Released

WOODWARD

RP-3000

Manual | Remote Panel

RP-3000

37534G

Designed in Germany

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Brief Overview

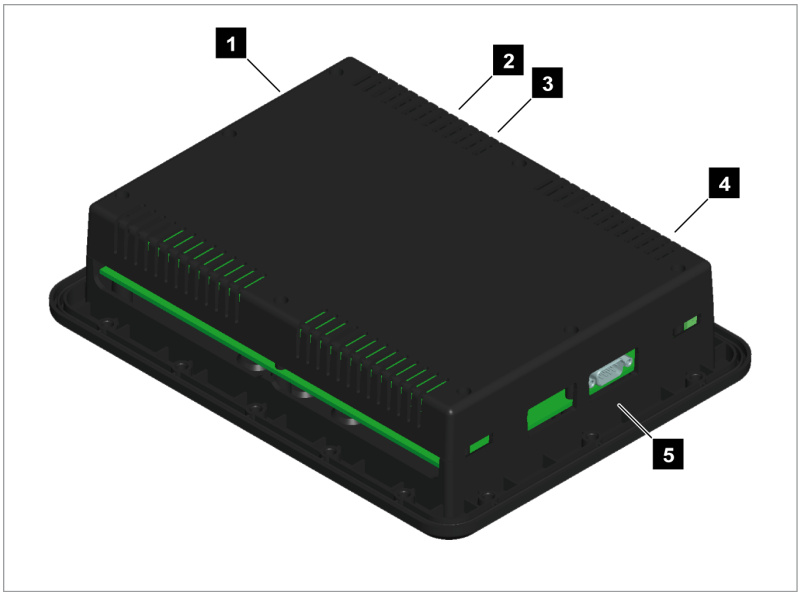


Fig. 1: RP-3000 Remote Panel

1 CAN bus interface connector
2 Power supply
3 Protective earth PE
4 Relay output terminal
5 RS-232 interface connector

The RP-3000 is a remote control and annunciation panel for use with the back-panel mounted easYgen-3100/3400 or door-mounted easYgen-3200/3500 genset controls.

It has the same look and feel of the easYgen-3200/3500 genset control, enabling user-friendly transition between genset control sources.

Each RP-3000 remote panel communicates with a single easYgen-3000 Series genset control.

Supported devices

The following easYgen-3000 genset controls are supported by the RP-3000 remote panel:

Remote Panel ...	works with easYgen-...	
RP-3000 **P/N 8446-1048**	**easYgen-3100/3200**	Package P1 software version 1.15xx or higher
		Package P2 software version 1.13xx or higher
	easYgen-3400/3500	Package P1 / Package P2
RP-3000 **P/N 8446-1046**	**easYgen-3400/3500 Marine**	Package P1
RP-3000 **P/N 8446-1059**	**easYgen-3400 P1 Rental**	(Option K32)
RP-3000 **P/N 8446-1062**	**easYgen-3500 P2 Rental**	(Option K32)

Sample application setup

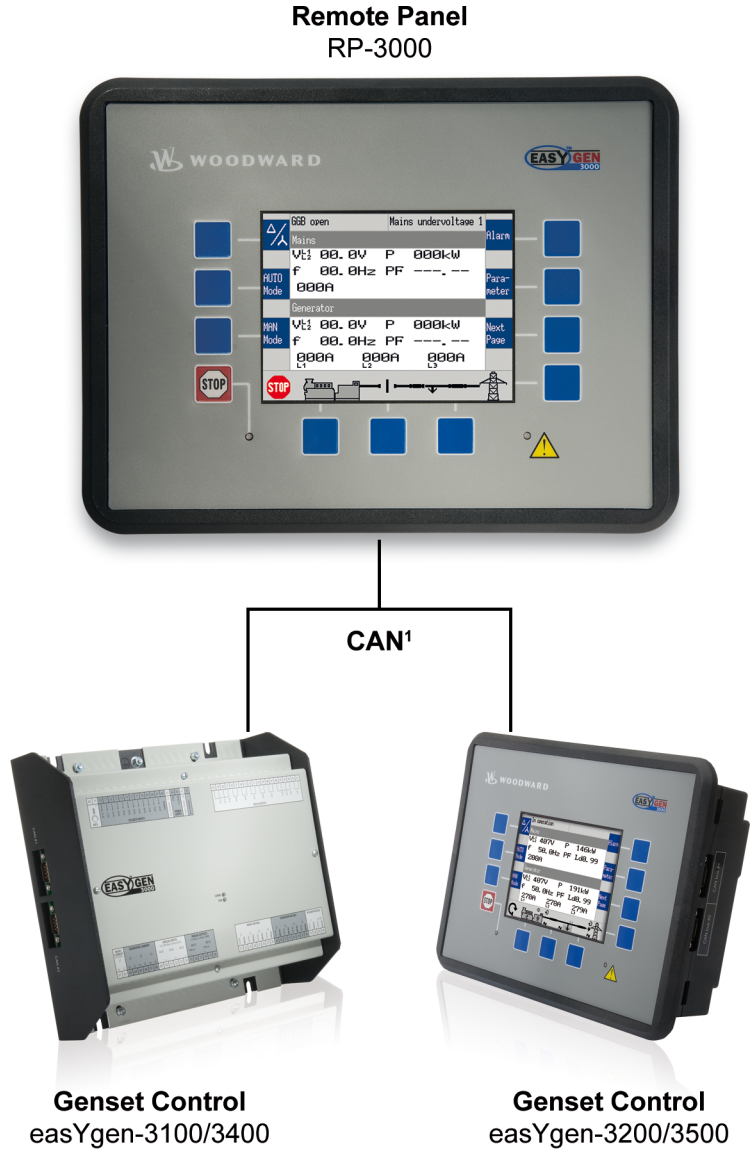


Fig. 2: Sample application setup

[1] *Only **one** easYgen can be connected at once.*

A typical application for the remote panel is to control back-panel mounted easYgen-3100/3400 devices.

- In this case, the RP-3000 provides control from the front panel with considerably reduced wiring effort.
- The high-voltage connections are located safely on the back panel.

For a listing of additional applications and setups please refer to chapter ↳ Chapter 6 “Application” on page 63.

Scope of delivery

The following parts are included in the scope of delivery. Please check prior to the installation that all parts are present.

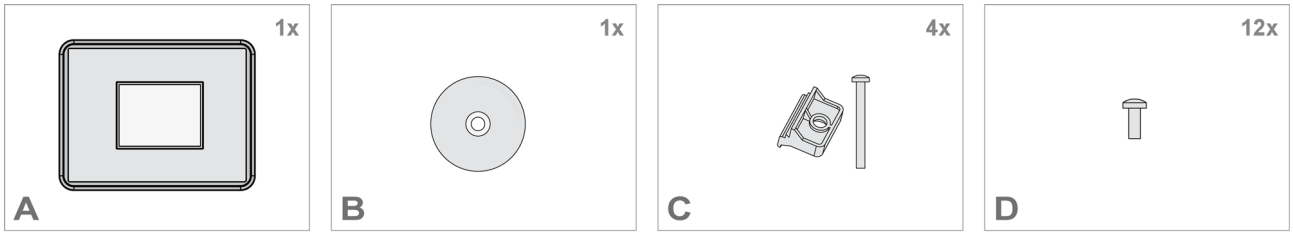


Fig. 3: Scope of delivery - schematic

A RP-3000 remote panel
B Product CD (configuration software and manual)
C Clamp fastener installation material - 4x
D Screw kit installation material - 12x

Constraints compared to easYgen-3200/3500

CAUTION!
The stop button function reacts in some screens not as fast as the stop button of the easYgen-3200/3500. Therefore it can be necessary to install an external emergency stop button.

The remote panel RP-3000 is connected via a serial interface to the genset control. Please keep in mind that the involved refreshing times of the displayed data are slower on the RP-3000 compared to the easYgen-3200/3500.

The RP-3000 has following constraints compared to the easYgen-3200/3500.

Section	Constraint
General	The page reproduction takes a bit longer when you change or scroll pages. During page reproduction no buttons are accepted. As long as an hour glass is displayed no buttons are accepted.
Alarm list	The alarms in the active alarm list are displayed about one second delayed.
Event History	Is the event history page directly accessed after switching on the supply voltage, it can last a couple of minutes until the events are displayed. During this time the acceptance of the STOP button and also leaving the event page is delayed for a couple of seconds.
Display J1939	At the access of the analog values J1939 firstly a hour glass is displayed. During this time no buttons are accepted.

Section	Constraint
Setpoints	The acceleration levels for changing the active power setpoints with up/down buttons are a bit delayed compared to easYgen-3200/3500.
Display of free configurable text	Every time you switch on the supply voltage of the RP-3000 all free configurable texts are initially shown as default text. In the background starts an automatic import process – replacing the default text by the free configurable text (loaded from the connected easYgen). This process lasts up to 20 seconds. If the free configurable texts are changed in an already running system, it will last up to 2 hours until the changes are visible.

Table of contents

1 General Information

1.1 About This Manual

1.1.1 Revision History

Rev.	Date	Editor	Changes
G	2016-03-31	GG	**Describes software version 1.2???** New supported device: ■ easYgen-3500P2 Rental K32. Refer to *2.3.1 "Software Version" on page 22* for details. **Manual** Updated according to the changes described above: ■ Supported devices table: *2.3.1 "Software Version" on page 22* ■ Software part numbers table:
F	2015-07-10	GG	**Describes software version 1.2109** Solving known problems: ■ The Remote Panel display was flickering while refreshing the alarm list with the four free alarms. Now application/customer specific text like this is read one time and saved temporarily for display use. **Manual** ■ Updated according to the changes described above ■ Minor (typo) corrections
E	2014-11-24	GG	This Techncial Manual now describes the new Remote Panel RP-3000 for easYgen-3400 Rental (Option K32), too. **Manual** ■ New supported device: 8446-1059. ■ Additional software version: Refer to *2.3.1 "Software Version" on page 22* for details.
D	2014-09-09	GG	No product changes. New German Lloyd (GL) certifications for successfully approved hardware and software added on page *Chapter 8.1.6 "Approvals" on page 71*.
C	2013-08-30	GG	**Device** ■ Software is updated to work with the latest easYgen-3000 standard devices. ■ New software on CD-ROM to work with all easYgen-3000 devices. **Manual** ■ The table that describes the correlation of the factory set (new) software numbers of the Remote Panel and the easYgen-3000 is updated. Refer to *Chapter 2.3.1 "Software Version" on page 22* for details. ■ Minor changes.
B	2012-12-12	GG	**Device** ■ New software to work with latest easYgen-3000 standard devices. ■ New software on CD-ROM to work with all easYgen-3000 devices. **Manual** ■ The table that describes the correlation of the factory set (new) software numbers of the Remote Panel and the easYgen-3000 is updated. Refer to *Chapter 2.3.1 "Software Version" on page 22* for details. ■ Minor changes.

Rev.	Date	Editor	Changes
A	2012-07-23	GG	**Device** ■ New unit display language available on parameter 1700: Swedish. **Manual** ■ All available display languages are listed. Refer to parameter 1700 p. 41 for more details. ■ Minor changes.
NEW	2011-09-12	TE	**Manual** ■ Release

1.1.2 Depiction Of Notes And Instructions

Safety instructions

Safety instructions are marked with symbols in these instructions. The safety instructions are always introduced by signal words that express the extent of the danger.

DANGER!
This combination of symbol and signal word indicates an immediately-dangerous situation that could cause death or severe injuries if not avoided.

WARNING!
This combination of symbol and signal word indicates a possibly-dangerous situation that could cause death or severe injuries if it is not avoided.

CAUTION!
This combination of symbol and signal word indicates a possibly-dangerous situation that could cause slight injuries if it is not avoided.

NOTICE!
This combination of symbol and signal word indicates a possibly-dangerous situation that could cause property and environmental damage if it is not avoided.

Tips and recommendations

This symbol indicates useful tips and recommendations as well as information for efficient and trouble-free operation.

Additional markings

To emphasize instructions, results, lists, references, and other elements, the following markings are used in these instructions:

Marking	Explanation
	Step-by-step instructions
⇨	Results of action steps
	References to sections of these instructions and to other relevant documents
■	Listing without fixed sequence
[Buttons]	Operating elements (e.g. buttons, switches), display elements (e.g. signal lamps)
"Display"	Screen elements (e.g. buttons, programming of function keys)
"Screen xx ➔ *Screen xy* ➔ *Screen xz"* ...	Menu path. The following information and setting refer to a page on HMI screen or ToolKit located as described here.
	Some parameters/settings/screens are available only either in ToolKit **or** in HMI/display.

1.2 Copyright And Disclaimer

Disclaimer

All information and instructions in this manual have been provided under due consideration of applicable guidelines and regulations, the current and known state of the art, as well as our many years of in-house experience. Woodward assumes no liability for damages due to:

- Failure to comply with the instructions in this manual
- Improper use / misuse
- Willful operation by non-authorized persons
- Unauthorized conversions or non-approved technical modifications
- Use of non-approved spare parts

The originator is solely liable to the full extent for damages caused by such conduct. The agreed upon obligations in the delivery contract, the general terms and conditions, the manufacturer's delivery conditions, and the statutory regulations valid at the time the contract was concluded, apply.

Copyright

1.3 Service And Warranty

Our Customer Service is available for technical information. Please see page 2 for the contact data.

In addition, our employees are constantly interested in new information and experiences that arise from usage and could be valuable for the improvement of our products.

Warranty terms

Please enquire about the terms of warranty from your nearest Woodward representative.

For our contact search webpage please go to: http://www.woodward.com/Directory.aspx

1.4 Safety

1.4.1 Intended Use

The remote panel unit has been designed and constructed solely for the intended use described in this manual.

The remote panel connected to the genset control unit must be used exclusively for engine-generator system management applications.

