

37413E



RP-3000 Remote Panel



Installation

Software Version: 1.xxxx

Part Numbers: 8446-1014 / 8446-1018 / 8446-1019 / 8446-1042



Manual 37413E

**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.

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Revision History

Rev.	Date	Editor	Changes
NEW	09-03-06	TE	Release
A	09-05-04	TE	Minor corrections
B	10-05-05	TE	Minor corrections
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E	11-09-14	TE	Minor corrections

Content

CHAPTER 1. GENERAL INFORMATION	6
Document Overview	6
Technical Requirements	6
Constraints compared to easYgen-3200/3500	7
CHAPTER 2. ELECTROSTATIC DISCHARGE AWARENESS	8
CHAPTER 3. MARINE USAGE	9
Application	9
CHAPTER 4. HOUSING	10
Panel Cutout	10
Dimensions	11
Clamp Fastener Installation	12
Screw Kit Installation	13
Terminal Arrangement	14
CHAPTER 5. WIRING DIAGRAMS	15
CHAPTER 6. CONNECTIONS	16
Power Supply	17
Relay Outputs	18
Interfaces	19
RS-232 Serial Interface	19
CAN Bus Interface (<i>FlexCAN</i>)	19
Bus Shielding	21
CHAPTER 7. APPLICATION	22
Connection via CAN 2	23
Connection via CAN 1	23
CHAPTER 8. OPERATION	24
CHAPTER 9. CONFIGURATION CAN	25
Connection via CAN 2 (recommended)	25
Setup parameters in Remote Panel RP-3000	25
Setup parameters in easYgen-3200/3500	27
Setup parameters via Toolkit	29
Connection via CAN 1	30
Setup parameters in Remote Panel RP-3000	30
Setup parameters in easYgen-3200/3500	32
Setup parameters via Toolkit	35

CHAPTER 10. CONFIGURATION.....	37
Change parameters of the easYgen-3000 Series via RP-3000	37
Enter password.....	37
System Management RP-3000	38
Languages	38
Version.....	39
CHAPTER 11. TECHNICAL DATA	40
CHAPTER 12. ENVIRONMENTAL DATA.....	42
APPENDIX A. USEFUL INFORMATION.....	43
Suitable D-SUB Connector Housings	43
CAN Bus Pin Assignments of Third-Party Units	43
D-SUB DE9 Connector	43
RJ45/8P8C Connector	44
IDC / Header Connector	44
Connecting 24 V Relays	45
APPENDIX B. P/N 8446-1014	46
Power Supply (P/N 8446-1014).....	46
Technical Data (P/N 8446-1014)	47

Figures and Tables

Figures

Figure 4-1: Housing - panel-board cutout	10
Figure 4-2: Housing RP-3000 - dimensions	11
Figure 4-3: Housing - drill plan	13
Figure 4-4: RP-3000 - terminal arrangement - rear view	14
Figure 5-1: Wiring diagram – overview	15
Figure 6-1: Power supply	17
Figure 6-2: Power supply - crank waveform at maximum load	17
Figure 6-3: Relay outputs	18
Figure 6-4: RS-232 interface - overview	19
Figure 6-5: CAN bus #1 - overview	19
Figure 6-6: Interfaces - CAN bus - termination	20
Figure 6-7: Interfaces - shielding	21
Figure 7-1: Application – Overview	22
Figure 7-2: Application – Connection via CAN 2	23
Figure 7-3: Application – Connection via CAN 1	23
Figure 12-1: CAN bus pin assignment - D-SUB DE9 connector	43
Figure 12-2: CAN bus pin assignment - RJ45/8P8C connector	44
Figure 12-3: CAN bus pin assignment - IDC / Header	44
Figure 12-4: Interference suppressing circuit - connection	45
Figure 12-5: Power supply	46
Figure 12-6: Power supply - crank waveform at maximum load	46

Tables

Table 1-1: Manual - overview	6
Table 4-1: Housing - panel cutout	10
Table 6-1: Conversion chart - wire size	16
Table 6-2: Power supply - terminal assignment	17
Table 6-3: Relay outputs - terminal assignment	18
Table 6-4: RS-232 interface - pin assignment	19
Table 6-5: CAN bus #1 - pin assignment	19
Table 6-6: Maximum CAN bus length	20
Table 12-1: CAN bus pin assignment - D-SUB DE9 connector	43
Table 12-2: CAN bus pin assignment - RJ45/8P8C connector	44
Table 12-3: CAN bus pin assignment - IDC / Header	44
Table 12-4: Interference suppressing circuit for relays	45
Table 12-5: Power supply - terminal assignment	46

Chapter 1.

General Information

Document Overview



Type	English	German
easYgen-3100/3200		
easYgen-3100/3200 - Installation	37468	DE37468
easYgen-3100/3200 - Configuration	37469	DE37469
easYgen-3100/3200 - Operation	37470	DE37470
easYgen-3100/3200 - Application	37471	-
easYgen-3100/3200 - Interfaces	37472	-
easYgen-3100/3200 - Parameter List	37473	DE37473
easYgen-3200 - Brief Operation Information	37399	GR37399
easYgen-3100 - Brief Operation Information	37474	-
easYgen-3400/3500		
easYgen-3400/3500 - Manual	37528	-
RP-3000		
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



RP-3000		
Supported Devices	Supported Devices	Supported Devices
easYgen-3100/3200 (Package P2 only)	easYgen-3100/3200 (Package P1 & P2)	easYgen-3400/3500 (Package P1)
Software Version	Software Version	Software Version
1.13xx	1.15xx	1.17xx or higher



NOTE

The Remote Panel RP-3000 can be used in conjunction with Woodward genset control easYgen-3200 or easYgen-3100 with software version V1.15xx and easYgen-3500 or easYgen-3400 of the easYgen-3000 Series with software version V1.17xx or higher. If your easYgen-3000 Series device is equipped with software version V1.13xx, only Package P2 devices are supported.

**NOTE**

If you are using a RP-3000 with part number 8446-1014 you must consider Appendix B on page 46, because the chapters Power Supply and Technical Data are different compared to the standard ones.

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**

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-3200/3500.

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 (software version V1.15xx or higher) or two hours (software version V1.13xx) depending on the software version. In operation the text changes also will be taken over in between 20 seconds (software version V1.15xx or higher) or two hours (software version V1.13xx), also constrained on the software version.

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.



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*.



