



easYlite-100 Annunciator



Manual
Software Version 1.0006 or higher

**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	Change
NEW	10-05-05	TE	Release based on Manual 37307; External IKD mode and ToolKit support added
A	10-06-29	TE	Minor changes

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Chapter 1.

General Information



Related Documents



Type	English	German
easYlite-100		
easYlite-100 – Manual	this manual ⇨	37481 -

Table 1-1: Manual - overview

Please refer to the easYgen-1000 Series, easYgen-2000 Series or easYgen-3000 Series documentation for further information about the configuration of the easYlite-100.

All manuals can be downloaded from the Woodward Publications Server:
<http://www.woodward.com/pubs/pubpage.cfm>

Overview



The easYlite-100 annunciator is able to display warning, alarm or status messages of a Woodward genset control remotely (for example in a remote control station).

The easYlite-100 operates in two different modes (internal mode & external IKD mode) to support a wide variety of easYgen devices.

easYlite-100			
Internal mode	External IKD mode		
easYgen-1000 Series	easYgen-1000 Series	easYgen-2000 Series	easYgen-3000 Series
Software Version	Software Version		
1.0000 or higher	3.1000 or higher	1.0006 or higher	1.1500 or higher
Functions	Functions		
<ul style="list-style-type: none">Genset control status display14 programmable status display LEDs4 pre-assigned status display LEDs1 CAN bus status display LED1 power supply status display LEDCAN bus communications to genset control	<ul style="list-style-type: none">Genset control status display16 status display LEDs activated like a discrete output2 fix status display LEDs (Battery Alarm, EPS supplying load indication)1 CAN bus status display LED1 power supply status display LEDCAN bus communications to genset control		

Table 1-1: easYlite-100 - brief overview

Type designation is as follows:

easYlite	-xxx	
		Option [] no option
		Model [100] = Standard model
		Type

Examples:
easYlite-100 (standard easYlite 100)

Intended Use The unit must only be operated as described in 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.

Applications

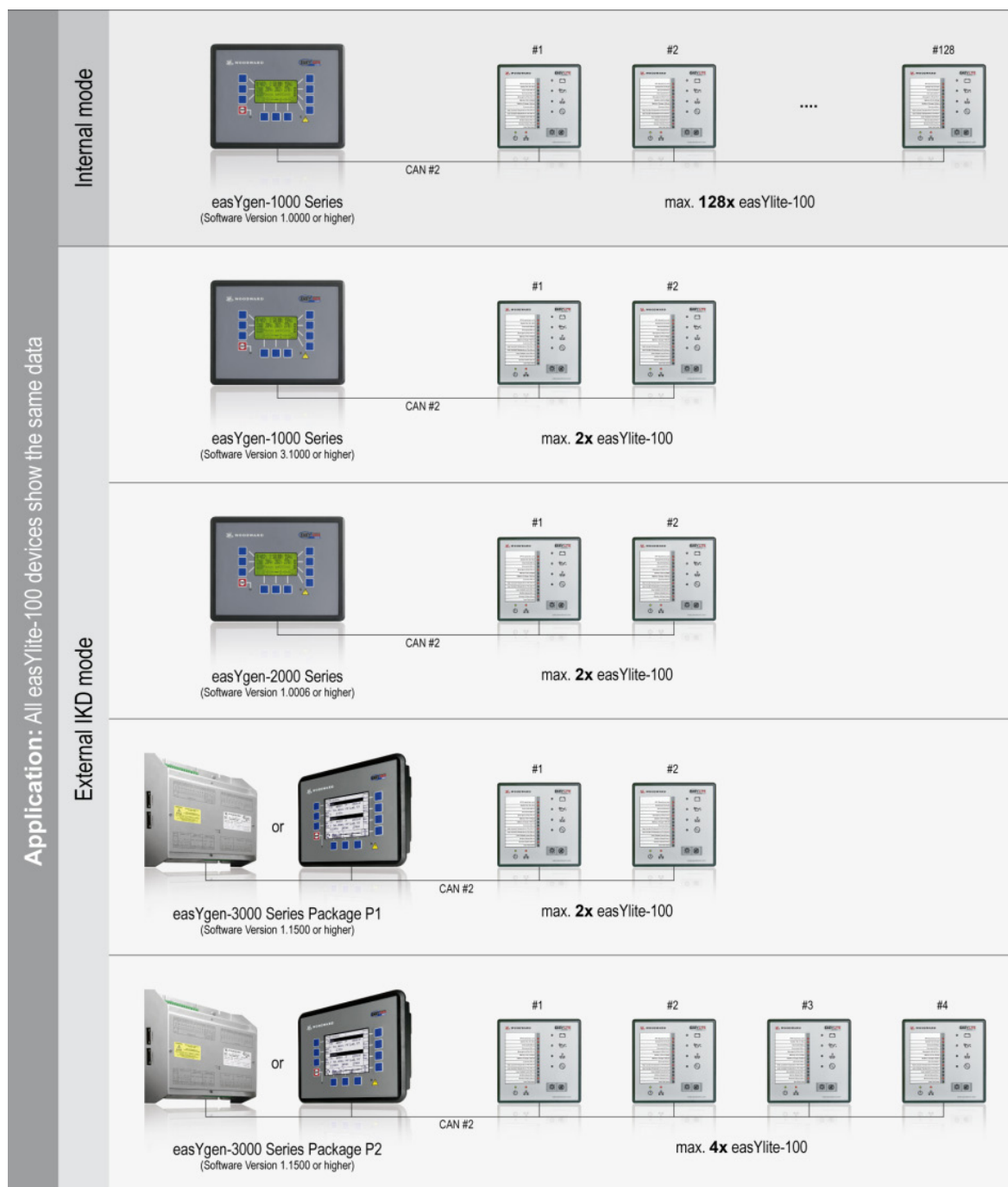











Figure 1-2: Applications overview

Expansions - External IKD mode



	easYlite-100			IKD 1			Phoenix		
									
easYgen-1000 Series	1 or 2	--	--	--	2	--	--	--	16DI / 16DO
easYgen-2000 Series	1 or 2	--	--	--	2	--	--	--	16DI / 16DO
easYgen-3000 Series Package P1	1 or 2	--	--	--	2	--	--	--	16DI / 16DO
easYgen-3000 Series Package P2	4	--	--	--	4	--	--	--	32DI / 32 DO
	3	→		3	1*	--	3	--	--
	1 or 2	→		1 or 2	2*	--	1 or 2	--	16DI / 16DO

* = can not be used as the first IKD 1.

Figure 1-3: Expansions - external IKD mode

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 performing 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 much as synthetics.
3. Keep plastic, vinyl, and Styrofoam materials (such as plastic or Styrofoam cups, cup holders, cigarette packages, cellophane wrappers, vinyl books or folders, plastic bottles, and plastic ash trays) away from the control, the modules, and the 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 de-energized (all connectors must 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 with your hands.
 - When replacing a PCB, keep the new PCB in the protective antistatic 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 protective antistatic 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*.

Chapter 3. Housing

Dimensions / Panel Cut-Out

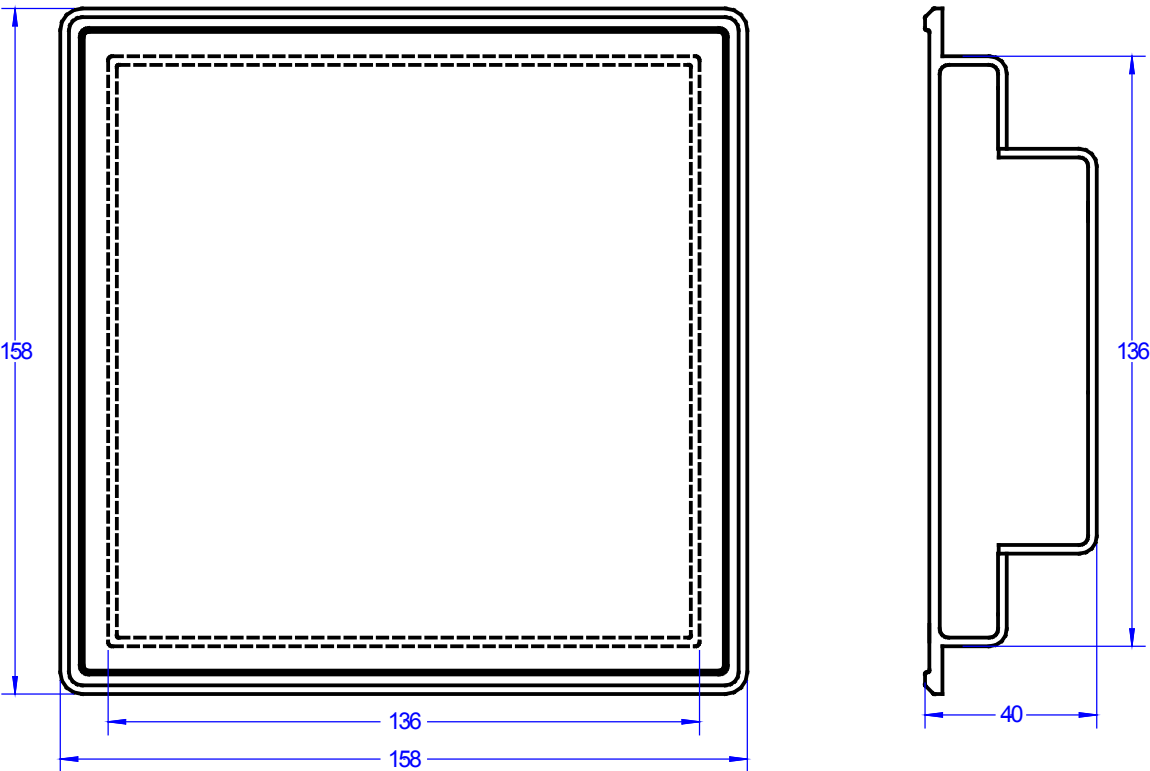


Figure 3-1: Housing - panel cut-out

Description		Dimension	Tolerance
Height	Total	158 mm	---
	Panel cut-out	138 mm	+ 1.0 mm
	Housing dimension	136 mm	
Width	Total	158 mm	---
	Panel cut-out	138 mm	+ 1.0 mm
	Housing dimension	136 mm	
Depth	Total	40 mm	---

Table 3-1: Housing - panel cut-out

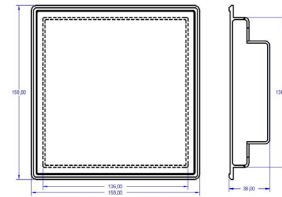
Installation



For installation into a door panel, proceed as follows:

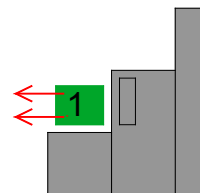
1. **Panel cut-out**

Cut out the panel according to the dimensions in Figure 3-1.