- Intended use requires operation of the control unit within the specifications listed in *Chapter 8.1 "Technical Data" on page 69*.
- All permissible applications are outlined in *Chapter 6 "Application" on page 63*.
- Intended use also includes compliance with all instructions and safety notes presented in this manual.
- Any use which exceeds or differs from the intended use shall be considered improper use.
- No claims of any kind for damage will be entertained if such claims result from improper use.

NOTICE!

Damage due to improper use!

Improper use of the remote panel unit may cause damage to the control unit as well as connected components.

Improper use includes, but is not limited to:

– Operation outside the specified operation conditions.

1.4.2 Personnel

WARNING!

Hazards due to insufficiently qualified personnel!

If unqualified personnel perform work on or with the control unit hazards may arise which can cause serious injury and substantial damage to property.

– Therefore, all work must only be carried out by appropriately qualified personnel.

This manual specifies the personnel qualifications required for the different areas of work, listed below:

- Well trained for electrical installations.
- Skilled and competent to be aware especially of the local safety regulations.
- Experienced in working on electronic measuring and control devices.
- Allowed to manage the controlled (engine/generator) system.

The workforce must only consist of persons who can be expected to carry out their work reliably. Persons with impaired reactions due to, for example, the consumption of drugs, alcohol, or medication are prohibited.

When selecting personnel, the age-related and occupation-related regulations governing the usage location must be observed.

1.4.3 General Safety Notes

Electrical hazards

DANGER!

Life-threatening hazard from electric shock!

There is an imminent life-threatening hazard from electric shocks from live parts. Damage to insulation or to specific components can pose a life-threatening hazard.

- Only a qualified electrician should perform work on the electrical equipment.
- Immediately switch off the power supply and have it repaired if there is damage to the insulation.
- Before beginning work at live parts of electrical systems and resources, cut the electricity and ensure it remains off for the duration of the work. Comply with the five safety rules in the process:
  - cut electricity;
  - safeguard against restart;
  - ensure electricity is not flowing;
  - earth and short-circuit; and
  - cover or shield neighboring live parts.
- Never bypass fuses or render them inoperable. Always use the correct amperage when changing fuses.
- Keep moisture away from live parts. Moisture can cause short circuits.

Prime mover safety

WARNING!

Hazards due to insufficient prime mover protection

The engine, turbine, or other type of prime mover should be equipped with an overspeed (over-temperature, or over-pressure, where applicable) shutdown device(s), that operates totally independently of the prime mover control device(s) to protect against runaway or damage to the engine, turbine, or other type of prime mover with 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 controlled device(s) fail.

Modifications

WARNING!

Hazards due to unauthorized modifications

Any unauthorized modifications to or use of this equipment outside its specified mechanical, electrical, or other operating limits may cause personal injury and/or property damage, including damage to the equipment.

Any unauthorized modifications:

- constitute "misuse" and/or "negligence" within the meaning of the product warranty thereby excluding warranty coverage for any resulting damage
- invalidate product certifications or listings.

Use of batteries/alternators

NOTICE!

Damage to the control system due to improper handling

Disconnecting a battery from a control system that uses an alternator or battery-charging device whilst the charging device is still connected causes damage to the control system.

- Make sure the charging device is turned off before disconnecting the battery from the system.

Electrostatic discharge

Protective equipment: ■ ESD wrist band

NOTICE!

Damage from electrostatic discharge

All electronic equipment sensitive to damage from electrostatic discharge, which can cause the control unit to malfunction or fail.

- To protect electronic components from static damage, take the precautions listed below.

1. Avoid build-up of static electricity on your body by not wearing clothing made of synthetic materials. Wear cotton or cotton-blend materials as much as possible because these do not store static electric charges as easily as synthetics.

2. Before any maintenance work on the control unit, ground yourself by touching and holding a grounded metal object (pipes, cabinets, equipment, etc.) to discharge any static electricity.

   Alternatively wear an ESD wrist band connected to ground.

3. Keep plastic, vinyl, and Styrofoam materials (such as plastic or Styrofoam cups, cigarette packages, cellophane wrappers, vinyl books or folders, plastic bottles, etc.) away from the control unit, modules and work area.

4. Opening the control cover may void the unit warranty. Do not remove the printed circuit board (PCB) from the control cabinet unless instructed by this manual.

If instructed by this manual to remove the PCB from the control cabinet, follow these precautions:

- *Ensure that the device is completely voltage-free (all connectors have to be disconnected).*
- *Do not touch any part of the PCB except the edges.*
- *Do not touch the electrical conductors, connectors, or components with conductive devices or with bare hands.*
- *When replacing a PCB, keep the new PCB in the plastic antistatic protective bag it comes in until you are ready to install it. Immediately after removing the old PCB from the control cabinet, place it in the antistatic protective bag.*

For additional information on how to prevent damage to electronic components caused by improper handling, read and observe the precautions in:

- *"Woodward manual 82715, Guide for Handling and Protection of Electronic Controls, Printed Circuit Boards, and Modules".*

Notes on marine usage

Marine usage of the RP-3000 connected to the easYgen genset control requires additional precautions as listed below:

The specified marine approvals are initially only valid for metal housing units. They are only valid for plastic housing units, if they are installed using the screw kit .

- *Use all 12 screws and tighten accordingly.*

- The RP-3000 has an internally isolated power supply.

NOTICE!

Malfunctions due to insufficient protection against electromagnetic interference

Exposure to increased electromagnetic interference on bridge and deck zones may cause malfunctions or incorrect internal readings.

- Install an EMI filter (i.e. TIMONTA FSS2-65-4/3) for the power supply inputs when using the control unit on bridge and deck zones.

Some additional, independent safety and protection devices are necessary to meet safety requirements of Rules and Regulations of marine Classification Societies.

– *Please refer to the corresponding documents issued by marine Classification Societies for the applicable reqiurements.*

The RP-3000 is type approved by LR Lloyd's Register.

– *Please consider for final functional arrangements to comply with appropriate Lloyd's Register Rules as subject of the Plan Approval process.*

1.4.4 Protective Equipment And Tools

Protective gear

Personal protective equipment serves to protect risks to the safety and health of persons as well as to protect delicate components during work.

Certain tasks presented in this manual require the personnel to wear protective equipment. Specific required equipment is listed in each individual set of instructions.

The cumulative required personal protective equipment is detailed below:

ESD wrist band
The ESD (**e**lectro**s**tatic **d**ischarge) wrist band keeps the user's body set to ground potential. This measure protects sensitive electronic components from damage due to electrostatic discharge.

Tools

Use of the proper tools ensures successful and safe execution of tasks presented in this manual.

Specific required tools are listed in each individual set of instructions.

The cumulative required tools are detailed below:

Torque screwdriver
A torque-screwdriver allow fastening of screws to a precisely specified torque.

- Note the required torque range indiviually specified in the tasks listed in this manual.

2 System Overview

This chapter provides a basic overview of the remote panel unit.

Refer to the comprehensive chapters indicated below to commission the control unit:

- *Chapter 3 "Installation" on page 29* provides information on how to mount the unit and setup connections.
- *Chapter 4 "Configuration" on page 41* provides information on basic setup and reference information on all configurable parameters.
- *Chapter 5 "Operation" on page 59* provides information on how to access the unit via the front panel.
- *Chapter 6 "Application" on page 63* provides application examples as well as instructions for the corresponding required configuration.
- *Chapter 7 "Interfaces And Protocols" on page 67* provides reference information on the usage of the interfaces and protocols provided by the control unit.

2.1 Display And Status Indicators

RP-3000 display

Fig. 4: Display

The display (Fig. 4) as part of the RP-3000 is used for direct access to status information and configuration.

For information on the usage of the graphical user interface refer to Chapter 5 "Operation" on page 59.

2.2 Hardware Interfaces (Terminals)

The RP-3000 (Fig. 5) provides the following terminals.

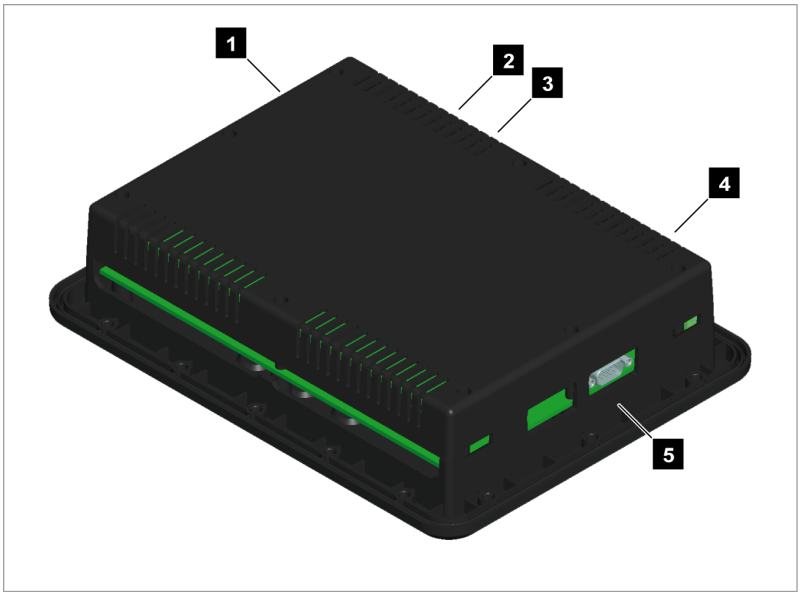


Fig. 5: RP-3000 Remote Panel

1 CAN bus interface connector
2 Power supply
3 Protective earth PE
4 Relay output terminal
5 RS-232 interface connector

For information on how to setup connections refer to ↬ Chapter 3.2 "Setup Connections" on page 33.

For information on the interfaces and protocols refer to ↬ Chapter 7 "Interfaces And Protocols" on page 67.

2.3 Device Update

General notes

Please read the following chapter carefully to make sure that your RP-3000 remote panel has the correct software version installed.

The following section is not valid for:

- *easYgen-3400/3500 Marine genset control with RP-3000 remote panel (P/N 8446-1046)*
- *easYgen-3400P1 Rental K32 genset control with RP-3000 remote panel (P/N 8446-1059)*
- *easYgen-3500P2 Rental K32 genset control with RP-3000 remote panel (P/N 8446-1062)*

The devices listed above always have the correct device software installed.

2.3.1 Software Version

General notes

The device software of the RP-3000 remote panel and the easYgen-3000 Series genset control are closely linked together. This means that the software of both devices always needs to fit together to make the entire system work correctly.

The RP-3000 remote panel is delivered with a standard software and part number (↳ "RP-3000 standard software number/part number" on page 23). First you should check (↳ "Check software version" on page 24) if the device part number and/or the software number is the correct version to fit to your easYgen-3000 Series genset control.

- *If "Yes", you can skip this chapter and proceed with the installation/configuration of the RP-3000.*
- *If "No", please follow the instructions in this chapter to update your RP-3000 to the correct software version.*

	RP-3000	easYgen-3100 P1	easYgen-3200 P1
Software number	5418-6396	5418-6389	5418-6385
Part number (P/N)	8446-1048	8440-2054[1] 8440-2055[1]	8440-2049[1] 8440-2050[1]

Table 1: RP-3000 standard software number/part number

[1] Woodward standard device.

	RP-3000	easYgen-3400 Marine P1	easYgen-3500 Marine P1
Software number	5418-6429	5418-6426	5418-6428
Part number (P/N)	8446-1046	8440-2044 8440-2045	8440-2046 8440-2047

Table 2: RP-3000 Marine standard software number/part number

RP-3000		easYgen-3400 P1 Rental K32[2]	
Software number	**Part number (P/N)**	**Software number**	**Part number (P/N)**
5418-6927	8446-1059	5418-6926	8440-2162 8440-2163

Table 3: RP-3000 Rental (P1, Option K32) software number/part number

RP-3000		easYgen-3500 P2 Rental K32[2]	
Software number	Part number (P/N)	Software number	Part number (P/N)
5418-7288	8446-1062	5418-7107	8440-2191 8440-2192

Table 4: RP-3000 Rental (P2, Option K32) software number/part number

[2] easYgen-3500 P1 Rental K32 (8440-2095 and 8440-2030) are intentionally not supported! The error message 'Incompatibel RP-3000' occurs if connecting.

Check software version

The provided product CD contains in the section *"Device Update"* two different ways to find the suitable software version for your RP-3000 remote panel. That means the RP-3000 software version is always chosen from the viewpoint of the easYgen-3000 Series genset control.

The product CD has two search functions:

- Search by Part number (P/N) - easYgen-3000 Series
- Search by Software number - easYgen-3000 Series

For details, please refer to the instructions on the product CD.

Software number

To check the software version (Software number) of your easYgen-3000 Series genset control you have two options:

- Access via the front panel (easYgen-3200/3500 only)
- External access with a PC using the ToolKit configuration software.

Front panel access

1. Navigate to the version screen *"Next page ➔ Diagnostic ➔ Version"*.
2. Please refer to Fig. 6 for details.

   ⇨ The version screen shows the easYgen-3000 Series software version.

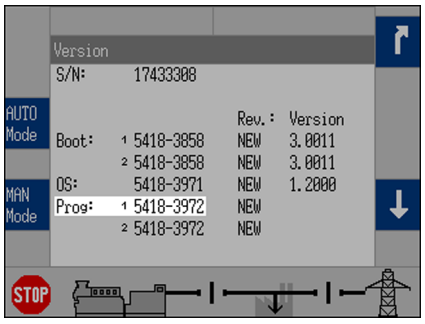


Fig. 6: Version screen - front panel

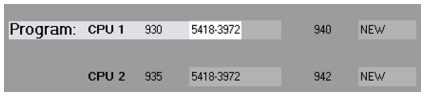


Fig. 7: Version screen - ToolKit

Access via PC (ToolKit)

1. Navigate to the version screen *"Status menu ➔ Version"*.
2. Please refer to Fig. 7 for details.
   ⇨ The version screen shows the easYgen-3000 Series software version.