NOTE

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 μ 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, all 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

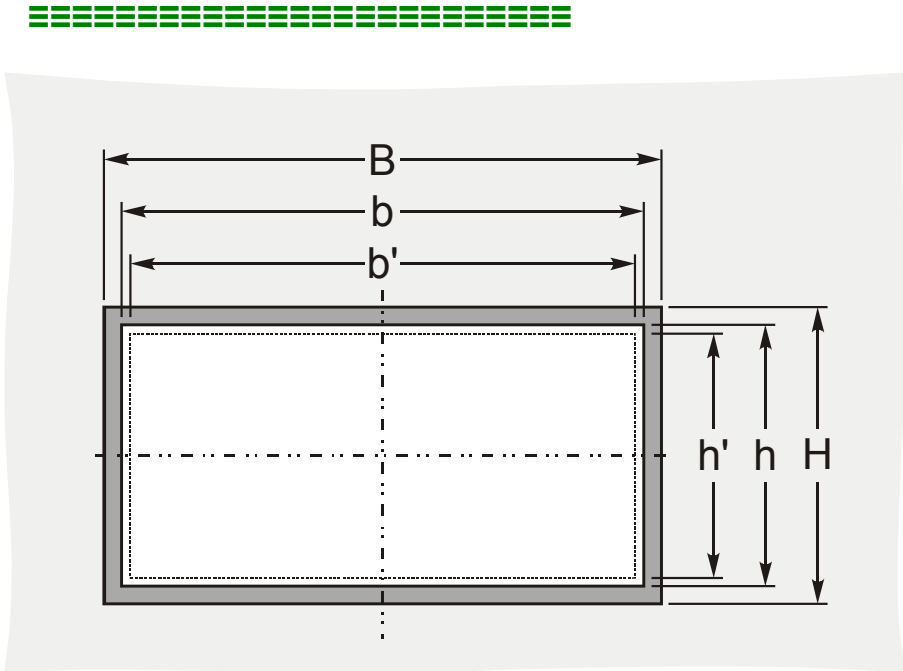


Figure 4-1: Housing - panel-board cutout

Measure	Description		Tolerance	
H	Height	Total	217 mm	---
h		Panel cutout	183 mm	+ 1.0 mm
h'		Housing dimension	181 mm	
B	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

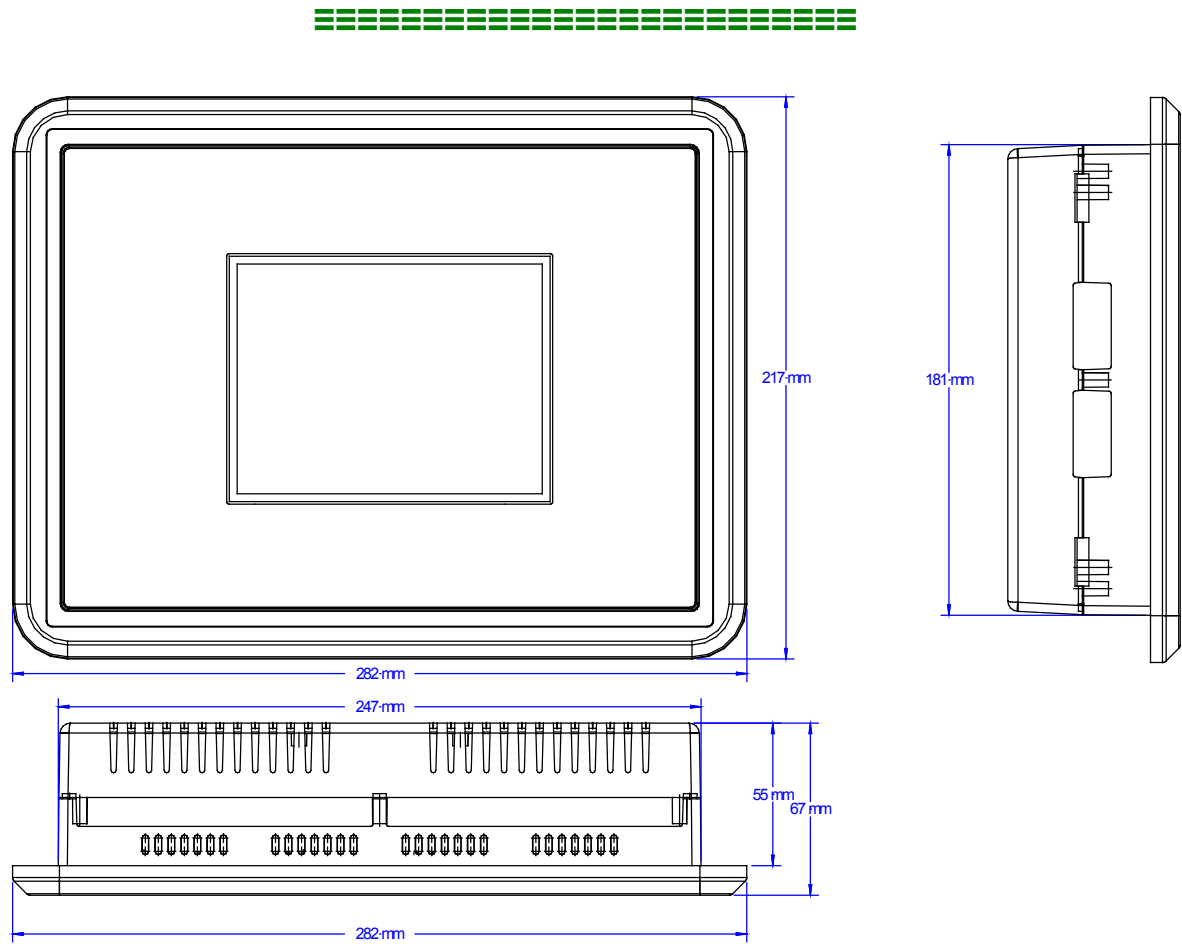


Figure 4-2: Housing RP-3000 - dimensions

Clamp Fastener Installation



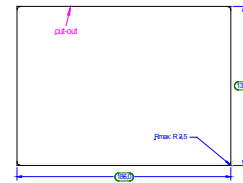
For installation into a door panel with the fastening clamps, proceed as follows:

1. Panel cutout

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

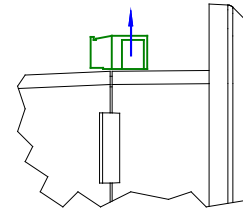
Note:

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!



