

RP-3000 Remote Panel



Installation Software Version 1.xxxx



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 instructions and precautions. Failure to follow instructions can cause 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 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.

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 such unauthorized modifications: (i) constitute "misuse" and/or "negligence" within the meaning of the product warranty thereby excluding warranty coverage for any resulting damage, and (ii) invalidate product certifications or listings.

CAUTION

To prevent damage to a control system that uses an alternator or battery-charging device, make sure the charging device is turned off before disconnecting the battery 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 the components or conductors on a printed circuit board with your hands or with conductive devices.



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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.

Woodward reserves the right to update any portion of this publication at any time. Information provided by Woodward is believed to be correct and reliable. However, Woodward assumes no responsibility unless otherwise expressly undertaken.

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Revision History

Rev.	Date	Editor	Changes
NEW	09-03-06	TE	Release
А	09-05-04	TE	Minor corrections

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Chapter 1. General Information

Document Overview

Туре	English	German
easYgen-3000 Series (Package P2)		
easYgen-3000 Series - Installation	37414	GR37414
easYgen-3000 Series - Configuration	37415	GR37415
easYgen-3000 Series - Operation	37416	GR37416
easYgen-3000 Series - Application	37417	-
easYgen-3000 Series - Interfaces	37418	-
easYgen-3000 Series - Parameter List	37420	GR37420
easYgen-3200 - Brief Operation Information	37399	GR37399
easYgen-3100 - Brief Operation Information	37419	-
RP-3000 Remote Panel this manual	⇒ 37413	_

Table 1-1: Manual - overview

Intended Use The unit must only be operated in the manner described by this manual. The prerequisite for a proper and safe operation of the product is correct transportation, storage, and installation as well as careful operation and maintenance.



NOTE

This manual has been developed for a unit fitted with all available options. Inputs/outputs, functions, configuration screens, and other details described, which do not exist on your unit, may be ignored. The present manual has been prepared to enable the installation and commissioning of the unit. Due to the large variety of parameter settings, it is not possible to cover every combination. The manual is therefore only a guide.

Technical Requirements



NOTE

The Remote Panel RP-3000 can in the moment only be used in conjunction with Woodward genset control easYgen-3200 (Package P2) or easYgen-3100 (Package P2) of the easYgen-3000 Series with software version V1.1303 and newer. Other genset controls of Woodward are not supported.

Constraints compared to easYgen-3200



CAUTION

The stop button function reacts in some screens not as fast as the stop button of the easYgen-3200. 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.

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

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.

Set Points

• The acceleration levels for changing the active power set points with up/down buttons is a bit delayed compared to easYgen-3200.

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 two hours. In operation the text changes also will be taken over in between two hours.

Chapter 2. Electrostatic Discharge Awareness

All electronic equipment is static-sensitive, some components more than others. To protect these components from static damage, you must take special precautions to minimize or eliminate electrostatic discharges.

Follow these precautions when working with or near the control.

- 1. Before doing maintenance on the electronic control, discharge the static electricity on your body to ground by touching and holding a grounded metal object (pipes, cabinets, equipment, etc.).
- 2. Avoid the 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.
- 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, modules, and work area as much as possible.

4. **Opening the control cover may void the unit warranty.**

Do not remove the printed circuit board (PCB) from the control cabinet unless absolutely necessary. If you must 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.

\wedge

CAUTION

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.*

The unit is capable to withstand an electrostatic powder coating process with a voltage of up to 85 kV and a current of up to 40 $\mu A.$

Chapter 3. Marine Usage



CAUTION

The following notes are very important for marine usage of the RP-3000 Remote Panel and have to be followed.



NOTE

They are only valid for plastic housing units, if they are installed using the screw kit (refer to Screw Kit Installation on page 13). In this case, <u>all</u> 12 screws must be used and tightened accordingly.

Application

The RP-3000 has an internally isolated power supply.

If the RP-3000 is to be used on bridge and deck zones, an EMI filter (i.e. TIMONTA FSS2-65-4/3) must be used for the power supply inputs.

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

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.

