
Salient Features

- ✓ Redundant communication (CAN-Eth, Eth-Eth)
- ✓ Connects to easYgenXT and group controller
- ✓ Manage one or two breakers
- ✓ Touch screen remote operator panel
- ✓ Power measurement class 1
- ✓ Direct connect up to 690 Vac

- Premium circuit breaker control for reliability demanding complex power management applications
- Peak shaving operation
- Import/Export operation
- Islanded & Utility parallel operation
- Control up to 64 breakers on up to 128 bus segments in an application
- Purpose built application schemes
 - One/two breaker control
 - Gensets/genset groups handling
 - Stand-alone/multi-unit operation
- Forward and reverse synchronization between utility and genset group
- Redundant Ethernet communication
- Ethernet and RS-485 interfaces for remote control and visualization
- Customizable logic, HMI screens (with easYview) and alarms
- Modbus Master and Interconnect Mapper support
- Expandable I/Os over CAN interface (IKD support)

Multi-Breaker control for complex power management applications

Description

Woodward's easYgen | LS-6XT control is synchronizer controller with integrated mains decoupling and protection features. It enables several redundant communication schemes with peer controls. The applications range from independent synch check relay to complex power management system with multiple utility feeds, bus tie breakers and group breakers in combination with Woodward's easYgen-3400XT/3500XT equipped genset controllers and/or easYgen | GC-3400XT equipped genset groups. Redundant busses running among the peer controls ensure that availability of your power generation asset is not compromised to a single point of failure.

The LS-6XT control together with easYgen-3000XT controls are designed to support OEM switch-gear builders, generator packagers, and system integrators standardize on a single hardware for a multitude of utility parallel or island operations. Off-the-shelf LS-6XT control is software configurable for one/two breaker control, gensets / genset groups handling, and stand-alone/multi-unit application.

The LS-6XT controller is available in a rugged aluminum powder coated housing. An LED Annunciator plate is integrated to the front for local annunciation of alarms that are customizable on-site. Woodward easYview visualization panels are supported over a separate Ethernet network that works as remote operator control panel.

Features

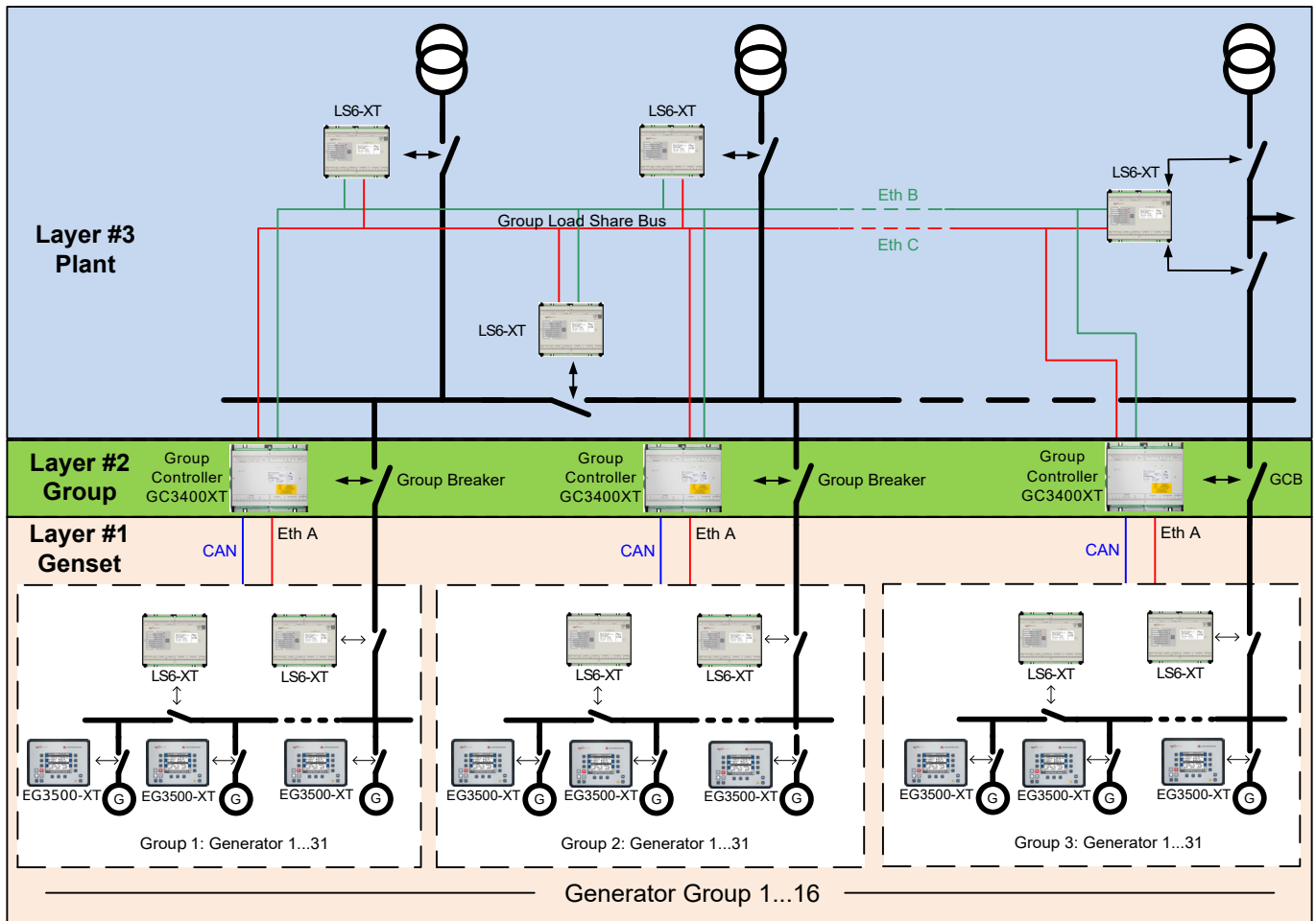
- Up to 32 LS-6XT controls are supported with up to 32 easYgen-3400XT/3500XT.
- Up to 64 LS-6XT are supported in one network with up to 16 GC-3400XT, each group consisting up to 31 gensets.
- Purpose-built software to support single bus or redundant bus communications.
- Three independent true RMS AC measurement (system A, system B and auxiliary voltage).
- Remotely selectable breaker transition modes: Open, Closed (short parallel <100ms), Inter-change, Indefinite parallel.
- Internal power calculation with option to feed-in active power and reactive power from external transducer.
- Phase match or slip frequency synchronization with voltage matching.
- Several built-in protection elements (including ROCOF, phase shift and flexible limits for custom protection).
- Segment control for the load sharing.
- Automatic date and time synchronization between the LS-6XT units and the connected easYgen-3400XT/3500XT controls.
- Detailed interface communication diagnostics to monitor, visualize and troubleshoot all the connected controls in the network.
- LS-6XT "Stand alone" mode without the easYgen-3400XT/3500XT is possible.
- Custom logic and configurable I/Os driven by LogicsManager and AnalogManger.
- HMI supported with RP-3000XT offering standard and customizable screens
- Ethernet interconnectivity and Modbus master functions for enhanced communication flexibility.