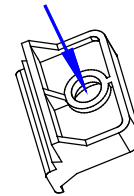
2. Remove terminals

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.

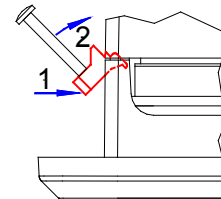


4. Insert unit into cutout

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.

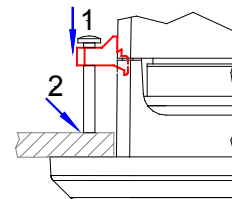
5. Attach clamp inserts

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.



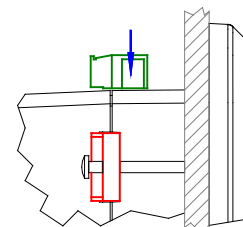
6. Tighten clamping screws

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.

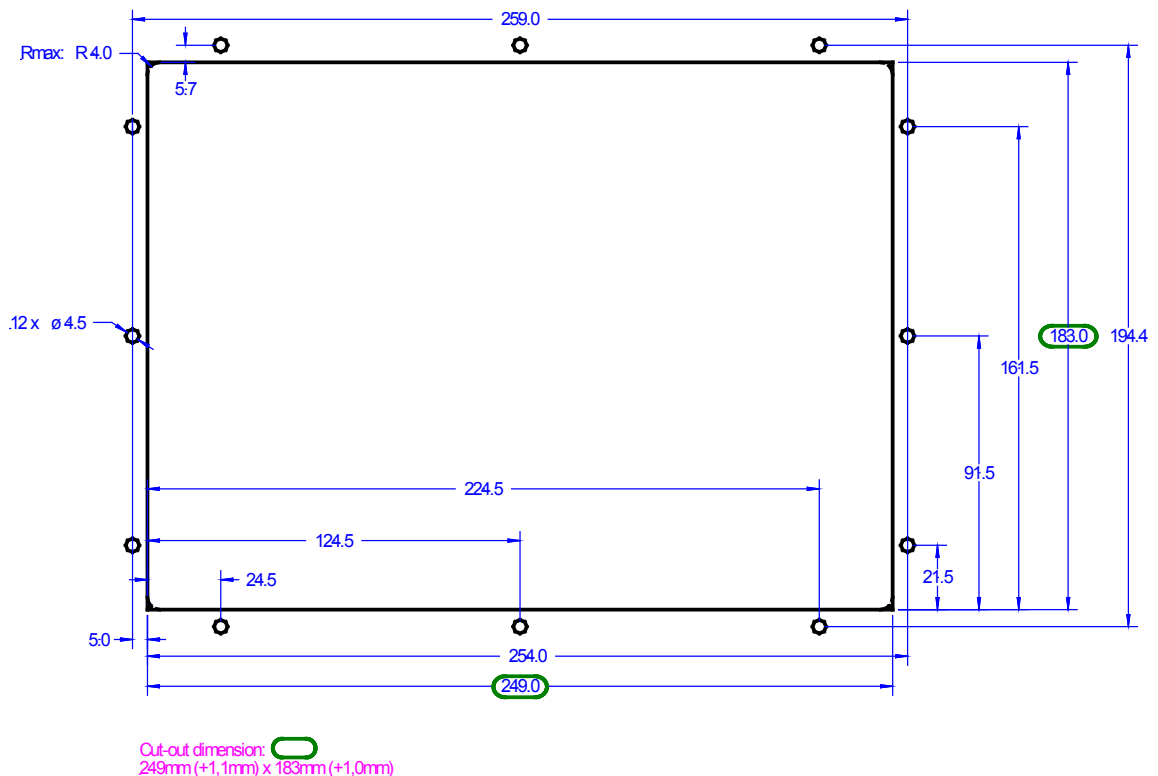


Figure 4-3: Housing - drill plan

Terminal Arrangement

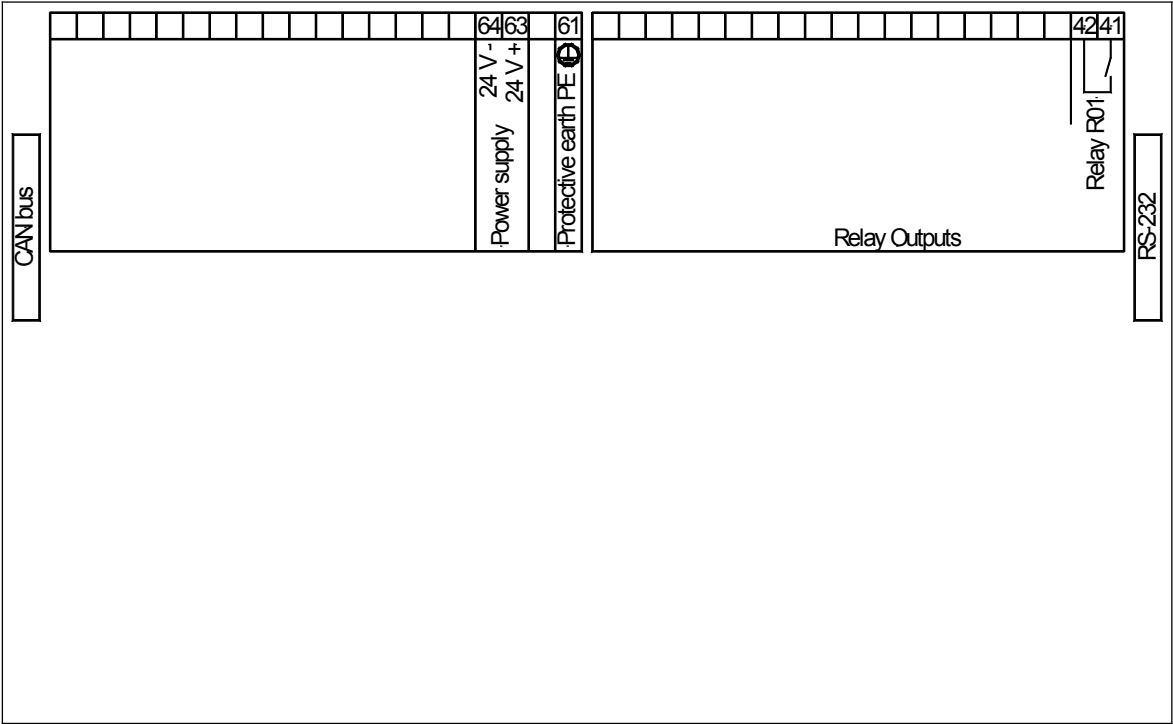


Figure 4-4: RP-3000 - terminal arrangement - rear view

Chapter 5.