If your easYgen has a different software version than shown in *"RP-3000 standard software number/part number" on page 23* your device needs to be updated. If the version is correct you can skip this chapter and proceed with the installation/configuration of the RP-3000.

2.3.2 Update

Requirements

The following prerequisites are required to update the software version of your RP-3000.

- PC running ToolKit configuration software
- Serial port (RS-232) of the RP-3000 is connected to a serial COM port of the PC
- Software update file (*.scp), provided on product CD

For detailed information about the ToolKit configuration software please refer to the chapter "Operation" of your easYgen-3000 Series manual.

Update software

To start the update process:

1. Open ToolKit from the Windows Start Menu path *"Programs ➔ Woodward ➔ ToolKit X.x ((current version))"*.
2. From the main ToolKit window, select *"File ➔ Load Application..."*.
3. If the load applications window opens, select *"Next"* to proceed.

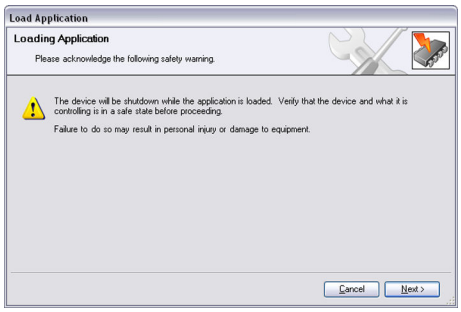


Fig. 8: Load application - safety warning

Please read the safety warnings carefully.

Fig. 9: Load application - file selection

4. Select *"Browse"* to choose the software update file (*.scp).

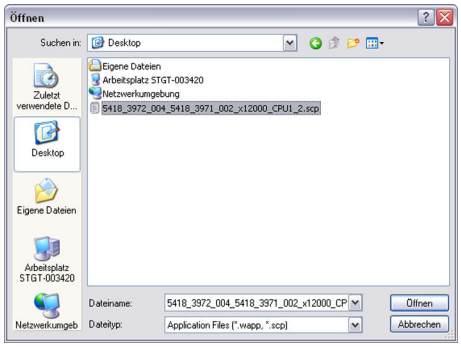


*Fig. 10: Load application - *.scp file*

5. Select *"Open"* to confirm the selection and *"Next"* to proceed.

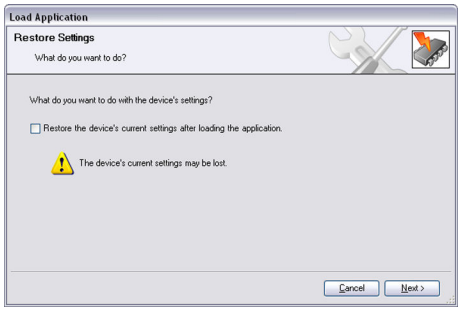


Fig. 11: Load application - restore settings

6. Select *"Next"* to proceed.

*Please do **not** select to restore the current device settings after the software update.*

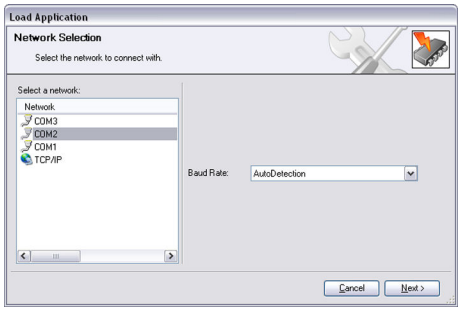


Fig. 12: Load application - network selection

7. Choose your network COM port and select *"Next"* to proceed and start the update process.

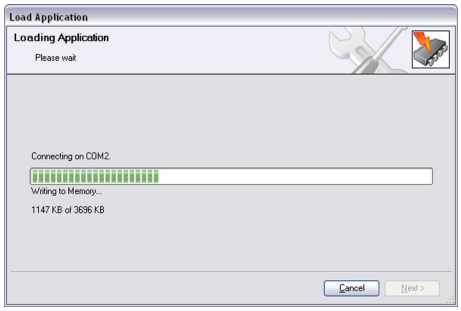


Fig. 13: Load application - update process

8. The device update process is executed. Once the uploading process is complete, the device restarts automatically.

CAUTION!

Please do **not** cancel the update process. Do not turn off or disconnect the power supply, while the update is in progress.

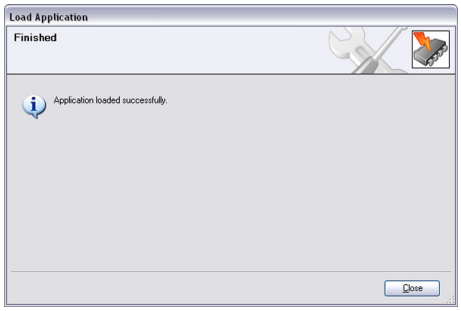


Fig. 14: Load application - process finished

9. The device has been successfully updated.

⇨ Now the RP-3000 device software fits to the easYgen-3000 Series genset control.

2.3.3 Troubleshooting

Software version recognition

The RP-3000 remote panel and the easYgen-3000 Series genset control recognize the software version of each other. To achieve that, reset the battery voltage of the RP-3000 remote panel while being connected to the CAN interface 2 of the easYgen-3000 Series genset control.

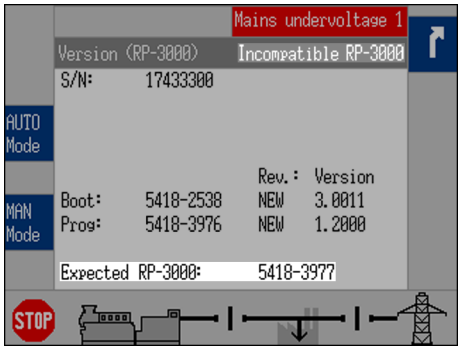


Fig. 15: Version screen (RP-3000)

If the software version of the RP-3000 remote panel is incompatible to the easYgen-3000 Series genset control, the remote panel automatically shows during the boot process the version page with the "Expected RP-3000" software number.

If Fig. 15 is shown please follow the instructions in *Chapter 2.3.1 "Software Version" on page 22* to update the RP-3000 with the correct software version.

Fig. 16 shows the easYgen-3000 version page. The software version displayed behind "RP" must be the same like the "Expected RP-3000" shown in Fig. 15.

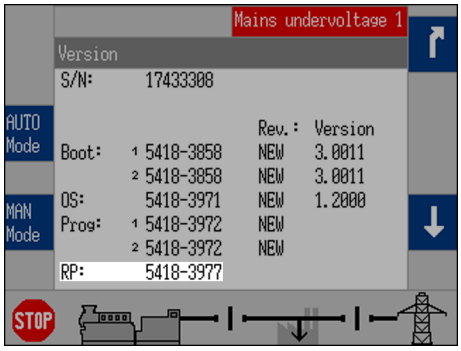


Fig. 16: Version screen (easYgen-3000)

To use the automatic easYgen-3000 Series - RP-3000 version recognition after changing the easYgen-3000 software version, it is always necessary to restart the RP-3000 as described above.

Software combinations

The automatic software version recognition works only under certain conditions. Please refer to the following table for details.

easYgen-3000	RP-3000	Software version recognition
Software version 1.20xx or higher	Software version 1.20xx or higher	Yes
Software version 1.1901	Software version 1.1901	Yes
Software version 1.1900	Software version 1.1901	No
Software version 1.13xx to 1.18xx	Software version 1.20xx or higher	Yes
Software version 1.13xx to 1.18xx	Software version 1.13xx to 1.18xx	No

3 Installation

3.1 Mount Unit (Plastic Housing)

Mount the unit **either** using the clamp fasteners (*Chapter 3.1.1 "Clamp Fastener Installation" on page 30*) **or** the screw kit (*Chapter 3.1.2 "Screw Kit Installation" on page 31*).

- *Don't drill holes if you want to use the clamp fasteners. If the holes are drilled into the panel, the clamp fasteners cannot be used anymore.*
- *Some versions of the plastic housing are not equipped with nut inserts and may not be fastened with the screw kit.*
- *In order to enhance the protection to IP 66, fasten the unit with the screw kit instead of the clamp fastener hardware.*

Dimensions

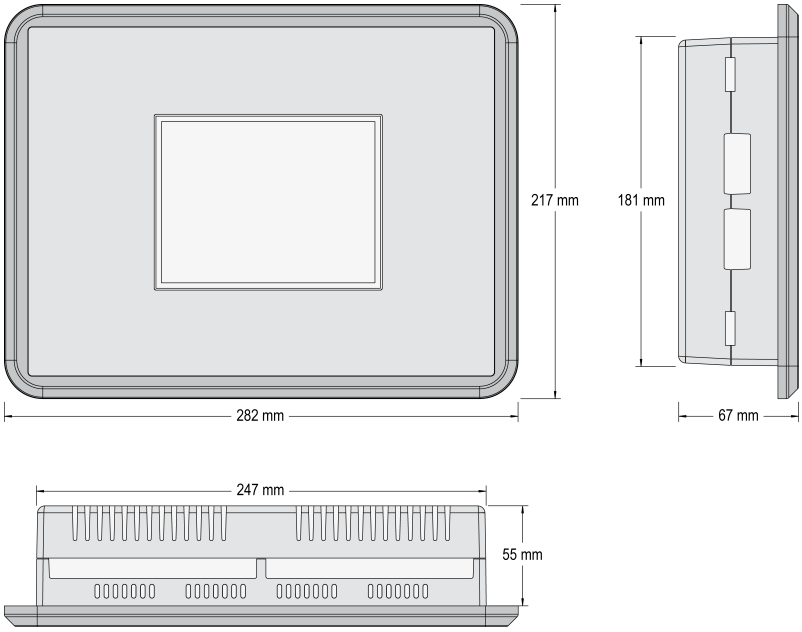


Fig. 17: Plastic housing - dimensions

Panel cutout

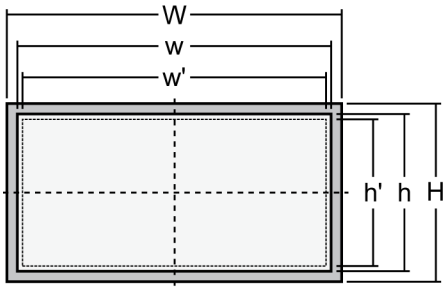


Fig. 18: Cutout schematic

Measure	Description			Tolerance
H	Height	Total	217 mm	---
h		Panel cutout	183 mm	+ 1.0 mm
h'		Housing dimension	181 mm	
W	Width	Total	282 mm	---
w		Panel cutout	249 mm	+ 1.1 mm
w'		Housing dimension	247 mm	
	Depth	Total	67 mm	---

The maximum permissible corner radius is 4 mm.

3.1.1 Clamp Fastener Installation

For installation into a door panel with the fastening clamps, proceed as follows:

1. Cut out the panel according to the dimensions in Fig. 18.

Don't drill the holes if you want to use the clamp fasteners. If the holes are drilled into the panel, the clamp fasteners cannot be used anymore!

2. Loosen the wire connection terminal screws on the back of the unit and remove the wire connection terminal strip if required.

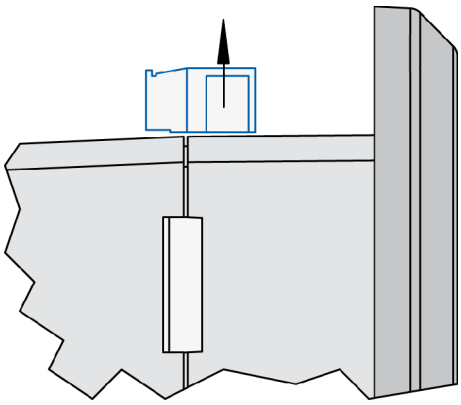


Fig. 19: Remove terminals

3. Insert the four clamping screws into the clamp inserts from the shown side (Fig. 20; opposite the nut insert) until they are almost flush. Do not completely insert the screws into the clamp inserts.
4. Insert the unit into the panel cutout. Verify that the unit fits correctly in the cutout. If the panel cutout is not big enough, enlarge it accordingly.

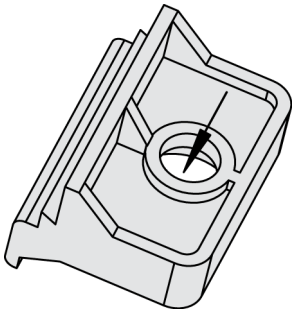


Fig. 20: Insert screws in clamps

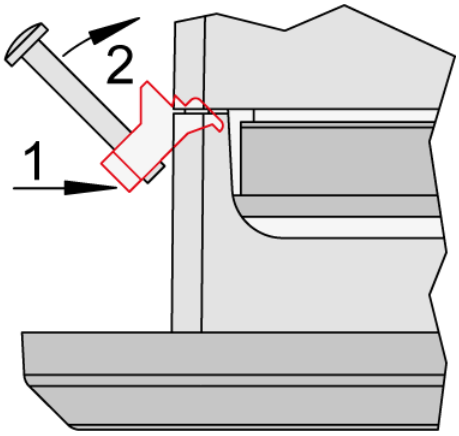


Fig. 21: Attach clamp inserts

5. Re-install the clamp inserts by tilting the insert to a 45° angle. (Fig. 21/1) Insert the nose of the insert into the slot on the side of the housing. (Fig. 21/2) Raise the clamp insert so that it is parallel to the control panel.

