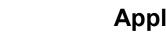




RGCP-3400

Redundant Genset Control Panel for mission critical Applications



DESCRIPTION

Woodward's dual modular Redundant Genset Control Panel (RGCP) was designed to provide an additional layer of power system reliability in mission-critical applications, such as data centers, hospitals, or critical industrial processes where the cost of an outage greatly exceeds the installed cost of a redundant control system. Based on the familiar easYgen-3400 series genset control, the RGCP includes all the features, functionality and proven quality of the industry-leading easYgen-3000 series paralleling genset controls

The RGCP-3400 is delivered as a fully-wired, factory tested turn-key assembly that easily interfaces with a PLC-based SCADA system. The space-conscious design greatly simplifies switchgear construction and provides peace of mind in critical applications, where even a momentary loss of the on-site power system may result in substantial monetary loss or risk to life or security hazards.

At the heart of the RGCP is a pair of Woodward easYgen-3400 series genset controllers, each housed in a robust metal enclosure. Specially designed firmware allows the two controls to operate in tandem in a primary/standby configuration. Should the CPU of the primary unit fail, control is automatically transferred to the stand-by unit and "bump-less" genset control is resumed; there is negligible effect on generator stability or load sharing during the transfer, even during start-up and synchronization. Manual transfer between primary and standby controls is also possible through a key switch, for making fail-safe check, firmware upgrades, or "hot-swapping" controllers for any reason. The RGCP can be used on an isolated generator or can load share with up to 32 RGCP (or easYgen-3400/3500) equipped gensets in islanded or utility parallel operation. Communication and load sharing between RGCP's in a system can be done over a redundant fiber optic ring network topology; any single break in the ring will not affect the network integrity. The RGCP is also compatible with LS-5 circuit breaker controls, for synchronization and control of up to 16 utility or tie breakers in complex distribution systems. Each RGCP can be used with up to 2 remote panels (RP-3000) for genset control and visualization. Terminal blocks are provided for end user connection of redundant power supplies.

FEATURES

- Fully wired compact turn-key assembly with outside terminal blocks for wiring like a single easYgen-3400
- Unique bias tracking firmware, for bump-less transfer to the backup controller even while the generator is fully loaded and paralleled with other generators
- CT shorting blocks for "hot-swap" of a controller without having to stop the generator
- Automatic detection of primary/stand-by controller status and loss of redundancy. Local annunciation through LEDs and remote indication through potential free contacts
- Parameter alignment monitoring between primary and stand-by controller and mismatch alarm
- · Available load share communication line redundancy with fiber optic ring
- Up to 2 remote panels (RP-3000) realizable for genset control and visualization
- Manual switch-over capability for commissioning, maintenance, and trouble be acting.
- Full connectivity of up to 32 Generators and 16 LS-5 circuit breaker control devices in one application
- Operation modes: Auto, Stop, Manual, and Load/No Load test modes via RP-3000 or discrete inputs
- Breaker control: Slip frequency / phase matching synchronization, open-close control, breaker monitoring
- Load transfer features: open / closed transition, interchange, soft loading / soft unloading, mains parallel
- Remote control via interface and discrete/analog inputs for adjusting speed, frequency, voltage, power, reactive power, and power factor set points
- Multi-lingual capability: English, German, Spanish, French, Italian, Portuguese, Japanese, Chinese, Russian, Turkish, Polish, Slovenian, Finnish, Swedish

- For mission critical applications
- Pre-Wired, factory tested turnkey assembly
- Based on the proven easYgen-3400 series hardware
- "Bump-less" transfer between primary/stand-by controllers
- "Hot-Swap" capability for online maintenance or replacement
- Manual key switch for commissioning, maintenance, and troubleshooting
- Available Redundant fiber optic ring communication
- Provision for redundant power supply
- Simple installation and commissioning
- Easy interface with PLC based control systems
- Load sharing and load-dependent start/stop for up to 32 units
- Compatible with LS-5 circuit breaker controls for complex distribution systems
- ABS and LR marine societies component approvals