Wiring Diagrams

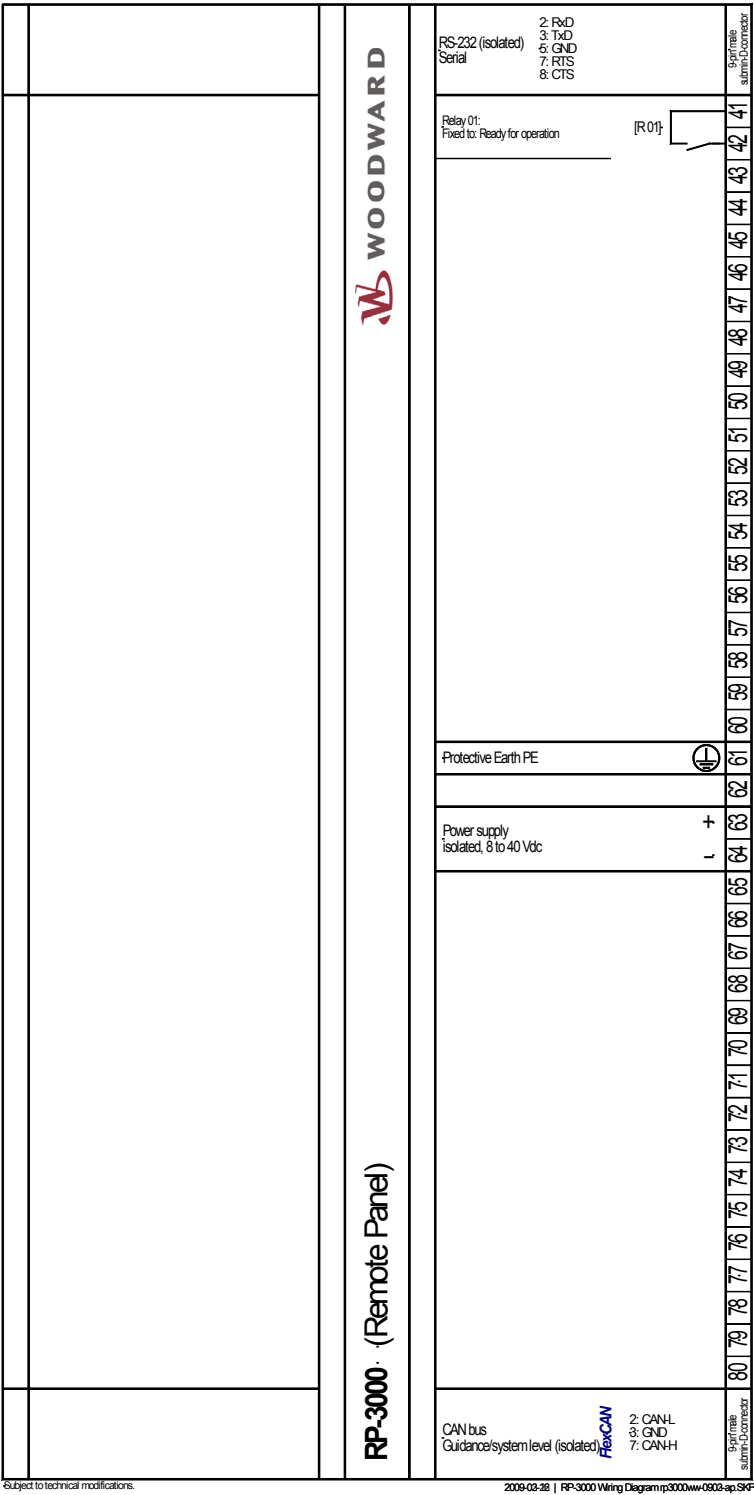


Figure 5-1: Wiring diagram – overview

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	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.

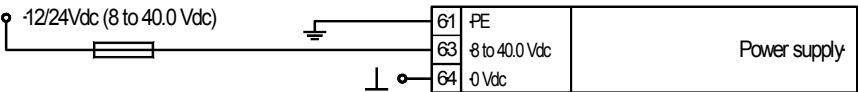


Figure 6-1: Power supply

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

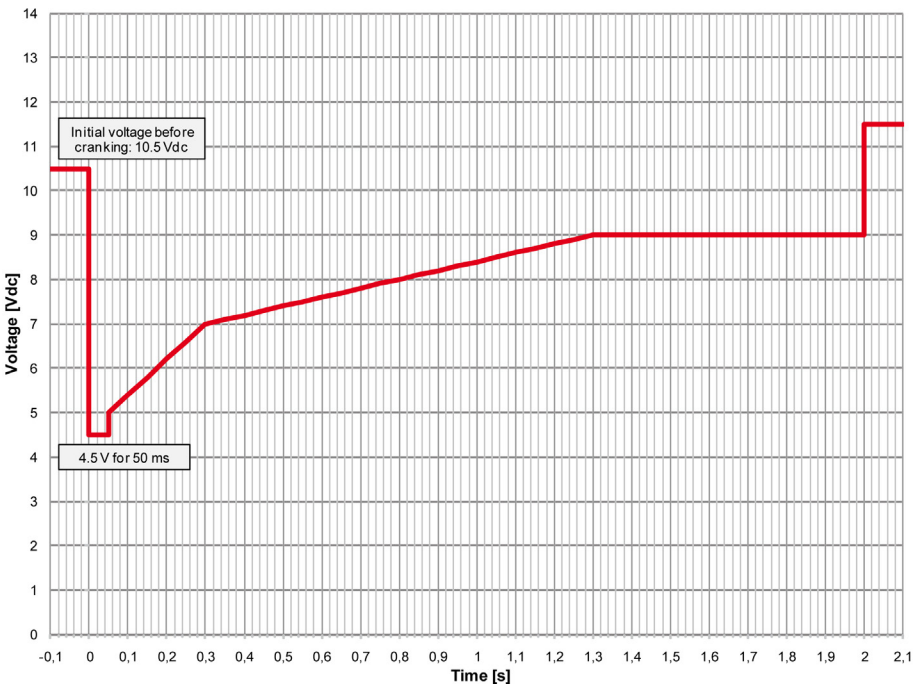


Figure 6-2: Power supply - crank waveform at maximum load



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

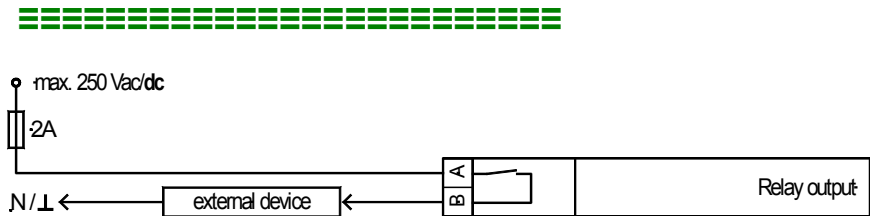


Figure 6-3: Relay outputs

Terminal		Description			A _{max}	
Term.	Com.					
A	B	Form A, N.O. make contact			Type ↕	
42	41	Relay output [R 01]	{all}	Ready for operation	N.O.	2.5 mm²