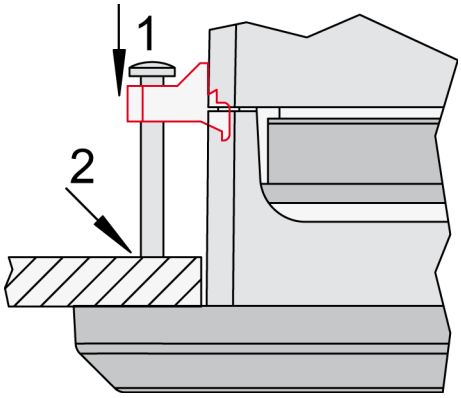


Fig. 22: Tighten clamping screws

6. Tighten the clamping screws (Fig. 22/1) until the control unit is secured to the control panel (Fig. 22/2). Over tightening of these screws may result in the clamp inserts or the housing breaking. Do not exceed the recommended tightening torque of 0.1 Nm.

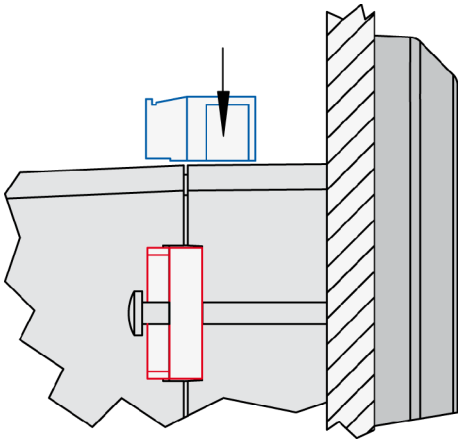


Fig. 23: Reattach terminals

7. Reattach the wire connection terminal strip (Fig. 23) and secure them with the side screws.

3.1.2 Screw Kit Installation

The housing is equipped with 12 nut inserts (Fig. 24), which must all be tightened properly to achieve the required degree of protection.

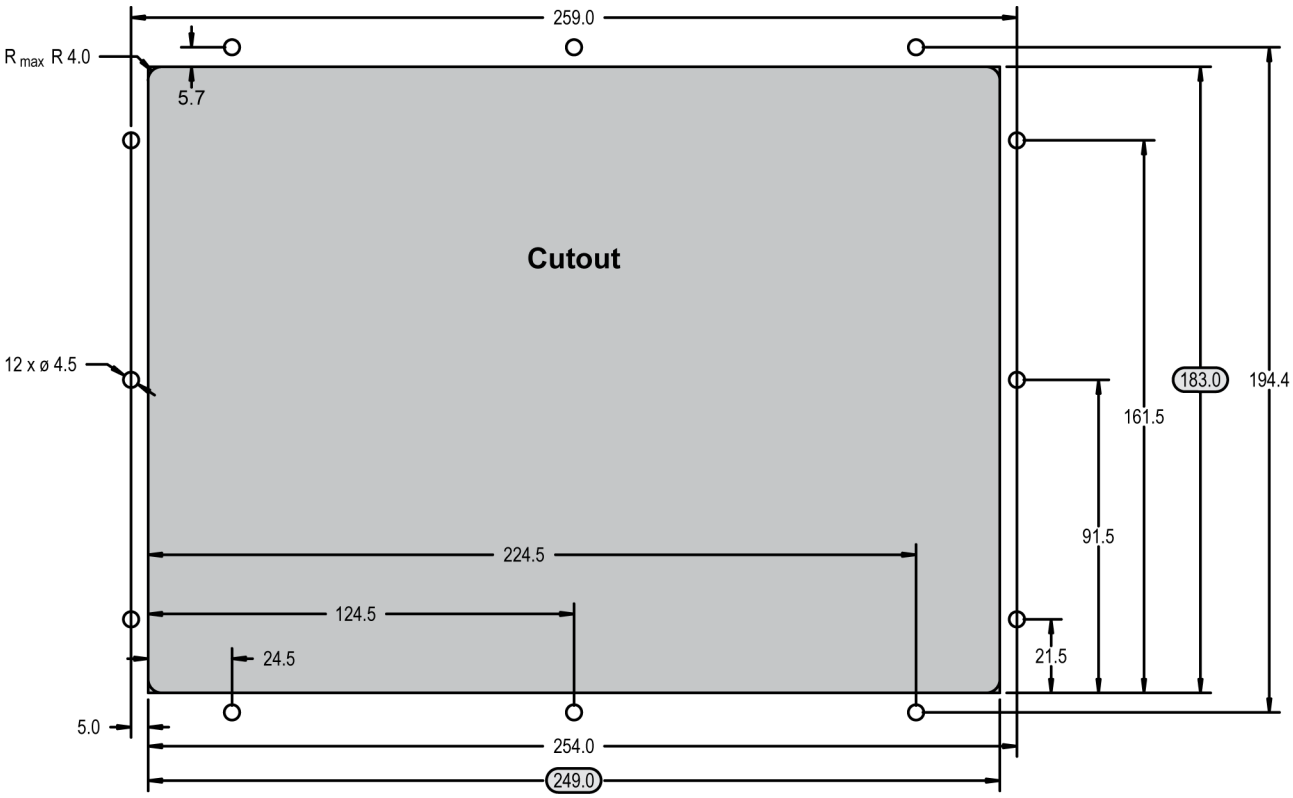


Fig. 24: Plastic housing - drill plan

Special tool: ■ Torque screwdriver

Proceed as follows to install the unit using the screw kit:

1. Cut out the panel and drill the holes according to the dimensions in Fig. 24 (dimensions shown in mm).
2. Insert the unit into the panel cutout. Verify that the unit fits correctly in the cutout. If the panel cutout is not big enough, enlarge it accordingly.
3. Insert the screws and tighten to 0.6 Nm (5.3 pound inches) of torque.

Tighten the screws with a crosswise pattern to ensure even pressure distribution.

If the thickness of the panel sheet exceeds 2.5 mm, be sure to use screws with a length exceeding the panel sheet thickness by 4 mm.

3.2 Setup Connections

General notes

NOTICE!

Malfunctions due to literal use of example values

All technical data and ratings indicated in this chapter are merely listed as examples. Literal use of these values does not take into account all actual specifications of the control unit as delivered.

– For definite values please refer to chapter *Chapter 8.1 "Technical Data" on page 69*.

Wire sizes

AWG	mm²	AWG	mm²	AWG	mm²	AWG	mm²	AWG	mm²	AWG	mm²
30	0.05	21	0.38	14	2.5	4	25	3/0	95	600MCM	300
28	0.08	20	0.5	12	4	2	35	4/0	120	750MCM	400
26	0.14	18	0.75	10	6	1	50	300MCM	150	1000MCM	500
24	0.25	17	1.0	8	10	1/0	55	350MCM	185		
22	0.34	16	1.5	6	16	2/0	70	500MCM	240		

Table 5: Conversion chart - wire sizes

3.2.1 Terminal Allocation

General notes

The device terminals are allocated as follows:

- Plastic housing - shown in Fig. 25

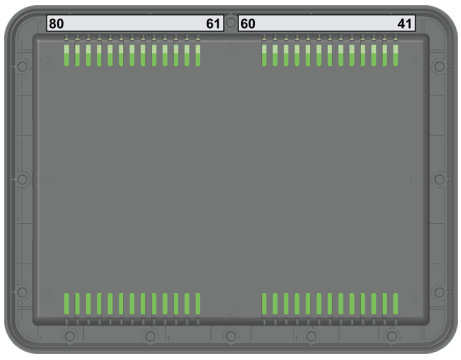


Fig. 25: Plastic housing

3.2.2 Wiring Diagram

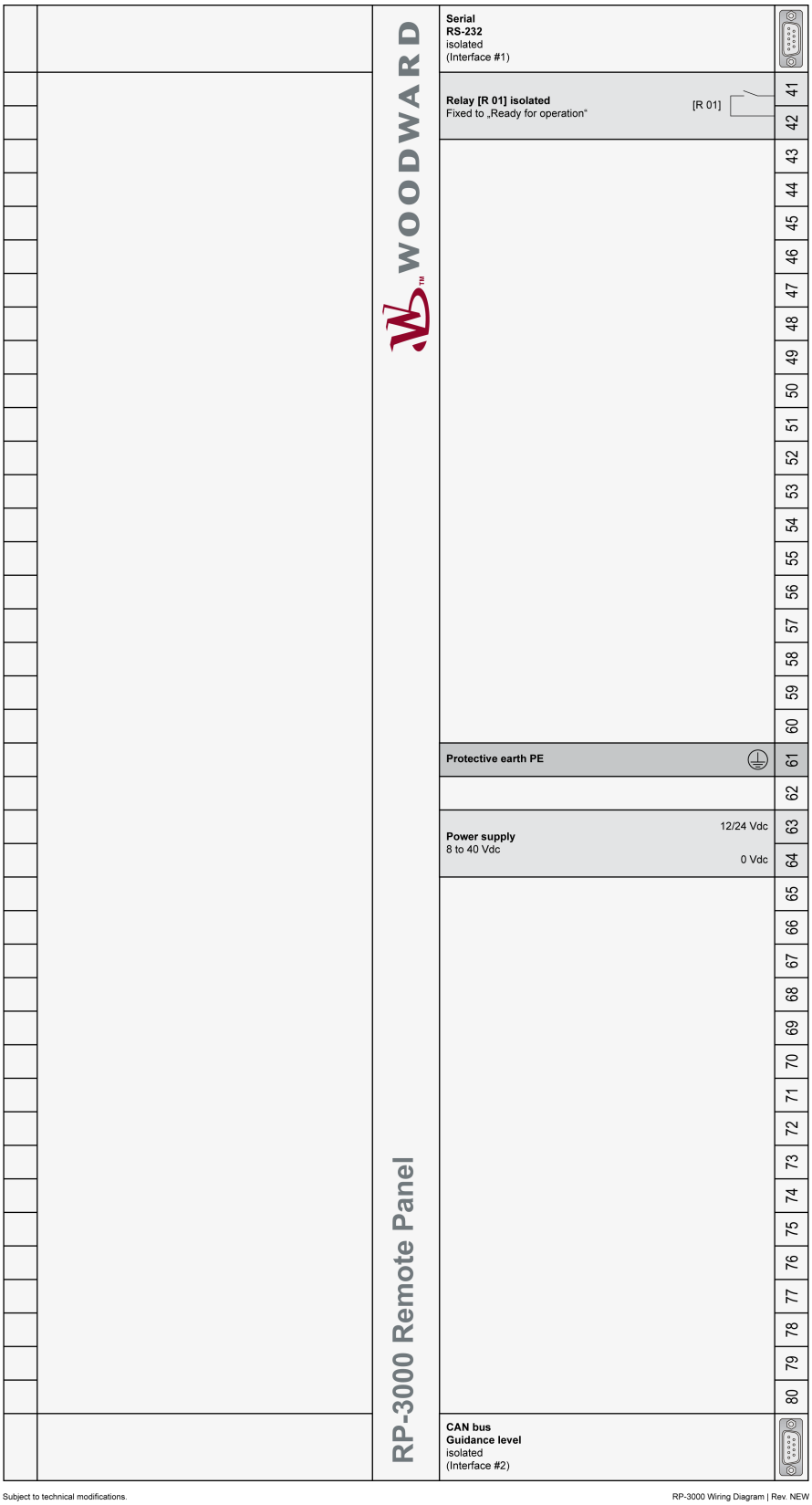


Fig. 26: Wiring diagram

3.2.3 Power Supply

General notes

WARNING!

Risk of electric shock

- Connect Protective Earth (PE) to the unit to avoid the risk of electric shock.
  Setup the connection using screw-plug-terminal 61.
- The conductor providing the connection must have a wire larger than or equal to 2.5 mm² (14 AWG). The connection must be performed properly.

Woodward recommends to use one of the following slow-acting protective devices in the supply line to terminal 63:

- *Fuse NEOZED D01 6A or equivalent **or***
- *Miniature Circuit Breaker 6A / Type C*
  (for example: ABB type: S271C6 or equivalent)

Schematic and terminals

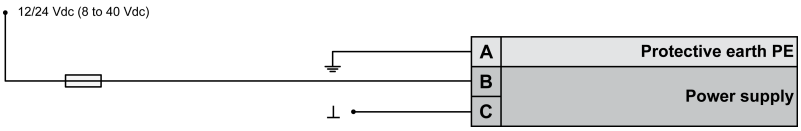


Fig. 27: Power supply - wiring

Terminal		Description	A_{max}
A	61	PE (protective earth)	2.5 mm²
B	63	12/24Vdc (8 to 40.0 Vdc)	2.5 mm²
C	64	0 Vdc	2.5 mm²

Table 6: Power supply - terminal assignment

Characteristics

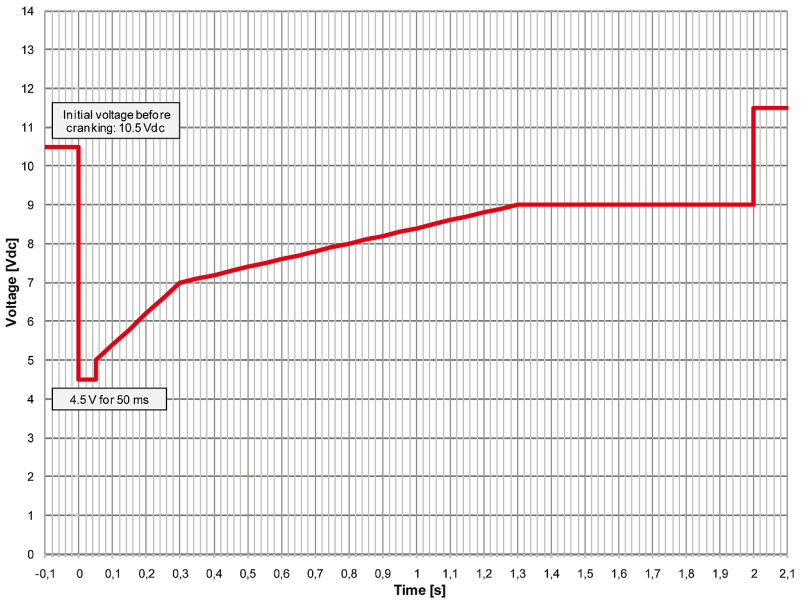


Fig. 28: Power supply - crank waveform

3.2.4 Relay Output

Schematic and terminals

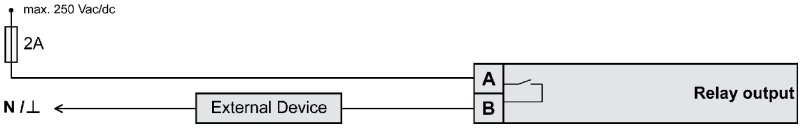


Fig. 29: Relay outputs - schematic

Terminal		Description			A_{max}
N.O.	Common				
A	B	Form A			
42	41	Relay output [R 01]	All	Fixed to "Energized when operation"	2.5 mm²