Chapter 4. Housing

Panel Cutout



Figure 4-1: Housing - panel-board cutout

Measure	Description			Tolerance
Н	Height	Total	217 mm	
h		Panel cutout	183 mm	+ 1.0 mm
h'		Housing dimension	181 mm	
В	Width	Total	282 mm	
b		Panel cutout	249 mm	+ 1.1 mm
b'		Housing dimension	247 mm	
	Depth	Total	67 mm	

Table 4-1: Housing - panel cutout

The maximum permissible corner radius is 4 mm. Refer to Figure 4-3 on page 13 for a cutout drawing.

Dimensions



Figure 4-2: Housing RP-3000 - dimensions

Clamp Fastener Installation

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

1. Panel cutout

Cut out the panel according to the dimensions in Table 4-1.

Note:

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. **Remove terminals**

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

3. Insert screws in clamps

Insert the four clamping screws into the clamp inserts from the shown side (opposite of the nut insert) until they are almost flush. Do not completely insert the screws into the clamp inserts.

4. Insert unit into cutout

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.

5. Attach clamp inserts

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

6. Tighten clamping screws

Tighten the clamping screws (1) until the control unit is secured to the control panel (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.

7. Reattach terminals

Reattach the wire connection terminal strip (1) and secure them with the side screws.













Screw Kit Installation



NOTE

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!



NOTE

The housing is equipped with 12 nut inserts (refer to Figure 4-3 for their position), which must all be tightened properly to achieve the required degree of protection.

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, it is possible to fasten the unit with a screw kit instead of the clamp fastener hardware.

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 Figure 4-3 (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.



NOTE

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



Figure 4-3: Housing - drill plan

Terminal Arrangement



Figure 4-4: RP-3000 - terminal arrangement - rear view

Chapter 5. Wiring Diagrams



Figure 5-1: Wiring diagram - overview

Chapter 6. Connections



WARNING

All technical data and ratings indicated in this chapter are not definite! Only the values indicated in Chapter 11: Technical Data on page 40 are valid!

The following chart may be used to convert square millimeters [mm²] to AWG and vice versa:

AWG	mm ²	AWG	mm ²	AWG	mm ²						
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 6-1: Conversion chart - wire size

Power Supply



WARNING – Protective Earth

Protective Earth (PE) must be connected to the unit to avoid the risk of electric shock. 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. This connection will be made using the screw-plug-terminal 61.

The maximum permissible voltage differential between terminal 64 (B-) and terminal 61 (PE) is 15 V.



Figure 6-1: Power supply

Terminal	Description	A _{max}
61	PE (protective earth)	2.5 mm ²
63	12/24Vdc (8 to 40.0 Vdc)	2.5 mm ²
64	0 Vdc	2.5 mm ²



Table 6-2: Power supply - terminal assignment



NOTE

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)

Relay Outputs



Terminal		Description				A _{max}	
Term.	Com.						
Α	В	Form A, N.O. make contact Type 4					
42	41	Relay output [R 01]	{all}	Ready for operation	N.O.	2.5 mm ²	

[{]all}-all appliction modes N.O.-normally open (make) contact

Table 6-3: Relay outputs - terminal assignment

CAUTION

The discrete output "Ready for operation OFF" can be wired in series with an emergency stop function. In comparison to the easYgen-3200 this relay is additional de-energized if the CAN bus has no connection.



NOTE

Refer to Appendix A: Connecting 24 V Relays on page 45 for interference suppressing circuits when connecting 24 V relays.

Interfaces

RS-232 Serial Interface



Figure 6-4: RS-232 interface - overview

Terminal	Description	A _{max}
1	not connected	N/A
2	RxD (receive data)	N/A
3	TxD (transmit data)	N/A
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 6-4: RS-232 interface - pin assignment

CAN Bus Interface (FlexCAN)



Figure 6-5: CAN bus #1 - overview

Terminal	Description	A _{max}
1	not connected	N/A
2	CAN-L	N/A
3	GND	N/A
4	not connected	N/A
5	not connected	N/A
6	not connected	N/A
7	CAN-H	N/A
8	not connected	N/A
9	not connected	N/A

Table 6-5: CAN bus #1 - pin assignment



NOTE

Refer to Appendix A: CAN Bus Pin Assignments of Third-Party Units on page 43 for general information about CAN bus pin assignments.

CAN Bus Topology

NOTE

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.



