



Power Management Application Guide

June 2026



Downloads + Support

Knowledgebase & FAQ



Documentation server

- CAD files (2D / 3D / EPlan)
- software / configuration files
- manuals / modbus protocol .xls / ...

Software Tools

Configuration Files

Application Notes

YouTube Channel

Company Certifications

News



Support server

- firmware upgrades
- trainings, ...

Webinar Recordings

Training Presentations

substitute products

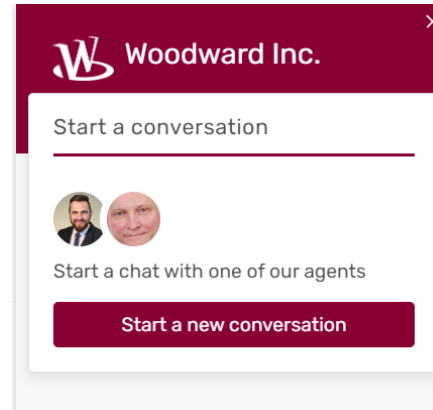
Contact us



Legacy server

- product support statements
- old device documentation

replacing old devices



Woodward Inc.

Start a conversation

Start a chat with one of our agents

Start a new conversation



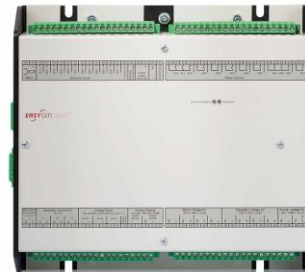
scan to learn more
<http://easYgen.org/download>



quick introduction clip

Which easYgen-3000XT for which application?

easYgen-3100XT/3200XT

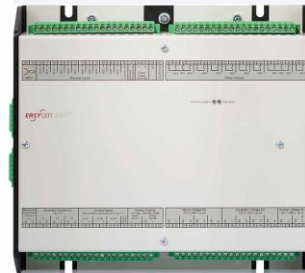


> 8440-2081



> 8440-2082

easYgen-3400XT/3500XT-P1

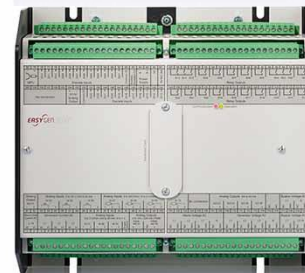


> 8440-2084



> 8440-2085

easYgen-3400XT/3500XT-P2



> 8440-2087



> 8440-2088



- > 8446-1071/-72/-73
- > easYview (7", 10", 15")
- > Remote Touch panel

Main differences of different versions

easYgen-3100XT/3200XT

- › Synchronization GCB, MCB, Generator/Engine/Mains protection
- › 2 x CANBus, 1 x RS485 & 1xE-Net Modbus TCP
- › 3 x flexible PID's for speed & voltage bias
- › Loadsharing via E-Net and/or CANopen, ModbusMaster, redundant control 2.17

easYgen-3400XT/3500XT-P1

- › Synchronization GCB, MCB, +GGB, +Run-up Synch, +LS-6XT, GC3400XT Support +690VAC sensing, +inbuilt AVR Regulation
- › 3 x CANBus, 1 x RS485 & 3 x E-Net Modbus TCP
- › 3 x flexible PID's for speed and voltage bias
- › Loadsharing via **redundant** E-Net or CANopen, ModbusMaster, redundant control 2.17

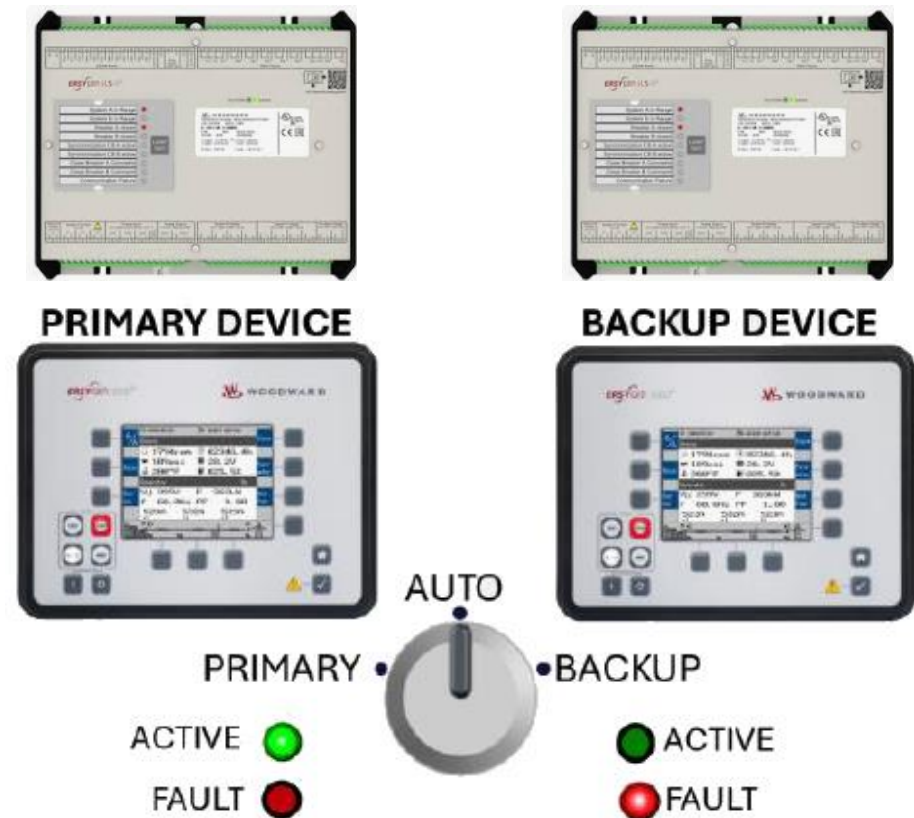
easYgen-3400XT/3500XT-P2

- › Synchronization GCB, MCB, +GGB, +Run-up Synch, +LS-6XT, GC3400XT Support +690VAC sensing, + inbuilt AVR Regulation
- › 3 x CANBus, 1 x RS485 & 3 x E-Net Modbus TCP
- › 3 x flexible PID's for speed and voltage bias
- › 3 PT bus sensing for rotation check, Mains sensing
- › Second board with additional digital/analog I/Os, pulse outputs for kWh & kVArh
- › Loadsharing via **redundant** E-Net or CANopen, ModbusMaster, redundant control 2.17

easYgen-3000XT redundant control solution

Starting with software release 2.17, all easYgen-3000XT and LS-612XT-P1/P2 catalog packages (8440-2081 through 8440-2088) will include redundant functionality, allowing the use of two controllers for each genset/breaker

- › Cold Redundancy
 - › Backup system is off and inactive
 - › Requires manual or automated start-up
- › Warm Redundancy
 - › Backup system is on but in standby mode
 - › Faster switch-over than cold redundancy
- › Hot Redundancy
 - › Backup system runs in parallel with the primary system
 - › Immediate failover with minimal downtime



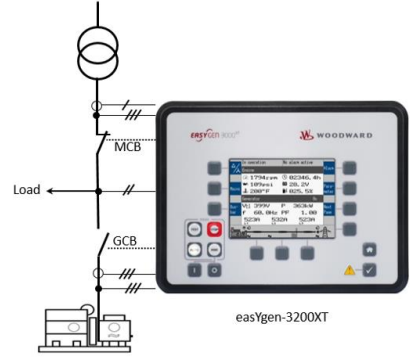
[Download here 45026 Application Note](#)

[Download Case Study](#)

Typical easYgen-3200XT Use Cases one part number fits all

easYgen-3200XT use cases

easYgen-3200XT Single Set grid tied with island mode

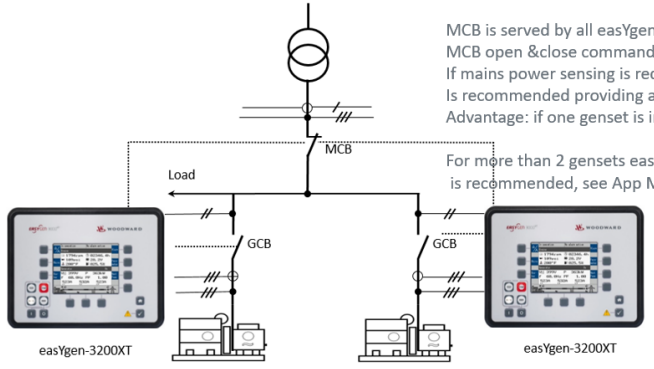


Single genset AMF&ATS
 Open/closed transition (<100ms)/ soft power transfer
 Import/export/baseload control
 Interconnected to grid

easYgen App Mode A04 GCB/MCB

easYgen-3200XT Multiple Sets Mains & Island Parallel

kW/kVAR Load sharing via CAN open



2 or more gensets AMF&ATS
 Open/closed transition/ soft power transfer
 Import/export/baseload control
 Interconnected to grid and island parallel operation

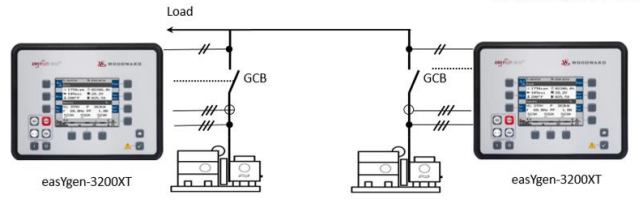
MCB is served by all easYgen,
 MCB open & close command wired in parallel
 If mains power sensing is required a 3 phase Transducer
 Is recommended providing a 0/4-20mA Setpoint to all easYgens
 Advantage: if one genset is in service second genset is still available

For more than 2 gensets easYgen3500XT & LS-6XT
 is recommended, see App Mode A08

easYgen App Mode A04 GCB/MCB

easYgen-3200XT Multiple Sets island parallel

kW/kVAR Load sharing via CAN open



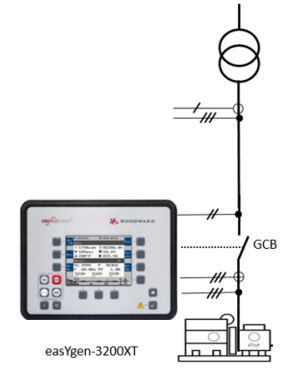
Up to 32 gensets can paralleled on one bus
 kW and kVAR sharing via CAN bus and/or E-Net
 Load dependent starts & stop

