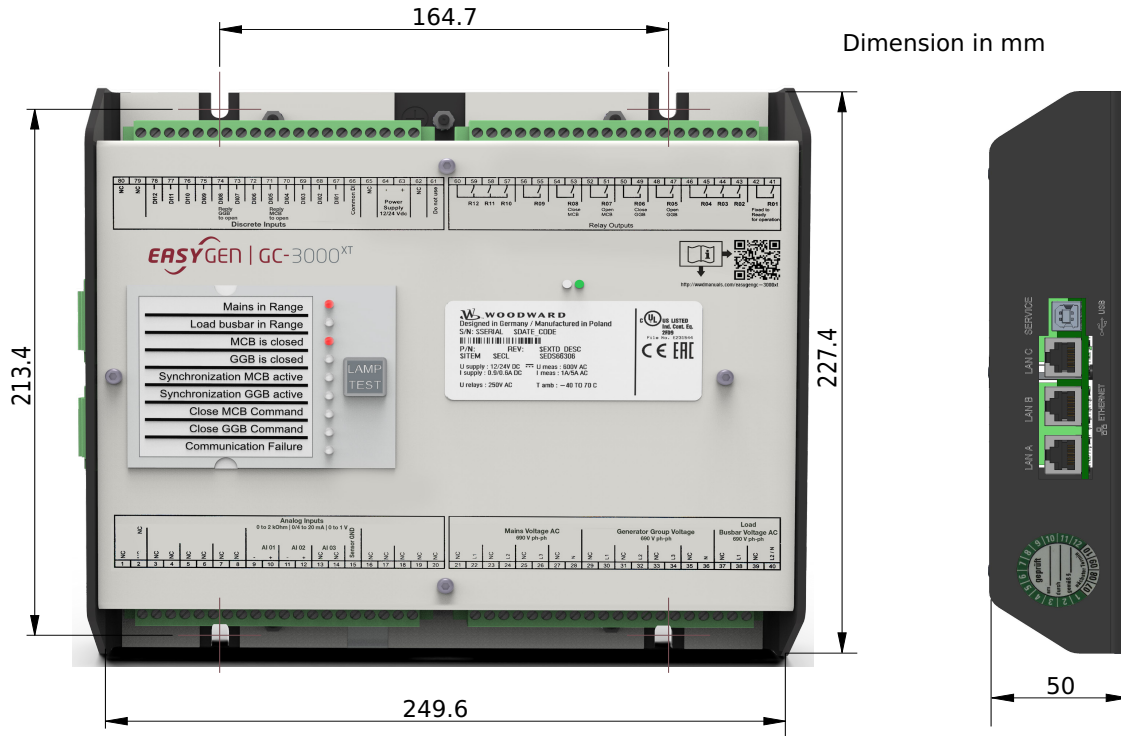
Listings.....CE, UL, cUL, EAC , CSA

APPLICATION



DIMENSIONS

Metal housing for cabinet mounting



Dimension in mm

TERMINAL DIAGRAM

Terminal No.	Terminal Description	Terminal Type	Terminal No.	Terminal Description	Terminal Type
80	Screen terminals	1 CAN_GND, 3 CAN_SHIELD, 4 CAN_V+	80	Screen terminals	1 CAN_GND, 3 CAN_SHIELD, 4 CAN_V+
79			79		
78	[DI 12]	Discrete Input (DI 12) isolated	78	[AI 01]	Analog Input Type 1 (0 to 2000 Ohm / 0 to 1V)
77	[DI 11]	Discrete Input (DI 11) isolated	77	[AI 02]	Analog Input Type 1 (0 to 2000 Ohm / 0 to 1V)
76	[DI 10]	Discrete Input (DI 10) isolated	76	[AI 03]	Analog Input Type 1 (0 to 2000 Ohm / 0 to 1V)
75	[DI 09]	Discrete Input (DI 09) isolated	75	[AI 04]	Analog Input Type 1 (0 to 2000 Ohm / 0 to 1V)
74	[DI 08]	Discrete Input (DI 08) isolated	74	[AI 05]	Analog Input Type 1 (0 to 2000 Ohm / 0 to 1V)
73	[DI 07]	Discrete Input (DI 07) isolated	73	[AI 06]	Analog Input Type 1 (0 to 2000 Ohm / 0 to 1V)
72	[DI 06]	Discrete Input (DI 06) isolated	72	[AI 07]	Analog Input Type 1 (0 to 2000 Ohm / 0 to 1V)
71	[DI 05]	Discrete Input (DI 05) isolated	71	[AI 08]	Analog Input Type 1 (0 to 2000 Ohm / 0 to 1V)
70	[DI 04]	Discrete Input (DI 04) isolated	70	[AI 09]	Analog Input Type 1 (0 to 2000 Ohm / 0 to 1V)
69	[DI 03]	Discrete Input (DI 03) isolated	69	[AI 10]	Analog Input Type 1 (0 to 2000 Ohm / 0 to 1V)
68	[DI 02]	Discrete Input (DI 02) isolated	68	[AI 11]	Analog Input Type 1 (0 to 2000 Ohm / 0 to 1V)
67	[DI 01]	Discrete Input (DI 01) isolated	67	[AI 12]	Analog Input Type 1 (0 to 2000 Ohm / 0 to 1V)
66			66		
65			65		
64			64		
63			63		
62			62		
61			61		
60			60		
59	[R112]	Relay (R112) 1	59	[R112]	Relay (R112) 1
58	[R111]	Relay (R111) 1	58	[R111]	Relay (R111) 1
57	[R110]	Relay (R110) 1	57	[R110]	Relay (R110) 1
56	[R109]	Relay (R109) isolated	56	[R109]	Relay (R109) isolated
55	[R108]	Relay (R108) isolated	55	[R108]	Relay (R108) isolated
54	[R107]	Relay (R107) isolated	54	[R107]	Relay (R107) isolated
53	[R106]	Relay (R106) isolated	53	[R106]	Relay (R106) isolated
52	[R105]	Relay (R105) isolated	52	[R105]	Relay (R105) isolated
51	[R104]	Relay (R104) 1	51	[R104]	Relay (R104) 1
50	[R103]	Relay (R103) 1	50	[R103]	Relay (R103) 1
49	[R102]	Relay (R102) 1	49	[R102]	Relay (R102) 1
48	[R101]	Relay (R101) isolated	48	[R101]	Relay (R101) isolated
47			47		
46			46		
45			45		
44			44		
43			43		
42			42		
41			41		