Specifications

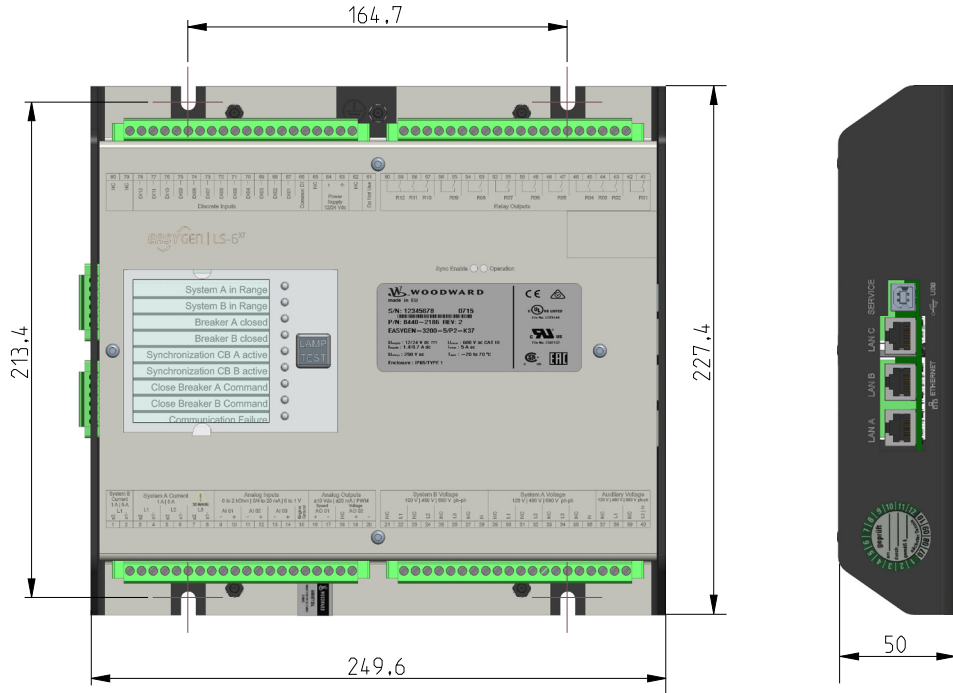
Power supply.....12/24 Vdc (8 to 40 Vdc)
 Intrinsic consumption.....max. 22 W
Ambient temp. (operation).....-40 to 70 °C / -40 to 158 °F
Ambient temp. (storage).....-40 to 80 °C / -40 to 176 °F
Ambient humidity.....95 %, non-condensing
Voltage (software configurable)(Y / Δ)
 100Vac Rated (Vrated).....69 / 120 Vac
 Max value (Vmax).....86 / 150 Vac
 400 / 600 VAC Rated (Vrated).....400 / 690 VAC
 Max. value (Vmax).....520 / 897 VAC
 Rated surge Volt. (Vsurge).....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 Vac
Linear measuring range.....1.25×Vrated
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
Current (Isolated, software configurable)
 Rated (Irated)1 A or 5 A
 Linear measuring range.....I_{systemA} = 3.0×I_{rated}
 I_{systemB} = 1.5×I_{rated}
Setting range1 to 32,000 A
Burden< 0.10 VA
Rated short-time overcurrent (1 s).....[1] 50×I_{rated},
 [5] 10×I_{rated}
Accuracy.....Class 0.5