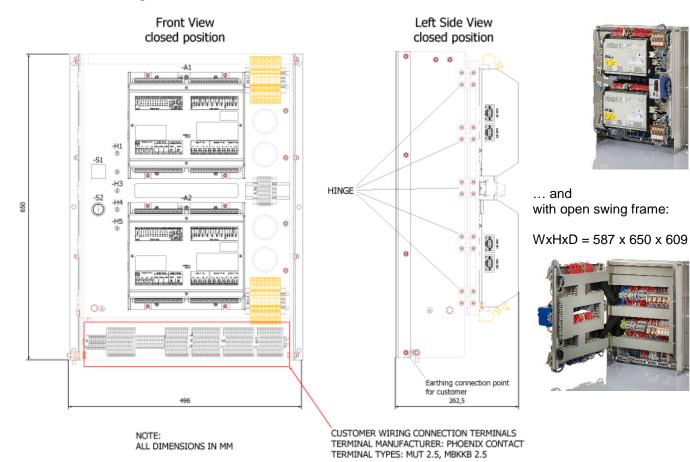
SPECIFICATIONS

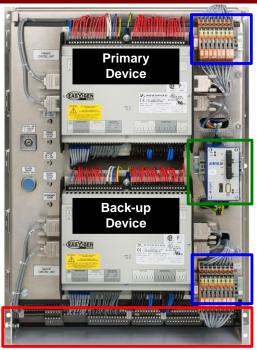
Power supply	24 V _{DC} (+/- 10%)
Intrinsic consumption	max. 42 W
Ambient temperature (operation)	
Ambient temperature (storage)	
Ambient humidity	95%, non-condensing
Voltage	(\times_\/\d
100 V _{AC} [1] Rated (V _{rated})	
Max. value (V _{max})	86/150 V _{AC}
Rated surge volt.(V _{surge})	2.5 kV
and 400 V _{AC} [4] Rated (V _{rated})	
	346/600 V _{AC}
Rated surge volt.(V _{surge})	
Accuracy	Class 1
Accuracy	
Measurable alternator windings 3p-3w, 3p-	
Setting range primary	
Linear measuring range	1.25×V _{rated}
Measuring frequency	50/60 Hz (40 to 85 Hz)
High Impedance Input; Resistance per path	
Max. power consumption per path	< 0.3 W
Current (Isolated) Rated (Irated)	
Linear measuring range	
0 "	I _{mains/ground} = 1.5×I _{rated}
Setting range	1 to 32,000 A
Rated short-time current (1 s)	[1] 50×I _{rated} , [4] 10×I _{rated}
Power	
Setting range	0.5 to 99,999.9 kW/kvar
5 5	-

Discrete inputs	isolated			
	12/24 V _{DC} (8 to 40 V _{DC})			
	< 1.85 VA			
	isolated			
	AgCdO			
	2.00 Aac@250 Vac			
	0c@24 V _{DC} / 0.36 A _{DC} @125 V _{DC} / 0.18 A _{DC} @250 V _{DC}			
	-			
Pilot duty (PD)				
	oc@24 V _{DC} / 0.22 A _{DC} @125 V _{DC} / 0.10 A _{DC} @250 V _{DC}			
	e isolated)freely scalable			
	0 to 20 mA			
	lated)freely scalable			
	± 10 V / ± 20 mA / PWM			
Insulation voltage (co	ntinuously)100 V _{AC}			
	e (1s)500 Vac			
Resolution				
± 10 V (scalable)	internal resistance ≤1 kOhms			
± 20 mÀ (scalable) .	maximum load 500 Ohms			
	Back Panel Mounted Turn Key Metal Cabinet			
Dimensions	WxHxD closed			
	WxHxD swing gate open 587 x 650 x 609 mm			
Connection	screw/plug terminals 2.5 mm²			
	approx 21 kg			
	E) tested according to applicable EN guidelines			
MarineLR (Component Type Approval), ABS (Component Type Approval)				
marine La (Component Type Approval), ABS (Component Type Approval)				