If you have more than 32 gensets on one bus, go for
 easYgen-3500XT and GC3400XT

easYgen App Mode A03 GCB

Up to 32 gensets

easYgen-3200 Sets Mains parallel

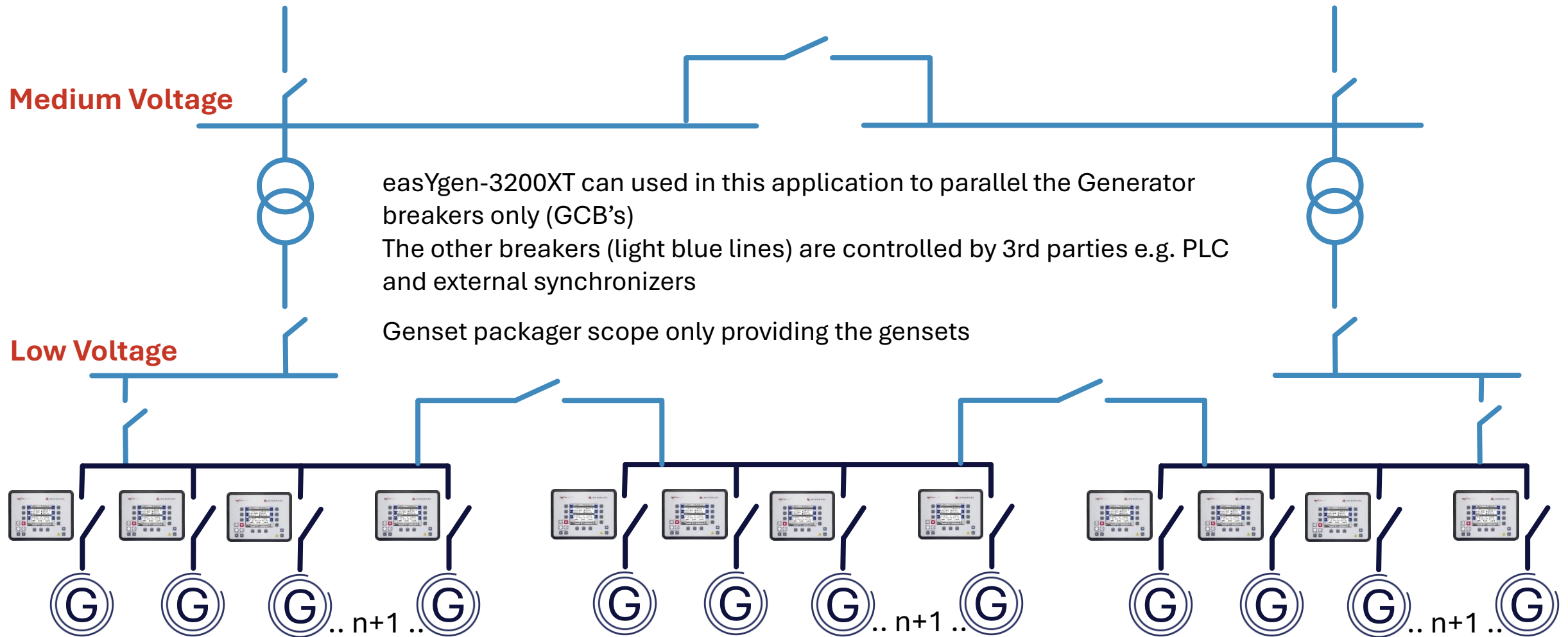


Import/export control
 Load dependent starts & stop
 Continuous mains parallel operation

Typical application: CHP, prime power generation

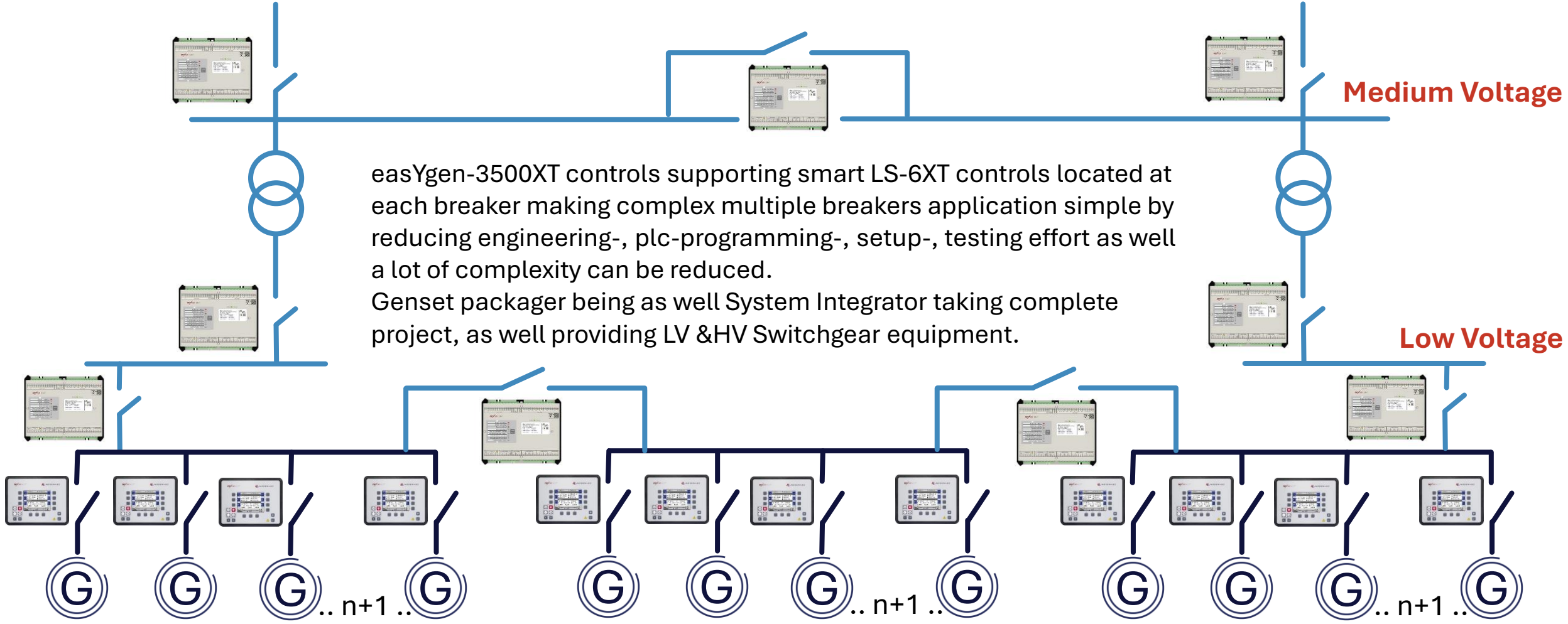
easYgen App Mode A03 GCB

Typical Datacenter Application



Typical easYgen-3500XT Use Cases one part number fits all

Executed Datacenter Project



LS-612XT-P1

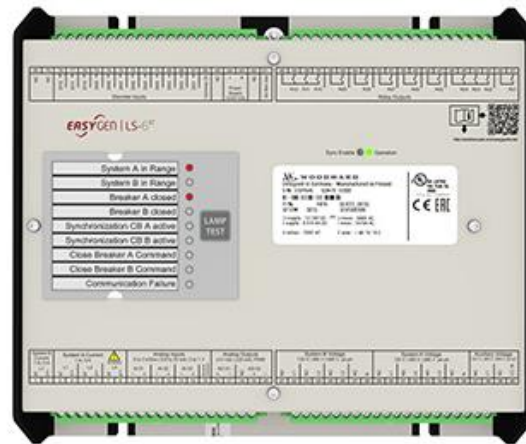
A LS-612XT-P1 controller is a smart Synchronizer transferring true RMS voltages via redundant E-net/CANopen to the easYgen-3400/3500XT genset controllers taking care of GCB and providing this information then to engine and generator controls to parallel other circuit breakers (MCB's, GGB's-T-couplers) within the application.

As well LS-612XT's and easygen controllers taking care of segmentation.

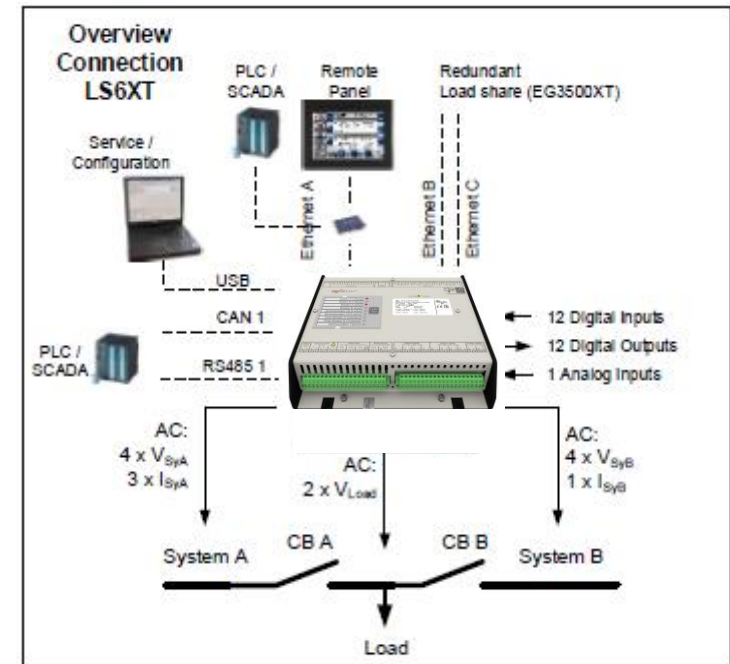
LS6XT has three measurement system: System A, auxiliary voltage and System B capable to serve one or two breakers.



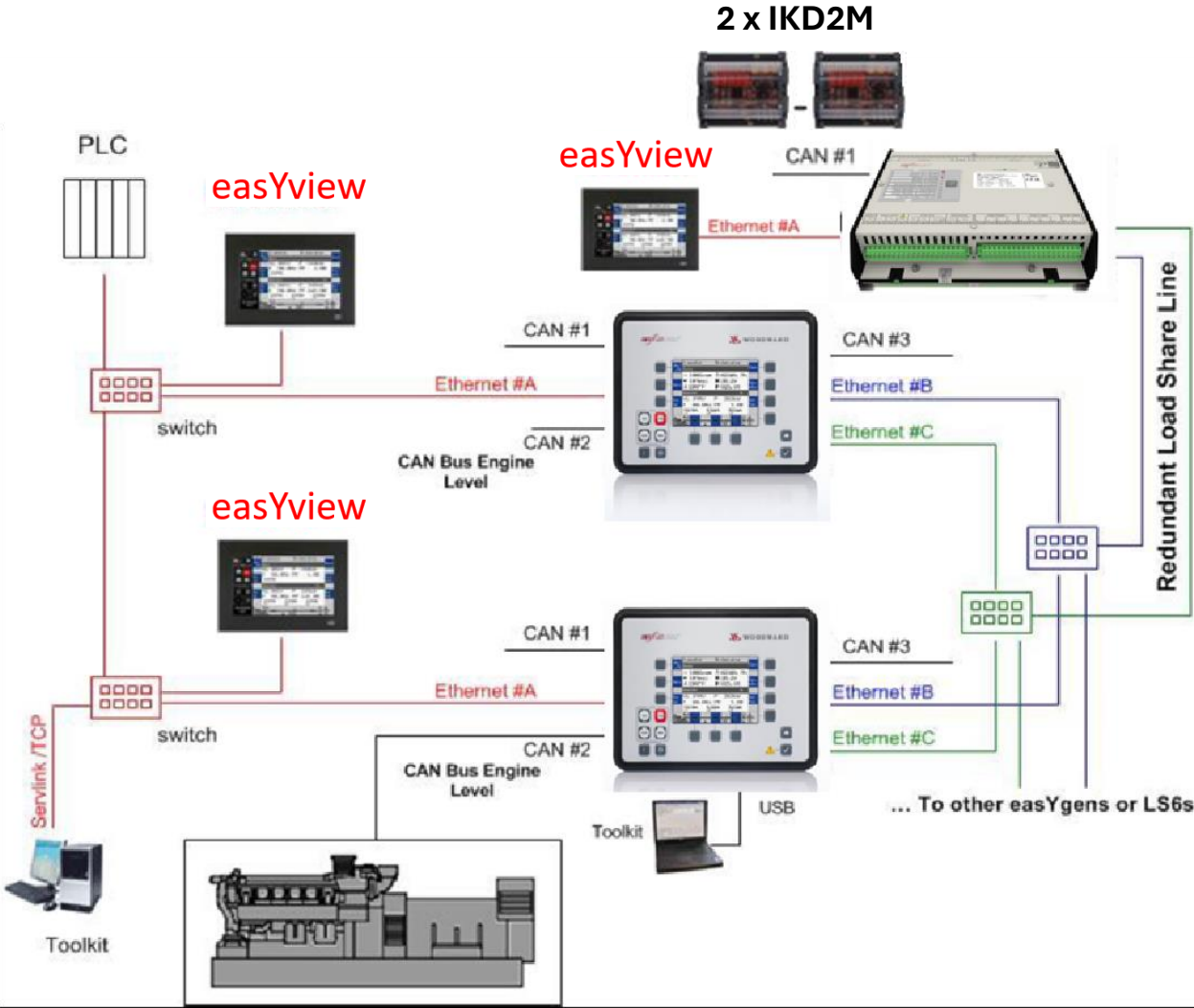
- > 8446-1071/-72/-73
- > easYview (7", 10", 15")