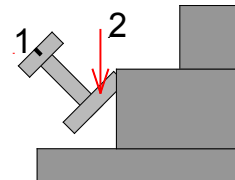
2. **Remove terminals**

Loosen the wire connection terminal screws on the back of the unit and remove the wire connection terminal strip if required (1).



3. **Loosen clamping screws**

Loosen the four clamping screws (1) until they are almost flush with the clamp inserts and tilt the clamp inserts down by 45° (2) to remove them from the housing. Do not completely remove the screws from the clamp inserts.

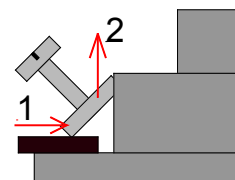


4. **Insert unit into cut-out**

Insert the unit into the panel cut-out. Verify that the unit fits correctly in the cut-out. If the panel cut-out is not big enough, enlarge it accordingly. Ensure that the gasket is placed properly if used. Ensure that the paper strip is not pinched between gasket and panel to maintain isolation.

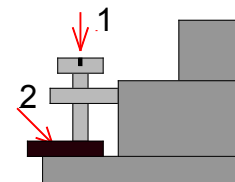
5. **Attach clamp inserts**

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. Raise the clamp insert so that it is parallel to the control panel (2).



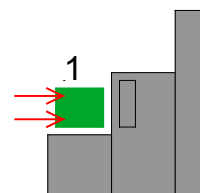
6. **Tighten clamping screws**

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.



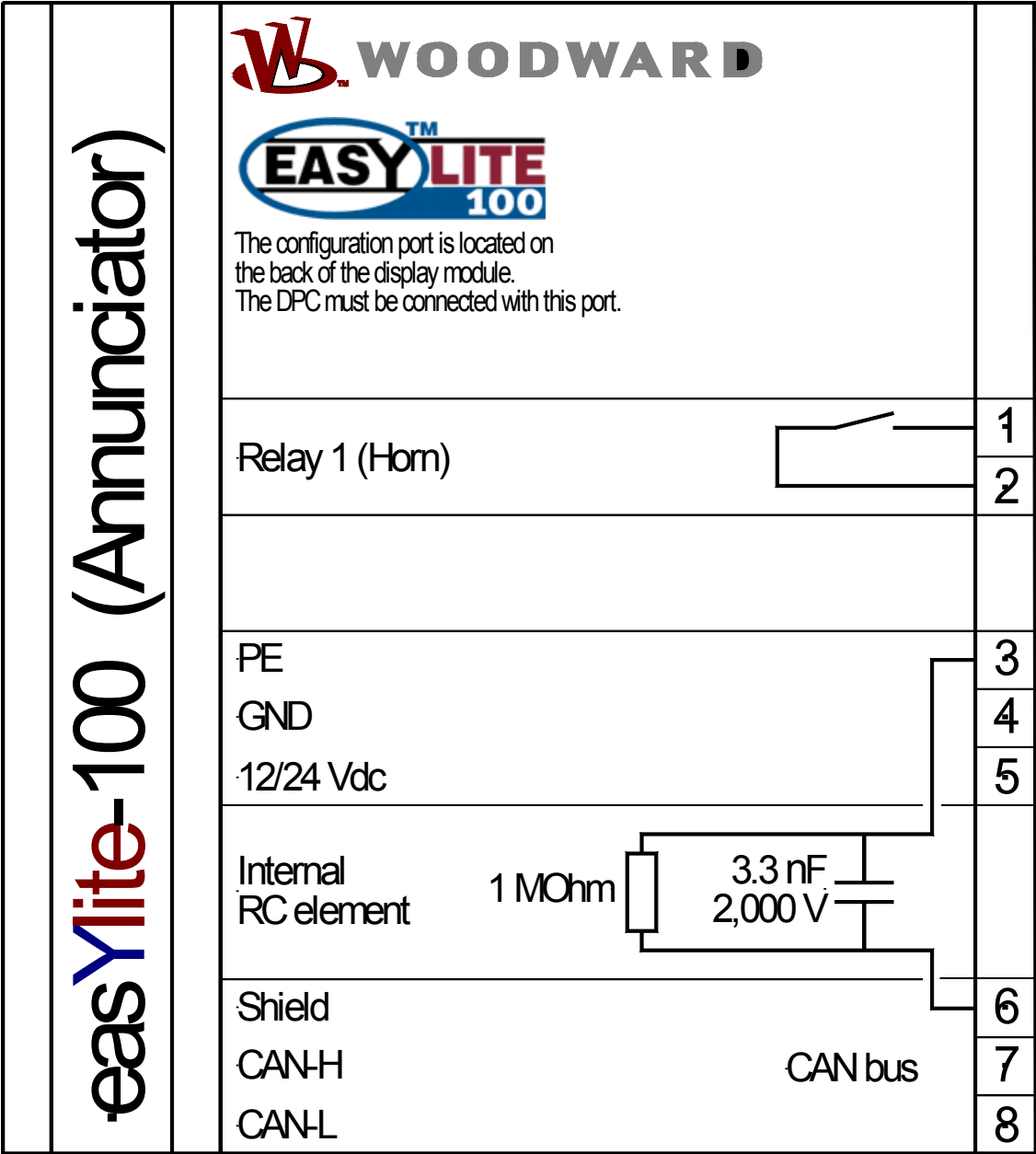
7. **Reattach terminals**

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



Note: If the gasket is damaged, it needs to be replaced. Use only the original gasket kit (P/N 3050-1057) for replacement.

Chapter 4. Wiring Diagram



Subject to technical modifications.

2005-05-09 | easYlite-100 Wiring Diagram eY1100ww-0519-ap.skf

Figure 4-1: Wiring diagram - easYlite-100

Chapter 5.

Connections



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

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

Table 5-1: Conversion chart - wire size

Terminal Arrangement

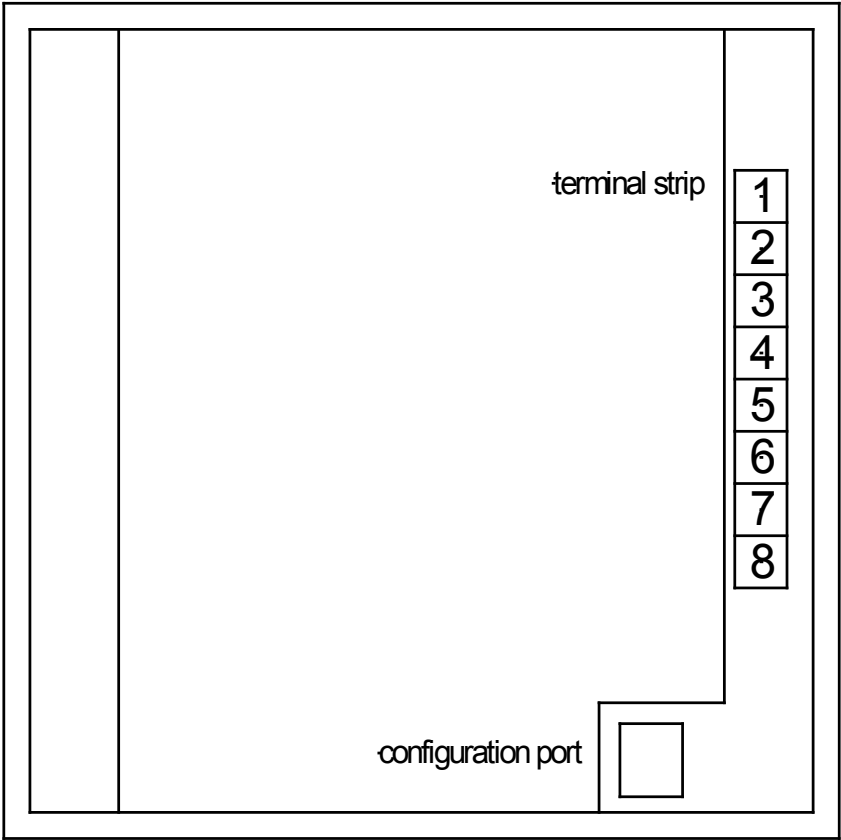


Figure 5-1: easYlite-100 back view - terminal arrangement

Power supply

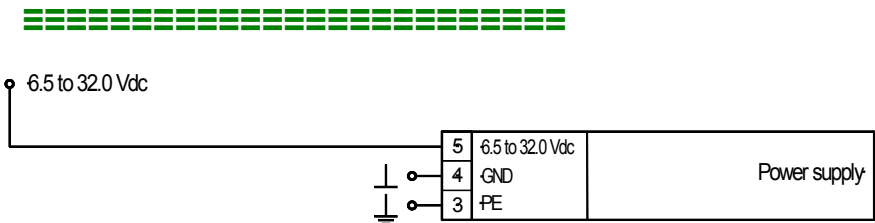


Figure 5-2: Power supply

Terminal	Description	A _{max}
5	12/24 Vdc	2.5 mm ²
4	GND (Battery B-)	2.5 mm ²
3	PE	2.5 mm ²

Table 5-2: Power supply - terminal assignment

For a proper operation of the device, a minimum initial voltage of 10.5 Vdc is necessary when switching on the easYlite-100. After this, a continuous operating voltage between 6.5 and 32.0 Vdc is possible to operate the easYlite-100 safely. The unit is capable of handling voltage drops to 0 V for a maximum of 10 ms.