GC-3400XT

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)

Contact:
North & Central America

+1 (208) 278 3370
 +1 (970) 962-7272
 SalesPGD_NAandCA@woodward.com

South America

+55 19 3708 4760
 SalesPGD_SA@woodward.com

Europe

Stuttgart: +49 711 78954 510
 SalesPGD_EMEA@woodward.com

Middle East & Africa

+971 (2) 678 4424
 SalesPGD_EMEA@woodward.com

Russia

+49 711 78954-515
 SalesPGD_EMEA@woodward.com

China

+86 512 8818 5515
 SalesPGD_CHINA@woodward.com

India

+91 124 4399 500
 Sales_India@woodward.com

ASEAN & Oceania

+49 711 78954 510
 SalesPGD_ASEAN@woodward.com

www.woodward.com

Subject to alterations, errors excepted.

Subject to technical modifications.

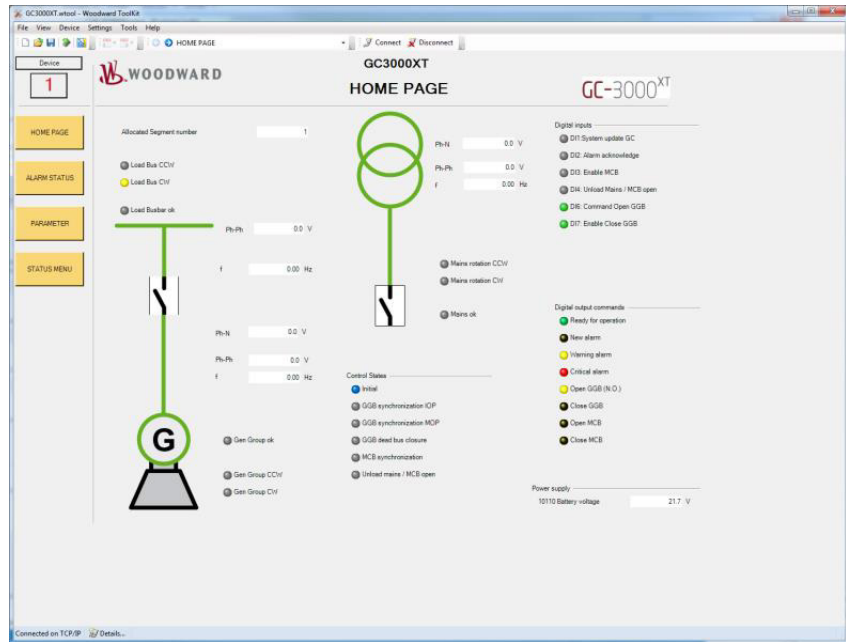
This document is distributed for informational purposes only. It is not to be construed as creating or becoming part of any Woodward Company contractual or warranty obligation unless expressly stated in a written sales contract.

We appreciate your comments about the content of our publications. Please send comments including the document number below to stgt-doc@woodward.com

ТОВ "ТЕХНОЛЕКТРО"
 61166, м.Харків, пр.Науки, 40, к.530а.
 тел.: (067) 376-84-96, (099) 184-62-14, (050) 302-90-33
 Viber, WhatsApp, Telegram: +38-099-184-62-14
 e-mail: info@tekhar.com, URL: www.tekhar.com
 skype: alex19749

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