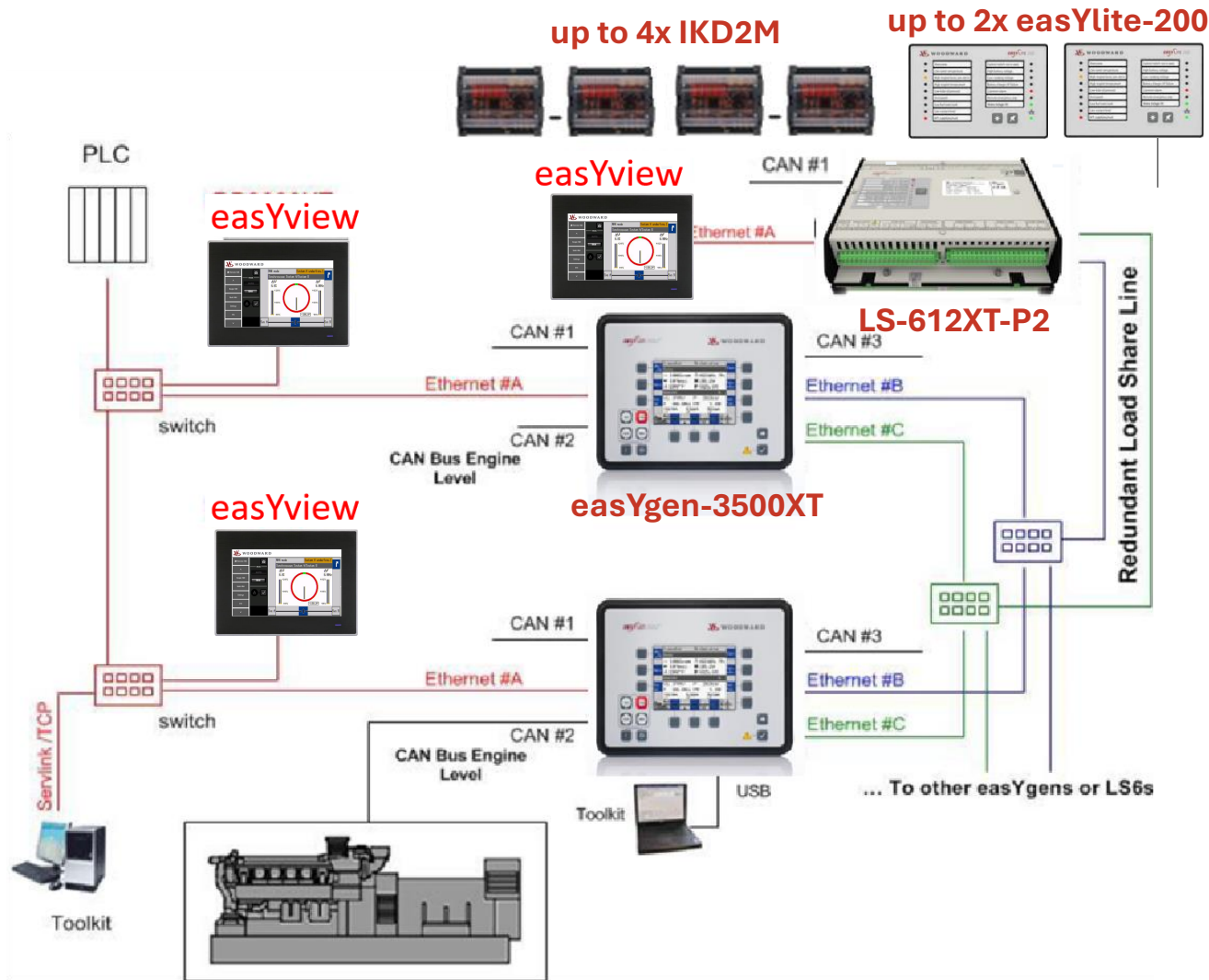
- > 8440-2222
- > LS-612XT-P1



8440-2222 LS-612XT-P1 Application Overview



8440-2317 LS-612XT-P2 Application Overview

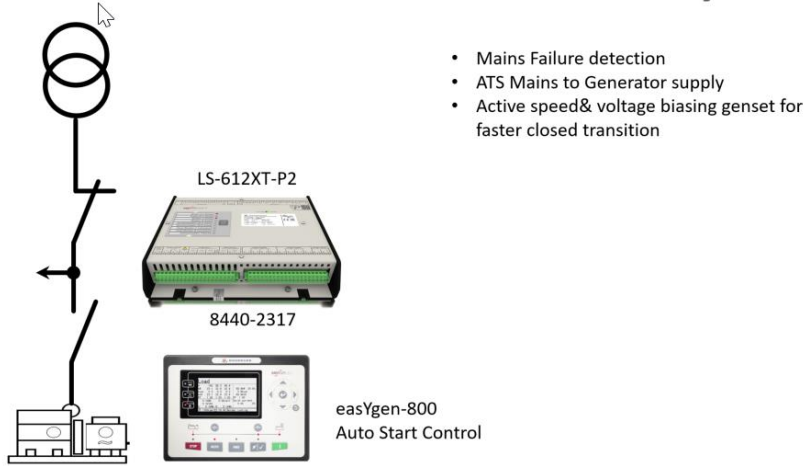


Additional to LS-612XT-P1

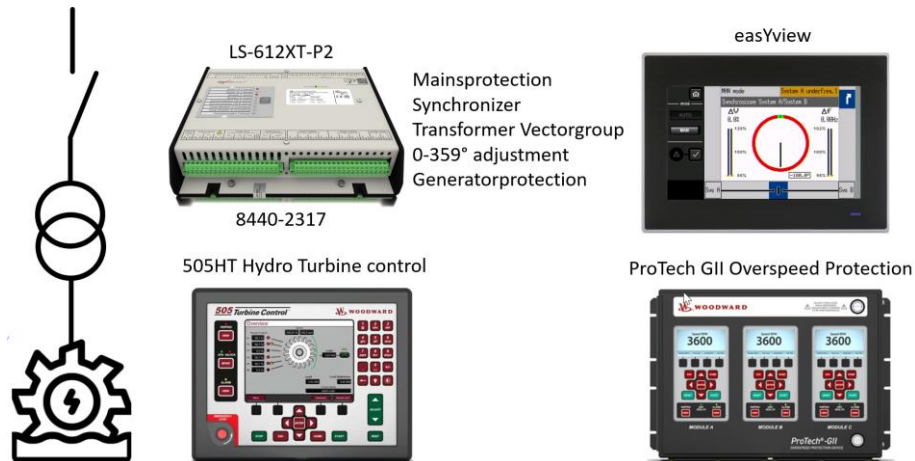
- > up to 4 IKD2M (32DI/32DO)
- > up to 2 easYlite-200
- > Comfortable Current protection
 - > Instantaneous overcurrent 1/2/3 (50)
 - > inverse time overcurrent (51)
 - > voltage restraint overcurrent (50V/51V)
 - > Directional Overcurrent protection (67)
- > Load Protection
 - > overload import level 1/2
 - > overload export level 1/2
 - > Unbalanced load (46)
- > Active synchronization to be used as independent paralleling control
- > ABS & LR marine approval

Other LS-612XT-P2 use cases

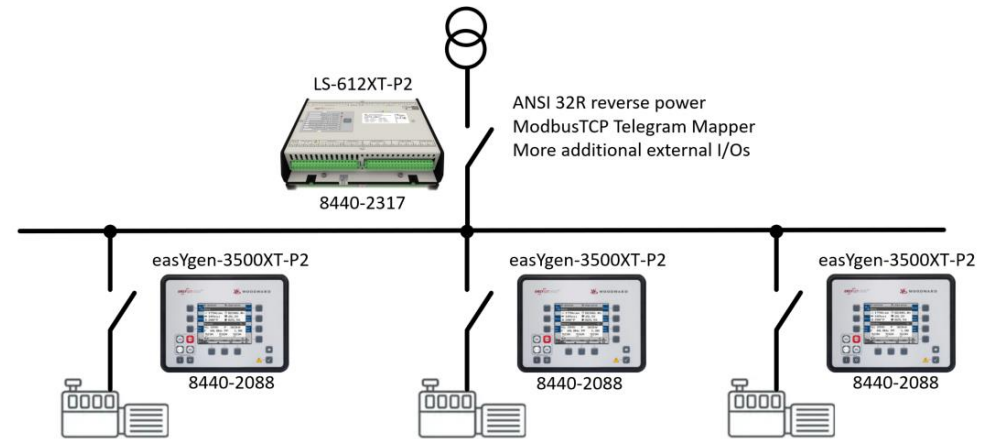
ATS closed transition active back synch



LS-612XT-P2 for Hydro Application

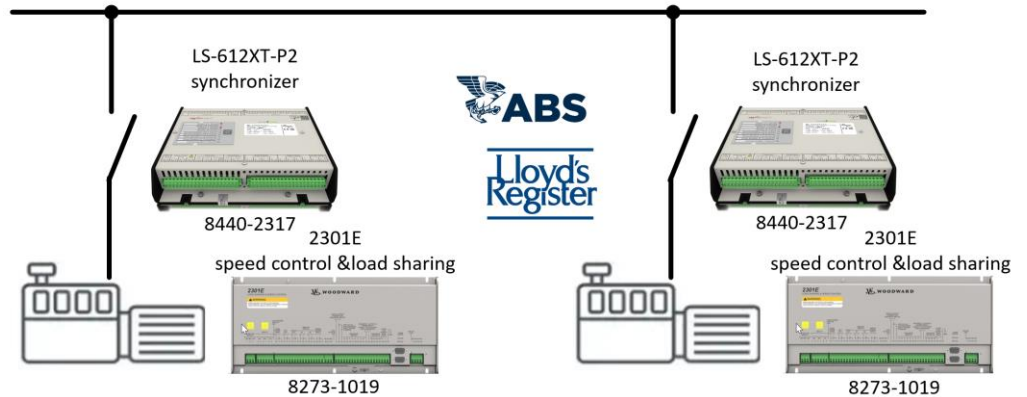


LS-612XT-P2 for vessel shore connection



[Download Case Study](#)

LS-612XT-P2 use case marine paralleling



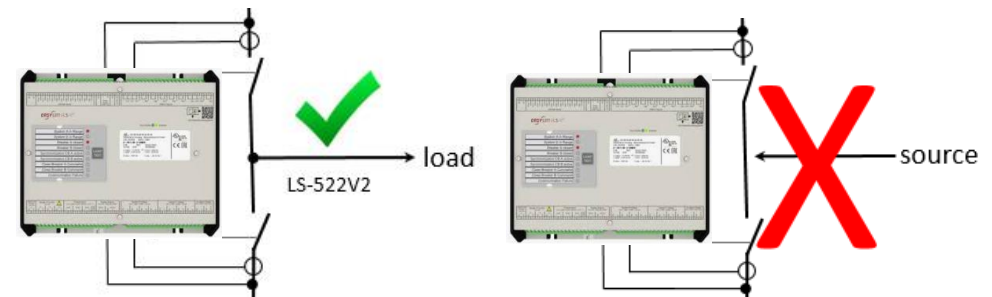
Pre-Defined LS-612XT Application Modes

A05 GCB/GGB	n+1 generators	island operation only	GCB & GGB operation
A06 GCB/GGB/MCB	n+1 generators	island/one mains operation	GCB & GGB & MCB operation
A08 GCB/L-MCB	n+1 generators	island/one mains operation	GCB L-MCB with LS511/521
A09 GCB/GGB/L-MCB	n+1 generators	island/one mains	GCB, GGB, L-MCB with LS511/521
A10 GCB/L-GGB	n+1 generators	island operation only	GCB, L-GGB with LS511/521
A11 GCB/L-GGB/L-MCB	n+1 generators	island/one mains only	GCB, L-GGB and L-MCB with LS511/521
A12 GCB/L-GGBMCB	n+1 generators	island/one mains operation	GCB, L-GGBMCB with LS512/522