Relay Output

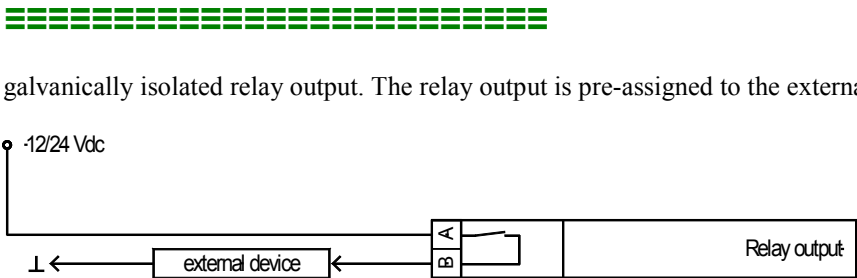


Figure 5-3: Relay outputs

Terminal Term.	Com.	Description	A _{max}
A	B		
1	2	Relay 1	2.5 mm ²

Table 5-3: Relay outputs - terminal assignment

Interfaces



Overview



Figure 5-4: Interfaces - overview

No.	Connection from ...	to ...
#1	easYlite-100 [DPC connector]	DPC
#2	DPC	PC [COM-Port]
	PIN 1 -----	PIN 4 (connect with PIN 8)
	PIN 2 -----	PIN 3
	PIN 3 -----	PIN 2
	PIN 4 -----	PIN 1
	PIN 5 -----	PIN 5
	N/A -----	N/A
	PIN 7 -----	PIN 8 (connect with PIN 4)
	PIN 8 -----	PIN 7
	PIN 9 -----	PIN 9
		Connect PIN4/8

Table 5-4: Interfaces - connection overview

CAN Bus

Wiring

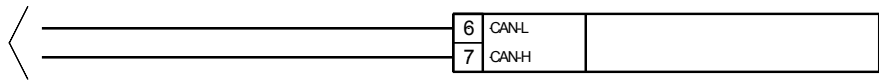


Figure 5-5: Interfaces - CAN bus

Terminal	Description	A _{max}
8	CAN bus	CAN-L 2.5 mm ²
7		CAN-H 2.5 mm ²
6		Shield 2.5 mm ²

Table 5-5: CAN bus - terminal assignment

Shielding

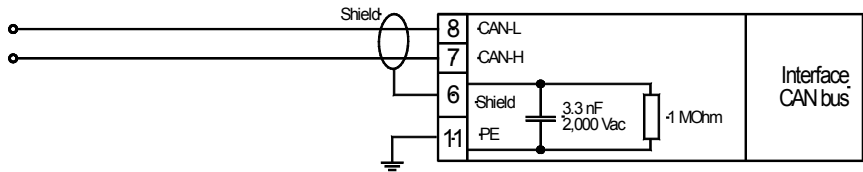


Figure 5-6: Interfaces - CAN bus - wiring of shielding

Please note that the CAN bus must be terminated at each end of the bus! Figure 5-7 is a schematic of the CAN bus with the termination resistors installed.

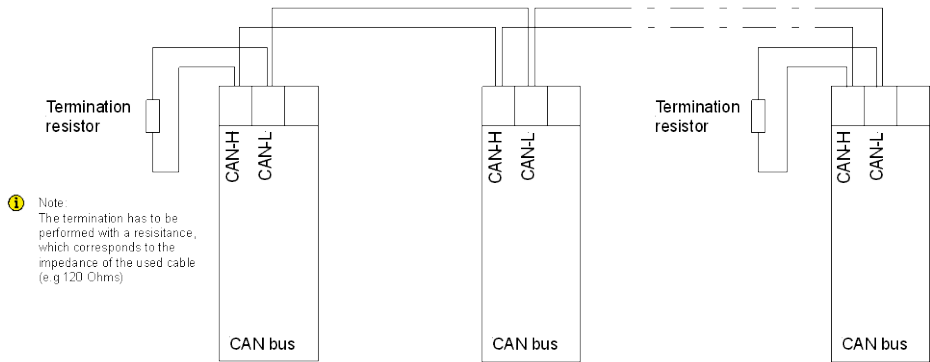


Figure 5-7: Interfaces - CAN bus - schematic wiring and termination

DPC - Direct Configuration Cable



NOTE

Please note that configuration using the direct configuration cable DPC (product number 5417-557) is possible starting with revision B of the DPC (first delivered July 2003). If you have an older model please contact our sales department.



NOTE

For a continuous operation with the direct configuration cable DPC (e.g. remote control of the easYlite-100), it is required to use at least revision F (P/N 5417-557 Rev. F) of the DPC. When using a DPC of an earlier revision, problems may occur in continuous operation. It is recommended to use an industry standard serial (RS-232) cable to connect the DPC with the laptop/PC for continuous operation. The shield connector (6.3mm tab connector) at the DPC of revision F (P/N 5417-557 Rev. F) and above must be connected to ground.

Chapter 6. Operation

Front Panel

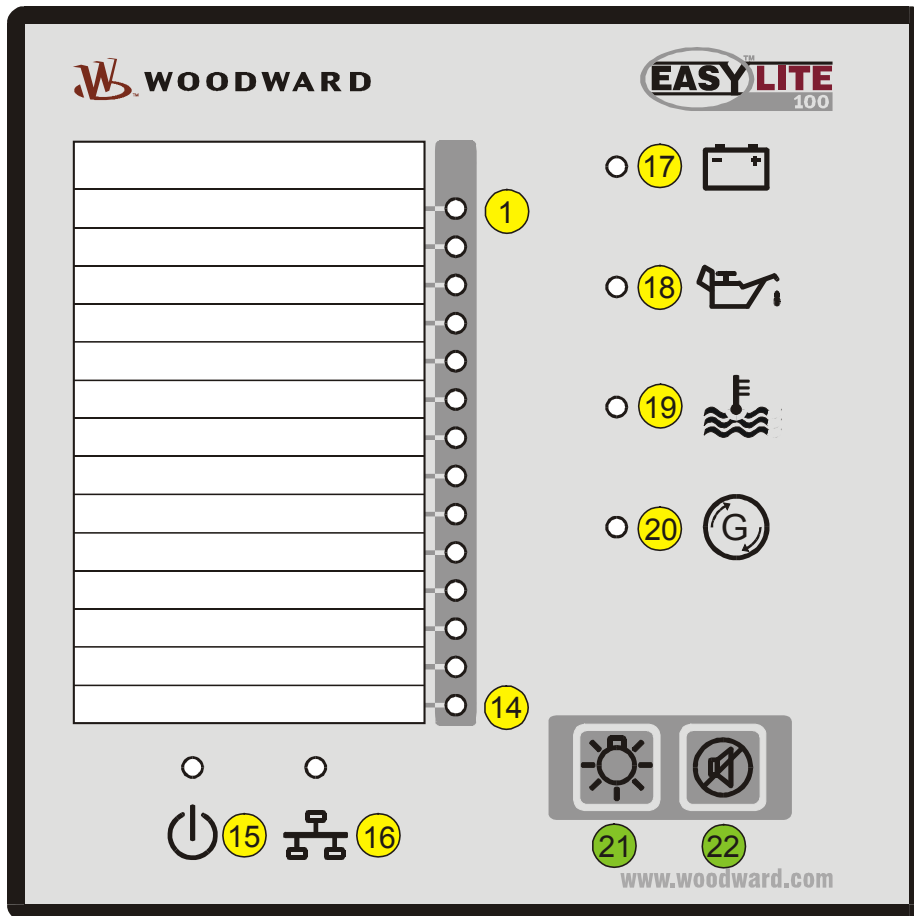


Figure 6-1: Front panel

Figure 6-1 illustrates the front panel which includes push-buttons and LEDs. A short description of the front panel is given below.

① to ②①

LEDs

The LEDs indicate operating states of the unit and alarm messages.

②① and ②②

Push-buttons

The push buttons on the front panel are assigned to fixed functions of the unit.

Operation and Display



The easYlite-100 offers two operation modes:

easYlite-100			
Internal mode		External IKD mode	
easYgen-1000 Series	easYgen-1000 Series	easYgen-2000 Series	easYgen-3000 Series
Software Version		Software Version	
1.0000 or higher	3.1000 or higher	1.0006 or higher	1.1500 or higher

Table 6-1: easYlite-100 - operation modes

The mode can be chosen by Parameter ID 5012. “easYlite LED mode” to “Internal / Ext. IKD”.