Power
 Setting range.....0.5 to 99,999.9 kW/kvar
 Accuracy.....Class 1.0
Discrete inputs.....isolated
 Input range.....12/24 VDC (8 to 40 VDC)
 Input resistance.....approx. 20 kΩ
Relay outputs.....isolated
 Contact material.....AgNi
 Load (GP).....2.00 Aac@250 Vac 2.00 Adc@24 VDC
Analog inputs (isolated).....freely scalable
 Type 1.....0 to 1 V / 0 to 2000 Ohms / 0 to 20 mA
 Resolution.....16 Bit
 Maximum permissible voltage against genset Ground.....9 V
 Maximum permissible voltage genset Ground to PE...100 V
Analog outputs (isolated) freely scalable
 Type 1.....± 10 V / ± 20 mA / PWM
 Basic insulation voltage (AO#2).....500 Vac
 Reinforced insulation voltage (AO#2).....300 Vac
 Insulation voltage (AO#1).....100 Vac
 Resolution.....12 Bit
 Output ± 10 V (scalable).....Internal resistance
 Output ± 20 mA (scalable).....Maximum load 500 Ω
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
 Listings.....CE, UL, cUL, LR/ABS

APPLICATION



DIMENSIONS



TERMINAL DIAGRAM

Screw terminals	Description	Ethernet		
		#C	#B	#A
41	Relay (R01) Isolated ¹ Fixed to Relay for operation Preconfigured to Alarm (01 02) Logic Manager			
42	Relay (R02) Isolated ¹ Preconfigured to Alarm (01 02) Logic Manager			
43	Relay (R03) Isolated ¹ Preconfigured to System B WCC (02 03) Logic Manager			
44	Relay (R04) Isolated ¹ Preconfigured to System B WCC (02 03) Logic Manager			
45	Relay (R05) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
46	Relay (R06) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
47	Relay (R07) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
48	Relay (R08) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
49	Relay (R09) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
50	Relay (R10) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
51	Relay (R11) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
52	Relay (R12) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
53	Relay (R13) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
54	Relay (R14) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
55	Relay (R15) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
56	Relay (R16) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
57	Relay (R17) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
58	Relay (R18) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
59	Relay (R19) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
60	Relay (R20) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
61	Relay (R21) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
62	Relay (R22) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
63	Relay (R23) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
64	Relay (R24) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
65	Relay (R25) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
66	Relay (R26) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
67	Relay (R27) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
68	Relay (R28) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
69	Relay (R29) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
70	Relay (R30) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
71	Relay (R31) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
72	Relay (R32) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
73	Relay (R33) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
74	Relay (R34) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
75	Relay (R35) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
76	Relay (R36) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
77	Relay (R37) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
78	Relay (R38) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
79	Relay (R39) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
80	Relay (R40) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
81	Relay (R41) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
82	Relay (R42) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
83	Relay (R43) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
84	Relay (R44) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
85	Relay (R45) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
86	Relay (R46) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
87	Relay (R47) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
88	Relay (R48) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
89	Relay (R49) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
90	Relay (R50) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
91	Relay (R51) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
92	Relay (R52) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
93	Relay (R53) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
94	Relay (R54) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
95	Relay (R55) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
96	Relay (R56) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
97	Relay (R57) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
98	Relay (R58) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
99	Relay (R59) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			
100	Relay (R60) Isolated ¹ Preconfigured to System A WCC (02 11) Logic Manager			