In above App Modes all the segmenting is already pre-configured

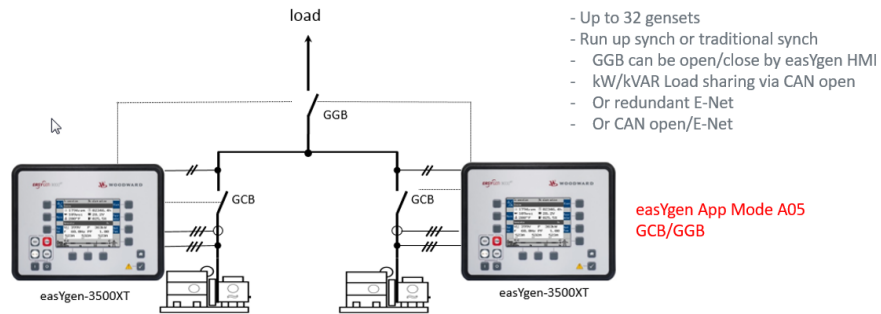
A07 GCB/LSx	n+1 generators	island and/or n+1 mains operation	LS511/512/521/522/LS6XT
A13 GCB/GC	GC-3400XTP1		

- › Segmenting must be done individual according the application
- › Every breaker which must be synchronized requires a LS-6XT controller
- › When using 2 breaker mode in LS-6XT, the load must be always between the two LS-612XT breakers. It is not allowed to receive power (source) between the two breakers, if so, place 2 x LS-612XT in one breaker mode.

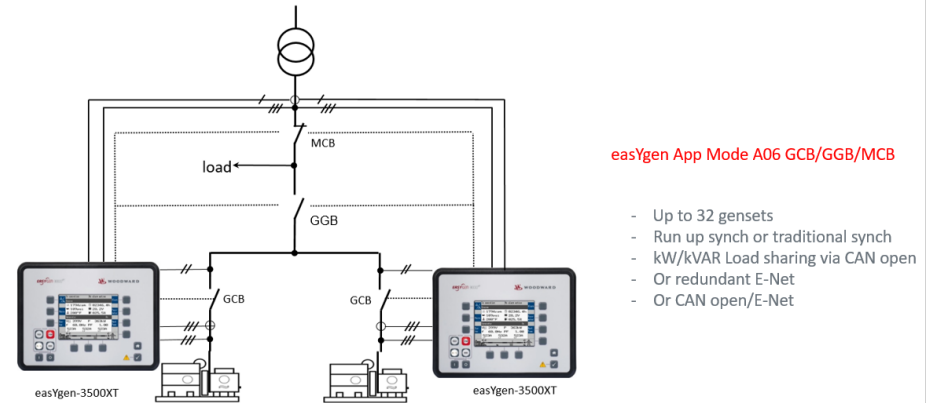


easYgen-3500XT use cases

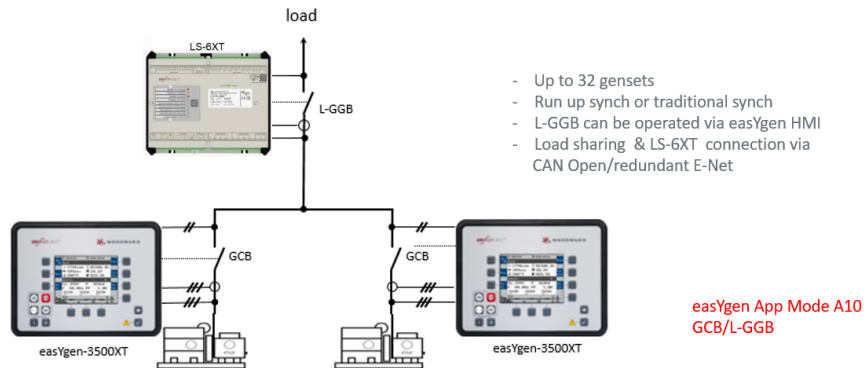
easYgen-3500XT GGB Support Island Mode



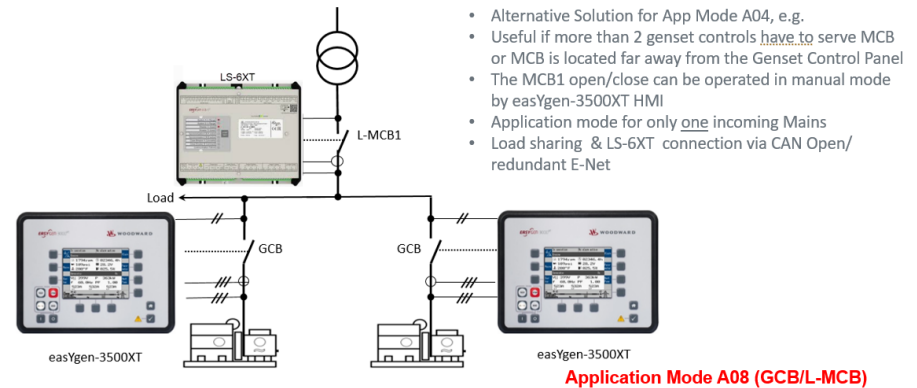
easYgen-3500XT GGB Support Island & Mains Mode



Multiple gensets island mode GGB

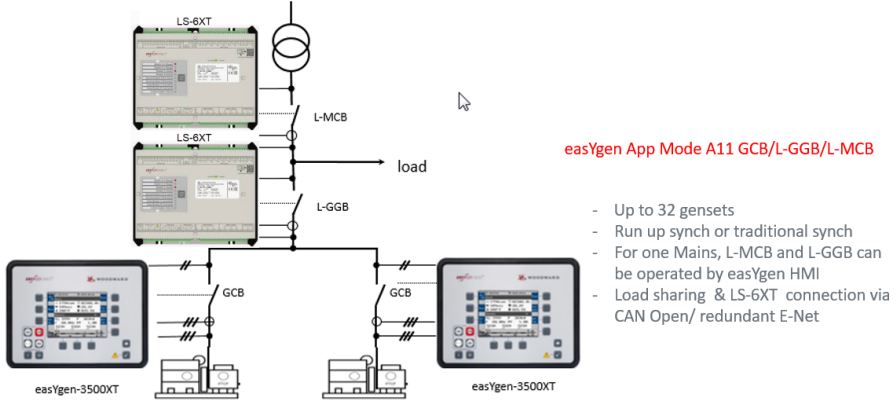


Multiple Gensets only one MCB

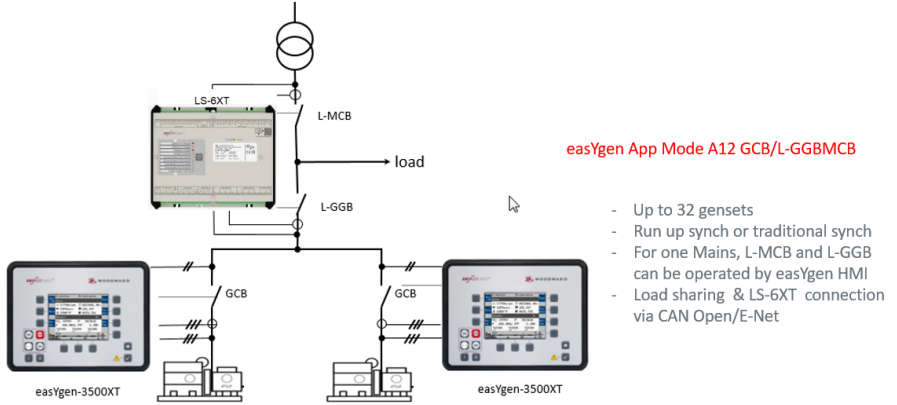


easYgen-3500XT use cases

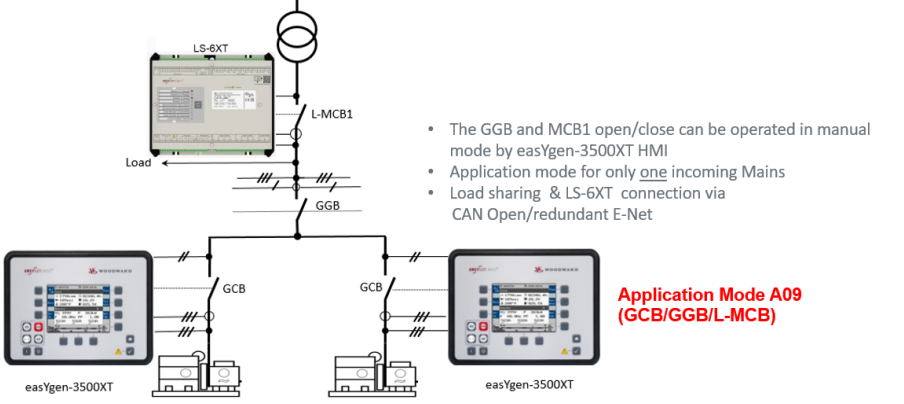
easYgen-3500XT GGB Support Island & Mains Mode



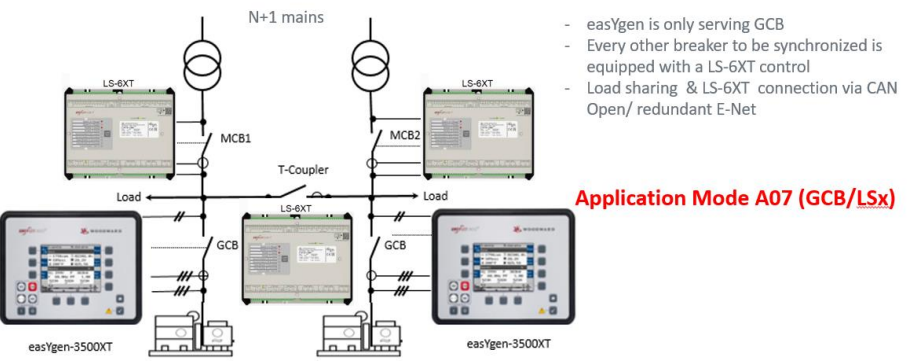
easYgen-3500XT GGB Support Island & Mains Mode



Multiple Gensets only one MCB & one GGB



easYgen-3500XT Multiple breaker application



You have requirement to control and manage

- › more than 32 generators
- › more than 32 breakers
- › more than 64 Segments?