Internal mode:

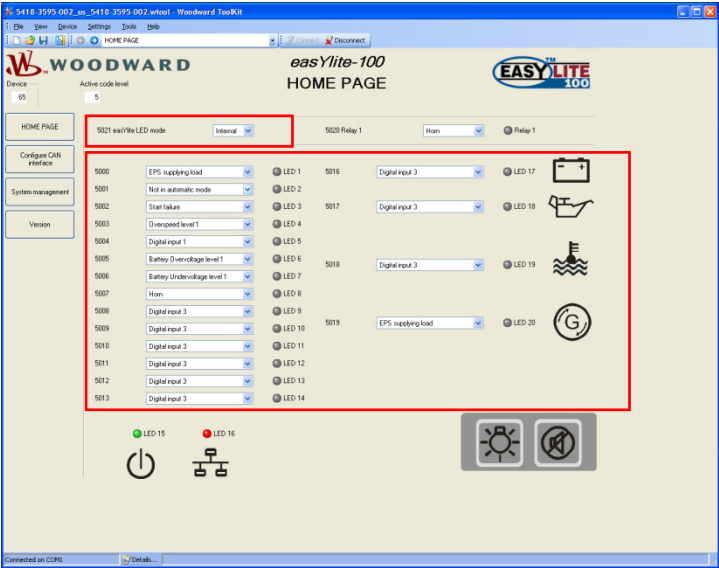


Figure 6-2: ToolKit Home Page (Internal mode)

External IKD mode:

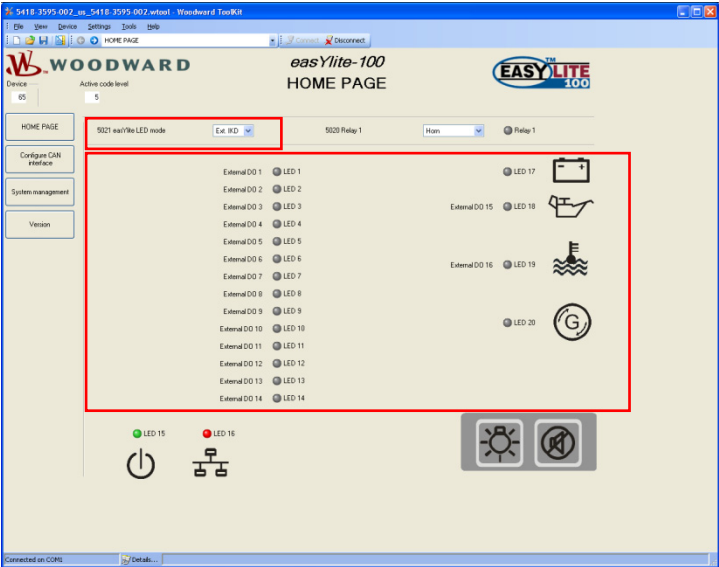


Figure 6-3: ToolKit Home Page (External IKD mode)

Internal Mode

Function of the Status LEDs

The easYlite-100 has several status LEDs to indicate the operating state. The LEDs indicate the following conditions:

- LEDs ① to ⑭: 14 configurable alarm, warning, and status LEDs (**red**), configurable in the easYlite-100.
 LED ⑮: Power LED (**green**)
 LED ⑯: CAN bus status bicolor LED (**green/red**) for indication of several CAN bus states:

Color	Mode	CANopen status	Description
green	single flash	STOPPED	CANopen bus is stopped
green	flashing	PREOPERATIONAL	CANopen bus is ready for operation
green	on	OPERATIONAL	CANopen bus is in operation, a connection to the easYlite-100 is established
red	on	Bus off	No bus connection existing
red	quad flash	No easYgen connected	Bus connection is OK, but no PDOs are received from an easYgen

Table 6-2: CAN bus status LED signals (Internal mode)

- LED ⑰: Configurable alarm LED for battery alarm (**red**)
 LED ⑱: Configurable alarm LED for oil pressure alarm (**red**)
 LED ⑲: Configurable alarm LED for coolant temperature alarm (**red**)
 LED ⑳: Configurable alarm LED for EPS supplying load indication (**red**)

Function of the Buttons

The easYlite-100 provides two buttons to operate the unit. The buttons have the following functions:

- Button ㉑: Lamp test
 Button ㉒: Horn silence

Operating the easYlite-100

- When the easYlite-100 annunciator is powered up, LED ⑮ is illuminated.
- The CAN bus status is indicated by LED ⑯.
- If a warning, an alarm or an operational state is present, which is configured to one of the LEDs ① through ⑭, or ⑰ through ⑳, the assigned LED will illuminate.
- If the horn is enabled by an alarm condition, it may be silenced with the horn silence button ㉒.
- A function test of all LEDs may be conducted by pressing the button ㉑.

Function of the Relay 1

The relay 1 output is pre-assigned to the external alarm/horn.

The reason for activating the relay 1 output is configurable.

- status of the "Horn" signal on the RPDO
- status of a CAN failure
- both

It is reset by:

- If the CAN bus is ok, the relay is reset automatically.
- As "Horn" it is reset by:
 - pressing the "acknowledge" button
 - falling edge of the "Horn" signal on the RPDO

External IKD Mode

In the External IKD mode the easYlite-100 has a behavior like an IKD terminal of Woodward. It listens to particular CAN-IDs which originally are sent for the IKD1 and the IKD2.

In this mode the LEDs and the relay output are directly driven by the easYgen genset control.

Function of the Status LEDs

The easYlite-100 has several status LEDs to indicate the operating state. The LEDs indicate the following conditions:

LEDs ① to ⑭: 14 as IKD1 relay 1 to 8 up to IKD2 relay 1 to 6 (red), configurable in the easYgen.

LED ⑮: Power LED (green)

LED ⑯: CAN bus status bicolor LED (green/red) for indication of several CAN bus states:

Color	Mode	CANopen status	Description
green	single flash	STOPPED	CANopen bus is stopped
green	flashing	PREOPERATIONAL	CANopen bus is ready for operation
green	on	OPERATIONAL	CANopen bus is in operation, a connection to the easYlite-100 is established
red	on	Bus off	No bus connection existing
red	quad flash	No easYgen connected	Bus connection is OK, but no PDOs are received from an easYgen

Table 6-3: CAN bus status LED signals (External IKD mode)

LED ⑰: Fix assigned LED for battery alarm (red)

LED ⑱: Configurable (via easYgen) LED configured as IKD2 relay 7 (red)

LED ⑲: Configurable (via easYgen) LED configured as IKD2 relay 8 (red)

LED ⑳: Fix assigned LED for EPS supplying load indication (02.01 Firing speed and 04.06 GCB is closed, please refer to configuration manual easYgen-1000, easYgen-2000 or easYgen-3000) (red)

Function of the Buttons

The easYlite-100 provides two buttons to operate the unit. The buttons have the following functions:

Button ㉑: Lamp test and IKD1 external digital input 1

Button ㉒: Horn silence (local relay) and IKD1 external digital input 2

Operating the easYlite-100

- When the easYlite-100 annunciator is powered up, LED ⑮ is illuminated.
- The CAN bus status is indicated by LED ⑯.
- If a warning, an alarm or an operational state is present, which is configured to one of the LEDs ① through ⑭, ⑱ or ⑲ the assigned LED will illuminate.
- If the horn is enabled by an alarm condition, it may be silenced with the horn silence button ㉒.
- A function test of all LEDs may be conducted by pressing the button ㉑.

Function of the Relay 1

The reason for triggering the relay 1 output is configurable.

- raising edge of the "Horn" signal on the RPDO.
- raising edge of a CAN failure (with a delay of 2 seconds)
- both

It needs to be reset by:

- pressing the "acknowledge" button
- falling edge of the "Horn" signal on the RPDO

Chapter 7.

Functional Description

Overview



The easYlite-100 annunciator is able to display warning, alarm or status messages of a Woodward genset control remotely (for example in a remote control station).

easYlite-100			
Internal mode	External IKD mode		
easYgen-1000 Series	easYgen-1000 Series	easYgen-2000 Series	easYgen-3000 Series
Software Version	Software Version		
1.0000 or higher	3.1000 or higher	1.0006 or higher	1.1500 or higher
Number of devices	Number of devices		
128	2	2	2/4* ¹

Table 7-1: easYlite-100 - functional description

In Internal mode up to 128 easYlites-100 can be connected to one genset control via a CAN bus. All genset control messages are transmitted permanently to the easYlite-100 via CANopen. One easYlite-100 is able to display 18 different warning, alarm or status messages using freely configurable LEDs.

In External IKD mode

- up to 2 easYlite-100 can be connected to an easYgen-1000 (Software Version 3.1000 or higher)
 - up to 2 easYlite-100 can be connected to an easYgen-2000 (Software Version 1.0006 or higher)
 - up to 4 easYlite-100 can be connected to an easYgen-3000 (Software Version 1.1500 or higher)
- via CAN bus.

Furthermore, the easYlite-100 allows to connect a signaling device like a horn via relay 1. The signaling device indicates an alarm issue at the genset and/or a failure of the CAN connection between easYlite-100 and genset control.

Issuing a warning, alarm or status message at the genset control enables the horn bit of the genset control. If the horn bit is assigned to a relay, this relay will be energized when such a message is issued. The relay 1 of the easYlite-100 will also be energized if this is configured to "Horn" or "CAN fail or horn".

*¹ 2: easYgen-3000 Series Package P1; 4: easYgen-3000 Series Package P2

LED Test



A test of the easYlite-100 LEDs may be performed by pressing button 21. All LEDs must be illuminated in the color indicated on page 20 (Internal mode) & 21 (External IKD mode) while this button is pressed. The bicolor CAN bus status LED 16 must be illuminated yellow (green + red) when it is functioning correctly. The functionality of this button is always enabled.



NOTE

In External IKD mode the button 21 is interpreted as external digital input 1 by the easYgen.

Silencing the Horn



If a warning, alarm or status message has enabled the horn, this can be silenced by pressing button 22. This disables only the horn bit of the genset control and, if configured, relay 1. A complete acknowledgement of the alarm can only be performed on the genset control. CAN failures, which may result the energizing of relay 1 if configured so, cannot be silenced.



NOTE

In External IKD mode the button 22 is interpreted as external digital input 2 by the easYgen.

Function of the Pre-Assigned LEDs (Internal mode only)



When the easYlite-100 is configured to internal mode, four LEDs are pre-assigned. These LEDs must be configured correctly to indicate the intended warning, alarm or status message, which is transmitted from the connected easYgen genset control via the CAN bus. It is not possible to use general standard values since the configuration depends on the individual wiring of the genset control. Therefore, the LEDs have to be configured to the respective discrete or analog inputs of the connected easYgen using ToolKit when commissioning the annunciator.

If the oil pressure sensor is connected to discrete input 3 (refer to Figure 7-1) at the genset control for example, the parameter "Displayed alarm LED18" (LED 18 with oil pressure icon on the front panel, refer to Figure 6-1) must be configured to "Digital input 3" in ToolKit (refer to Figure 7-2).