Figure 6-6: Interfaces - CAN bus - termination

Troubleshooting Possible CAN Bus Problems

If data is not transmitting on the CAN bus, check the following for 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 (i.e.: Lappkabel Unitronic LIYCY (TP) $2 \times 2 \times 0.25$, UNITRONIC-Bus LD $2 \times 2 \times 0.22$).

Maximum CAN Bus Length

The maximum length of the communication bus wiring is dependent on the configured Baud rate. Refer to Table 6-6 for 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
125 kbit/s	250 m
50 kbit/s	1000 m
20 kbit/s	2500 m

Table 6-6: Maximum CAN bus length

The maximum specified length for the communication bus wiring might not be achieved if poor quality wire is utilized, there is high contact resistance, or other conditions exist. Reducing the baud rate may overcome these issues.

Bus Shielding

All bus connections of the RP-3000 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.



Figure 6-7: Interfaces - shielding

Chapter 7. Application

NOTE

The Remote Panel RP-3000 can in the moment only be used in conjunction with Woodward genset control easYgen-3200 (Package P2) or easYgen-3100 (Package P2) of the easYgen-3000 Series with software version V1.1303 and newer. Other genset controls of Woodward are not supported.

The Remote Panel RP-3000 is a visualization and control interface for easYgen-3200 (Package P2) and easYgen-3100 (Package P2) genset controls:



* only one easYgen can be connected at once.

Figure 7-1: Application - Overview

The Remote Panel RP-3000 and the easYgen are connected via CAN bus.

There are two possibilities to connect the Remote Panel with the easYgen genset control:

- via CAN 1 or
- via CAN 2 of the easYgen.



NOTE

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

Connection via CAN 2

The recommended possibility is to connect the Remote Panel with the easYgen at CAN 2.



Figure 7-2: Application - Connection via CAN 2

The Remote Panel is connected at the dedicated CAN of this engine. The CAN bus 1 is free for other purposes like Load Share or SCADA systems.

Connection via CAN 1

The second possibility is to connect the Remote Panel with the easYgen at CAN 1.



Figure 7-3: Application - Connection via CAN 1

This connection can only be recommended, if no other genset controls are connected on the CAN 1 bus. For this case it is only allowed to connect one additional PLC on the same CAN 1 bus. It must be ensured that the bus load on the CAN 1 bus is not very high to guarantee a good performance for the Remote Panel.

Chapter 8. Operation

The operation of the Remote Panel RP-3000 is exactly the same as in the easYgen-3000 Series (Package P2). Please refer for detailed information the operation manual "easYgen-3000 – Operation" (37416 / GR37416).

Chapter 9. Configuration CAN

Connection via CAN 2 (recommended)

Setup parameters in Remote Panel RP-3000

1. Insert the Password Display:

Navigate to

Parameter > System Management > System Management RP-3000

Set the 'Password display' to level 3 or higher.

Factory default settings	No
Password Display	XXXX
Code level display	0

2. Set the Factory default settings

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

Switch 'Factory default settings' to 'Yes'.

Configure CAN interface 1	->
Configure display backlight	Key activat.
Time until backlight shutdown	120min
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

Now the parameter 'Reset factory default values' appears. Switch it to 'Yes'.

Configure CAN interface 1	->
Configure display backlight	Key activat.
Time until backlight shutdown	120min
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

3. CAN communication parameters

On the same page the link "Configure CAN interface 1" is shown.

Configure CAN interface 1	->
Configure display backlight	Key activat.
Time until backlight shutdown	120min
Factory default settings	No
Password Display	XXXX
Code level display	Х
Basic code level	XXXX
Commissioning code level	XXXX
Temp. commissioning code level	XXXX
Temp. supercomm. code level	XXXX

Follow the link.

In the menu "Configure CAN interface 1".

Check if the parameters have the following values.

Node-ID CAN bus 1	006
Baudrate	250kBd
Node-ID of the 1. ext. device	007
COB-ID	000001C6hex
Event timer	02000ms
Selected Data Protocol	05008
COB-ID	000002C6hex
Event timer	02000ms
Selected Data Protocol	05009

Setup parameters in easYgen-3200

The following instructions are for configuring the parameters directly in the device.