{all}-all application 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-3200/3500 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*)

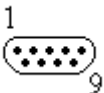


Figure 6-5: CAN bus #1 - overview

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.

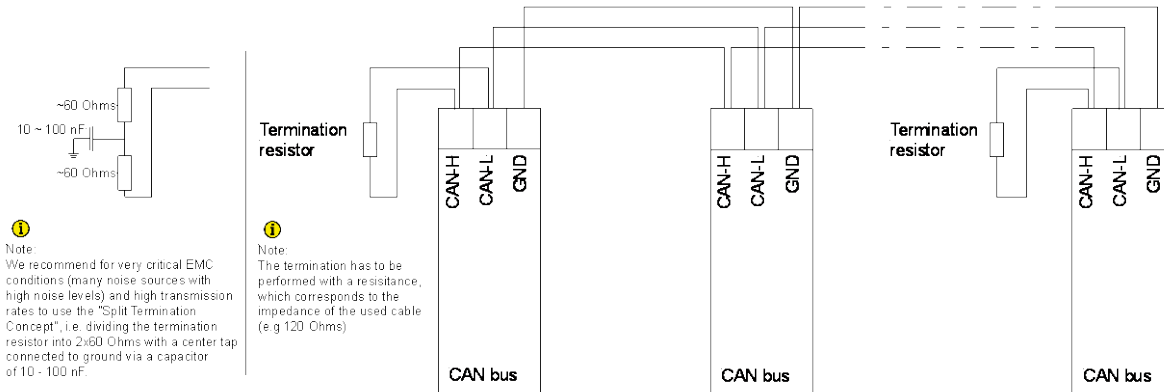


Figure 6-6: Interfaces - CAN bus - termination

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) 2x2x0.25, UNITRONIC-Bus LD 2x2x0.22).

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
250 kbit/s	250 m
125 kbit/s	500 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.

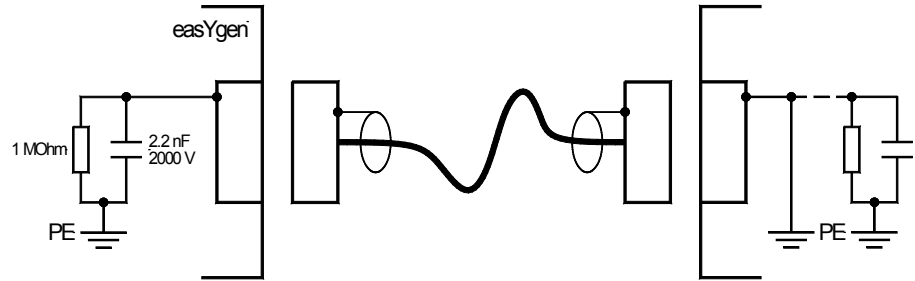


Figure 6-7: Interfaces - shielding

Chapter 7. Application

NOTE

The Remote Panel RP-3000 can be used in conjunction with Woodward genset control easYgen-3200 or easYgen-3100 with software version V1.15xx and easYgen-3500 or easYgen-3400 of the easYgen-3000 Series with software version V1.17xx or higher. If your easYgen-3000 Series device is equipped with software version V1.13xx, only Package P2 devices are supported.

The Remote Panel RP-3000 is a visualization and control interface for easYgen-3200/3500 and easYgen-3100/3400 genset controls:

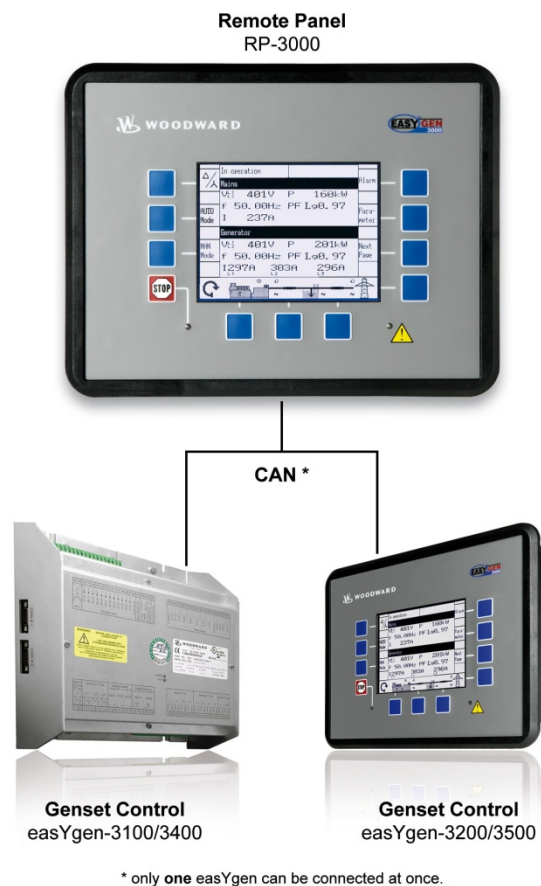


Figure 7-1: Application – Overview

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.