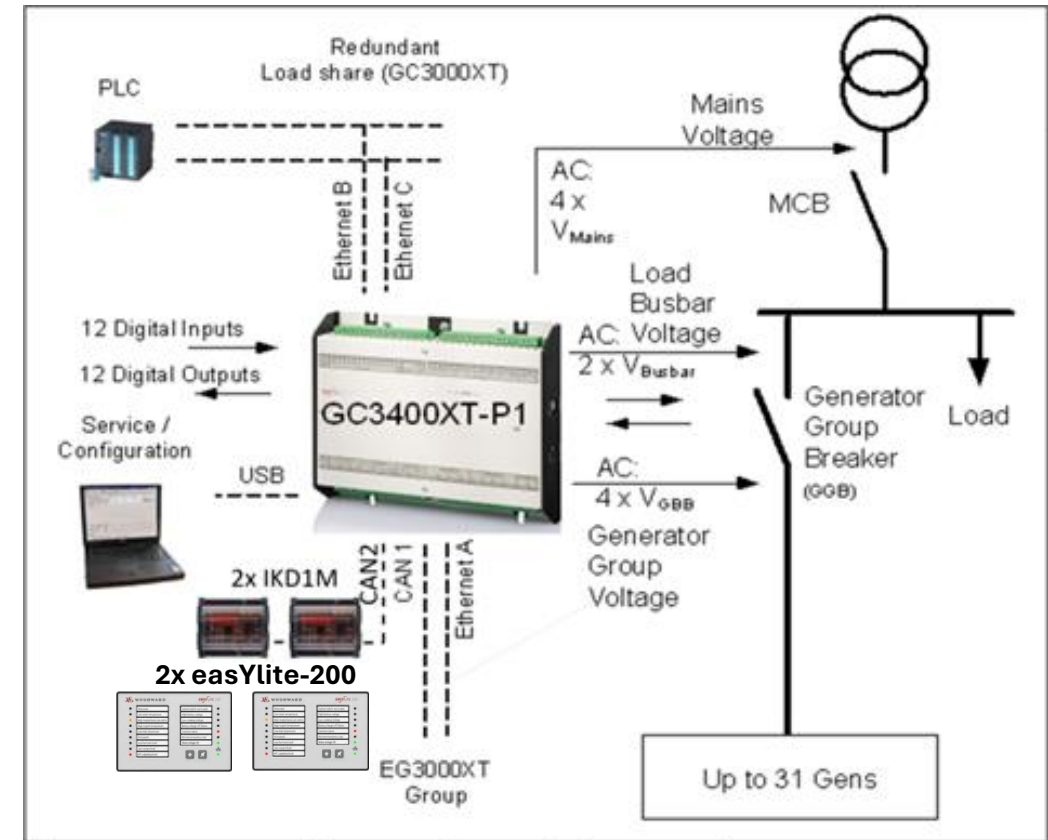
Then Group Controller GC3400XT is a solution

GC3400XT-P1 Group Controller

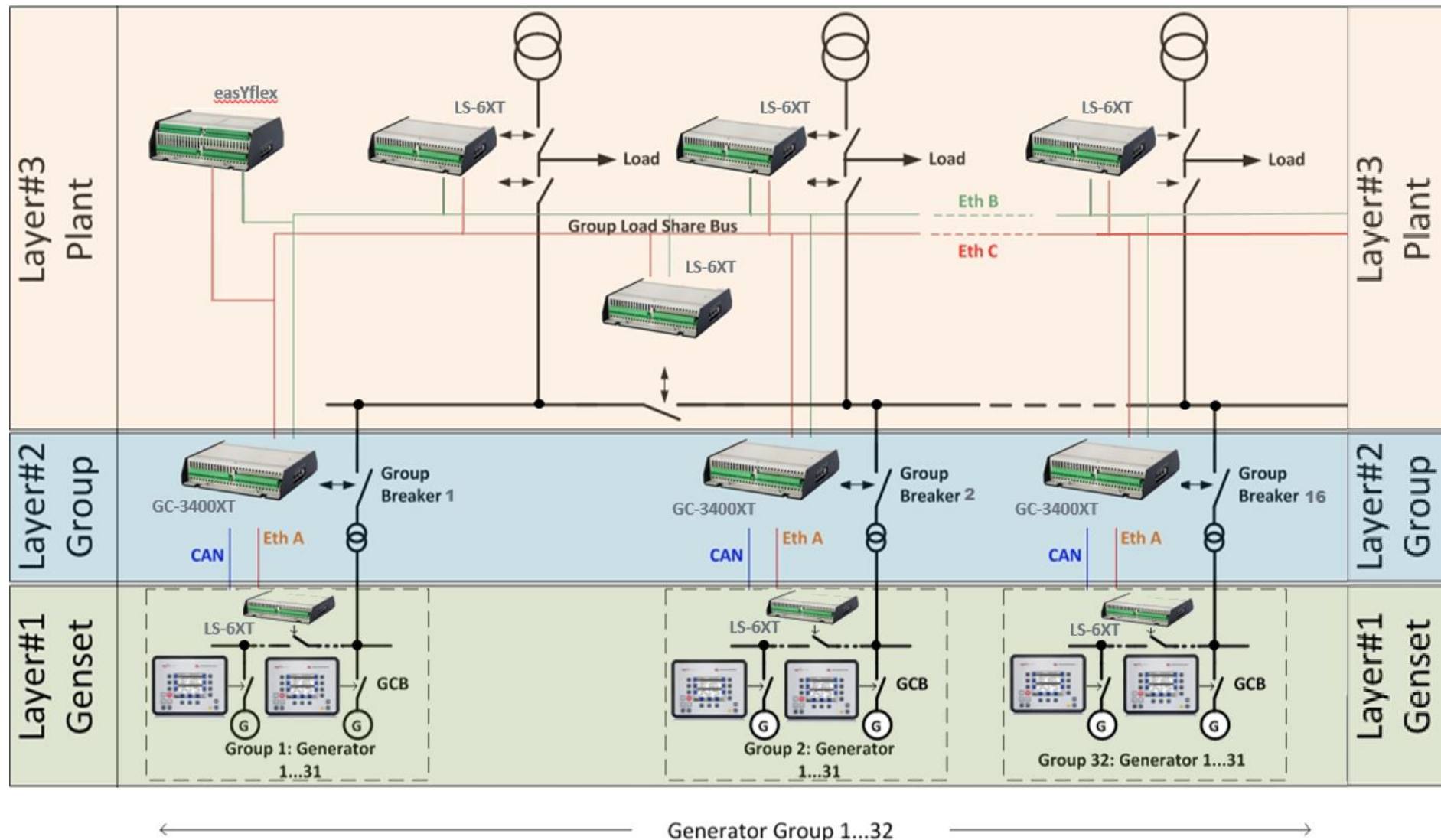


> 8440-2267

- > Allows you to **standardize** on one solution to fit a multitude of applications
- > Runup-Sync and E-Net Modbus Master supported
- > Proven system for managing **large** power generation systems
 - > multiple generators (>2.0) up to 496 generators supported in 16 groups each up to 31 generators)
 - > In a group of (up to 31) or less for modularity
 - > Redundant load share communication at each level, 2 x IKD1M can connected to CAN2
- > Purpose-built to **minimize your effort** commanding your power generation assets
- > **Reduced** point-to-point wiring CAN/ETH communication line between all units