1. Baudrate

Navigate to

Parameter > Configuration > Configure interfaces > Configure CAN interface > Configure CAN interface 2

Set the Baudrate to 250 kBd.

Baudrate	250kBd
CANopen interface	->
J1939 interface	->

Follow the link "CANopen interface".

Baudrate	250 kBd
CANopen interface	->
J1939 interface	->

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2. NODE-IDs

Check if the parameter 'This device' is 'Node-ID 7'.

This device	Node-ID 7
IKD1 DI/DO 18	Off
IKD2 DI/DO 916	Off
IKD3 DI/DO 1724	Off
IKD4 DI/DO 2532	Off
Phoenix DI/DO 116	Off
Phoenix DI/DO 1732	Off
Phoenix DI/DO 132	Off
Phoenix 12 AI 4AO	Off
Phoenix 16 AI 4AO	Off

Check if the parameter 'RemoteDisplay' is 'Node-ID 6'.

IKD3 DI/DO 1724	Off
IKD4 DI/DO 2532	Off
Phoenix DI/DO 116	Off
Phoenix DI/DO 1732	Off
Phoenix DI/DO 132	Off
Phoenix 12 AI 4AO	Off
Phoenix 16 AI 4AO	Off
Phoenix 16 AI 4AO DI/DO 132	Off
RemoteDisplay	Node-ID 6
Configure external devices	No

Set 'Configure external devices' to 'Yes' to transfer the settings to the easYgen-3200. Please make sure that a physical CAN connection is established.

IKD3 DI/DO 1724	Off
IKD4 DI/DO 2532	Off
Phoenix DI/DO 116	Off
Phoenix DI/DO 1732	Off
Phoenix DI/DO 132	Off
Phoenix 12 AI 4AO	Off
Phoenix 16 AI 4AO	Off
Phoenix 16 AI 4AO DI/DO 132	Off
RemoteDisplay	Node-ID 6
Configure external devices	Yes



NOTE

NOTE

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

i

Now the CAN communication should run. Please check the following

- the relay R01 is closed
- on the first page of the RP-3000 there is no message "CAN Fault !!"
- the code level is shown in the lock picture
- the genset picture is complete
- the measured values are correct
- the parameters of the easYgen-3200 are shown correctly

If the communication is still not working please check the CAN wiring again or control again all settings.

Setup parameters via Toolkit

Set the parameters 'Baudrate' and 'Node-ID'. Then switch the parameter 'Configure external devices' to 'Yes'.

<mark>₩ 5418-3210-106_</mark> 0	us_5418-3210-106_x32.wtool - Woodward To	olKit		
Eile <u>V</u> iew Device	<u>S</u> ettings <u>T</u> ools <u>H</u> elp			
🗄 🗋 📄 🔲 🔛 🗄 🔇	CONFIG.INTERFACE.CAN#2	- Zonnect 🕺 Disconnect		
HOME PAGE	Currently entered code level for More Device Active session	CONFIGURE INTERFACES		
Previous Next Page Page			0, 11 //2	
	3157 Baudrate	250 kBd 🔽		
	CANopen Interface		J1939 Interface	
PARAMETER	9940 This device	Node-ID 7 🔽	15106 J1939 own address	234
	9930 IKD1 DI/DO 18	Off 🔽	15107 Engine control address	0
STATUS MENUS	9931 IKD2 DI/DO 916	Off 🔽	15108 Reset previous act. DTCs - DM3	No 🗸
	9932 IKD3 DI/DO 1724	Off 🔽	15133 Reset act. DTCs - DM11	No 🗸
Go Back To Menu INTERFACES	9933 IKD4 DI/DO 2532	Off 🖌	15103 SPN version	Version 1 💌
	9934 Phoenix DI/DO 116	Off 🔽	15102 Device type	Standard 🗸
	9935 Phoenix DI/DO 1732	Off 🖌	15127 ECU remote controlled	Off 🖌
	9936 Phoenix DI/DO 132	Off 🖌	5537 Speed deviation ECU	120 rpm
	9941 Phoenix 12AI 4AO	Off 🔽		
	9937 Phoenix 16AI 4AO	Off 🖌		
	9938 Phoenix 16AI 4AO DI/DO 132	Off 🔽		
	9939 RemoteDisplay	Node-ID 6 🔽		
	15134 Configure external devices	No 💌		
Connected on COM1	Details Min: 0, Max: 255			



NOTE

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



NOTE

Now the CAN communication should run. Please check the following

- the relay R01 is closed
- on the first page of the RP-3000 there is no message "CAN Fault !!"
- the code level is shown in the lock picture
- the genset picture 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 or control again all settings.