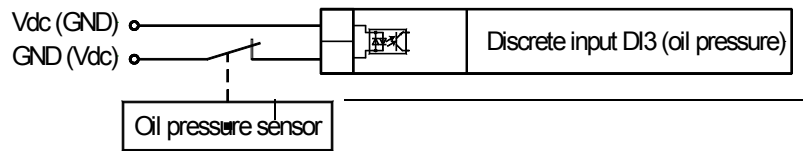


Figure 7-1: Discrete input for oil pressure sensor

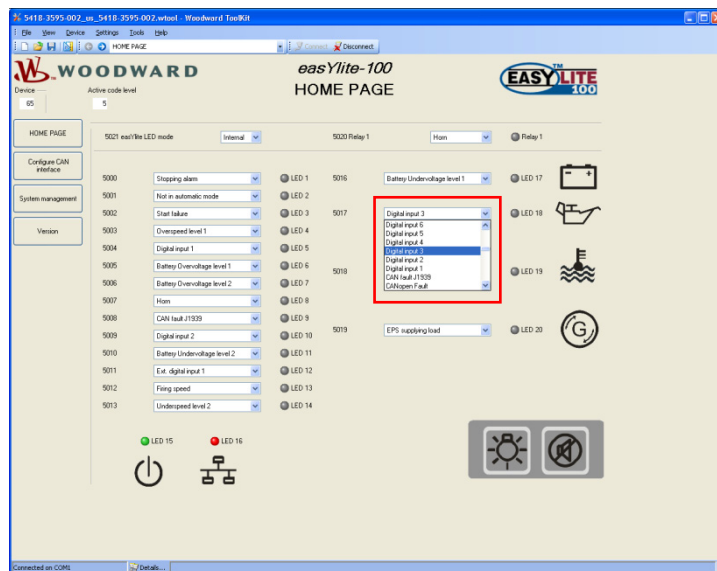


Figure 7-2: LED configuration in ToolKit (Internal mode)

The alarm message indications for battery (LED 17), coolant temperature (LED 19), and EPS supplying load (LED 20) must be configured accordingly.

Chapter 8.

Configuration easYlite-100

Configuration Via PC



Install ToolKit Configuration and Visualization Software



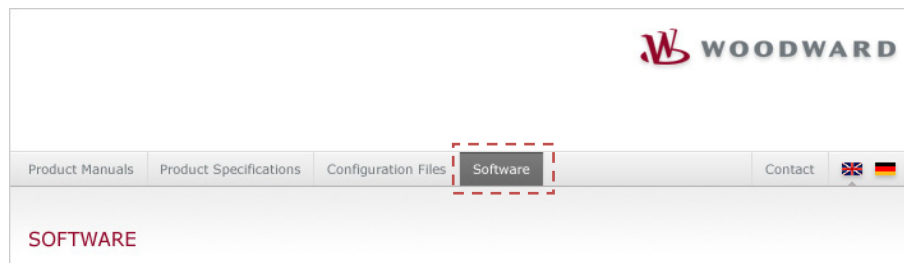
NOTE

Woodward's ToolKit software is required to configure the unit via PC.

ToolKit Version 3.4.1 or higher

Install ToolKit Software

1. Please insert the enclosed Product CD in the CD-ROM drive of your computer
2. The CD is going to start automatically (autostart function needs to be activated)
3. Please go to the section "Software" and follow the instructions described there



Alternatively ToolKit can be downloaded from our Website. Please proceed as follows:

1. Go to <http://www.woodward.com/software>
2. Select ToolKit in the list and click the "Go" button
3. Click "More Info" to get further information about ToolKit
4. Choose the preferred software version and click "Download"
5. Now you need to login with your e-mail address or register first
6. The download will start immediately

Minimum system requirements for ToolKit:

- Microsoft Windows® 7, Vista, XP (32- & 64-bit)
- Microsoft .NET Framework Ver. 3.5
- 600 MHz Pentium® CPU
- 96 MB of RAM
- Minimum 800 by 600 pixel screen with 256 colors
- Serial Port
- CD-ROM drive

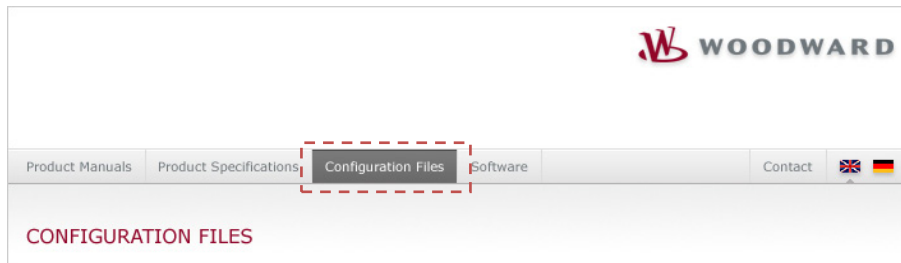


NOTE

Microsoft .NET Framework 3.5 must be installed on your computer to be able to install ToolKit. If not already installed, Microsoft .NET Framework 3.5 will be installed automatically. You must be connected to the internet for this. Alternatively you can use the .NET Framework 3.5 installer which can be found on the Product CD.

Install ToolKit Configuration Files

1. Please insert the enclosed Product CD in the CD-ROM drive of your computer
2. The CD is going to start automatically (autostart function needs to be activated)
3. Please go to the section “Configuration Files” and follow the instructions described there



Alternatively ToolKit configuration files can be downloaded from our Website. Please proceed as follows:

1. Go to <http://www.woodward.com/software/configfiles/>
2. Please insert the part number (P/N) and revision of your device into the corresponding fields
3. Select ToolKit in the application type list
4. Click “Search”



NOTE

ToolKit is using the following files:

*.WTOOL

File name composition: [P/N1]-[Revision]_[Language ID]_[P/N2]-[Revision]_[# of visualized gens].WTOOL

Example file name: 8440-1234-NEW_US_5418-1234-NEW.WTOOL

Content of the file: Display screens and pages for online configuration, which are associated with the respective *.SID file

*.SID

File name composition: [P/N2]-[Revision].SID

Example file name: 5418-1234-NEW.SID

Content of the file: All display and configuration parameters available in ToolKit

*.WSET

File name composition: [user defined].WSET

Example file name: easYgen_settings.WSET

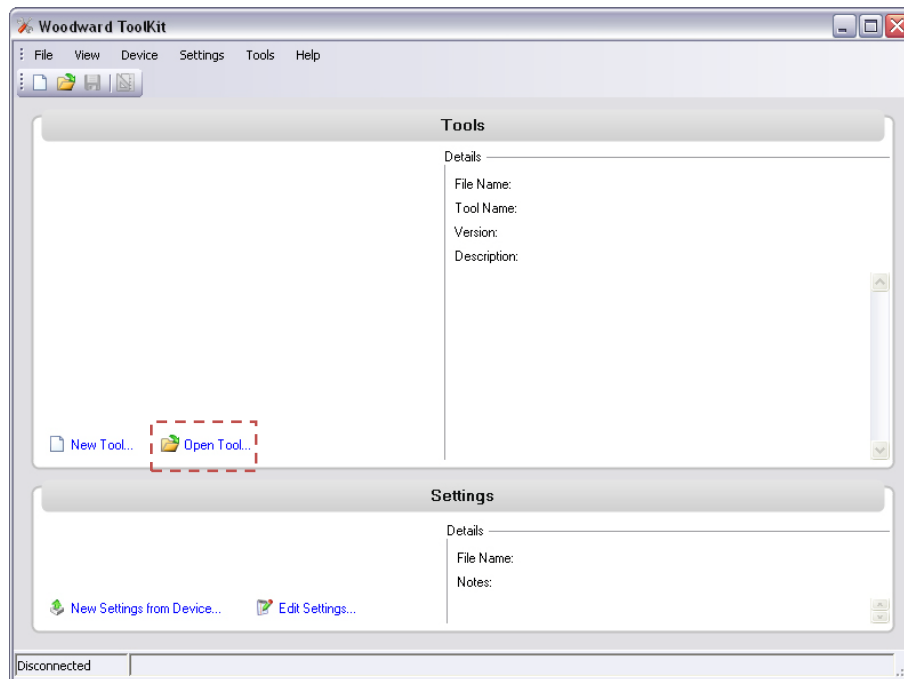
Content of the file: Default settings of the ToolKit configuration parameters provided by the SID file or user-defined settings read out of the unit.

*¹ P/N1 = Part number of the unit

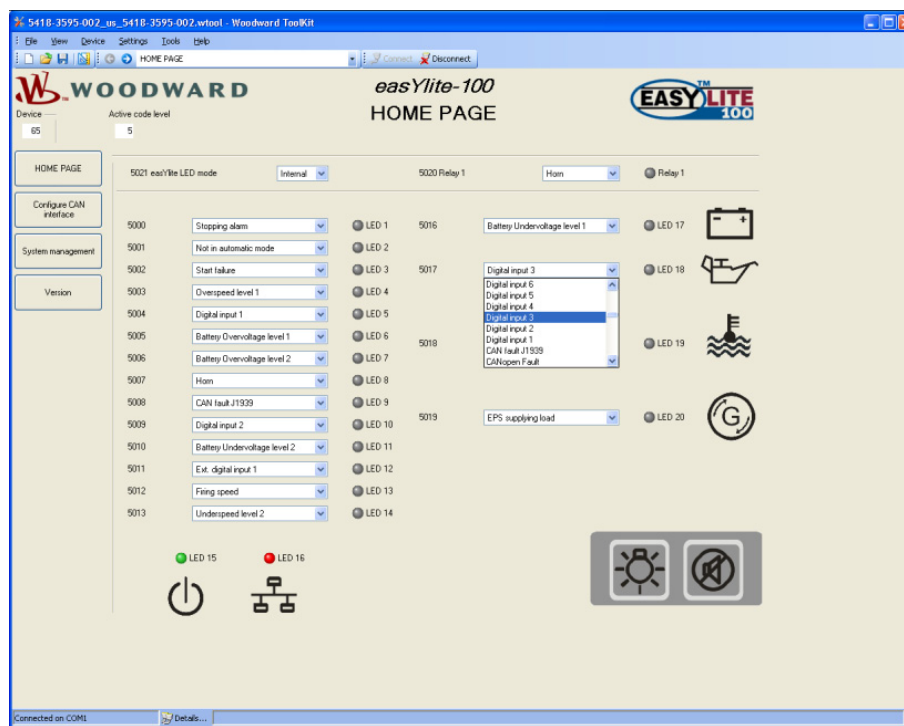
*² P/N2 = Part number of the software in the unit