Notes

– ***N.O.**: normally open (make) contact*

3.2.5 Serial Interface

3.2.5.1 RS-232 Interface

Pin assignment

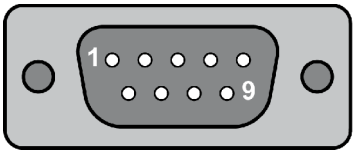


Fig. 30: SUB-D connector - pins

Terminal	Description	A_{max}
1	Not connected	N/A
2	RxD (receive data)	N/A
3	TxD (transmit data)	N/A

Terminal	Description	A_{max}
4	Not connected	N/A
5	GND (system ground)	N/A
6	Not connected	N/A
7	RTS (request to send)	N/A
8	CTS (clear to send)	N/A
9	Not connected	N/A

Table 7: Pin assignment

3.3 CAN Bus Interface

Pin assignment

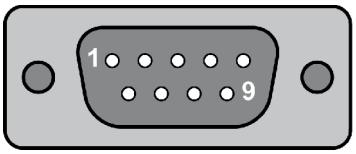


Fig. 31: SUB-D connector - pins

Terminal	Description	A_{max}
1	Not connected	N/A
2	CAN-L	N/A
3	GND	N/A
4	Not connected	N/A
5	Connected with connector housing and internally grounded via RC element	N/A
6	Not connected	N/A
7	CAN-H	N/A
8	Not connected	N/A
9	Not connected	N/A

Table 8: Pin assignment

Topology

Please note that the CAN bus must be terminated with a resistor, which corresponds to the impedance of the cable (e.g. 120 Ohms, 1/4 W) at both ends.

The termination resistor is connected between CAN-H and CAN-L (Fig. 33).

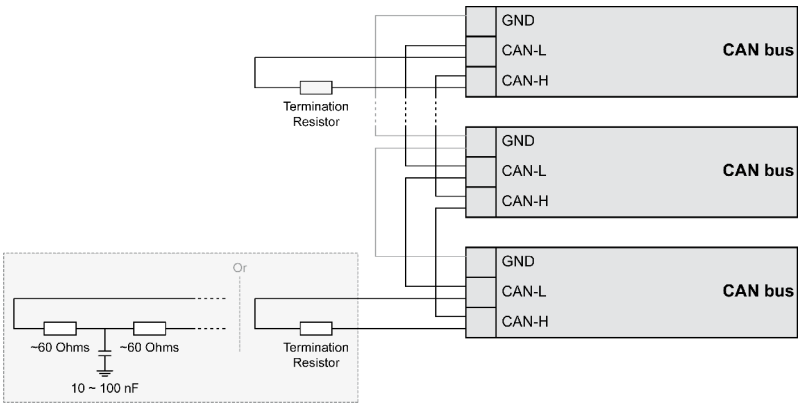


Fig. 32: CAN bus - termination

For very critical EMC conditions (many noise sources with high noise levels) and for high transmission rates we recommend to use the 'Split termination concept' as shown.

- Divide the termination resistance into 2x60 Ohms with a center tap connected to ground via a capacitor of 10 to 100 nF (Fig. 32).

Maximum CAN bus length

The maximum length of the communication bus wiring is dependent on the configured baud rate. Observe the maximum bus length.

(Source: CANopen; Holger Zeltwanger (Hrsg.); 2001 VDE VERLAG GMBH, Berlin und Offenbach; ISBN 3-8007-2448-0).

Baud rate	Max. length
1000 kbit/s	25 m
800 kbit/s	50 m
500 kbit/s	100 m
250 kbit/s	250 m
125 kbit/s	500 m
50 kbit/s	1000 m
20 kbit/s	2500 m

Bus shielding

All bus connections of the easYgen are internally grounded via an RC element. Therefore, they may either be grounded directly (recommended) or also via an RC element on the opposite bus connection.

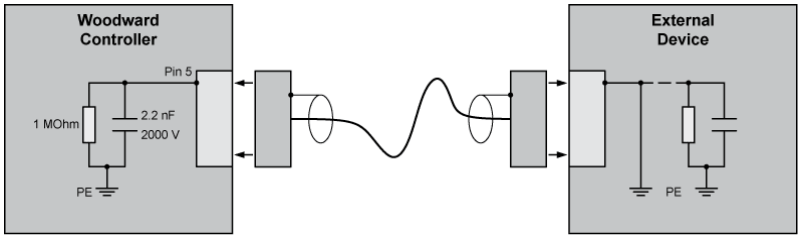


Fig. 33: Bus shielding

Troubleshooting

If data is not transmitting on the CAN bus, check the for the following common CAN bus communication problems:

- *A T-structure bus is utilized*
- *CAN-L and CAN-H are interchanged*
- *Not all devices on the bus are using identical baud rates*
- *Terminating resistor(s) are missing*
- *The configured baud rate is too high for wiring length*
- *The CAN bus cable is routed in close proximity with power cables*

Woodward recommends the use of shielded, twisted-pair cables for the CAN bus (see examples).

- *Lappkabel Unitronic LIYCY (TP) 2×2×0.25*
- *UNITRONIC-Bus LD 2×2×0.22*

4 Configuration

All parameters are assigned a unique parameter identification number.

The parameter identification number may be used to reference individual parameters listed in this manual.

This parameter identification number is also displayed in the ToolKit configuration screens next to the respective parameter.

The following chapter (↳ Chapter 4.1 "Basic Setup" on page 41) describes only parameters which directly configure the RP-3000 remote panel.

4.1 Basic Setup

4.1.1 Configure Language

General notes

The following parameter is used to set the unit language.

If an Asian language is configured, some parameter screens may be displayed with an empty space at the bottom of the parameter list, which may be interpreted as an end of the list, although more parameters exist and are displayed when scrolling down.

ID	Parameter	CL	Setting range [Default]	Description
1700	**Language** (Set language)	0	selectable languages **[English]**	The desired language for the unit display text is configured here. Available languages are: English, German, Spanish, French, Italian, Portugese, Japanese, Chinese, Russian, Turkish, Polish, Slowakian, Finnish, Swedish.

4.1.2 Configure Display

The contrast and the brightness of the display may be adjusted using this screen.

4.1.3 Lamp Test

All lights on the controller may be tested for correct operation with this function.

4.1.4 Enter Password

General notes

The controller utilizes a password protected multi-level configuration access hierarchy. This permits varying degrees of access to the parameters being granted by assigning unique passwords to designated personnel.

A distinction is made between the access levels as follows:

Code level	
Code level CL0 (User Level) Standard password = none	This code level permits for monitoring of the system and limited access to the parameters. Configuration of the control is not permitted. Only the parameters for setting the language are accessible. The unit powers up in this code level.
Code level CL1 (Service Level) Standard password = "0 0 0 1"	This code level entitles the user to change selected non-critical parameters, such as setting the parameters accessible in CL0 plus Bar/PSI, °C/°F. The user may also change the password for level CL1. Access granted by this password expires two hours after the password has been entered and the user is returned to the CL0 level.
Code level CL2 (Temporary Commissioning Level) No standard password available	This code level grants temporary access to most of the parameters. The password is calculated from the random number generated when the password is initially accessed. It is designed to grant a user one-time access to a parameter without having to give him a reusable password. The user may also change the password for level CL1. Access granted by this password expires two hours after the password has been entered and the user is returned to the CL0 level. The password for the temporary commissioning level may be obtained from the vendor.
Code level CL3 (Commissioning Level) Standard password = "0 0 0 3"	This code level grants complete and total access to most of the parameters. In addition, the user may also change the passwords for levels CL1, CL2 and CL3. Access granted by this password expires two hours after the password has been entered and the user is returned to the CL0 level.

Once the code level is entered, access to the configuration menus will be permitted for two hours or until another password is entered into the control. If a user needs to exit a code level then code level, CL0 should be entered. This will block unauthorized configuration of the control.

A user may return to CL0 by allowing the entered password to expire after two hours or by changing any one digit on the random number generated on the password screen and entering it into the unit.

It is possible to disable expiration of the password by entering "0000" after the CL1 or CL3 password has been entered. Access to the entered code level will remain enabled until another password is entered. Otherwise, the code level would expire when loading the standard values (default 0000) via ToolKit.

Code level display

The current code level (refers to "Password for remote config." (parameter 10404 p. 43)) is indicated by the lock symbol in the configuration menu screens. The lock symbol indicates the number of the code level and appears as "locked" (in code level CL0) or "unlocked" (in higher code levels).

Symbol	Status
	Locked
	Unlocked (Code Level 1)

ID	Parameter	CL	Setting range [Default]	Description
10404	**Password for remote config.**	0	0000 to 9999 **[random number]**	To configure the easYgen-3000 genset control via RP-3000 remote panel, the password for remote configuration must be entered here.
10409	**Code level remote config.**	0	(display only) **[0]**	This value displays the remote code level, which is currently enabled for access via the RP-3000 front panel display.
10400	**Password display**	0	0000 to 9999 **[random number]**	The password for configuring the control via the front panel must be entered here.
10405	**Code level display**	0	(display only) **[0]**	This value displays the code level, which is currently enabled for access via the front panel display.

4.1.5 Password System

General notes

The following passwords grant varying levels of access to the parameters.

Each individual password can be used to access the appropriate configuration level through multiple access methods and communication protocols (via the front panel, via serial RS-232 interface, and via the CAN bus).

ID	Parameter	CL	Setting range [Default]	Description
10415	**Basic code level**	1	0 to 9999 **[-]**	The password for the code level "Service" is defined in this parameter. Refer to *Chapter 4.1.4 "Enter Password" on page 42* for default values.
10413	**Commissioning code level**	3	0 to 9999 **[-]**	The password for the code level "Commission" is defined in this parameter. Refer to *Chapter 4.1.4 "Enter Password" on page 42* for default values.
10414	**Commissioning code level**	3	0 to 9999 **[-]**	The algorithm for calculating the password for the code level "Temporary Commissioning" is defined in this parameter.
10412	**Temp. supercomm. level code**	5	0 to 9999 **[-]**	The algorithm for calculating the password for the code level "Temporary Supercommissioning" is defined in this parameter.
10411	**Supercommissioning level code**	5	0 to 9999 **[-]**	The password for the code level "Supercommissioning" is defined in this parameter. Refer to *Chapter 4.1.4 "Enter Password" on page 42* for default values.

4.2 Configure CAN Interface

General notes

The following chapter describes the CAN communication setup of the RP-3000 and the easYgen-3000 Series. This setup is essential to make the system work.

Woodward strongly recommends to connect the RP-3000 with the easYgen device on CAN interface 2.

4.2.1 Connection CAN Interface 2 (easYgen-3000)

4.2.1.1 Setup Parameters RP-3000

The RP-3000 can only be configured using the front panel.

Insert the password display

1. Select *"Parameter ➔ System Management ➔ System Management RP-3000"*.
2. Set the "Password Display" to code level "3" or higher.

Factory default settings	No
Password Display	**xxxx**
Code level display	0

Table 9: Password Display screen

Set the factory default settings

With the activation of code level 3 or higher the following parameter screen appears.

1. Switch "Factory default settings" to "Yes" (Refer to *"Factory default settings screen" on page 45* for details).
   ⇨ Now the parameter "Reset factory default values" appears.
2. Switch "Reset factory default values" to "Yes" (Refer to *"Reset factory default values screen" on page 45* for details).

Configure CAN interface 1	->
Configure display backlight	Key activat.
Time until backlight shutdown	120 min
Factory default settings	**Yes**
Password Display	xxxx
Code level display	3
Basic code level	xxxx
Commissioning code level	xxxx
Temp. commissioning code level	xxxx
Temp. supercomm. code level	xxxx

Table 10: Factory default settings screen

Configure CAN interface 1	->
Configure display backlight	Key activat.
Time until backlight shutdown	120 min
Factory default settings	Yes
Reset factory default values	**Yes**
Password Display	xxxx
Code level display	3

Basic code level	xxxx
Commissioning code level	xxxx
Temp. commissioning code level	xxxx

Table 11: Reset factory default values screen

CAN communication parameters

Use the same parameter screen like before.

1. Select *"Configure CAN interface 1"* (Refer to *"Configuration screen" on page 46* for details).
   ⇨ Now the parameter screen "Configure CAN interface 1" appears.
2. Please make sure that the parameters have the following settings (Refer to *"Configure CAN interface 1 screen" on page 46* for details).

