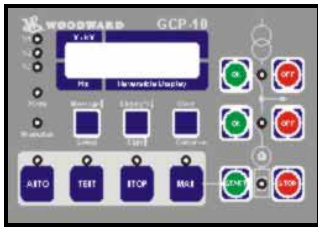




Replacement of GCP-10 Series with easYgen-1500 Application Note



Application Note
easYgen-1500 Software Version 2.0xxx

**WARNING**

Read this entire manual and all other publications pertaining to the work to be performed before installing, operating, or servicing this equipment. Practice all plant and safety procedures and precautions. Failure to follow safety procedures and precautions may result in personal injury and/or property damage.

The engine, turbine, or other type of prime mover should be equipped with an overspeed (overtemperature, or overpressure, where applicable) shutdown device(s) that operates independently of the prime mover control device(s) to protect against runaway or damage to the engine, turbine, or other type of prime mover resulting in possible personal injury or loss of life should the mechanical-hydraulic governor(s) or electric control(s), the actuator(s), fuel control(s), the driving mechanism(s), the linkage(s), or the control device(s) fail.

**CAUTION**

To prevent damage to control systems that uses an alternator or battery-charging device, ensure the charging device is turned off before disconnecting the battery source from the system.

Electronic controls contain static-sensitive parts. Observe the following precautions to prevent damage to these parts.

- Discharge body static before handling the control (with power to the control turned off, contact a grounded surface and maintain contact while handling the control).
- Avoid all plastic, vinyl, and Styrofoam (except antistatic versions) around printed circuit boards.
- Do not touch components or conductors of a printed circuit board with bare hands or conductive devices.

Important Definitions**WARNING**

Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.

**CAUTION**

Indicates a potentially hazardous situation that, if not avoided, could result in damage to equipment.

**NOTE**

Provides other helpful information that does not fall under the warning or caution categories.

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Revision History

Rev.	Date	Editor	Changes
NEW	05-06-22	TP	Release

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Chapter 1.

Introduction



ATTENTION

This application note must be used together with the standard manuals.

The following standard manuals are required to install, commission, and operate the easYgen:

- **easYgen-1000** Installation Manual 37320
(<http://www.woodward.com/pubs/download.cfm?link=/PDF/IC/37320.PDF>)
- **easYgen-1000** Configuration Manual 37321
(<http://www.woodward.com/pubs/download.cfm?link=/PDF/IC/37321.PDF>)
- **easYgen-1000** Operation Manual 37322
(<http://www.woodward.com/pubs/download.cfm?link=/PDF/IC/37322.PDF>)
- **easYgen-1000** Interface Manual 37262
(<http://www.woodward.com/pubs/download.cfm?link=/PDF/IC/37262.PDF>)

The easYgen1500 can replace the following GCP-10 units:

GCP-10 part number		easYgen-1500 part number	
5448-882	GCP-1115B	8440-1750	easYgen-1500-55B
8440-1037	GCP-1145B/T2		
5448-880	GCP-1210B/X		
5448-881	GCP-1210B		
8440-1015	GCP-1240B		

It is possible to configure both units by PC with the Woodward software tool LeoPC1 V3.1.1

The required communication cable is offered separately under the P/N: 5417-557, COMMUNICATION DEVICE-DPC.

Chapter 2.

Replacement GCP-11 with easYgen-1500

Technical Data

	GCP-11	easYgen-1500
Voltage measurement	100 to 115 VAC or 380 to 440 VAC	69/120 VAC and 277/480 VAC
Current measurement	3phase 1A or 5A	3phase 1A or 5A ($3 \cdot I_{rated}$) 1phase 1A or 5A ($1.5 \cdot I_{rated}$)
Frequency range	40 to 70 Hz	40 to 70 Hz
Accuracy	Class 1	Class 1
Power supply	8 to 32 VDC	6.5 to 40 VDC
Operation temperature	-20°C (-4°F) to 70°C (158°F)	-20°C (-4°F) to 70°C (158°F)
Ambient humidity	95 % not condensing	95 % not condensing
Digital input	12 alarm inputs 4 to 40 VDC	7 alarm or logic inputs 6.5 to 40 VDC
Digital output	9 freely configurable isolated output 24 VDC	3 freely configurable outputs (common root) 3 freely configurable isolated outputs 250 VAC / VDC
Analog inputs	Option T2 2 inputs 0/4 to 20 mA	2 Flex range inputs VDO, resistance, or 0/4 to 20 mA
Interface	Non-isolated serial interface for PC communication with DPC cable	Non-isolated serial interface for PC communication with DPC cable and CAN BUS - communication - extension units - J1939
Timer and data function with Event Logger	None	Date and Time Battery buffered
Listings	CE marking UL/cUL listing	CE marking UL listing
Marine approvals	None	Germanischer Lloyd (GL) Lloyds register (LR)