Starting ToolKit Software

1. Start ToolKit via Windows Start menu -> Programs -> Woodward -> ToolKit 3.x
2. Please press the button “Open Tool”



3. Go to the “Application” folder and open then the folder equal to the part number (P/N) of your device (e.g. 8440-1234). Select the wtool file (e.g. 8440-1234-NEW_US_5418-1234-NEW.wtool) and click “Open” to start the configuration file
4. Now the home page of the ToolKit configuration screen appears

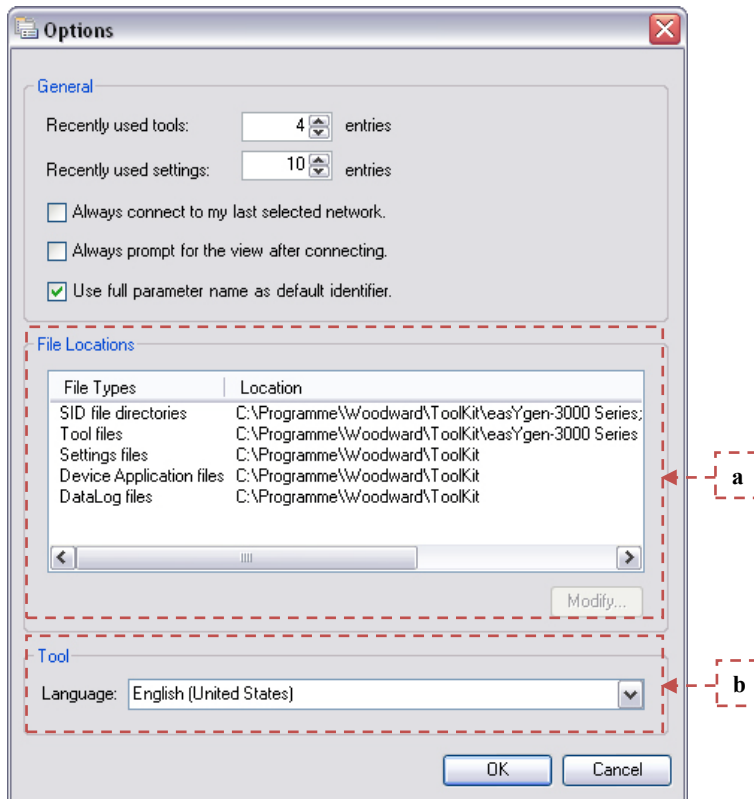


Configure ToolKit Software

1. Start the configuration by using the toolbar. Please go to Tools -> Options



2. The options window will be displayed



- a. Adjust the default locations of the configuration files
 - b. The displayed language can be selected here
3. The changes become effective after clicking "OK"





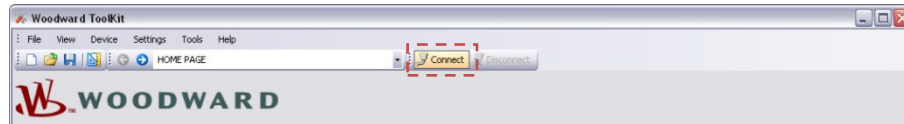
NOTE

Please use the ToolKit online help for further information.

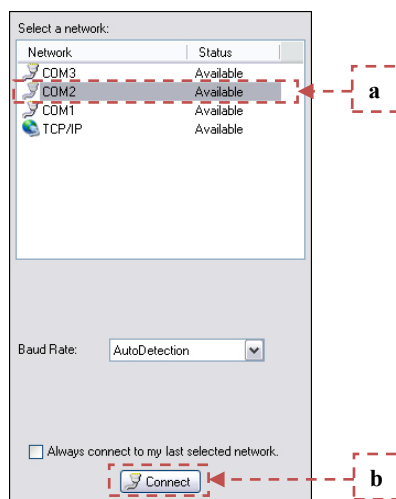
Connect ToolKit and the easYlite-100 Unit

For configuration of the unit via ToolKit please proceed as follows:

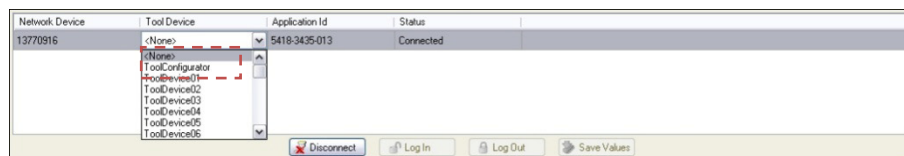
1. Connect the null modem communications cable between your PC and the control unit. Plug the null modem cable into the RS-232 serial port on unit and the other side to a serial COM port of the PC. If the PC does not have a serial port to connect the null modem cable to, use a USB to serial adapter.
2. Open ToolKit via Windows Start menu -> Programs -> Woodward -> ToolKit 3.x
3. From the main ToolKit window, click File then select "Open Tool"..., or click the Open Tool icon  on the tool bar.
4. Locate and select the desired tool file (*.WTOOL) in the ToolKit data file directory and click Open.
5. From the main ToolKit window, click Device then click "Connect", or select the Connect icon  on the toolbar.



6. The connect dialog window will open if the option is enabled.



- a. Select the COM port that is connected to the communication cable.
 - b. Click the "Connect" button.
7. The identifier of the device that ToolKit is connected to, will display in the status bar.
 8. If the Communications window opens, select "ToolConfigurator" under Tool Device and close the Communications window.



9. If the device is security enabled, the Login dialog will appear.
10. Now you are able to edit the easYgen parameters in the main window. Any changes made are written to the control memory automatically.

**NOTE**

Depending on the computer used and the installed operation system, problems with the communication via an infrared connection may occur.

**NOTE**

If your computer is equipped with a Bluetooth interface please deactivate it temporarily in the Windows system control menu in the case that ToolKit is freezing building up a connection.

**NOTE**

For a continuous operation with the direct configuration cable DPC (e.g. remote control of the easYlite-100), it is required to use at least revision F (P/N 5417-557 Rev. F) of the DPC. When using a DPC of an earlier revision, problems may occur in continuous operation. It is recommended to use an industry standard serial (RS-232) cable to connect the DPC with the laptop/PC for continuous operation. The shield connector (6.3mm tab connector) at the DPC of revision F (P/N 5417-557 Rev. F) and above must be connected to ground.

View easYlite-100 Data with ToolKit

The following figure shows an example visualization screen of ToolKit:

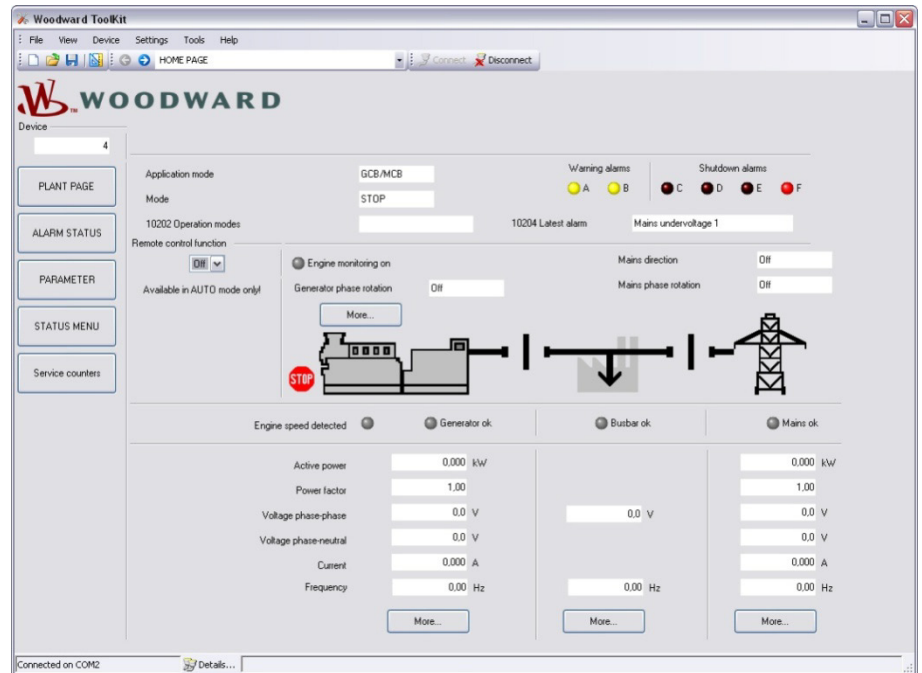


Figure 8-1: ToolKit - visualization screen

Navigation through the various visualization and configuration screens is performed by clicking on the and icons, by selecting a navigation button (e.g.), or by selecting a screen from the drop-down list to the right of the arrow icons.