Configure CAN interface 1	**->**
Configure display backlight	Key activat.
Time until backlight shutdown	120 min
Factory default settings	Yes
Reset factory default values	Yes
Password Display	xxxx
Code level display	3
Basic code level	xxxx
Commissioning code level	xxxx
Temp. commissioning code level	xxxx

Table 12: Configuration screen

Node-ID CAN bus 1	006
Baudrate	250 kBd
Node-ID of the 1. ext. device	007
COB-ID	000001C6 hex
Event timer	02000 ms
Selected Data Protocol	05008
COB-ID	000002C6 hex
Event timer	02000 ms
Selected Data Protocol	05009

Table 13: Configure CAN interface 1 screen

4.2.1.2 Setup Parameters easYgen-3000 Series

The easYgen can be configured using the following access methods:

- External access with a PC (easYgen-3000 Series) using the ToolKit configuration software.
  Chapter 4.2.1.2.2 "Access Via PC (ToolKit)" on page 49
- Access via the front panel (easYgen-3200/3500 only)
  Chapter 4.2.1.2.1 "Front Panel Access" on page 47

4.2.1.2.1 Front Panel Access

The following chapter decribes the configuration via the front panel (easYgen-3200/3500 only).

Baudrate

1. Select *"Parameter ➔ Configuration ➔ Configure interfaces ➔ Configure CAN interface ➔ Configure CAN interface 2"*.
2. Set the "Baudrate" to "250 kBd".

Baudrate	250 kBd
CANopen interface	->
J1939 interface	->

Table 14: Configure CAN interface 2 screen

Node-IDs

1. Select *"Parameter ➔ Configuration ➔ Configure interfaces ➔ Configure CAN interface ➔ Configure CAN interface 2 ➔ CANopen interface"*.
2. Please make sure that the parameter "This device" is configured to "Node-ID 7" (Refer to *"CANopen interface screen 1/3" on page 47* for details).
3. Please make sure that the parameter "RP-3000" is configured to "Node-ID 6" (Refer to *"CANopen interface screen 2/3" on page 48* for details).
4. Set "Configure external devices" to "Yes" (Refer to *"CANopen interface screen 3/3" on page 48* for details).
   ⇨ The settings will be transfered to the easYgen-3200/3500.

This device	Node-ID 7
IKD1 DI/DO 1..8	Off
IKD2 DI/DO 9..16	Off
IKD3 DI/DO 17..24	Off

IKD4 DI/DO 25..32	Off
Phoenix DI/DO 1..16	Off
Phoenix DI/DO 17..32	Off
Phoenix DI/DO 1..32	Off
Phoenix 12 AI 4AO	Off
Phoenix 16 AI 4AO	Off

Table 15: CANopen interface screen 1/3

IKD3 DI/DO 17..24	Off
IKD4 DI/DO 25..32	Off
Phoenix DI/DO 1..16	Off
Phoenix DI/DO 17..32	Off
Phoenix DI/DO 1..32	Off
Phoenix 12 AI 4AO	Off
Phoenix 16 AI 4AO	Off
Phoenix 16 AI 4AO DI/DO 1..32	Off
RP-3000	**Node-ID 6**
Configure external devices	No

Table 16: CANopen interface screen 2/3

IKD3 DI/DO 17..24	Off
IKD4 DI/DO 25..32	Off
Phoenix DI/DO 1..16	Off
Phoenix DI/DO 17..32	Off
Phoenix DI/DO 1..32	Off
Phoenix 12 AI 4AO	Off
Phoenix 16 AI 4AO	Off
Phoenix 16 AI 4AO DI/DO 1..32	Off
RP-3000	Node-ID 6
Configure external devices	**Yes**

Table 17: CANopen interface screen 3/3

Please make sure that a physical CAN connection is established.

With switching "Configure external devices" to "Yes" all subdevices including the RP-3000 are new initiated.

Now the CAN communication should run. Please check the following:

- *Relay [R 01] is closed.*
- *The main screen of the RP-3000 should not show the error message "CAN Fault !!".*
- *If you navigate to "Main screen ➔ Parameter" the code level is shown in the lock symbol.*
- *The single line diagram on the main screen is complete.*
- *The measured values are correct.*
- *The parameters of the easYgen-3200/3500 are shown correctly.*

If the communication is still not working please check the CAN wiring again and/or make sure all parameter settings are correct.

4.2.1.2.2 Access Via PC (ToolKit)

The following chapter decribes the external access with a PC using the ToolKit configuration software.

Configure CAN interface 2

1. Select *"Parameter ➔ Configure interfaces ➔ Configure CAN interface 2"* (Refer to Fig. 34 for details).
2. Set the "Baudrate" to "250 kBd".
3. Please make sure that the parameter "This device" is configured to "Node-ID 7".
4. Please make sure that the parameter "RP-3000" is configured to "Node-ID 6".
5. Set "Configure external devices" to "Yes".

   ⇨ The settings will be transfered to the easYgen-3000 Series.

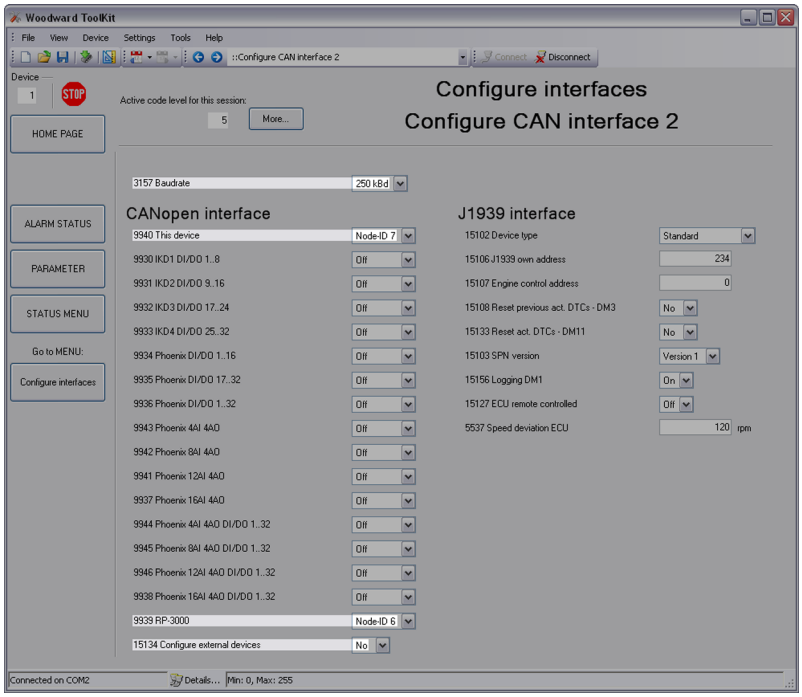


Fig. 34: ToolKit configuration CAN interface 2 (example)

Please make sure that a physical CAN connection is established.

With switching "Configure external devices" to "Yes" all subdevices including the RP-3000 are new initiated.

Now the CAN communication should run. Please check the following:

- *Relay [R 01] is closed.*
- *The main screen of the RP-3000 should not show the error message "CAN Fault !!".*
- *If you navigate to "Main screen ➔ Parameter" the code level is shown in the lock symbol.*
- *The single line diagram on the main screen is complete.*
- *The measured values are correct.*
- *The parameters of the easYgen-3000 Series are shown correctly.*

If the communication is still not working please check the CAN wiring again and/or make sure all parameter settings are correct.

4.2.2 Connection CAN Interface 1 (easYgen-3000)

4.2.2.1 Setup Parameters RP-3000

The RP-3000 can only be configured using the front panel.

Insert the password display

1. Select *"Parameter ➔ System Management ➔ System Management RP-3000"*.
2. Set the "Password Display" to code level "3" or higher.

Factory default settings	No
Password Display	**xxxx**
Code level display	0

Table 18: Password Display screen

Set the factory default settings

With the activation of code level 3 or higher the following parameter screen appears.

1. Switch "Factory default settings" to "Yes" (Refer to *"Factory default settings screen" on page 51* for details).
   ⇨ Now the parameter "Reset factory default values" appears.
2. Switch "Reset factory default values" to "Yes" (Refer to *"Reset factory default values screen" on page 52* for details).

Configure CAN interface 1	->
Configure display backlight	Key activat.
Time until backlight shutdown	120 min
Factory default settings	**Yes**
Password Display	xxxx
Code level display	3
Basic code level	xxxx
Commissioning code level	xxxx
Temp. commissioning code level	xxxx
Temp. supercomm. code level	xxxx

Table 19: Factory default settings screen

Configure CAN interface 1	->
Configure display backlight	Key activat.
Time until backlight shutdown	120 min
Factory default settings	Yes
Reset factory default values	**Yes**
Password Display	xxxx
Code level display	3
Basic code level	xxxx
Commissioning code level	xxxx
Temp. commissioning code level	xxxx

Table 20: Reset factory default values screen

CAN communication parameters

Use the same parameter screen like before.

1. Select *"Configure CAN interface 1"* (Refer to *"Configuration screen" on page 52* for details).
   ⇨ Now the parameter screen "Configure CAN interface 1" appears.
2. Set "Node-ID of the 1. ext. device" to "001" and make sure that the other parameters have the following settings (Refer to *"Configure CAN interface 1 screen" on page 52* for details).

Configure CAN interface 1	**->**
Configure display backlight	Key activat.
Time until backlight shutdown	120 min
Factory default settings	Yes
Reset factory default values	Yes
Password Display	xxxx
Code level display	3
Basic code level	xxxx
Commissioning code level	xxxx
Temp. commissioning code level	xxxx

Table 21: Configuration screen

Node-ID CAN bus 1	006
Baudrate	250 kBd
Node-ID of the 1. ext. device	**001**
COB-ID	000001C6 hex

Event timer	02000 ms
Selected Data Protocol	05008
COB-ID	000002C6 hex
Event timer	02000 ms
Selected Data Protocol	05009

Table 22: Configure CAN interface 1 screen

4.2.2.2 Setup Parameters easYgen-3000 Series

The easYgen can be configured using the following access methods:

- External access with a PC (easYgen-3000 Series) using the ToolKit configuration software.
  Chapter 4.2.2.2.2 "Access Via PC (ToolKit)" on page 56
- Access via the front panel (easYgen-3200/3500 only)
  Chapter 4.2.2.2.1 "Front Panel Access" on page 53

4.2.2.2.1 Front Panel Access

The following chapter decribes the configuration via the front panel (easYgen-3200/3500 only).

Baudrate

1. Select *"Parameter ➔ Configuration ➔ Configure interfaces ➔ Configure CAN interface ➔ Configure CAN interface 1"*.
2. Set the "Baudrate" to "250 kBd".

Baudrate	**250 kBd**
Node-ID CAN bus 1	001
CANopen Master	Default Master
Producer heartbeat time	02000 ms
COB-ID SYNC Message	00000080 hex
Producer SYNC Message time	00020 ms
COB-ID TIME Message	C0000100 hex
Additional Server SDOs	->
Receive PDO 1	->
Receive PDO 2	->

Table 23: Configure CAN interface 1 screen

Node-ID

Use the same parameter screen like before.

→ Set the "Node-ID CAN bus 1" to "001" (Refer to *"Configure CAN interface 1 screen" on page 54* for details).

Baudrate	250 kBd
Node-ID CAN bus 1	**001**
CANopen Master	Default Master
Producer heartbeat time	02000 ms
COB-ID SYNC Message	00000080 hex
Producer SYNC Message time	00020 ms
COB-ID TIME Message	C0000100 hex
Additional Server SDOs	->
Receive PDO 1	->
Receive PDO 2	->

Table 24: Configure CAN interface 1 screen

Transmit PDO 2

Use the same parameter screen like before and scroll down.

1. → Select *"Transmit PDO 2"* (Refer to *"Configure CAN interface 1 screen" on page 54* for details).
2. → Set the "COB-ID" to "1C6 hex" (Refer to *"Transmit PDO 2 screen" on page 55* for details).
3. → Please make sure that the parameter "Selected Data Protocol" is configured to "5008" (Refer to *"Transmit PDO 2 screen" on page 55* for details).

COB-ID TIME Message	C0000100 hex
Additional Server SDOs	->
Receive PDO 1	->
Receive PDO 2	->
Receive PDO 3	->
Receive PDO 4	->
Receive PDO 5	->
Transmit PDO 1	->
Transmit PDO 2	**->**
Transmit PDO 3	->

Table 25: Configure CAN interface 1 screen

COB-ID	**000001C6 hex**
Transmission type	255
Event timer	00020 ms
Selected Data Protocol	**05008**
Number of Mapped Objects	0
1. Mapped Object	00000
2. Mapped Object	00000
3. Mapped Object	00000
4. Mapped Object	00000

Table 26: Transmit PDO 2 screen

Transmit PDO 3

Go back to the parameter screen *"Configure CAN interface 1"* and scroll down.

1. Select *"Transmit PDO 3"* (Refer to *"Configure CAN interface 1 screen" on page 55* for details).
2. Set the "COB-ID" to "2C6 hex" (Refer to *"Transmit PDO 3 screen" on page 55* for details).
3. Please make sure that the parameter "Selected Data Protocol" is configured to "5009" (Refer to *"Transmit PDO 3 screen" on page 55* for details).

COB-ID TIME Message	C0000100 hex
Additional Server SDOs	->
Receive PDO 1	->
Receive PDO 2	->
Receive PDO 3	->
Receive PDO 4	->
Receive PDO 5	->
Transmit PDO 1	->
Transmit PDO 2	->
Transmit PDO 3	**->**

Table 27: Configure CAN interface 1 screen

COB-ID	**000002C6 hex**
Transmission type	255
Event timer	00020 ms
Selected Data Protocol	**05009**
Number of Mapped Objects	0

1. Mapped Object	00000
2. Mapped Object	00000
3. Mapped Object	00000
4. Mapped Object	00000

Table 28: Transmit PDO 3 screen

Please make sure that a physical CAN connection is established.

With switching "Configure external devices" to "Yes" all subdevices including the RP-3000 are new initiated.

Now the CAN communication should run. Please check the following:

- *Relay [R 01] is closed.*
- *The main screen of the RP-3000 should not show the error message "CAN Fault !!".*
- *If you navigate to "Main screen ➔ Parameter" the code level is shown in the lock symbol.*
- *The single line diagram on the main screen is complete.*
- *The measured values are correct.*
- *The parameters of the easYgen-3200/3500 are shown correctly.*

If the communication is still not working please check the CAN wiring again and/or make sure all parameter settings are correct.

