



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 ($3 \cdot I_{\text{rated}}$) 1phase 1A or 5A ($1.5 \cdot I_{\text{rated}}$) |
| 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:

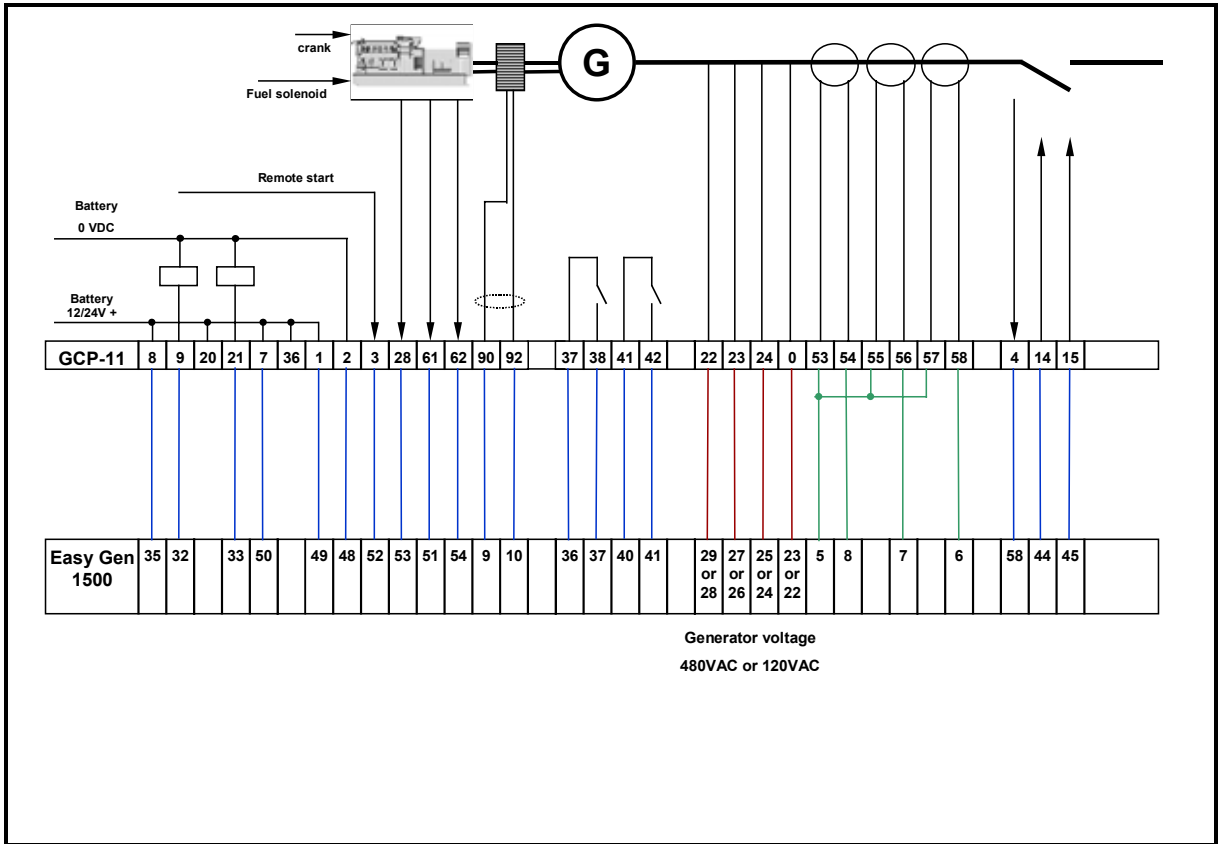
- Voltage measurement for 120VAC **and** 480VAC
- Mains current or ground fault measurement
- Digital inputs can be used for monitoring or control functions
- Generator breaker control with independent open and close command
- Relay allocation with timer and additional logical conditions
- Flexible configurable 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) |
| Digital outputs (configurable) | 20/21 | 33/ 35 (common) | Fuel solenoid / gas valve |
| | 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*I _{rated}) 1phase 1A or 5A (1.5*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:

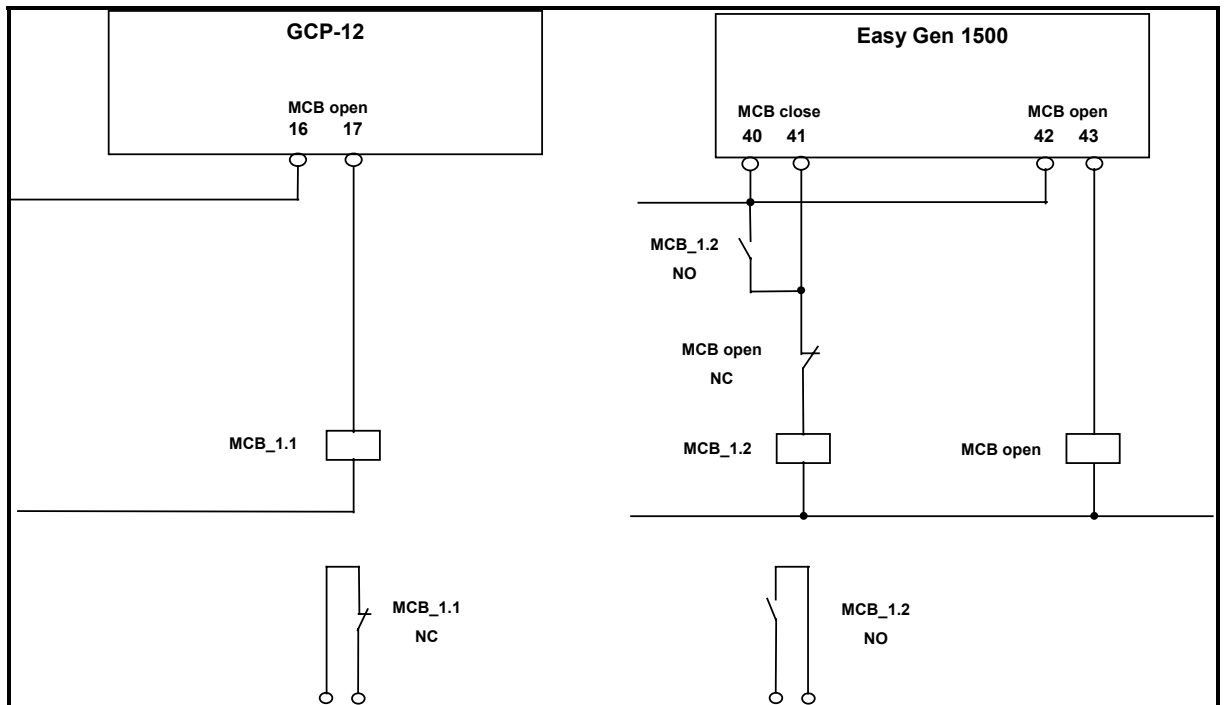
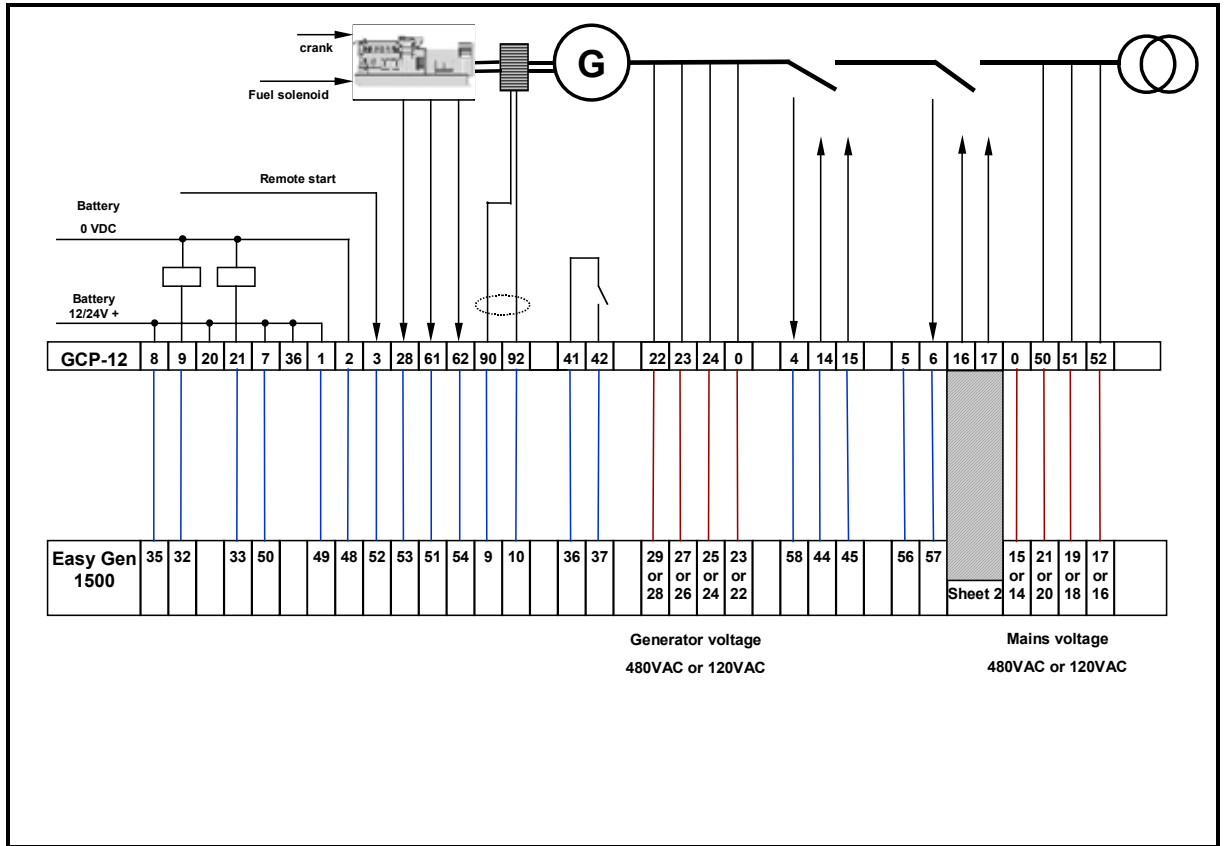
- Voltage measurement for 120VAC and 480VAC
- Mains current or ground fault measurement
- Generator current, power and power factor measurement
- Digital inputs can be used for monitoring or control functions
- Generator and mains breaker control with independent open and close commands
- Relay allocation 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) | 10 to 13 37 to 48 | 33/ 35 (common) 30/31/34/35 (common) 36/37 | Fuel solenoid / gas valve |
| 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 |

Wiring Overview



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.
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Please include the manual number from the front cover of this publication.



Woodward Governor Company
Leonhard-Reglerbau GmbH
Handwerkstrasse 29 - 70565 Stuttgart - Germany
Phone +49 (0) 711 789 54-0 • Fax +49 (0) 711 789 54-100
sales-stuttgart@woodward.com

Homepage

<http://www.woodward.com/smart-power>

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