It is possible to view a trend chart of up to eight values with the trending tool utility of ToolKit. The following figure shows a trending screen of the measured battery voltage value:

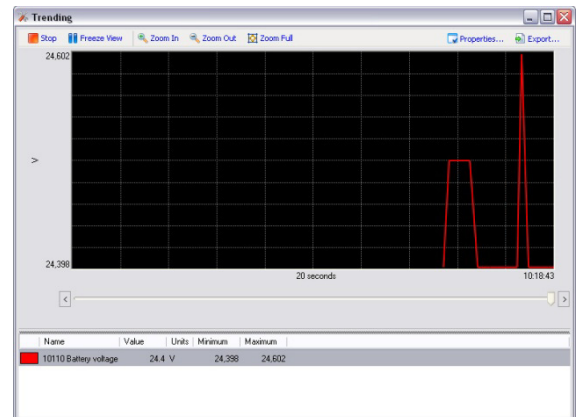


Figure 8-2: ToolKit - analog value trending screen

Each visualization screen provides for trending of monitored values by right-clicking on a value and selecting the "Add to trend" function. Trending is initiated by clicking on the Start button. Clicking the Export... button will save the trend data to a Comma Separated Values (CSV) file for viewing, editing or printing with office software, like Microsoft Excel, etc. The Properties... button is used to define high and low limits of the scale, sample rate, displayed time span and color of the graph. The trend functionality is not available if ToolKit is used utilizing a CAN bus connection to the unit.

Configure the easYlite-100 with ToolKit

The following figure shows an example configuration screen of ToolKit:

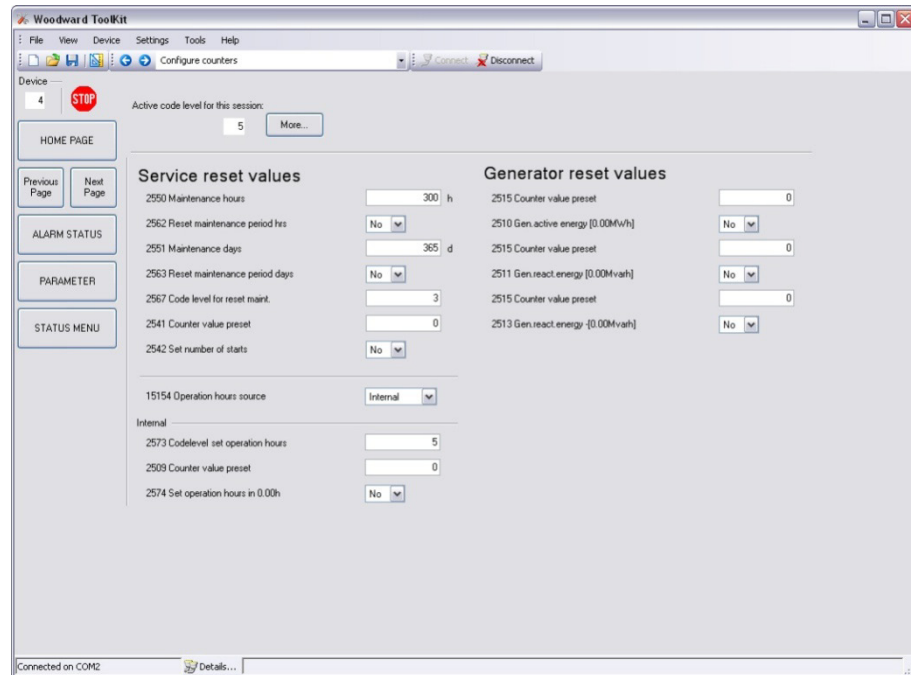





Figure 8-3: ToolKit - configuration screen

Entering a new value or selecting a value from a defined list will change the value in a field. The new value is written to the controller memory by changing to a new field or pressing the Enter key.

Navigation through the various configuration and visualization screens is performed by clicking on the  and  icons, by selecting a navigation button (e.g. ), or by selecting a screen from the drop-down list to the right of the arrow icons.

System Management



The following is a description of the easYlite-100 parameters. Note that these parameters may only be viewed and/or changed through ToolKit.

Password System

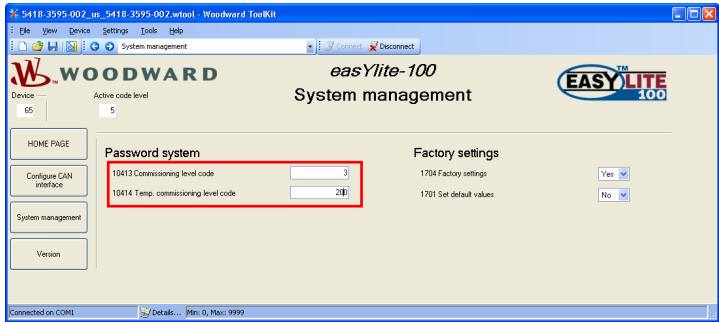


Figure 8-4: Password system

Actual code level	display only
--------------------------	---------------------

This value displays the code level which is currently selected.



NOTE
The following parameter is not configurable. It may be viewed using ToolKit for information purposes only.

Random number for password	display only
-----------------------------------	---------------------

This is a randomly generated number which can be used to calculate the password if it is lost.

The unit is equipped with a multi-level code and configuration hierarchy, which allows different user access to the control. A distinction is made between:

User Level
This code level allows for monitoring of the system and does not permit access to the parameters. Configuration is blocked.

Commissioning Level
Allows direct access to all parameters (displaying and changing). In addition, the user may also set the password for the code levels. This password expires two hours after entering the password and the user is returned to the user level.

Temporary Commissioning Level
Allows direct access to all parameters (displaying and changing). This password expires two hours after entering the password and the user is returned to the user level.

**NOTE**

The following passwords are valid for all access possibilities (via serial RS-232 (DPC) interface). The passwords can be used for the access control systems of the different configuration access methods.

Commissioning level code**0000 to 9999**

The password for the commissioning code level is configured here.

This code level grants complete and total access to most of the parameters. In addition, the user may also change the passwords for levels CL1, CL2 and CL3. Access granted by this password expires two hours after the password has been entered and the user is returned to the CL0 level. **Standard password = "0 0 0 3"**

Temp. commissioning level code**0000 to 9999**

The password for the temporary commissioning code level is configured here. The temporary commissioning code level allows the same configurations like the commissioning code level except the change of passwords.

This code level grants temporary access to most of the parameters. The password is calculated from the random number generated when the password is initially accessed. It is designed to grant a user one-time access to a parameter without having to give him a reusable password. The user may also change the password for level CL1. Access granted by this password expires two hours after the password has been entered and the user is returned to the CL0 level. The password for the temporary commissioning level may be obtained from the vendor. **No standard password available**

**NOTE**

Once the code level is entered, access to the configuration menus will be allowed for two hours or until another password is entered into the control. If a user needs to exit a code level then user code level should be entered. This will block any configuration of the control. A user may return to user code level by allowing the entered password to expire after two hours or by changing any one digit on the random number generated on the password screen and entering it into the unit.

By entering "0000" the current password level remains active until another password is entered into the control unit.

Factory Settings

It may be desirable to configure the easYlite-100 from a known state if the unit has been previously configured for another application. Restoring factory default settings can be accomplished easily.

Factory settings

YES/NO

This parameter enables the easYlite-100 to have the factory default setting restored.

YES The unit will be prepared for resetting to factory settings.

NO The unit will not be prepared for resetting to factory settings.

Set default values

YES/NO

This parameter restores the factory default settings.

YES The unit will be reset to factory settings.

NO The unit will not be reset to factory settings.

Connect the easYlite-100 with your PC and start ToolKit as described in “Connect ToolKit and the easYlite-100 Unit” on page 29.

Set the parameter Factory settings to YES.

Set the parameter Set default values to YES.

The factory default values have been restored, as soon as the parameter Set Default values changes back to NO again.

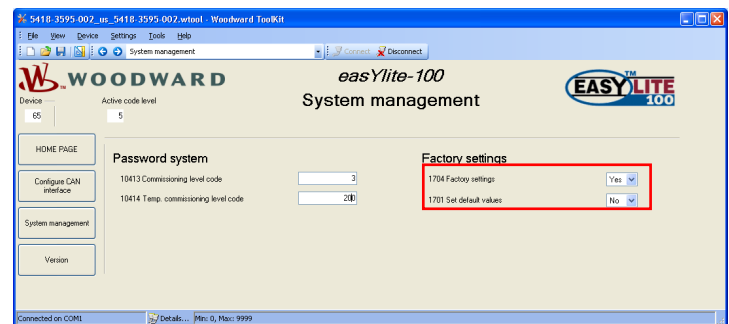


Figure 8-5: Factory settings

Home Page



The easYlite-100 offers two operation modes:

easYlite-100			
Internal mode		External IKD mode	
easYgen-1000 Series		easYgen-1000 Series	easYgen-2000 Series
easYgen-3000 Series			
Software Version		Software Version	
1.0000 or higher		3.1000 or higher	1.0006 or higher
		1.1500 or higher	

Table 8-1: easYlite-100 - operation modes

The mode can be chosen by Parameter ID 5012. “easYlite LED mode” to “Internal / Ext. IKD”.