4.2.2.2.2 Access Via PC (ToolKit)

The following chapter decribes the external access with a PC using the ToolKit configuration software.

Configure CAN interface 1

1. Select *"Parameter ➔ Configure interfaces ➔ Configure CAN interface 1"* (Refer to Fig. 35 for details).
2. Set the "Baudrate" to "250 kBd".
3. Set the "Node-ID CAN bus 1" to "1"

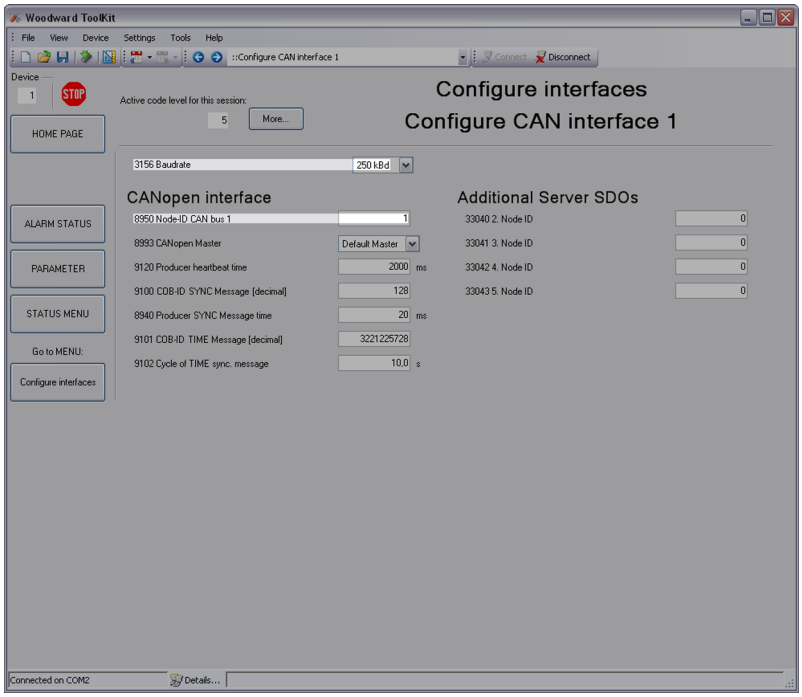


Fig. 35: ToolKit configuration CAN interface 1 (example)

Transmit PDO 2

1. Select *"Parameter ➔ Configure interfaces ➔ Transmit PDOs"* (Refer to Fig. 36 for details).
2. Set the "COB-ID" (transmit PDO 2) to "454" (decimal).
3. Please make sure that the parameter "Selected Data Protocol" (transmit PDO 2) is configured to "5008".

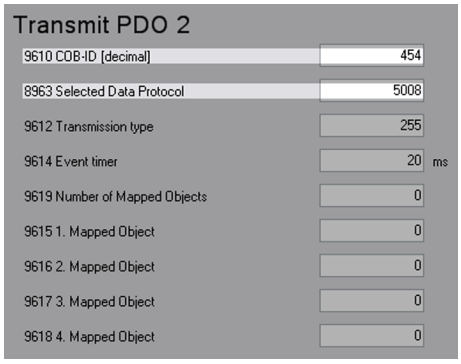


Fig. 36: ToolKit transmit PDO 2 (example)

Transmit PDO 3

Use the same parameter screen like before (Refer to Fig. 37 for details).

1. Set the "COB-ID" (transmit PDO 3) to "710" (decimal).
2. Please make sure that the parameter "Selected Data Protocol" (transmit PDO 3) is configured to "5009".

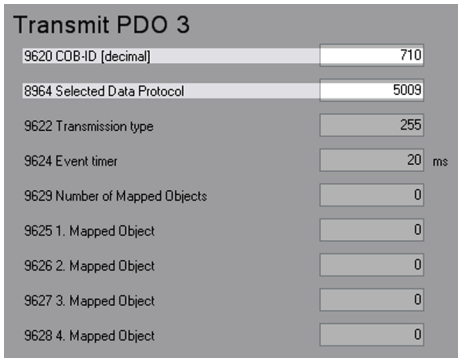


Fig. 37: ToolKit transmit PDO 3 (example)

Please make sure that a physical CAN connection is established.

With switching "Configure external devices" to "Yes" all subdevices including the RP-3000 are new initiated.

Now the CAN communication should run. Please check the following:

- *Relay [R 01] is closed.*
- *The main screen of the RP-3000 should not show the error message "CAN Fault !!".*
- *If you navigate to "Main screen ➔ Parameter" the code level is shown in the lock symbol.*
- *The single line diagram on the main screen is complete.*
- *The measured values are correct.*
- *The parameters of the easYgen-3000 Series are shown correctly.*

If the communication is still not working please check the CAN wiring again and/or make sure all parameter settings are correct.

5 Operation

General notes

The operation of the RP-3000 remote panel is exactly the same as the operation of the eaYgen-3000 Series genset controllers.

For detailed information about the operation of the RP-3000 remote panel please refer to the chapter "Operation" of your easYgen-3000 Series manual.

5.1 Basic Navigation

General notes

The display of the RP-3000 shows the same content like the easYgen-3000 Series genset controllers. The difference between these two devices is, that the RP-3000 remotely controls the operation of the easYgen-3000 Series. However, some parts of the display navigation are used to configure the RP-3000 directly.

These specialised menu screens only effect the local settings of the RP-3000. Navigate from the main screen to *"Parameter"* or *"Next Page "* to access these screens.

The following section explains the screens in detail.

5.2 Specialised RP-3000 Menu Screens

Configure language/clock

To access this screen, navigate to menu *"Parameter ➔ Configure language/clock"*.

The languages are activated locally in the device (*"Configure language/clock" on page 59*). There is no possibility to change the language of the easYgen-3000 Series via RP-3000. The RP-3000 supports the same languages like the easYgen-3000 Series.

All other menu entries effect the settings of the easYgen-3000 Series.

Language	English
Hour	xxxx
Minute	xxxx
Second	xxxx
Day	xxxx
Month	xxxx
Year	xxxx
Daylight saving time	xxxx

Table 29: Configure language/clock

Configure display

To access this screen, navigate to menu *"Parameter ➔ Configure display"*.

The local contrast and the brightness of the RP-3000 display may be adjusted using this screen.

Lamp test

All lights on the RP-3000 remote panel may be tested for correct operation with this function.

Enter password

To access this screen, navigate to menu *"Parameter ➔ Enter password"*.

To allow the RP-3000 remote access to the easYgen-3000 Series device, the corresponding code level of the CAN communication has to be activated. The password for remote configuration is activated locally in the device (*"Enter password" on page 60*). Once the correct password has been entered, the parameters of the easYgen-3000 Series can be configured via RP-3000.

The RP-3000 can be connected via CAN interface 2 (recommended) and CAN interface 1 of the easYgen-3000 Series .The code level of the corresponding interface will be activated automatically.

The current code level is indicated by the lock symbol in the parameter menu screen.

All other menu entries effect the settings of the easYgen-3000 Series.

Password for remote config.	**xxxx**
Code level remote config.	x
Password for CAN interface 1	xxxx
Code level CAN interface 1	x
Password for CAN interface 2	xxxx
Code level CAN interface 2	x
Password for serial interface 1	xxxx
Code level serial interface 1	x
Password for serial interface 2	xxxx
Code level serial interface 2	x

Table 30: Enter password

System management (RP-3000)

To access this screen, navigate to menu *"Parameter ➔ System management ➔ System management RP-3000"*.

In this RP-3000 specific screen (↳ *"System management RP-3000" on page 61*) the local configuration of the RP-3000 is done.

Password display	xxxx
Code level display	x
Configure CAN interface 1	->
Configure display backlight	Key activat.
Time until backlight shutdown	120 min
Factory default settings	No
Reset factory default values[1]	No
Basic code level	xxxx
Commissioning code level	xxxx
Temp. commissioning code level	xxxx

Table 31: System management RP-3000

[1] This parameter is only visible if parameter "Factory default settings" is configured to "Yes".

Version (RP-3000)

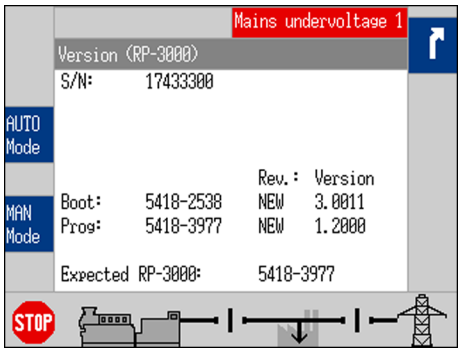


Fig. 38: Version screen (RP-3000)

To access this screen, navigate to menu *"Next Page ➔ Diagnostic ➔ Version ➔ Version (RP-3000)"*.

In this RP-3000 specific screen the software version and serial number of the RP-3000 are shown. Refer to ↳ *Chapter 2.3.1 "Software Version" on page 22* for details.

5.3 Relay Output

General notes

The RP-3000 is equipped with one relay output (terminals 41/42) which interacts as self-test relay. In case of a CPU error the relay trips (deenergized = contacts are open).

Additionally this relay trips if no physical CAN communication is recognized.

Relay Output

6 Application

6.1 Overview

Basic application

The RP-3000 is a remote control and annunciation panel for use with the back-panel mounted easYgen-3100/3400 or door-mounted easYgen-3200/3500 genset controls.

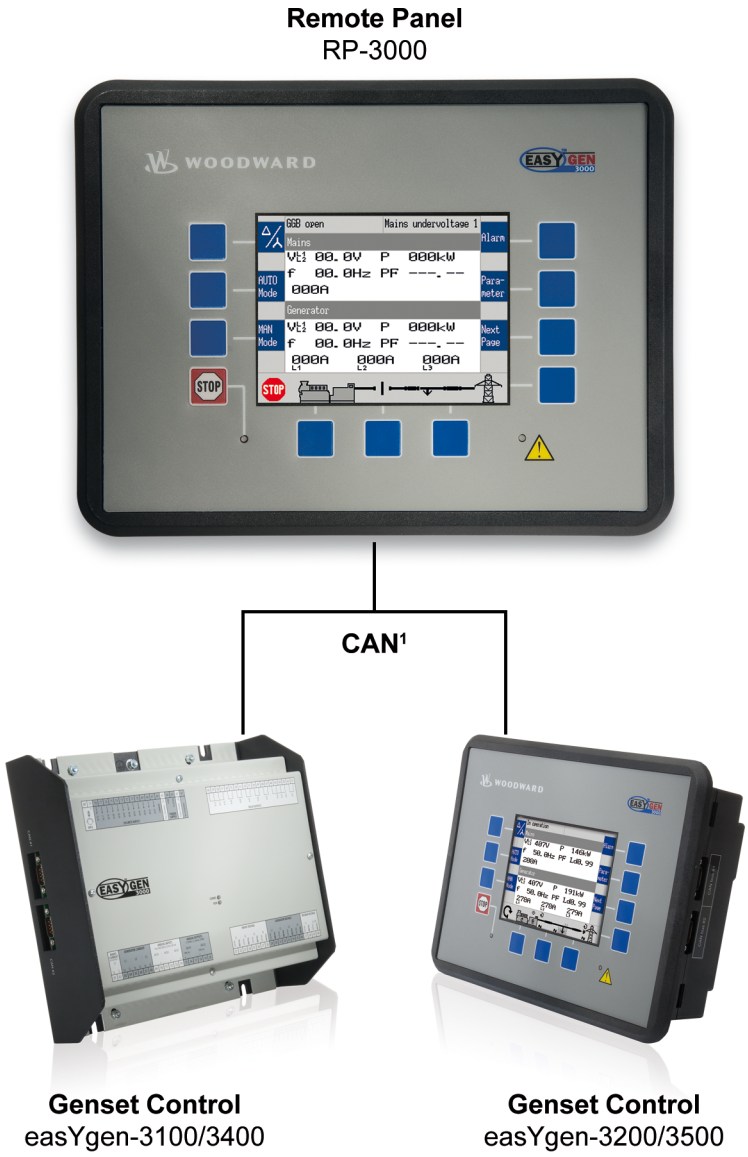


Fig. 39: Basic application

[1] *Only **one** easYgen can be connected at once.*

The remote panel RP-3000 and the easYgen-3000 Series are connected via CAN bus.

There are two possibilities to connect the remote panel with the easYgen genset control.

- via **CAN interface 1** or
- via **CAN interface 2** of the easYgen

A PC with ToolKit may not be connected to the easYgen-3000 Series via the same CAN bus as the RP-3000.

6.2 Connection CAN Interface 2

CAN interface 2 application

It is **strongly recommended** to connect the remote panel with the easYgen genset control at CAN interface 2.

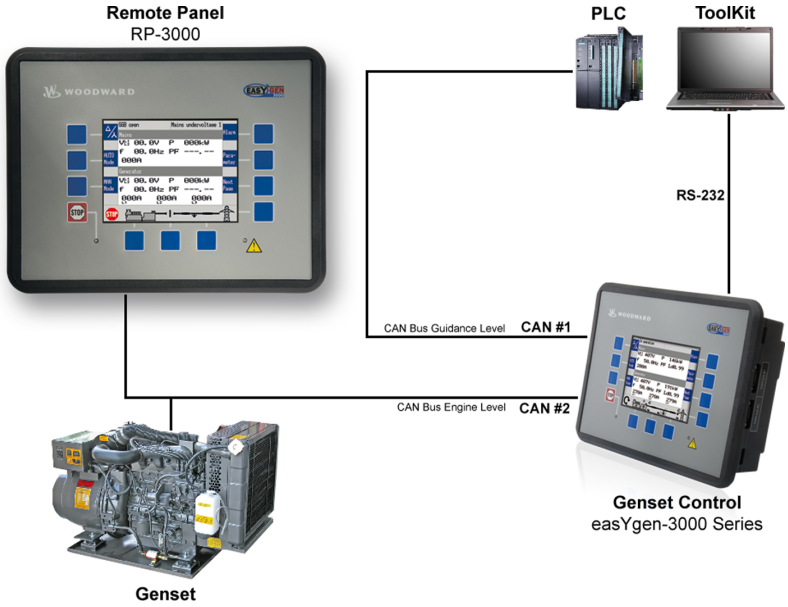


Fig. 40: CAN interface 2 application

The remote panel is connected at the dedicated CAN of this engine. The CAN bus #1 is free for other purposes like load sharing or SCADA systems.