Connection via CAN 1

Setup parameters in Remote Panel RP-3000

1. Insert the Password Display

Navigate to

Parameter > System Management > System Management RP-3000

Set the 'Password Display' to level 3 or higher.



2. Set the Factory default settings

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

Switch 'Factory default settings' to 'Yes'.

Configure CAN interface 1	->	
Configure display backlight	Key activat.	
Time until backlight shutdown	120min	
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	

Now the parameter 'Reset factory default values' appears. Switch it to 'Yes'.

Configure CAN interface 1	->	
Configure display backlight	Key activat.	
Time until backlight shutdown	120min	
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	

3. CAN communication parameters

On the same page the link "Configure CAN interface 1" is shown.

Configure CAN interface 1	->	
Configure display backlight	Key activat.	
Time until backlight shutdown	120min	
Factory default settings	No	
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	

Follow the link.

In the menue "Configure CAN interface 1":

Set 'Node-ID of the 1. ext. device' to '001' and check if the other parameters have the following values.

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	000002C6hex
Event timer	02000 ms
Selected Data Protocol	05009

Setup parameters in easYgen-3200

The following instructions are for configuring the parameters directly in the device.

1. Baudrate

Navigate to

Parameter > Configuration > Configure interfaces > Configure CAN interface > Configure CAN interface 1

Check if the 'Baudrate' is '250 kBd':

Baudrate	250 kBd	
Node-ID CAN bus 1	001	
CANopen Master	Default Master	
Producer heartbeat time	02000ms	
COB-ID SYNC Message	00000080hex	
Producer SYNC Message time	00020ms	
COB-ID TIME Message	00060000hex	
Additional Server SDOs	->	
Receive PDO 1	->	
Receive PDO 2	->	

2. NODE-ID

Set in the same screen the 'Node-ID CAN bus 1' to '001'.

Baudrate	250 kBd
Node-ID CAN bus 1	001
CANopen Master	Default Master
Producer heartbeat time	02000ms
COB-ID SYNC Message	00000080hex
Producer SYNC Message time	00020ms
COB-ID TIME Message	C0000100hex
Additional Server SDOs	->
Receive PDO 1	->
Receive PDO 2	->

3. Transmit PDO 2

Navigate down to the link

Transmit PDO 2:

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	->

Follow the link.

Transmit PDO2

Set the 'COB-ID' to the recommended number '1C6 hex'. Check if the 'Selected Data Protocol' is '5008':

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

4. Transmit PDO 3

Go one screen back and navigate down to the link

Transmit PDO 3:

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	->
Transmit PDO 4	->

Follow the link.

Transmit PDO3

Set the 'COB-ID' to the recommended number '2C6 hex'. Check if the 'Selected Data Protocol' is '5009':

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

The COB-IDs and the Node-IDs must be consistent with the easYgen-3200 settings.

NOTE

Now the CAN communication should run. Please check the following

- the relay R01 is closed
- on the first page of the RP-3000 there is no message "CAN Fault !!"
- the code level is shown in the lock picture
- the genset picture is complete
- the measured values are correct
- the parameters of the easYgen-3200 are shown correctly

If the communication is still not working please check the CAN wiring again or control again all settings.

Setup parameters via Toolkit

¾ 5418-3210-105_us_	5418-3210-105_x32.wtool - Woodward ToolKit		
Eile ⊻iew Device	<u>Settings Tools H</u> elp		
🗅 🙋 📙 🔛 G	CONFIG.INTERFACE.CAN#1 (CANopen)	Connect Disconnect	
HOME PAGE	Currently entered code level for Device Active session 1 5	CONFIGURE INTERFACES CAN #1 (CANopen)	
ALARM STATUS PARAMETER STATUS MENUS Go Back To Menu INTERFACES	3156 Baudrate 8950 Node-ID CAN bus 1 8993 CANopen Master 9120 Producer heartbeat time 9100 COB-ID SYNC Message [decimal] 8940 Producer SYNC Message time 9101 COB-ID TIME Message [decimal]	250 KBd Image: Server SDOs 250 KBd 33040 2. Node ID 1 33041 3. Node ID 2000 ms 2000 ms 3043 5. Node ID 33043 5. Node ID 20 ms 3221225728 9923 Load share interface 9921 Transfer rate LS fast message 9920 Load share CAN-ID	0 0 0 0
Connected on COM5	😥 Details Min: 0, Max: 65535		:

Manual 37413A

Bit B	¥ 5418-3210-105_us_	5418-3210-105_x32.wtool - Woodward ToolKit			
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Bits Selected Data Protocol 5003 8964 Selected Data Protocol 5009 PARAMETER 9602 Transmission type 255 9522 Transmission type 255 9504 Event timer 201 ms 9523 Number of Mapped Dbjects 0 9523 Number of Mapped Dbjects 0 9505 Number of Mapped Dbject 0 9525 1. Mapped Dbject 0 9525 1. Mapped Dbject 0 9506 2. Mapped Dbject 0 9527 3. Mapped Dbject 0 9527 3. Mapped Dbject 0 9506 3. Mapped Dbject 0 9527 3. Mapped Dbject 0 9528 4. Mapped Dbject 0 9506 4. Mapped Dbject 0 9527 3. Mapped Dbject 0 9528 4. Mapped Dbject 0 9501 0.08-10 (decimal) 454 9530 0.08-10 (decimal) 2147493449 9533 0.08-10 (decimal) 2147493449 9513 1. Mapped Dbject 0 9538 1. Mapped Dbject 0 9535 1. Mapped Dbject 0 9514 Event timer 0 ms 9535 1. Mapped Dbject 0 9535 1. Mapped Dbject 0 9516 2. Mapped Dbject 0 9535 1. Mapped Dbject<	ALARM STATUS	Transmit PDO 1 9600 COB-ID [decimal]	385	Transmit PDO 3 9620 COB-ID [decimal]	710
STATUS MENUS 9604 Event timer 20 ms 9604 Event timer 20 ms 9624 Event timer 20 ms 9609 Number of Mapped Objects 0 9625 N. Mapped Object 0 9606 2. Mapped Object 0 9626 2. Mapped Object 0 9607 3. Mapped Object 0 9626 2. Mapped Object 0 9608 4. Mapped Object 0 9626 2. Mapped Object 0 9609 4. Mapped Object 0 9626 2. Mapped Object 0 9609 4. Mapped Object 0 9626 2. Mapped Object 0 9609 4. Mapped Object 0 9626 2. Mapped Object 0 9609 4. Mapped Object 0 9626 2. Mapped Object 0 9609 4. Mapped Object 0 9627 3. Mapped Object 0 9610 COB-ID (decimal) 454 9630 COB-ID (decimal) 2147463648 9633 Selected Data Protocol 5009 9632 Transmission type 225 9614 Event timer 20 ms 9633 Number of Mapped Objects 0 9615 1. Mapped Object 0 9633 Number of Mapped Object 0 <	PARAMETER	8962 Selected Data Protocol 9602 Transmission type	5003 255	8964 Selected Data Protocol 9622 Transmission type	5009 255
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33644 Event timer 20 ms 33647 3. Mapped Object 0 33648 4. Mapped Object 0		33642 Transmission type	255	33646 2. Mapped Object	0
33648 4. Mapped Object 0		33644 Event timer	20 ms	33647 3. Mapped Object	0
				33648 4. Mapped Object	0

NOTE

Now the CAN communication should run. Please check the following

- the relay R01 is closed
- on the first page of the RP-3000 there is no message "CAN Fault !!"
- the code level is shown in the lock picture
- the genset picture 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 or control again all settings.

Chapter 10. Configuration

Change parameters of the easYgen-3000 Series via RP-3000

Enter password

Navigate to Parameter > Enter password

To change a parameter of the easYgen-3000 Series, the corresponding code level of the CAN communication has to be activated.

Insert the password for remote configuration.

It does not matter whether the RP-3000 is connected via CAN1 or CAN2 of the easYgen3000 Series. The code level of the corresponding interface will be activated automatically. The code level will be shown in the lock of the display of the RP-3000.