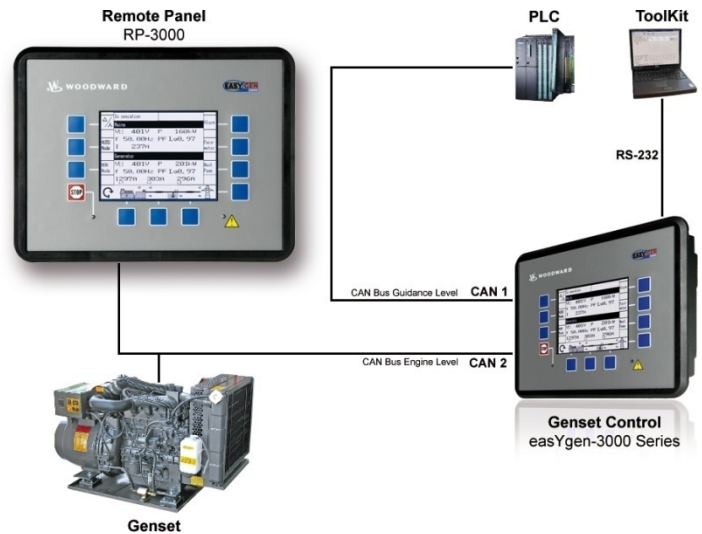


Figure 7-2: Application – Connection via CAN 2

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.

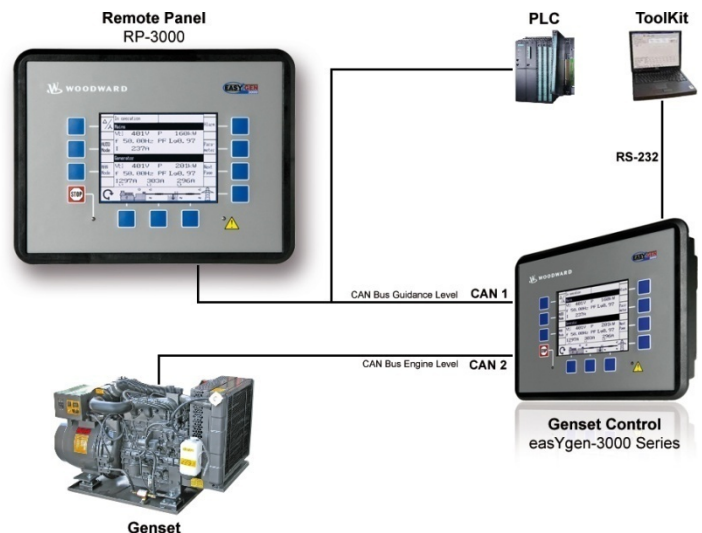



Figure 7-3: Application – Connection via CAN 1

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. Please refer for detailed information to chapter “Document Overview” on page 6.

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	x
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-3200/3500

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	->

2. NODE-IDs

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

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


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

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
RemoteDisplay	Node-ID 6
Configure external devices	No

Set 'Configure external devices' to 'Yes' to transfer the settings to the easYgen-3200/3500. Please make sure that a physical CAN connection is established.

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
RemoteDisplay	Node-ID 6
Configure external devices	Yes

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

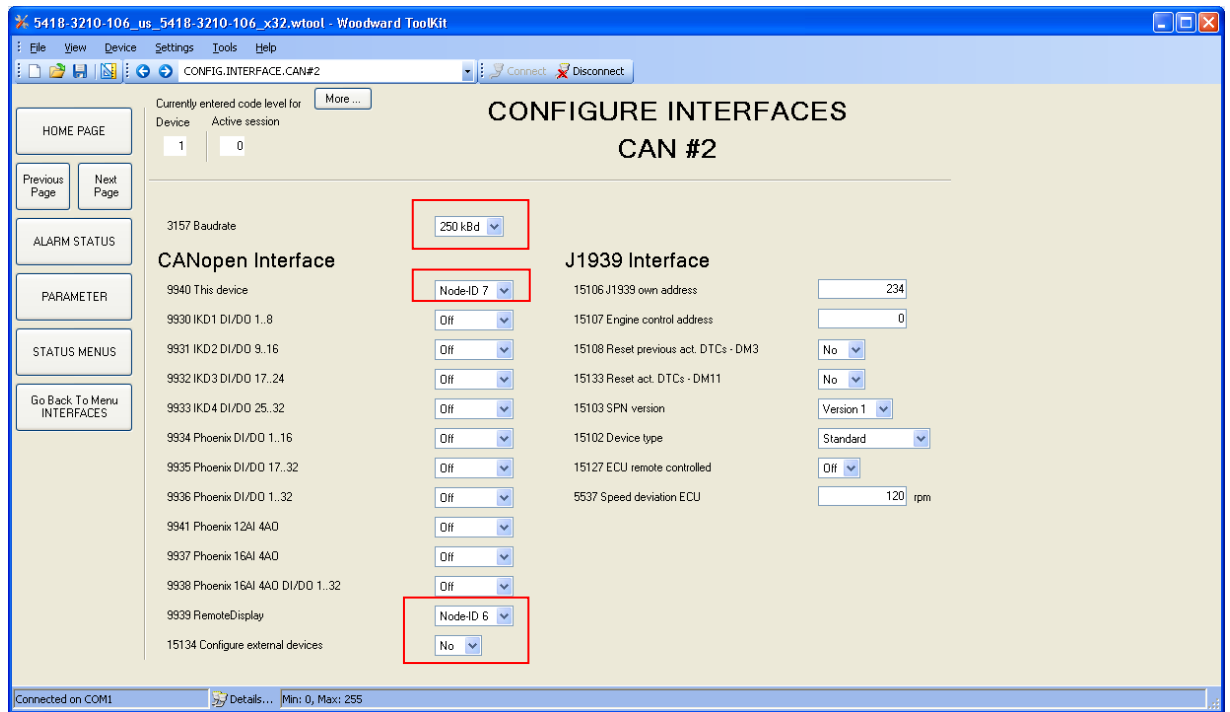
 **NOTE**
Now the CAN communication should run. Please check the following

- 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-3200/3500 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'.



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.

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	3
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“:

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-3200/3500

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



NOTE

The COB-IDs and the Node-IDs must be consistent with the easYgen-3200/3500 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-3200/3500 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

5418-3210-105_us_5418-3210-105_x32.wtool - Woodward Toolkit

File View Device Settings Tools Help

CONFIG.INTERFACE.CAN#1 (CANopen) Connect Disconnect

Currently entered code level for More ...