System Architecture

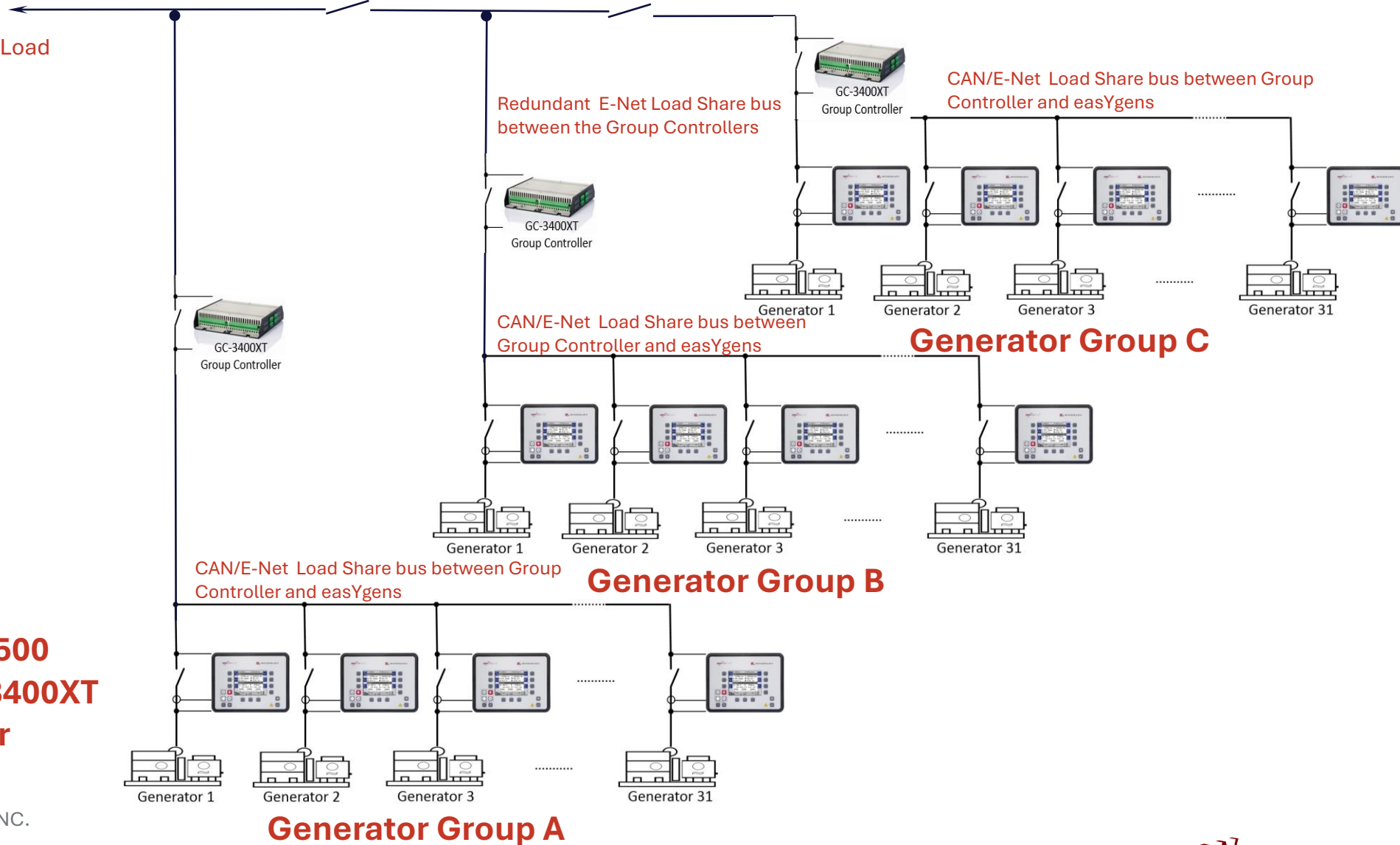


- > up to
- > 128 Segments on Layer 3
- > 64 LS6XT's total Layer 3

- > up to
- > 16 GC-3400XT's

- > up to
- > 64 Segments on Layer 1
- > 31 easYgens in each GC-3400XT Group

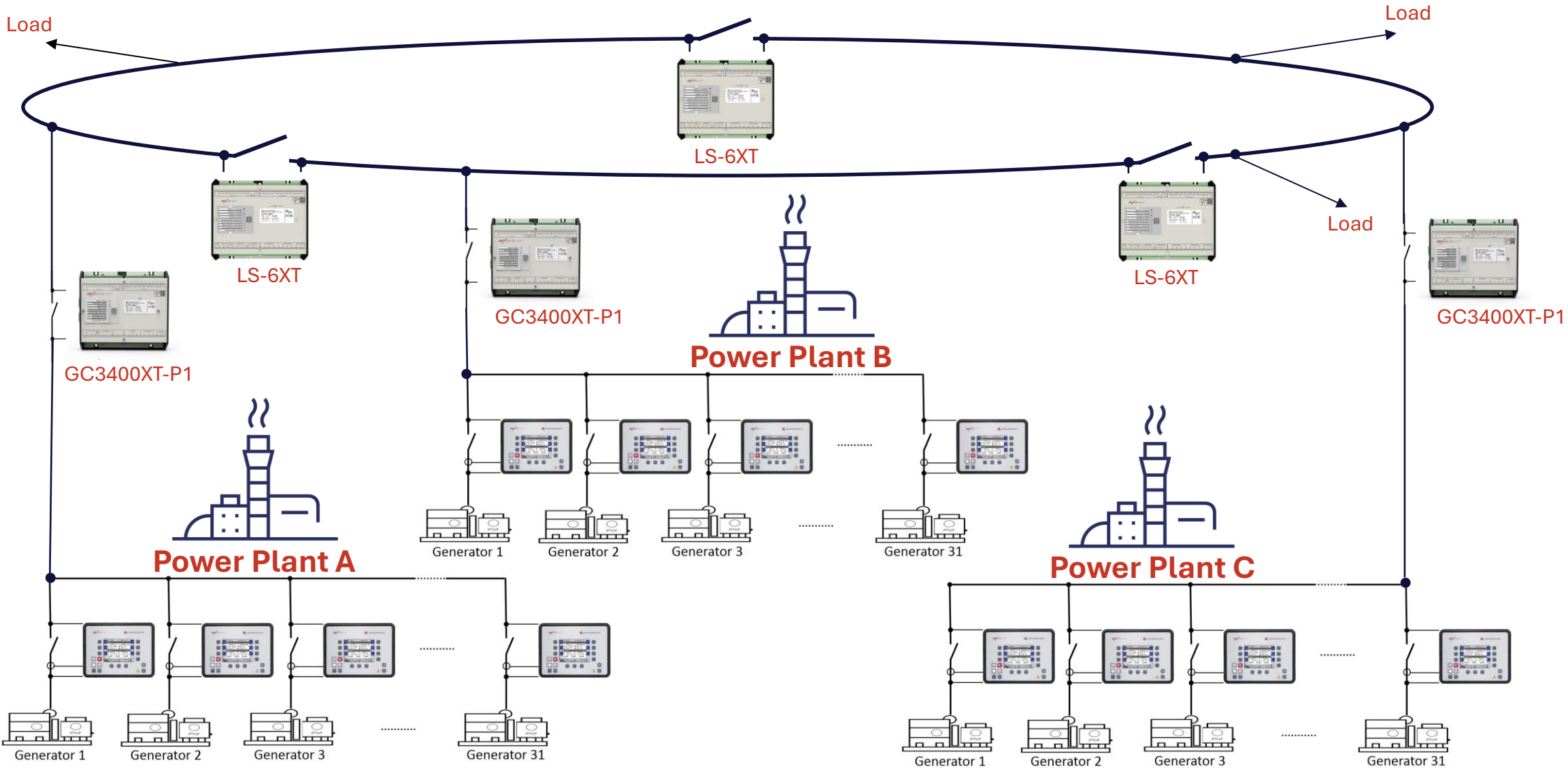
Use Case Critical Power Application



**easYgen-3400/3500
supporting GC-3400XT
Group Controller**

© WOODWARD, INC.

Group Controllers balancing 3 HFO power plants



easY-I for inverter based sources

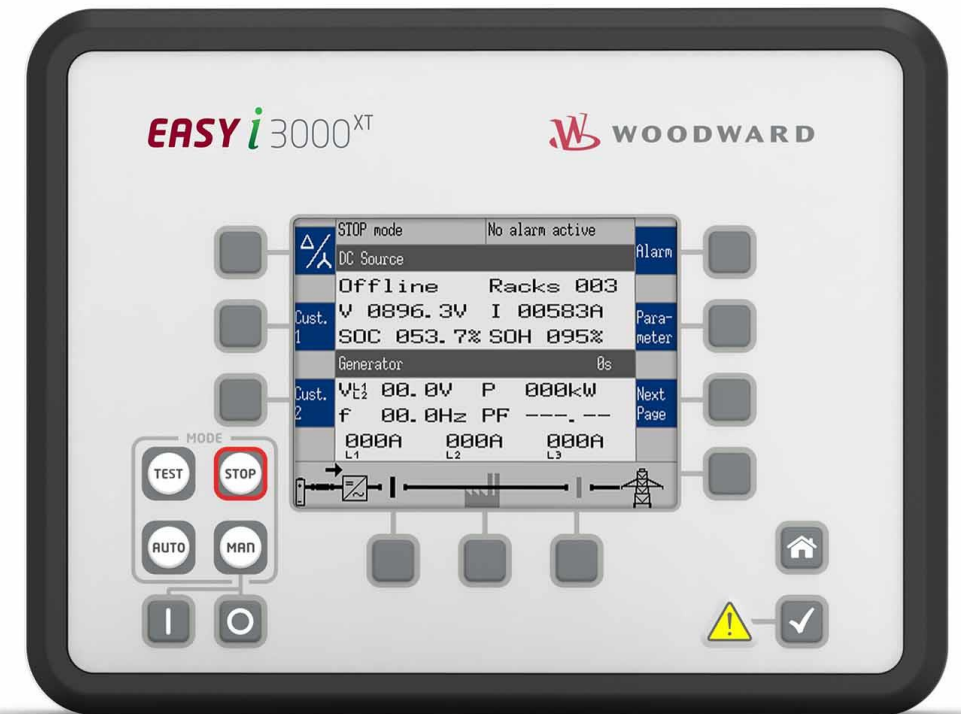
The easY-I-3000XT series takes care about a DC/AC Inverter and connected DC source. The control units can be used in island/mains parallel operation in conjunction with some gensets and is also applicable for stand-by, AMF, peak shaving, import/export or DC charging. Of course, these functions must also be supported by the inverter used.

Seamless integration of easY-I with other easYgen-3000XT platform controls like easYgen-3500XT, LS-6XT and GC-3400XT controls via integral redundant E-Net communication.

Download Case Study

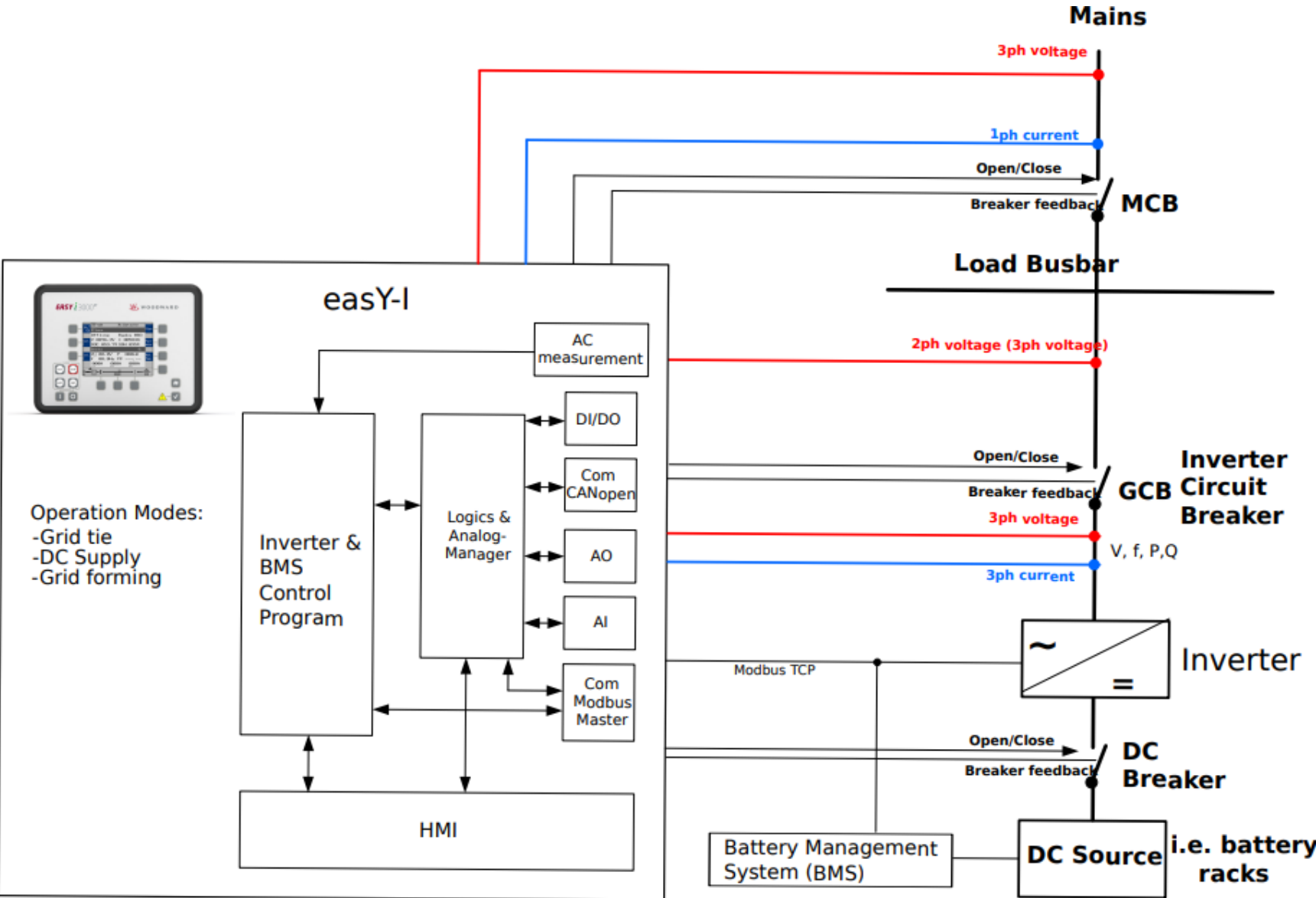


scan to learn more
www.easYgen.org/easYI



Woodward easY-I part numbers:
8440-2292 easY-I-3500XT-P1 and 8440-2293 easY-I-3400XT-P1

easY-I



easYview SCADA Release 3.0



Part number	Description	Screen size	CDDs	MirrorNodes	Data Sources
8446-1071	easYview-07-030	7"	30	1500	3
8446-1072	easYview-10-150	10"	150	9000	18
8446-1073	easYview-15-150	15"	150	9000	18

CDDs: Data points/values which are show in the Visualization at the same time per created page.

MirrorNodes: Datapoint which receive a value from a data source and save it in the project for use in the Visualization

Data sources: Atvise Connect is used as data source in the easYview to receive ModbusTCP data from the easYgen-3000XT/LS-6XT devices. A data source could also be any device which shall communicate with the easYview.