6.3 Connection CAN Interface 1

CAN interface 1 application

It is also possible to connect the remote panel with the easYgen genset control at CAN interface 1.

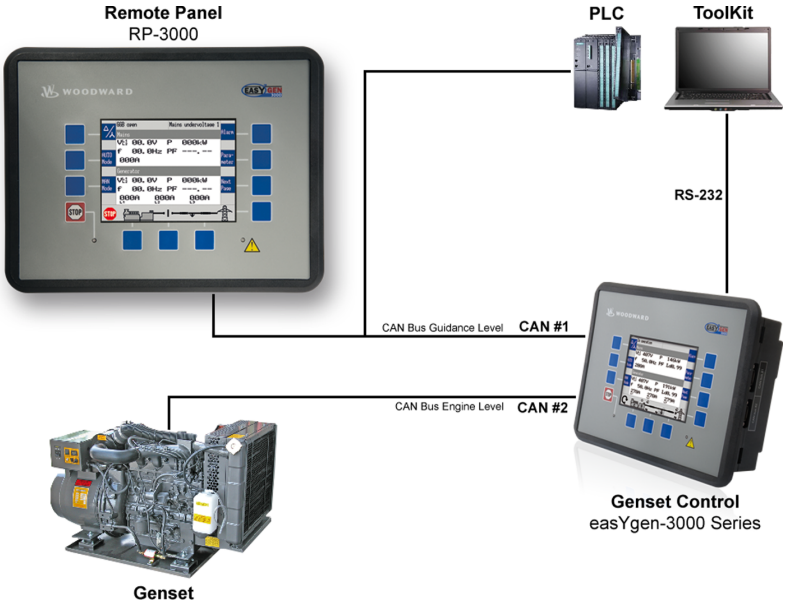


Fig. 41: CAN interface 1 application

This connection is **only** recommended, if no other genset controls are connected to CAN bus #1. For this case it is only allowed to connect one additional PLC to this CAN bus.

Please make sure that there is a low bus load on CAN bus #1. Only a low bus load guarantees a good performance of the remote panel.

Connection CAN Interface 1

7 Interfaces And Protocols

7.1 Interfaces Overview

Interfaces and protocols

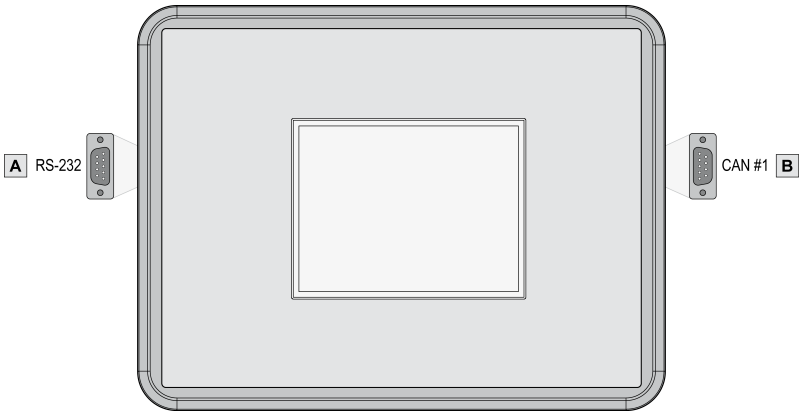


Fig. 42: RP-3000 interfaces

The RP-3000 (Fig. 42) provides the following interfaces, which are supporting different protocols.

Figure	Interface	Protocol
A	RS-232	ToolKit
B	CAN bus #1	CANopen

7.2 CAN Interfaces

7.2.1 CAN Interface 1 (Guidance level)

The CAN interface 1 is used to connect the RP-3000 to the easYgen-3000 Series genset controllers. For details, please refer to ↳ *Chapter 6 "Application" on page 63*

7.3 Serial Interfaces

7.3.1 RS-232 Interface (Serial Interface 1)

The interface is used to connect the RP-3000 to the ToolKit configuration software. The RP-3000 device software can be updated, if needed, with the aid of the ToolKit software. Please refer to ↳ *Chapter 2.3 "Device Update" on page 22* for details.

8 Technical Specifications

8.1 Technical Data

Product label

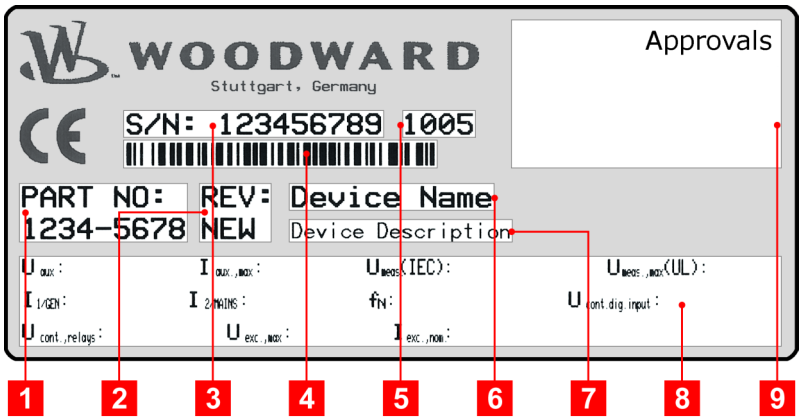


Fig. 43: Product label

1	P/N	Item number
2	REV	Item revision number
3	S/N	Serial number (numerical)
4	S/N	Serial number (barcode)
5	S/N	Date of production (year-month)
6	Type	Description (short)
7	Type	Description (long)
8	Details	Technical data
9	Approval	Approvals

8.1.1 Ambient Variables

Power supply	12/24 Vdc (8 to 40.0 Vdc)
Intrinsic consumption	max. 12 W
Degree of pollution	2
Maximum elevation	2,000 m ASL
Insulation voltage (continuously)	40 Vdc
Insulation test voltage (1s)	100 Vdc
Overvoltage (≤ 2 min)	80 Vdc
Reverse voltage protection	Over the full supply range
Input capacitance	1,700 µF
Unit Power Supply	Negative potential or positive potential grounded

8.1.2 Inputs/Outputs

Discrete outputs

Discrete outputs		Galvanically isolated
Contact material		AgCdO
General purpose (GP) ($V_{cont, relays}$)	AC	2.00 Aac@250 Vac
	DC	2.00 Adc@24 Vdc
		0.36 Adc@125 Vdc
		0.18 Adc@250 Vdc
Pilot duty (PD) ($V_{cont, relays}$)	AC	B300
	DC	1.00 Adc@24 Vdc
		0.22 Adc@125 Vdc
		0.10 Adc@250 Vdc

8.1.3 Interface

RS-232 interface

RS-232 interface	Galvanically isolated
Insulation voltage (continuously)	100 Vac
Insulation test voltage (1 s)	500 Vac
Version	RS-232 Standard

CAN bus interface

CAN bus interface	Galvanically isolated
Insulation voltage (continuously)	100 Vac
Insulation test voltage (1 s)	500 Vac
Version	CAN bus
Internal line termination	Not available

8.1.4 Battery

Type	Lithium
Life span (operation without power supply)	approx. 5 years
Battery field replacement	Not allowed

8.1.5 Housing

Housing type

Type	easYpack
Dimensions (W × H × D)	282 × 217 × 99 mm
Front cutout (W × H)	249 [+1.1] × 183 [+1.0] mm
Wiring	Screw-plug-terminals 2.5 mm²

Recommended locked torque	4 inch pounds / 0.5 Nm Use 60/75 °C copper wire only Use class 1 wire only or equivalent
Weight	approx. 1,300 g

Protection

Protection system	IP54 in the front with clamp fasteners IP66 in the front with screw kit IP10 on the rear side
Front foil (plastic housing)	Insulating surface

8.1.6 Approvals

EMC test (CE)	Tested according to applicable EN guidelines	
Listings	CE marking *) UL / cUL, Ordinary Locations, File No.: 231544 UL recognized component, category FTPM2/8, File No.: E347132	
Marine	Type approval	Lloyds Register (LR) American Bureau of Shipping (ABS)
	Type approval (P/N 8446-1046 only)	German Lloyd (GL) Det Norske Veritas (DNV)

*) For CE extension refer to document 37934 "Declaration of RoHS-10 exclusion on application of easYgen-3000 series genset controllers".

8.1.7 Generic Note

Accuracy	Referred to full scale value

8.2 Environmental Data

Vibration

Frequency range - sine sweep	5 Hz to 100 Hz
Acceleration	4 G
Standards	EN 60255-21-1 (EN 60068-2-6, Fc)
	EN 60255-21-3
	Lloyd’s Register, Vibration Test2
	SAEJ1455 Chassis Data
Frequency range - random	10 Hz to 500 Hz
Power intensity	0.015 G²/Hz

RMS value	1.04 Grms
Standards	MIL-STD 810F, M514.5A, Cat.4,
	Truck/Trailer tracked-restrained
	Cargo, Fig. 514.5-C1

Shock

Shock	40 G, Saw tooth pulse, 11 ms
Standards	EN 60255-21-2
	MIL-STD 810F, M516.5, Procedure 1

Temperature

Cold, Dry Heat (storage)	-30 °C (-22 °F) / 80 °C (176 °F)
Cold, Dry Heat (operating)	-20 °C (-4 °F) / 70 °C (158 °F)
Standards	IEC 60068-2-2, Test Bb and Bd
	IEC 60068-2-1, Test Ab and Ad

Humidity

Humidity	60 °C, 95 % RH, 5 days
Standards	IEC 60068-2-30, Test Db

Marine environmental categories

Marine environmental categories	Lloyd’s Register of Shipping (LRS): ENV1, ENV2, ENV3 and ENV4

9 Appendix

9.1 Additional Information

9.1.1 D-SUB Connector Housing

Some housings for D-Sub connectors are too wide to plug them into the unit properly. If your serial or CAN bus cable is equipped with a housing, which does not fit into the easYgen socket, you may replace the housing with one of the following housings:

Manufacturer	Type/Order No.
FCT (www.fctgroup.com)	FKH1 FKC1G
Wuerth Electronic (www.we-online.de)	618009214622 260809 41800927911

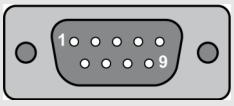
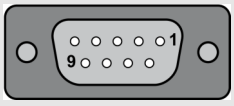
9.1.2 CAN Bus Pin Assignments Of Third-Party Units

"For your information only ..."

The following pin assignments are typically by third-party units.

For the CAN Bus pin assignments of your Woordward device please go to Chapter 3.3 "CAN Bus Interface" on page 37.

D-SUB DE9 connector

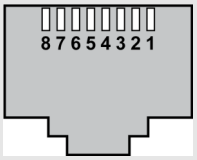
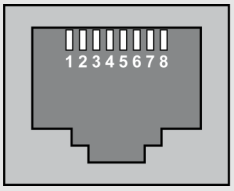
Male / plug	Female / socket
	

Terminal	Signal	Description
1	-	Reserved
2	CAN_L	CAN Bus Signal (dominant low)
3	CAN_GND	CAN ground
4	-	Reserved
5	(CAN_SHLD)	Optional shield Connected with connector housing and internally grounded via RC element
6	(GND)	Optional CAN ground
7	CAN_H	CAN Bus Signal (dominant high)

Terminal	Signal	Description
8	-	Reserved
9	(CAN_V+)	Optional external voltage supply Vcc

Table 32: Pin assignment

RJ45/8P8C connector

Male / plug	Female / socket
	

Terminal	Signal	Description
1	CAN_H	CAN bus line (dominant high)
2	CAN_L	CAN bus line (dominant low)
3	CAN_GND	Ground / 0 V / V-
4	-	Reserved
5	-	Reserved
6	(CAN_SHLD)	Optional CAN Shield
7	CAN_GND	Ground / 0 V / V-
9	(CAN_V+)	Optional external voltage supply Vcc

Table 33: Pin assignment

IDC/header connector

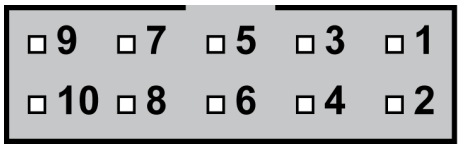


Fig. 44: IDC/header connector

Terminal	Signal	Description
1	-	Reserved
2	(GND)	Optional CAN ground
3	CAN_L	CAN bus line (dominant low)
4	CAN_H	CAN bus line (dominant high)
5	CAN_GND	CAN ground
6	-	Reserved
7	-	Reserved
8	(CAN_V+)	Optional external voltage supply Vcc
9	(CAN_SHLD)	Optional shield
10	-	Not connected

Table 34: Pin assignment

10 Glossary And List Of Abbreviations

CL	Code Level
DI	Discrete Input
DO	Discrete (Relay) Output
I	Current
N.C.	Normally Closed (break) contact
N.O.	Normally Open (make) contact
P	Real power
P/N	Part Number
PLC	Programmable Logic Control
Q	Reactive power
S	Apparent power
S/N	Serial Number
V	Voltage

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