RELATED PRODUCTS

- Genset Controller easYgen-3400/3500XT (Product Specification # 37583)
- Group Controller easYgen | GC-3400XT-P1 (Product Specification # 37896)
- ToolKit (Product Specification # 03366)
- LDSS Emulation Tool (Product Specification #37897)
- easYview (Product Specification #37951)
- DataTelegramMapper Tool (Application Note #37684)
- Localization tool (P/N: 10-011-569)
- Modbus master tool (Application Note #37919)
- Ethernet Interconnect Mapper tool (P/N: 10-031-249)
- I/O Expansion Board IKD1 (Product spec. #37171, #37984, #37985)
- Remote Annunciator easYlite-200 (Product spec. #37907)

Contact:
North & Central America

☎ +1 (208) 278 3370

South America

☎ +55 19 3708 4760

Europe

☎ Stuttgart: +49 711 78954 510

Middle East & Africa

☎ +971 (2) 678 4424

Russia

☎ +49 711 78954-515

China

☎ +86 512 8818 5515

India

☎ +91 124 4399 500

ASEAN & Oceania

☎ +49 711 78954 510

SALES SUPPORT

✉ industrial.salesPG@woodward.com

TECHNICAL SUPPORT

✉ industrial.support@woodward.com

www.woodward.com

Subject to alterations, errors expected.

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 marketing_PG@woodward.com

Woodward

All Rights Reserved

ТОВ «ТЕХНОЕЛЕКТРО»

61166, м Харків, пр.Науки, 40, к.530а.

тел.: +38 (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

EASyGEN LS-6^{XT}		easYgen LS-6XT	easYgen LS-6XT
Model		LS-612	LS-612
Package		P1	P2
Measuring			
System A voltage	(up to 690 VAC)	3-ph	3-ph
System A current	(1 A or 5 A software selectable)	3-ph	3-ph
System B voltage	(up to 690 VAC)	3-ph	3-ph
System B current	(1 A or 5 A software selectable)	1-ph	1-ph
Auxiliary voltage	(up to 690 VAC)	1-ph	1-ph
Control			
Breaker control logic (open and closed transition <100 ms) FlexApp™		1 / 2	1 / 2
Number of supported Woodward LS-6 units (Layer 1 / Layer 3)		32 / 64	32 / 64
Single and multiple-unit operation		✓	✓
Auto, Manual operating modes		✓	✓
Breaker synchronization (+/- slip frequency / phase matching)		✓	✓
Vector group adjustment for synchronization		✓	✓
Configurable dead bus closure direction		✓	✓
GGB (Generator Group Breaker) Control		✓	✓
Import / export control (kW and kvar)		✓	✓
Active synchronization (frequency and voltage control)		-	✓
HMI			
easYview support		✓	✓
Configuration via PC		✓	✓
Event recorder with real time clock (battery backup)		✓	✓
Date & Time Sync. between LS-6XT, easYgen-3400XT/3500XT and GC-3400XT		✓	✓
Configurable LEDs on Faceplate, x8		✓	✓
Protection (Equivalent ANSI #)			
Voltage / frequency (59/27/810/81U)		✓	✓
Voltage asymmetry (47)		✓	✓
Phase shift / df/dt (ROCOF) (78/81)		✓	✓
QV monitoring and Time-dependent voltage		✓	✓
Mains voltage increase and Synch-Check (25)		✓	✓
Import / export power (32R)		-	✓
Instantaneous overcurrent (50)		-	✓
Time-overcurrent (IEC 255 complinant) (51/51V)		-	✓
Unbalanced load (46)		-	✓
Monitoring			
Breaker open/close monitoring		✓	✓
Synchronization time out monitoring		✓	✓
Voltage and System Plausibility		✓	✓
Freely configurable alarms		✓	✓
Flexible Limits		✓	✓
I/Os			
Discrete alarm inputs (configurable)	LogicsManager™	12 (11)	12 (11)
Discrete outputs (configurable)	LogicsManager™	12 (11)	12 (11)
External discrete inputs / outputs via CANopen		16/16	32/32
easYlite -200 via CAN1 or CAN2		-	2
Analog inputs configurable	FlexIn™	3	3
Analog outputs: ±10V, ±20mA, PWM; configurable	AnalogManager™	2	2
CAN bus communication interfaces	FlexCAN™	1	2
Ethernet Modbus TCP Slave interface		3	3
USB Serial interface		1	1
RS-485 Modbus RTU Slave interface		1	1
Listings/Approvals			
CE declaration, UL / cUL Listing (61010 ,6200)		✓	✓
Marine (LR/ABS)		✓	✓
Part Numbers P/N			
Cabinet back mounting w / o display		8440-2222	8440-2317
Spare connector KIT		8923-2319	8923-2319