scan to learn more
www.easYgen.org/easYview

easYview's Remote VNC HMI possibilities

easYview-7-30
P/N 8446-1071



ETH-A



easYgen-3100XT

easYview-10-150
P/N 8446-1072



ETH



easYgen-3400XT



LS-612XT-P1/P2

easYview-15-150
P/N 8446-1073



ETH-A



easYgen-3400XT



easYgen-3400XT

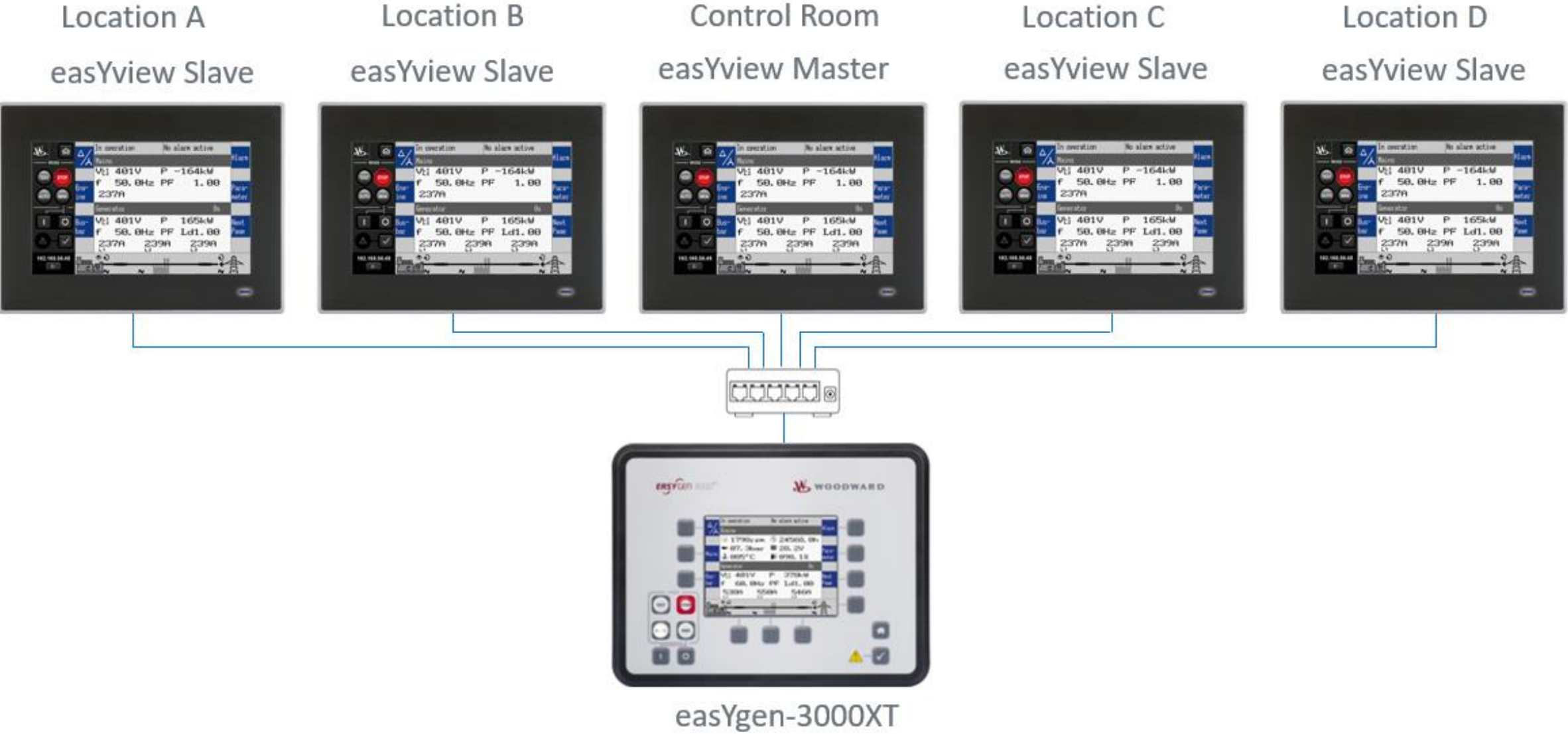


LS-612XT-P1/P2



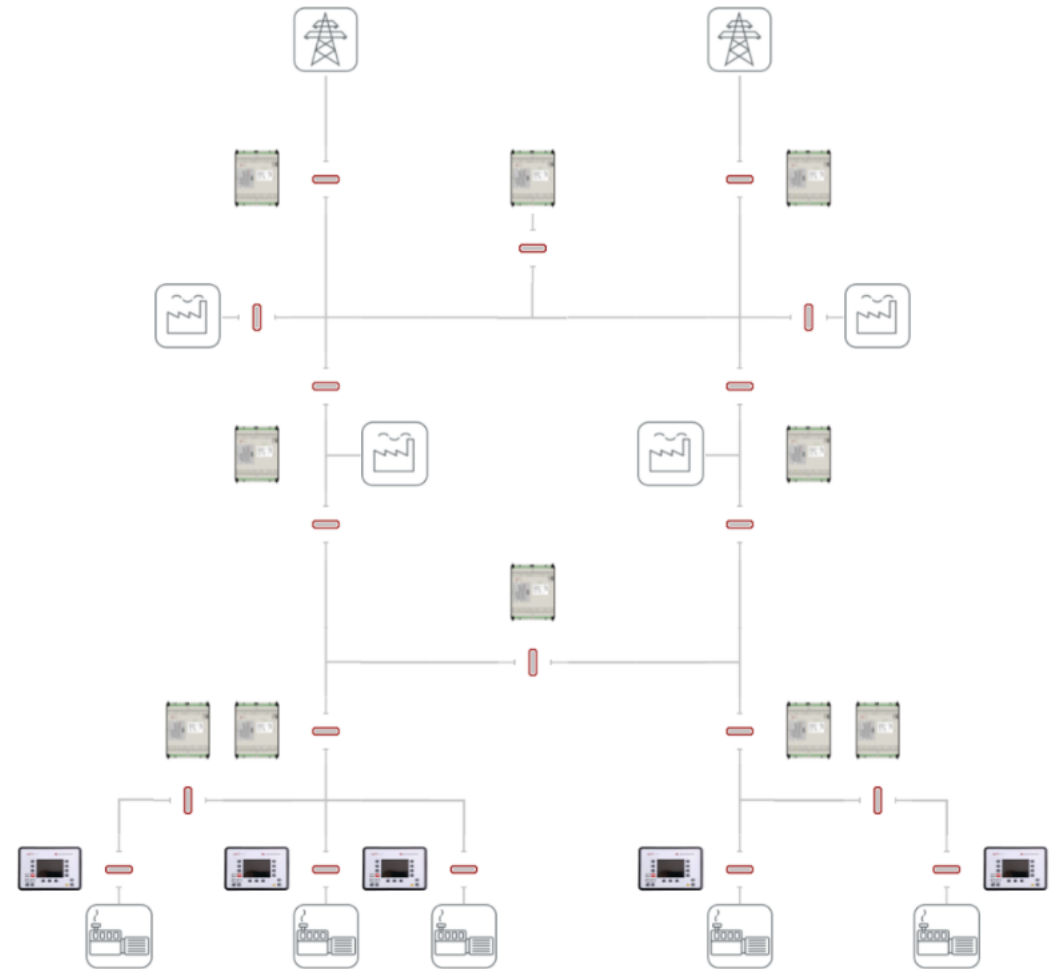
LS-612XT-P1/P2

Up to 5 easYview remote panels can share same HMI information



easYsim – Power Systems Simulation

- › Cloudbased Simulation with 7 training models
- › 3-month License P/N 10-059-783 easYsim
- › Customized Simulation according your project needs based on an Industrial PC to be connected to your PLC
- › easYgen-3000XT platform controls (easYgen-3000XT's, LS-6XT's, GC-3400XT-P1, DSLC-2XT and MSLC-2XT) digital twins can be added into power systems simulation



scan to learn more
www.easYgen.org/simulation



Powering a clean future

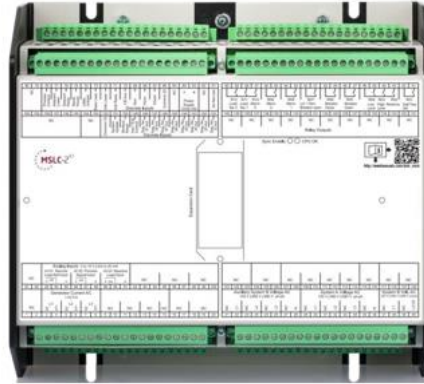


Helpful Backup Slides

Why switch to new DSLC-2XT/MSLC-2XT?



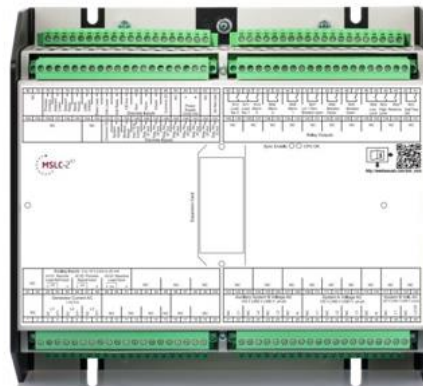
> 8440-1878 DSLC-2-5 & 8440-1978 DSLC-2-1



> 8440-2299 DSLC-2XT



> 8440-1877 MSLC-2-5 & 8440-1977 MSLC-2-1



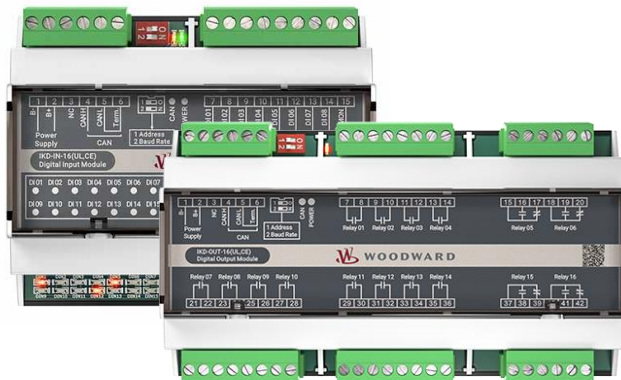
> 8440-2298 MSLC-2XT

- > Same form factor
- > Same mounting dimensions
- > Only one P/N for DSLC-2/ MSLC-2XT
- > Up to 690VAC direct sensing
- > ../1A & ../5A current sensing
- > Drop-in Replacement
- > Class 1 kW sensing
- > Higher galvanic isolation of PID outputs
- > One additional ETH-C port
- > Interoperable with old DSLC-2/MSLC2
- > Manuals & configuration files stored on control
- > USB configuration

Why switch to new DTSC-200A ATS control?



- > 8440-2297 DTSC-200A
- 8440-2323 DTSC-200A-P2 + Modbus TCP

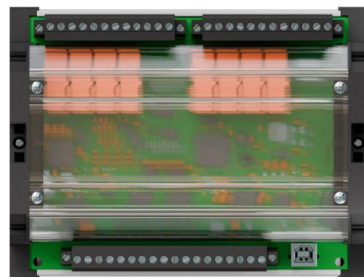


- > 8440-2307 IKD-IN-16 & 8440-2306 IKD-OUT-16

- > Same known Toolkit calibration tool
- > Same DTSC-200 configuration & HMI
- > Same CANopen & Modbus Protocols
- > Re-use of DTSC-200 setting files in DTSC-200A
- > Easier navigation by clear named push-buttons
- > Larger, brighter graphical Display
- > No battery inside to replace
- > Add up to 2 IKD2M's or 1 IKD-IN-16 & OUT-16 I/O expansion cards
- > Standard USB cable required
- > Available from stock!



- > 8440-1868 DTSC-200-5



- > 8440-2324 IKD2M



- > 5417-1251 DPC-USB cable

Why switching to easYgen-3500XT P2?

- > easYview (7", 10", 15")
- > easYview (7", 10", 15")



SubD terminal Adapter



PLC



690/110 VAC PT's



Bus Rotation Field relays



Start & Stop Buttons



easYgen-3500-5 P2



External Button



CAN/E-Net Converters



Galvanic Isolator for AVR



..1 or ..15A CT Version?