Device Active session

1 5

CONFIGURE INTERFACES CAN #1 (CANopen)

HOME PAGE

Previous Page Next Page

ALARM STATUS

PARAMETER

STATUS MENUS

Go Back To Menu INTERFACES

3156 Baudrate 250 kBd

8950 Node-ID CAN bus 1 1

8993 CANopen Master Default Master

9120 Producer heartbeat time 2000 ms

9100 COB-ID SYNC Message [decimal] 128

8940 Producer SYNC Message time 20 ms

9101 COB-ID TIME Message [decimal] 3221225728

Additional Server SDOs

33040 2. Node ID 0

33041 3. Node ID 0

33042 4. Node ID 0

33043 5. Node ID 0

Load share interface

9923 Load share interface CAN #1

9921 Transfer rate LS fast message 0.10 s

9920 Load share CAN-ID 5xx Hex

Connected on COM5 Details... Min: 0, Max: 65535

5418-3210-105_us_5418-3210-105_x32.wttool - Woodward ToolKit

File View Device Settings Tools Help

CONFIG.INTERFACE.CAN#1.TRANSMIT PDO

Connect Disconnect

Currently entered code level for
Device: 1 Active session: 5

CONFIGURE INTERFACES CAN #1 TRANSMIT PDO

HOME PAGE

Previous Page Next Page

ALARM STATUS

PARAMETER

STATUS MENUS

Go Back To Menu INTERFACES

Transmit PDO 1

9600 COB-ID [decimal] 385

8962 Selected Data Protocol 5003

9602 Transmission type 255

9604 Event timer 20 ms

9609 Number of Mapped Objects 0

9605 1. Mapped Object 0

9606 2. Mapped Object 0

9607 3. Mapped Object 0

9608 4. Mapped Object 0

Transmit PDO 3

9620 COB-ID [decimal] 710

8964 Selected Data Protocol 5009

9622 Transmission type 255

9624 Event timer 20 ms

9629 Number of Mapped Objects 0

9625 1. Mapped Object 0

9626 2. Mapped Object 0

9627 3. Mapped Object 0

9628 4. Mapped Object 0

Transmit PDO 2

9610 COB-ID [decimal] 454

8963 Selected Data Protocol 5008

9612 Transmission type 255

9614 Event timer 20 ms

9619 Number of Mapped Objects 0

9615 1. Mapped Object 0

9616 2. Mapped Object 0

9617 3. Mapped Object 0

9618 4. Mapped Object 0

Transmit PDO 4

9630 COB-ID [decimal] 2147483648

8965 Selected Data Protocol 0

9632 Transmission type 255

9634 Event timer 20 ms

9639 Number of Mapped Objects 0

9635 1. Mapped Object 0

9636 2. Mapped Object 0

9637 3. Mapped Object 0

9638 4. Mapped Object 0

Transmit PDO 5

33640 COB-ID [decimal] 2147483648

8966 Selected Data Protocol 0

33642 Transmission type 255

33644 Event timer 20 ms

33649 Number of Mapped Objects 0

33645 1. Mapped Object 0

33646 2. Mapped Object 0

33647 3. Mapped Object 0

33648 4. Mapped Object 0

Connected on COM5 Details... Min: 0, Max: 65535



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 easYgen-3000 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.	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 interfacer1	xxxx
Code level serial interface 1	x
Password for serial interface2	xxxx
Code level serial interface 2	x

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	x
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. The RP-3000 supports the same languages like the easYgen-3000 Series, except for Polish, which is only included in software version V1.15xx or higher.

Version

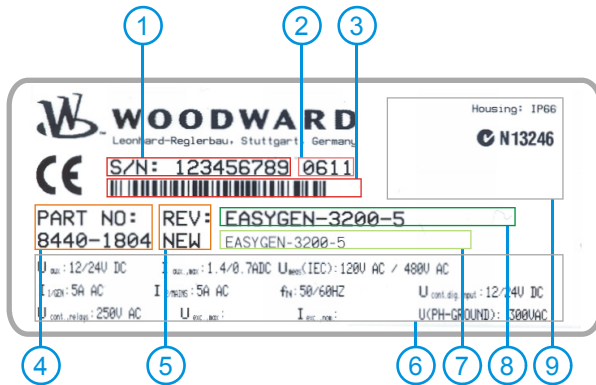


In the RP-3000 there is an additional link and screen for the version of the RP-3000.

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

Chapter 11. Technical Data

Nameplate



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

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
- Reserve voltage protection	Fully supply range
- Input capacitance	1,700 μ F
- Supply voltage can be isolated	negative potential or positive potential grounded

Discrete outputs ----- **potential free**

- Contact material	AgCdO
- General purpose (GP) ($V_{\text{cont, relays}}$)	
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) ($V_{\text{cont, relays}}$)	
AC.....	B300
DC.....	1.00 Adc@24 Vdc
	0.22 Adc@125 Vdc
	0.10 Adc@250 Vdc

Interface

RS-232 interface	isolated
- Insulation voltage (continuously)	100 Vac
- Insulation test voltage (1s)	500 Vac
- Version	RS-232 Standard
CAN bus interface	isolated
- Insulation voltage (continuously)	100 Vac
- Insulation test voltage (1s)	500 Vac
- Version	CAN bus
- Internal line termination	Not available

Housing -----

- Type easYpack
- Dimensions (W × H × D) approx. 282 × 217 × 67 mm
- Front cutout (plastic housing) (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. 1,300g

Protection -----

- Protection system plastic IP54 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
- Marine Type approval: Lloyds Register (LR)
Design Assessment: American Bureau of Shipping (ABS)

Generic note -----

- Accuracy is referred to full scale value

Chapter 12. Environmental Data

Vibration	
- Frequency Range – Sine Sweep	5Hz to 100Hz
- Acceleration	4G
- Frequency Range - Random	10Hz to 500Hz
- Power Intensity	0.015G ² /Hz
- RMS Value	1.04 Grms
- Standards	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	40G, Saw tooth pulse, 11ms
- 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	
- Lloyd's Register of Shipping (LRS)	ENV1, ENV2, ENV3 and ENV4

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

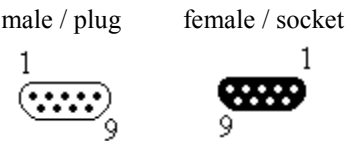


Figure 12-1: CAN bus pin assignment - D-SUB DE9 connector

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

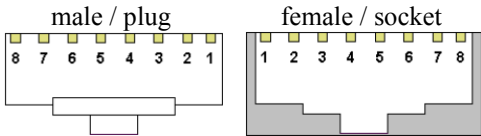


Figure 12-2: CAN bus pin assignment - RJ45/8P8C connector

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

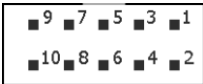


Figure 12-3: CAN bus pin assignment - IDC / Header

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.