Password for remote config.	XXXX
Code level remote config.	Х
Password for CAN interface 1	XXXX
Code level CAN interface 1	Х
Password for CAN interface 2	XXXX
Code level CAN interface 2	Х
Password for serial interface1	XXXX
Code level serial interface 1	Х
Password for serial interface2	XXXX
Code level serial interface 2	Х

Now parameters with the activated code level may be changed.



NOTE

The actual code level CAN bus of the RP-3000 will be shown in the picture lock of the display of the RP-3000.

System Management RP-3000

Navigate to

Parameter > System Management

Then the link 'System management RP-3000' is shown.

System management RP-3000	->
Password system	->
Device number	001
Configure display backlight	Key activat.
Time until backlight shutdown	120min
Factory default settings	No

When you follow the link you see the internal settings of the RP-3000.

Configure CAN interface 1	->
Configure display backlight	Key activat.
Time until backlight shutdown	120min
Factory default settings	No
Password display	XXXX
Code level display	Х
Basic code level	XXXX
Commissioning code level	XXXX
Temp. commissioning code level	XXXX

Languages

The languages are activated locally in the device. There is no possibility to change the language of the easYgen-3000 Series via RP-3000.

In the RP-3000 there is no Polish language. All the other languages are the same for the two devices.

Version

In the RP-3000 there is an additional link and screen for the version of the RP-3000.

LogicsManger conditions	Next page System overview
Actual date and time	Version (easYgen)
Event history	Version (RP-3000)
	Miscellaneous

Chapter 11. Technical Data

1

	Nameplat	е			
(D	23)		
77					
A Leon	OODW ard-Reglerbau, Stut	ARD tgart Germany	C	N13246	
PART NO: 8440-1804	REV: LEAS	YGEN-3200 EN-3200-5	9-5		
U _{aux} :12/24V DC [_{1/291} :5A AC U _{cont.relags} :250V AC	I. ozr., eoz.: 1.4/0.7AD I prezes : 5A AC U prezes ::	C U _{mens} (IEC):1200 / f _N :50/60HZ I _{erc.rom} :	AC / 4800 AC U cont.dig. eput :: U(PH-GROUNI	12/240 DC)): 3000AC	
4	(5)		67	89)

S/N	Serial number (numerical)
S/N	Date of production (YYMM)
S/N	Serial number (Barcode)
P/N	Item number
REV	Item revision number
Details	Technical data
Туре	Description (long)
Туре	Description (short)
Approval	Approvals

Ambient variables		
- Power supply		
Intrinsic consumption		
- Degree of pollution		
- Altitude		max. 2000m
Discrete outputs		potential free
- Contact material		AgCdO
- General purpose (GP) (V _{cont, rel}	lays)	
	AC	
	DC	
		0.36 Adc@125 Vdc
		0.18 Adc@250 Vdc
- Pilot duty (PD) (V _{cont, relays})		
	AC	
	DC	
		0.22 Adc@125 Vdc
		0.10 Adc@250 Vdc
Interface		

RS-232 interface	galvanically isolated
- Insulation voltage (continuously)	
- Insulation test voltage (1s)	
- Version	RS-232 Standard
CAN bus interface	.galvanically isolated
- Insulation voltage (continuously)	
- Insulation test voltage (1s)	500 Vac
- Version	CAN bus
- Internal line termination	Not available

Housing	
- Туре	easYpack
- Dimensions ($W \times H \times D$)	approx. 282 × 217 × 67 mm
- Front cutout (plastic housin	$(W \times H) \dots 249 [+1.1] \times 183 [+1.0] mm$
- Wiring	screw-plug-terminals 2.5 mm ²
- Recommended locked torq	ue 4 inch pounds / 0.5 Nm
	use 60/75 °C copper wire only
	use class 1 wire only or equivalent
- Weight	approx. 1,300g
Protection	
- Protection system	plasticIP54 from front with clamp fasteners
-	IP66 from front with screw kit
	IP10 from back
- Front folio	insulating surface
- EMC test (CE)	tested according to applicable EN guidelines
- Listings	CE marking; UL listing for ordinary locations
- Type approval	UL, Ordinary Locations, File No.: 231544
NC 1	$ID (I_1 \dots I_n D_n) (I_1 \dots I_n) ADC (A \dots I_n \dots D_n \dots I_n)$