Class 1 Transducer

easYgen-3500XT-P2

- ✓ Poleslip Monitoring
- ✓ Terminal Adapter Inbuilt for COM Ports
- ✓ Illuminated Start & Stop Buttons inbuilt
- ✓ Drop-In Replacement
- ✓ Galvanic Isolation inbuilt up to 300V for AVR biasing
- ✓ WAGO and PHOENIX CAN based IO support
- ✓ Enhanced Logic Manager
- ✓ 3-phase bus sensing
- ✓ Redundant load sharing
- ✓ 3 Ethernet Ports Modbus Master
- ✓ 100-690VAC sensing
- ✓ Cost saving for entire control solution
- ✓ Class 1 for kW
- ✓ Integral AVR Regulation
- ✓ Additional external 16AI + 4AO via CAN

What to consider when upgrading old to new easYgen-3000/XT DSL-2/2XT MSLC-2/2XT

Check out our FAQ knowledgebase

- › <https://support.easygen.org/en/kb>
- › <https://support.easygen.org/en-US/kb/articles/wiring-deltas-easygen-3100-3200-p1-p2-versus-easygen-3100xt-3200xt>
- › <https://support.easygen.org/en-US/kb/articles/wiring-deltas-of-easygen-3400-3500-p1-p2-versus-easygen-3400xt-3500xt-p1-p2>
- › <https://support.easygen.org/en-US/kb/articles/wiring-terminal-differences-dslc-2-dslc-2xt>
- › <https://support.easygen.org/en-US/kb/articles/wiring-terminal-differences-mslc-2-mslc-2xt>



scan for more information about legacy, obsolete power management
<https://wss.woodward.com/manuals/Legacy/Forms/AllItems.aspx>

Accessories for easYgen-3000XT

Engine-/Switchgear Room

- > up to
- > 2x IKD-IN-16
- > 8440-2307

- > up to
- > 2x IKD-OUT-16
- > 8440-2306



> easYgen-3000XT



- > up to
- > 2x easYlite-200
- > 8446-1007
- > Release 2.15

CAN-Open

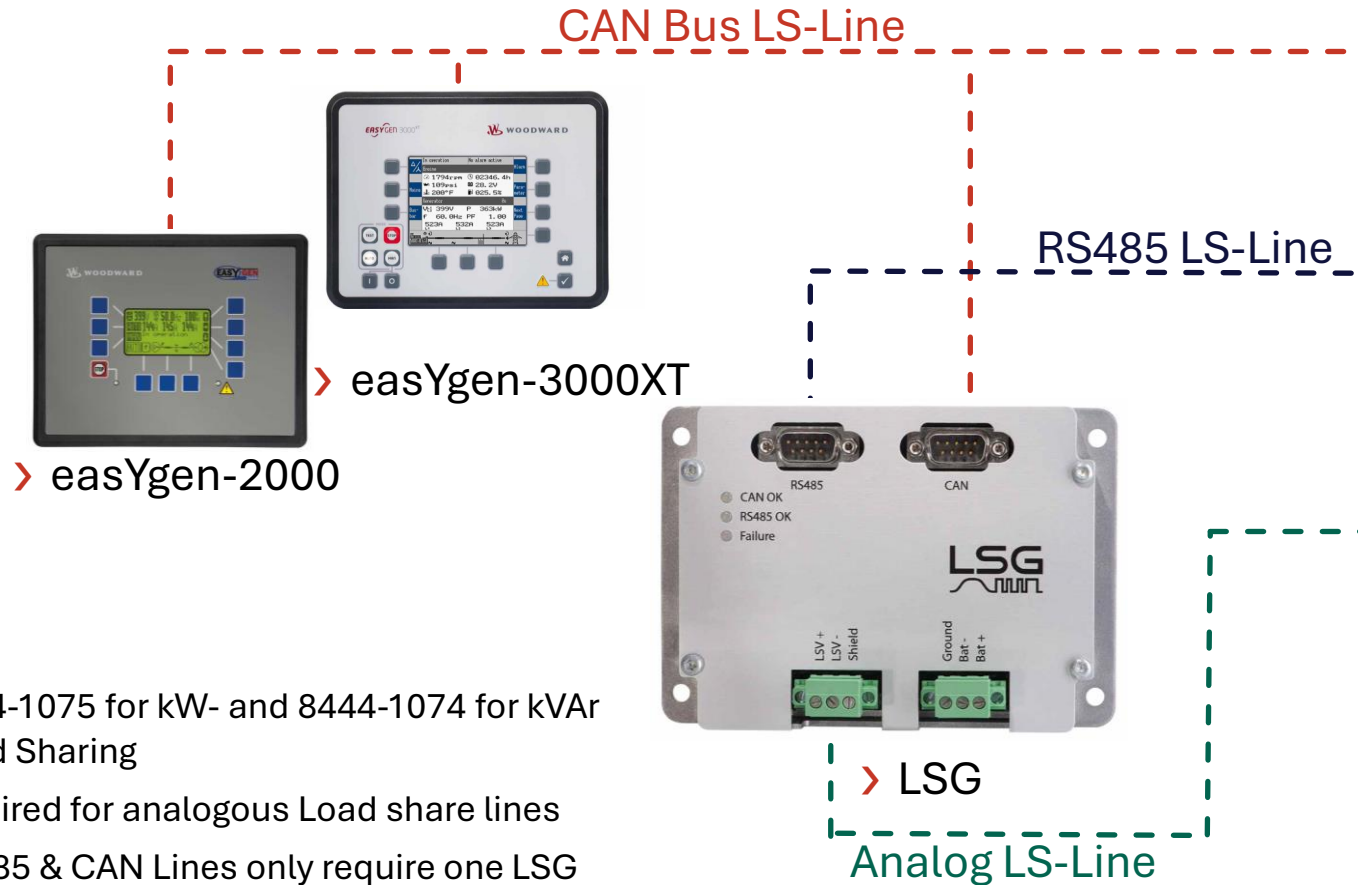
Ethernet



> easYview



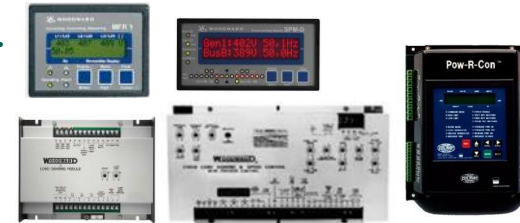
LSG Load Share Gateway



> GCP-3x > MFR3x > GCP-2x > MFR2



> EGCP-1 > EGCP-2

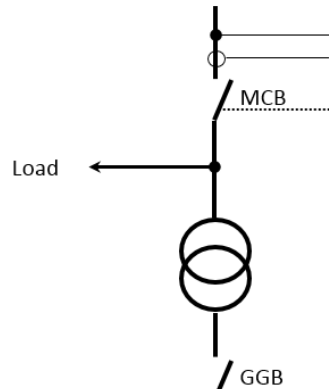


> MFR15/SPM-D11 > 0-4V
 > LSM > 0-3V
 > 2301A > 0-3V
 > Pow-R-Con > 0-5V
 > PCC > 0-2,5V
 > 3rd Party Products > 0-7V +/-5V

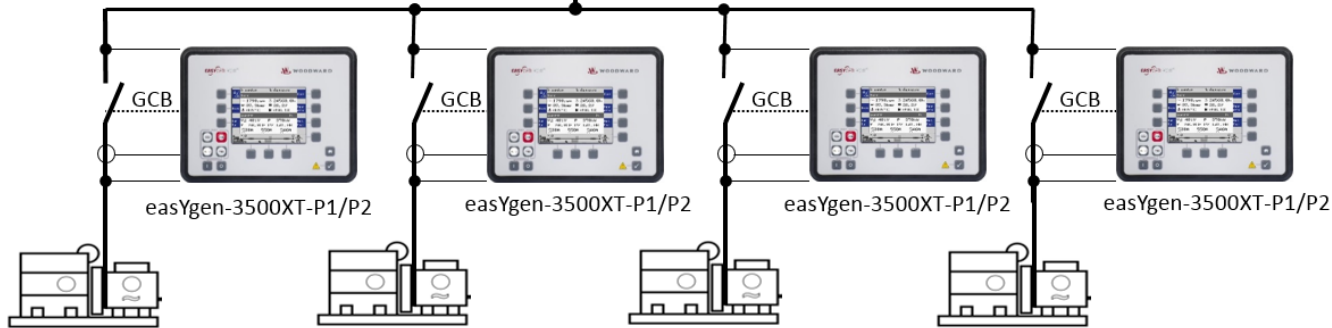
- > 8444-1075 for kW- and 8444-1074 for kVAr Load Sharing
- > required for analogous Load share lines
- > RS485 & CAN Lines only require one LSG for kW & kVAr sharing

> LSG
 Analog LS-Line

Run-up Synch Fast Paralleling



click to see the video or scan QR code



4 x 1000 kVA Caterpillar Diesel generator sets paralleled within 7 seconds

Customer problem

Want to parallel $n+1$ backup gensets together in shortest possible time within only some seconds, to shrink Battery UPS backup system, to be able to provide suddenly power for heavy load one genset alone cannot provide or be able to provide total genset load beyond 10 or 15 seconds which is a requirement in many critical applications like Datacenters, Hospitals, Airport, Chemical & Process Industry.

Solution – Run-Up Synch

All the generators are paralleled together by closing their circuit breakers during the engine start sequence. Then after a certain speed is achieved the voltage regulators are enabled and the generators will produce voltage. The run-up synchronization method is used to get several synchronous generators onto load in a very short time. This time is determined by the engine start time and the AVR on-excitation.

- › Run-Up Synch can be done in various App Modes depending on the application, only easYgen-3400/3500XT is required

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NOV 14 2022  Clemens Grossskinsky 💬 0 Event

OCT 28 2022  Clemens Grossskinsky 💬 0 Event

SEP 23 2022   Clemens Grossskinsky 💬 0 Product Rel...



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Knowledgebase

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RP-3000XT (1)

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MSLC-2 (3)

- What are the differences between DSLC-2 MSLC-2 and DSLC-2...
- Can I change the internal Battery on my own?
- Why switch to new DSLC-2XT & MSLC-2XT ?

easYview (2)

- Personalize RP-3000XT or easYview
- customize your easYview

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DSLC-2 (3)

- What are the differences between DSLC-2 MSLC-2 and DSLC-2...
- Can I change the internal Battery on my own?
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- Synchronizers ASG-3, ASG-410, ASG410+ SPM-D and SPM-D2
- where can I find information about old obsolete industrial contr...



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Documentation Server

Power Generation Controls

All Documents test

✓	📁	Name	Modified	PGC Update Title and Modifier WF
	📁	Compliance_Certificates	... March 15, 2021	
	📁	DSL_C_MSLC_series	... December 7, 2021	Completed
	📁	DTSC_series	... March 15, 2021	
	📁	easYgen-100_series	... March 15, 2021	
	📁	easYgen-1000_series	... March 15, 2021	
	📁	easYgen-2000_series	... March 15, 2021	
	📁	easYgen-3000XT_series	... March 15, 2021	
	📁	easYlite-200	... March 15, 2021	
	📁	easYprotec_series	... June 23, 2021	
	📁	Legacy_Controllers	... March 15, 2021	
	📁	LS-5_series	... October 19, 2021	
	📁	MFR-x00_series	... June 23, 2021	
	📁	SW_Tools	... March 15, 2021	



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<https://wss.woodward.com/manuals/PGC/Forms/Alllite.ms.aspx>

Legacy controls replacement data base

Please search for your item number or the item description:

search

ITEM NUMBER	ITEM DESCRIPTION	ITEM NUMBER	ITEM DESCRIPTION	COMMENTS	PRODUCT DOCUMENTATION	EXTERNAL LINK
8406-020	EGCP-1, 24VDC, 90-277 VAC PT'S	8440-2082	easYgen-3200XT	Loadshare Gateway LSG required if n+1 gens	»	»
8406-021	EGCP-1, 24VDC, 90-277 VAC PT'S	8440-2082	easYgen-3200XT	Loadshare Gateway LSG required if n+1 gens	»	»
8406-113	EGCP-3 "I LS"	8440-2088	easYgen-3500XT-P2	LON not supported in easYgen!	»	
8406-114	EGCP-3 "MC"	8440-2222	LS-6XT	LON not supported in LS-6XT	»	



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<https://easygen.org/legacy-product-replacement/>

Toolkit and Software Tools

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- › [HMI Localization Tool](#)
- › [LDSS Emulation Tool](#)
- › [ModbusMasterMapper](#)
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Power Management Controls Channel

YouTube ^{GB} easygen power management

EASYGEN 3000^{XT}

TUTORIAL
Getting started with
easyGen-3000XT and ToolKit



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- 1 Woodward easygen3000... Woodward, Inc. ... 5:22
- 2 Woodward easygen-... Woodward, Inc. ... 6:23
- 3 Woodward easygen-... Woodward, Inc. ... 5:24
- 4 Woodward easygen-... 5:47



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Thank you!



Powering a clean future