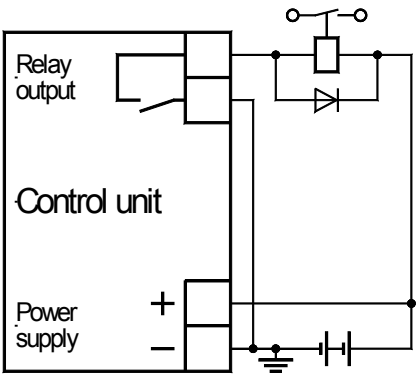


Figure 12-4: Interference suppressing circuit - connection

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

Connection diagram	Load current / voltage curve	Advantages	Disadvantages
		<ul style="list-style-type: none">• Uncritical dimensioning• Lowest possible induced voltage• Very simple and reliable	<ul style="list-style-type: none">• High release delay
		<ul style="list-style-type: none">• Uncritical dimensioning• High energy absorption• Very simple setup• Suitable for AC voltage• Reverse polarity protected	<ul style="list-style-type: none">• No attenuation below V_{VDR}
		<ul style="list-style-type: none">• HF attenuation by energy storage• Immediate shut-off limiting• Attenuation below limiting voltage• Very suitable for AC voltage• Reverse polarity protected	<ul style="list-style-type: none">• Exact dimensioning required

Table 12-4: Interference suppressing circuit for relays

Appendix B.

P/N 8446-1014



NOTE

The following chapters are only valid for RP-3000 devices with part number 8446-1014.

Power Supply (P/N 8446-1014)



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. On engines where a direct connection between Battery minus and PE is not possible, it is recommended to use an isolated external power supply if the voltage differential between Battery minus and PE exceeds 15 V.

The following isolated DC/DC Converter can be used:

- Traco Power TCL 060-124DC (CE approval only)
- Phoenix Contact QUINT-PS-24DC/24DC/10 (CE, Marine and UL approval)

For proper operation the power source shall have a current supply capability of at least 2A

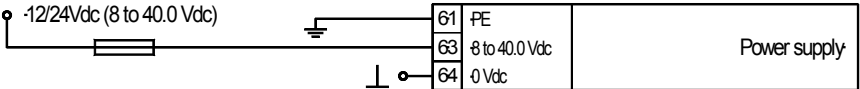


Figure 12-5: Power supply

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 12-5: Power supply - terminal assignment

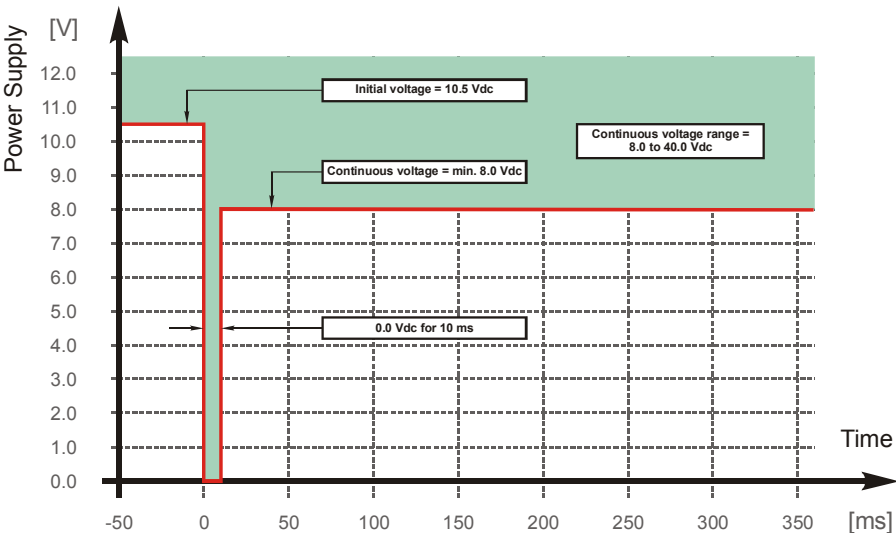


Figure 12-6: Power supply - crank waveform at maximum load



NOTE

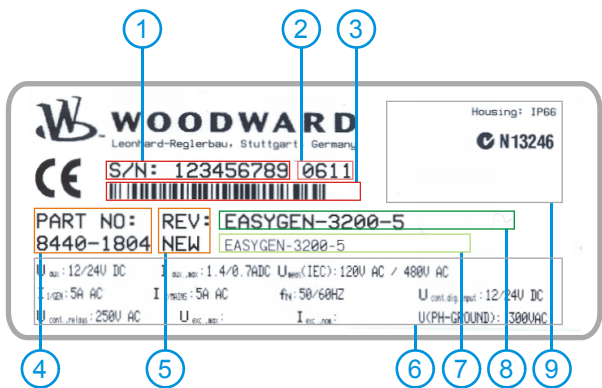
Woodward recommends to use one of the following slow-acting protective devices in the supply line to terminal 63:

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

Technical Data (P/N 8446-1014)



Nameplate -----



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

Ambient variables -----

- | | |
|-------------------------------|---------------------------|
| - Power supply | 12/24 Vdc (8 to 40.0 Vdc) |
| - Intrinsic consumption | max. 12 W |
| - Degree of pollution | 2 |
| - Maximum elevation | 2000m ASL |

Discrete outputs ----- potential free

- | | |
|---|------------------|
| - 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 |

Interface -----

- | | |
|---|-----------------|
| RS-232 interface | isolated |
| - Insulation voltage (continuously) | 100 Vac |
| - Insulation test voltage (1s) | 500 Vac |
| - Version | RS-232 Standard |
| CAN bus interface | isolated |
| - Insulation voltage (continuously) | 100 Vac |
| - Insulation test voltage (1s) | 500 Vac |
| - Version | CAN bus |
| - Internal line termination | Not available |

Housing

- | | |
|--|--|
| - Type | easyPack |
| - Dimensions (W × H × D) | approx. 282 × 217 × 67 mm |
| - Front cutout (plastic housing) (W × H) | 249 [+1.1] × 183 [+1.0] mm |
| - Wiring | screw-plug-terminals 2.5 mm ² |
| - 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. 1,300g |

Protection

- | | | |
|----------------------|---|--|
| - Protection system | plastic..... | IP54 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 / cUL, Ordinary Locations, File No.: 231544 | |
| - Marine | Type approval: Lloyds Register (LR)
Design Assessment: American Bureau of Shipping (ABS) | |

Generic note

- Accuracy is referred to full scale value

We appreciate your comments about the content of our publications.
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Please include the manual number from the front cover of this publication.



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2011/09/Stuttgart