- Marine approval.....LR (Lloyds Register), ABS (American Bureau of Shipping)

Chapter 12. Environmental Data

- Frequency Range – Sine Sweep	5Hz to 100Hz
 Frequency Range - Random Power Intensity RMS Value 	10Hz to 500Hz 0.015G ² /Hz 1.04 Grms
- Stanuarus	EN 60255-21-1 (EN 60068-2-6, Fc) EN 60255-21-3
	Lloyd's Register, Vibration Test2 SAEJ1455 Chassis Data MIL-STD 810F, M514.5A, Cat.4, Truck/Trailer tracked-restrained cargo, Fig. 514.5-C1
Shock - Shock	
- Standards	EN 60255-21-2 MIL-STD 810F, M516.5, Procedure 1
Center Provide Contraction Contraction	2000 (2205) / 0000 (17/05
 Cold, Dry Heat (storage) Cold, Dry Heat (operating) Standards 	-30°C (-22°F) / 80°C (1/6°F -20°C (-4°F) / 70 °C (158°F
	IEC 60068-2-2, Test Bb and Bd IEC 60068-2-1, Test Ab and Ad
Humidity	
 Humidity Standards 	60°C, 95% RH, 5 day
	IEC 60068-2-30, Test Db
Marine Environmental Categories	PS) ENV1 ENV2 ENV2 and ENV

Appendix A. Useful Information

Suitable D-SUB Connector Housings

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 RP-3000 socket, you may replace the housing with one of the following housings:

Manufacturer: FCT (www.fctgroup.com) Type/Order No.: FKH1 FKC1G

Manufacturer: Wuerth Electronic (www.we-online.de) Type/Order No.: 618009214622 260809 41800927911

CAN Bus Pin Assignments of Third-Party Units

D-SUB DE9 Connector





Figure 12-1: CAN bus pin assignment - D-SUB DE9 connector

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
6	(GND)	Optional CAN ground
7	CAN_H	CAN Bus Signal (dominant high)
8	-	Reserved
9	(CAN_V+)	Optional external voltage supply Vcc

according to CiA DS 102

Table 12-1: CAN bus pin assignment - D-SUB DE9 connector

RJ45/8P8C Connector



Figure 12-2: CAN bus pin assignment - RJ45/8P8C connector

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

according to CiA DRP 303-1

Table 12-2: CAN bus pin assignment - RJ45/8P8C connector

IDC / Header Connector

∎9 ∎7	∎5	∎3	1
∎ ¹⁰ ∎8	∎6	∎4	2

Figure 12-3: CAN bus pin assignment - IDC / Header

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 12-3: CAN bus pin assignment - IDC / Header

Connecting 24 V Relays

Interferences in the interaction of all components may affect the function of electronic devices. One interference factor is disabling inductive loads, like coils of electromagnetic switching devices. When disabling such a device, high switch-off induces voltages may occur, which might destroy adjacent electronic devices or result interference voltage pulses, which lead to functional faults, by capacitive coupling mechanisms. Since an interference-free switch-off is not possible without additional equipment, the relay coil is connected with an interference suppressing circuit.

If 24 V (coupling) relays are used in an application, it is required to connect a protection circuit to avoid interferences. Figure 12-4 shows the exemplary connection of a diode as an interference suppressing circuit.



Figure 12-4: Interference suppressing circuit - connection

Connection diagram	Load current / voltage curve	Advantages	Disadvantages
+0		 Uncritical dimensioning Lowest possible induced voltage Very simple and reliable 	• High release delay
	$ \begin{array}{c} i \\ 0 \\ $	 Uncritical dimensioning High energy absorption Very simple setup Suitable for AC voltage Reverse polarity protected 	• No attenuation below V _{VDR}
		 HF attenuation by energy storage Immediate shut-off limiting Attenuation below limiting voltage Very suitable for AC voltage Reverse polarity protected 	• Exact dimensioning required

Advantages and disadvantages of different interference suppressing circuits are described in the following.

Table 12-4: Interference suppressing circuit for relays

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