DIMENSIONS

Wall mount housing





Short Circuit
Jumpers Primary

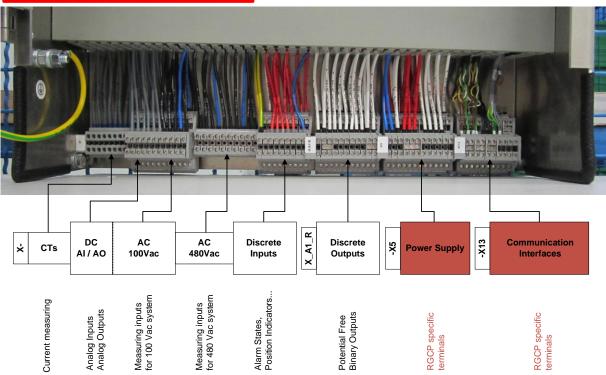
EKS Redundant Load share



Optionally: CAN-3 Load share

Short Circuit Jumpers Back-up

Connection Area



RELATED PRODUCTS

- Genset Controller easYgen-3400 (Product Specification # 37523): P/N 8440-2113 & 8440-2188
- Circuit Breaker Controller LS-511/521 (Product Specification # 37522)
- Remote Panel RP-3000 (Product Specification # 37446)
- CANbus to Fiber Optic Converter (Application Note # 37598): DL-CAN P/N 8445-1049 and DL-CAN-R P/N 8445-1048
- Engine Speed Control actiVgen (Product Specification # 03419): P/N 8440-2108

- ToolKit (Product Specification # 03366)
- I/O Expansion Board IKD1 (Product Specification # 37171)
- Profibus Gateway (Application Note # 37577): ESEPRO P/N 8445-1046
- Ethernet (Modbus/TCP) Gateway (Application Note # 37576):
 ESENET P/N 8445-1044
- Remote Access Gateway (Application Note# 37611) with HMS Netbiter EasyConnect EC350



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For more information contact:

FEATURES OVERVIEW

Measuring Generator voltage (3-phasel4-wire) Generator voltage (3-phasel4-wire) Generator voltage (1-phasel2-wire) Generator voltage (1-phasel2-wire) Mains voltage (1-phasel2-wire) Whatis vo	Series Series	RGCP-	
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Measuring Generator values (3-phase/4-wire)			
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Import / export control at the utility interconnect (kW and kvar)			
Automatic gen-set sequencing (LDSS) If V, P, Q, and PF remote control via analog input or interface V Load/var sharing for up to 32 gensets Configurable load and unload ramp rates Freely configurable PID controllers 3 3 3 Redundancy & Diagnostic Features Unique bias tracking firmware Parameter settings alignment check Loss of redundancy aliam Marual Rey switch and status indication Graphical overside of status indication Generator: rocorder entries with real time clock (battery backup) Sevent recorder entries with real time clock (battery backup) Were tracorder entries with real time clock (battery backup) ANSI# Generator: voltage / frequency Generator: overload, reverse/reduced power Generator: unbalanced load Generator: instantaneous overcurrent Generator: instantaneous overcurrent Generator: ground fault (measured ground current) Generator: ground fault (measured ground current) Generator: overload faverseped underspeed 12 / 14 / V Generator: overload faverseped underspeed Fagine: Speed / frequency mismatch Engine: speed / frequency mismatch Fagine: Oylinder temperature V Can bus communication interface Teleproper overload (alt (ROCOF) / Q(U) 78 V Engine: Oylinder temperature Can bus communication interface 1 2 / 14 / V Fagine: Oylinder temperature Can bus communication interface Recentance in the fact of the fact (Bocomerator) Figure: Oylinder temperature Can bus communication interface Can bus communication interface Can bus communication interface Can bus communication interface Can bus communication			
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Protection			
Generator: voltage / frequency		300	300
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Generator: power factor		✓	✓
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Fiber Optic gateway for communication ring		√	✓
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RGCP-3400 with 1 A CT inputs 9900-1029 9900-1030		NO	YES
	RGCP-3400 with 5 A CT inputs		
Optional Remote Panel 8446-1057	RGCP-3400 with 1 A CT inputs		
	Optional Remote Panel	844	6-1057

^{*)} SU = Single Unit: without Fiber Optic gateway (retrofit prepared) MU = Multi Unit: with Fiber Optic gateway implemented