Functional Overview



Both units have following functions and features:

- Start-stop logic for diesel or gas engines
- Generator voltage, frequency, and over current protection
- Generator breaker control
- Power and power factor measurement
- Relay manager function
- Analog inputs

Additional functions and features of the easYgen:

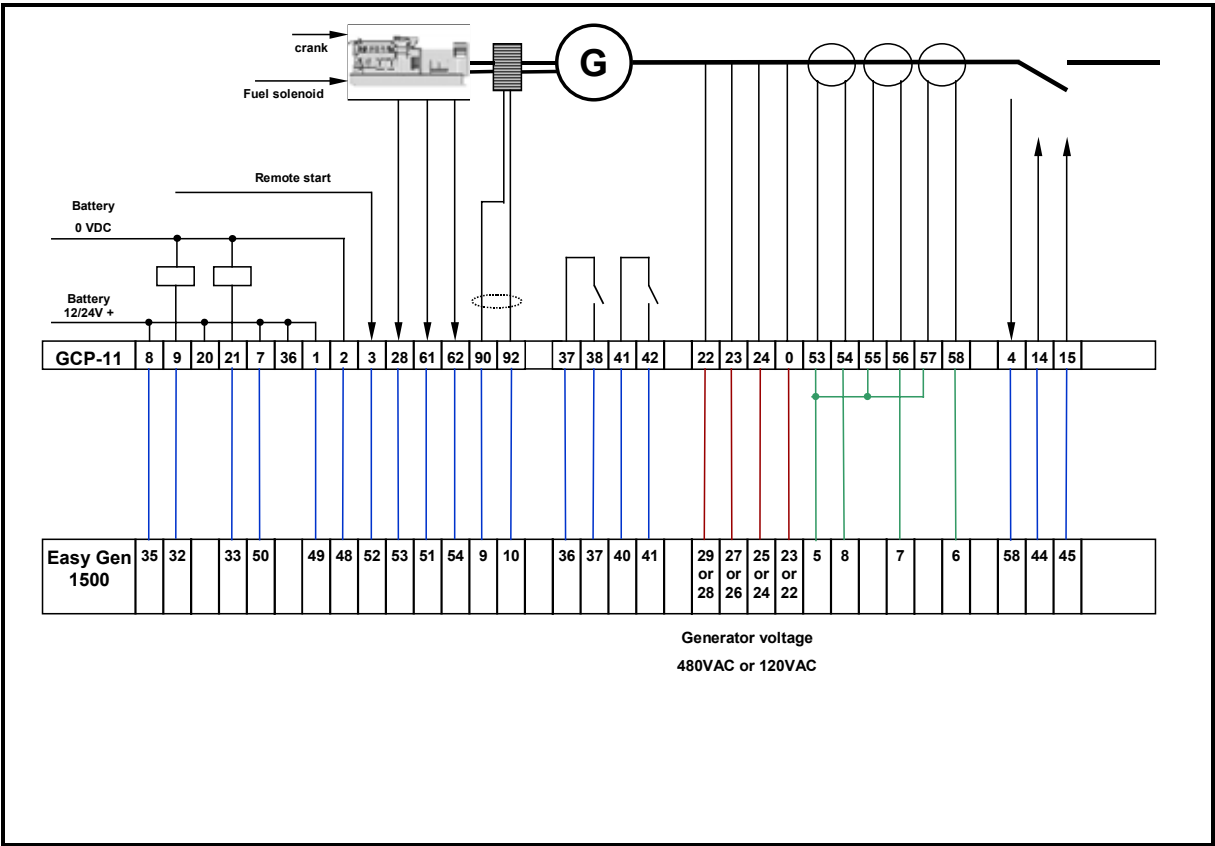
- Voltage measurement for 120VAC **and** 480VAC
- Mains current or ground fault measurement
- Digital inputs can be used for monitoring or control functions
- Generator breaker control with independent open and close command
- Relay allocation with timer and additional logical conditions
- Flexible configurable analog inputs
- CAN BUS communication for external units or CAN Open protocol

Terminal Overview



	GCP-11 terminals	easYgen-1500 terminals	comment
Power supply	1/2	48/49	
Generator voltage	22/23/24/0	29/27/25/23 (480V) 28/26/24/22 (120V)	
Current transformer	54/53 56/55 58/57	8/5 7/5 6/5	The easYgen uses one common terminal for all three current inputs.
Automatic	3	LogicsManager Default 52	Remote start in automatic
Reply CB is open	4	58	Feedback from the generator breaker
Common	7	50	
Discrete inputs	61 to 64 28 to 35	51 to 57	
Common	36/7	50	
Digital outputs (fixed relay)	8/9	32/35 (common)	Crank, starter
	14/15	44/45	GCB close command
	None	38/39	GCB open command
	18/19	46/47	Ready for operation (internal watchdog)
	20/21	33/ 35 (common)	Fuel solenoid / gas valve
Digital outputs (configurable)	10 to 17 37 to 48	30/31/34/ 35 (common) 36/37 40 to 43	
MPU	90/92	9/10	Switching / Inductive input
Analog inputs	93 to 95	13/ 12 (common)/48	Input 1
	96 to 98	11/12 (common)/48	Input 2

Wiring Overview



Parameter Assignment



The easYgen requires the following settings, in order to operate similarly to the GCP-11. For details please refer to the Installation Manual (refer to Introduction on page 4 for more info about the manuals).

One Breaker Application GCP-11

The following easYgen-1500 parameters must be configured for a one breaker application to operate like the GCP-11:

Configuration Block "Application"

- Application mode GCB
- Start request in automatic DI 2 (default value)
- Show mains data NO

Configuration Block "Breaker"

- GCB frequency window 10% (min./ max. range of the protection)
- GCB voltage window 8 %

Analog Inputs GCP-11/T2

The following easYgen-1500 parameters must be configured for the analog inputs to operate like the GCP-11/T2:

Configuration Block "Analog Inputs"

Analog input 1

- type linear
- select hardware 0 to 20 / 4 to 20 mA

Linear scale analog input 1

- value at 000% 000
- value at 100% 100

Analog input 2

- type linear
- select hardware 0 to 20 / 4 to 20 mA

Linear scale analog input 2

- value at 000% 000
- value at 100% 100

Chapter 3.

Replacement GCP-12 with easYgen-1500

Technical Data

	GCP-12	easYgen-1500
Voltage measurement	100 to 115 VAC or 380 to 440 VAC	69/120 VAC and 277/480 VAC
Current measurement	None	3phase 1A or 5A ($3 \cdot I_{rated}$) 1phase 1A or 5A ($1.5 \cdot I_{rated}$)
Frequency range	40 to 70 Hz	40 to 70 Hz
Accuracy	Class 1	Class 1
Power supply	8 to 32 VDC	6.5 to 40 VDC
Operation temperature	-20°C (-4°F) to 70°C (158°F)	-20°C (-4°F) to 70°C (158°F)
Ambient humidity	95 % not condensing	95 % not condensing
Digital input	12 alarm inputs 4 to 40 VDC	5 (6) alarm or logic inputs 6.5 to 40 VDC
Digital output	8 freely configurable isolated output 24 VDC	3 freely configurable outputs (common root) 1 freely configurable isolated outputs 250 VAC / VDC
Analog inputs	Only version X 2 inputs 0/4 to 20 mA	2 Flex range inputs VDO, resistance, or 0/4 to 20 mA
Interface	Non-isolated serial interface for PC communication with DPC cable	Non-isolated serial interface for PC communication with DPC cable and CAN BUS - communication - extension units - J1939
Timer and data function with Event Logger	None	Date and Time Battery buffered
Listings	CE marking UL/cUL listing	CE marking UL listing
Marine approvals	None	Germanischer Lloyd (GL) Lloyds register (LR)

Functional Overview



Both units have following functions and features:

- Start-stop logic for Diesel or gas engines
- Generator voltage and frequency monitoring
- Mains voltage and frequency monitoring, AMF mode
- Generator and mains breaker control
- Relay manager function
- Analog inputs

Additional functions and features of the easYgen:

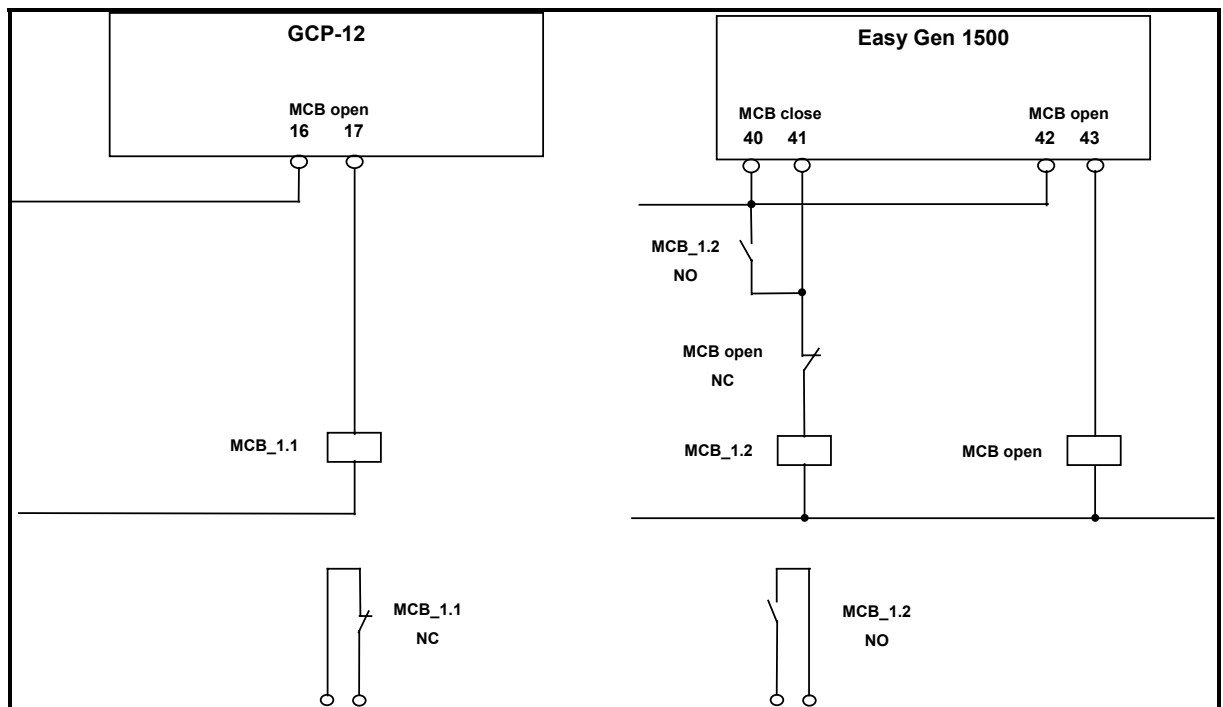
- Voltage measurement for 120VAC and 480VAC
- Mains current or ground fault measurement
- Generator current, power and power factor measurement
- Digital inputs can be used for monitoring or control functions
- Generator and mains breaker control with independent open and close commands
- Relay allocation with timer and additional logical conditions
- Flexible configurable analog inputs
- CAN bus communication for external units or CAN Open protocol

Terminal Overview



	GCP-11 terminals	easYgen-1500 terminals	comment
Power supply	1/2	48/49	
Generator voltage	22/23/24/0	29/27/25/23 (480V) 28/26/24/22 (120V)	
Mains voltage	50/51/52/0	21/19/17/15 (480V) 20/18/16/14 (120V)	
Automatic	3	LogicsManager Default 52	Remote start in automatic
Reply GCB is open	4	58	Feedback from the generator breaker
Reply MCB is open	6	57	Feedback from the mains breaker
Common	7	50	
Discrete inputs	61 to 64 28 to 35	51 to 55 (56)	
Common	36/7	50	
Digital outputs (fixed relay)	8/9	32/35 (common)	Crank, starter
	14/15	44/45	GCB close command
	None	38/39	GCB open command
	16/17	42/43	MCB close command
	None	40/41	MCB open command
	18/19	46/47	Ready for operation (internal watchdog)
Digital outputs (configurable)	20/21	33/ 35 (common)	Fuel solenoid / gas valve
	10 to 13 37 to 48	30/31/34/35 (common) 36/37	
MPU	90/92	9/10	Switching / Inductive input
Analog inputs	93 to 95	13/12 (common)/48	Input 1
	96 to 98	11/12 (common)/48	Input 2
Ground fault / mains current	None	1/2	5A CT input
CAN BUS	None	3/4	CAN High/Low

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100



Parameter Assignment



The easYgen requires the following settings, in order to operate similarly to the GCP-12. For details please refer to the Installation Manual (refer to Introduction on page 4 for more info about the manuals).

Two Breaker Application GCP-12

The following easYgen-1500 parameters must be configured for a two breaker application to operate like the GCP-12:

Configuration Block "Application"

- Application mode GCB/MCB
- Start request in automatic DI 2 (default value)

Configuration Block "Breaker"

- GCB frequency window 10% (min./ max. range of the protection)
- GCB voltage window 8 %

Analog Inputs GCP-12/X

The following easYgen-1500 parameters must be configured for the analog inputs to operate like the GCP-12/X:

Configuration Block "Analog Inputs"

Analog input 1

- type linear
- select hardware 0 to 20 / 4 to 20 mA

Linear scale analog input 1

- value at 000% 000
- value at 100% 100

Analog input 2

- type linear
- select hardware 0 to 20 / 4 to 20 mA

Linear scale analog input 2

- value at 000% 000
- value at 100% 100

We appreciate your comments about the content of our publications.
Please send comments to: stgt-documentation@woodward.com
Please include the manual number from the front cover of this publication.



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