Internal mode:

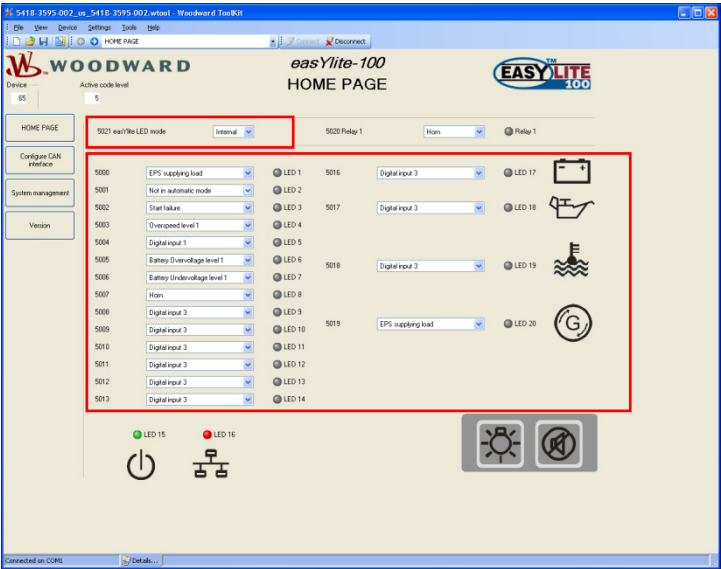


Figure 8-6: ToolKit Home Page (Internal mode)

External IKD mode:

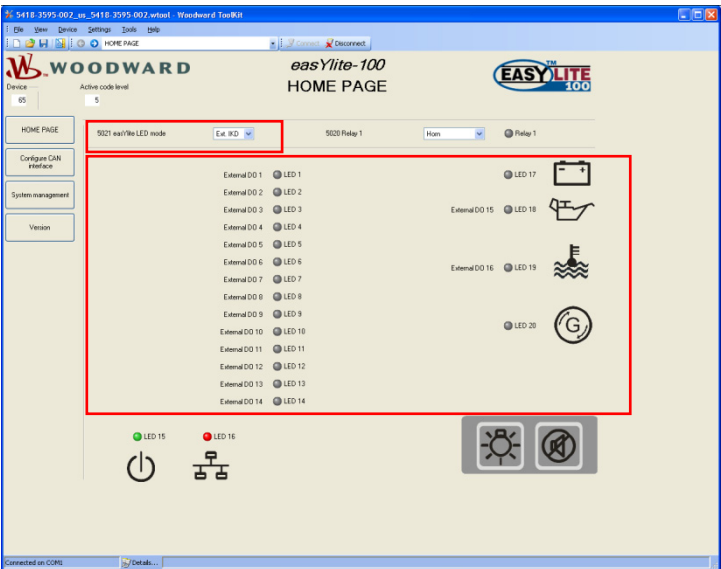


Figure 8-7: ToolKit Home Page (External IKD mode)

Application of LEDs - Internal Mode

Display alarm LED [x]

one message from list

One warning/alarm/status message from the message list in Table 8-2 can be assigned to the alarm LED [x] here. The LED [x] will be illuminated if the assigned warning/alarm/status is detected.

[x] = 1 to 14

Display alarm LED 17

one message from list

One warning/alarm/status message from the message list in Table 8-2 can be assigned to the alarm LED 17 here. The LED 17 will be illuminated if the assigned warning/alarm/status is detected.

Note: A battery related alarm must be configured to this LED to comply with the battery icon on the front panel.

Warning/alarm/status message	Description
EPS supplying load	Genset is running and breaker is closed
Not in automatic mode	easYgen is not in automatic mode
CAN fail	A CAN connection failure occurred
Horn	An alarm is triggered at the genset control
Centralized alarm	easYgen alarm classes B to F
Stopping alarm	easYgen alarm classes C to F
Warning alarm	easYgen alarm classes A and B
Gen.overfreq. 1	Alarm messages of the generator monitoring
Gen.overfreq. 2	
Gen.underfreq. 1	
Gen.underfreq. 2	
Gen.overnvolt. 1	
Gen.overnvolt. 2	
Gen.undervolt. 1	
Gen.undervolt. 2	
Gen. overcurr. 1	
Gen. overcurr. 2	
Gen. overcurr. 3	
Gen. Rv/Rd pow.1	
Gen. Rv/Rd pow.2	
Gen. Overload 1	
Gen. Overload 2	
Unbal. load 1	
Unbal. load 2	
Gen. asymmetry	
Ground fault 1	
Ground fault 2	
Gen. phase rot. misw.	
Inv.time ov.curr.	
Timeout dead bus start	
Mains phase rot. misw.	Genset alarm message of the mains monitoring
GCB fail to close	Various alarm bits of the genset
GCB fail to open	
MCB fail to close	
MCB fail to open	
Overspeed 1	
Overspeed 2	
Underspeed 1	
Underspeed 2	
Speed det. alarm	
Start fail	
Shutdwn malfunct.	
Unintended stop	
Batt.undervolt.1	Alarm bits of the analog inputs
Batt.undervolt.2	
Batt.overnvolt.1	
Batt.overnvolt.2	

Warning/alarm/status message	Description
CANopen Fault	Various alarm bits of the genset
CAN-Fault J1939	
Digital input 1	Alarm messages triggered by discrete inputs at the genset
Digital input 2	
Digital input 3	
Digital input 4	
Digital input 5	
Digital input 6	
Digital input 7	
Digital input 8	
Ext. digital input 1	Alarm messages triggered by external discrete inputs at the genset by connecting IKDs
Ext. digital input 2	
Ext. digital input 3	
Ext. digital input 4	
Ext. digital input 5	
Ext. digital input 6	
Ext. digital input 7	
Ext. digital input 8	
Ext. digital input 9	
Ext. digital input 10	
Ext. digital input 11	
Ext. digital input 12	
Ext. digital input 13	
Ext. digital input 14	
Ext. digital input 15	
Ext. digital input 16	
Mainten. days exceeded	Various alarm bits of the easYgen
Mainten. hours exceeded	
Lv1: Analog inp. 1	Alarm messages triggered by analog inputs at the genset
Lv2: Analog inp. 1	
Lv1: Analog inp. 2	
Lv2: Analog inp. 2	
Wb: Analog inp. 1	
Wb: Analog inp. 2	
Firing speed	

Table 8-2: Configurable warning/alarm/status messages

A detailed description of these warning/alarm or status messages can be found in the easYgen-1000 Operation manual in Appendix A.

Display alarm LED 18**one message from list**

One warning/alarm/status message from the message list in Table 8-2 can be assigned to the alarm LED 18 here. The LED 18 will be illuminated if the assigned warning/alarm/status is detected.

Note: An oil pressure related alarm must be configured to this LED to comply with the oil pressure icon on the front panel.

Display alarm LED 19**one message from list**

One warning/alarm/status message from the message list in Table 8-2 can be assigned to the alarm LED 19 here. The LED 19 will be illuminated if the assigned warning/alarm/status is detected.

Note: A coolant temperature related alarm must be configured to this LED to comply with the oil temperature icon on the front panel.

Display alarm LED 20**one message from list**

One warning/alarm/status message from the message list in Table 8-2 can be assigned to the alarm LED 20 here. The LED 20 will be illuminated if the assigned warning/alarm/status is detected.

Note: EPS supplying load must be configured to this LED to comply with the icon on the front panel.

Application of LEDs - External IKD Mode

Display LED [x]**external digital outputs from easYgen**

Directly configured (via easYgen) LEDs as IKD1 relay 1 to 8 and IKD2 relay1 to 8. The LED [x] will be illuminated if the assigned digital output is detected.

[x] = 1 to 14,18,19

Display LED 17**battery alarm of easYgen**

A battery related alarm of the easYgen is fixed to this LED. The LED 17 will be illuminated if the assigned alarm is sent by the easYgen via protocol 65000.

Display LED 20**load indication**

The load indication (02.01 Firing speed and 04.06 GCB is closed) is fixed to this LED. The LED 20 will be illuminated if the assigned status is sent by the easYgen via protocol 65000.

Application of the Relay 1

Relay 1

Horn / CAN fail / CAN fail or horn

The functionality of relay 1 is configured here.

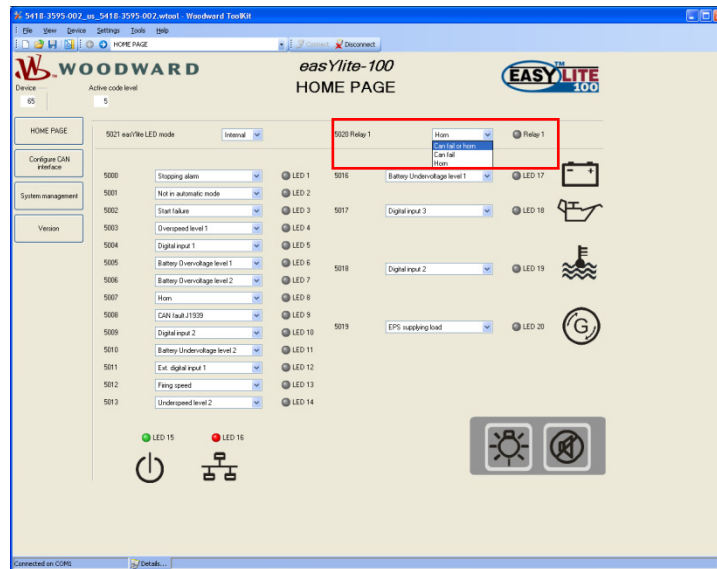


Figure 8-8: Application of the relay 1

HornThe relay 1 will be energized when an alarm is issued at the genset control.

CAN failThe relay 1 will be energized when a CAN connection failure occurs.

CAN fail or hornThe relay 1 will be energized when an alarm is issued at the genset control or a CAN connection failure occurs.

The reason for triggering the relay 1 output is configurable.

- raising edge of the "Horn" signal on the RPDO.
- raising edge of a CAN failure
- both

It is reset by:

Internal mode:

- If the CAN bus is ok, the relay is reset automatically.
- As "Horn" it shall be reset by:
 - pressing the "acknowledge" button
 - falling edge of the "Horn" signal on the RPDO

External IKD mode:

- pressing the "acknowledge" button
- falling edge of the "Horn" signal on the RPDO



NOTE

If the relay is configured to "Horn" or "CAN fail or horn", relay 1 will be energized with any occurring genset alarm regardless whether the alarm is assigned to an easYlite-100 LED or not. It is recommended to assign the configurable alarm message "Horn" to one of the easYlite-100 LEDs to prevent an enabling of the horn without an alarm indication at the easYlite-100!

Configure CAN Interface



Device number **1 to 128**

A unique address is assigned to the control through this parameter. This unique address permits the controller to be correctly identified on the CAN bus. The address assigned to the controller may only be used once. All other bus addresses are calculated on the number entered in this parameter.

Baudrate **20/50/100/125/250/500/800/1000 kBd**

This parameter defines the used Baud rate. Please note, that all participants on the CAN bus must use the same Baud rate.

Producer heartbeat time **0 to 65530**

Independent from the CANopen Master configuration, the unit transmits a heartbeat message with this configured heartbeat cycle time. If the producer heartbeat time is equal 0, the heartbeat will only be sent as response to a remote frame request.

Internal Mode

COB-ID CANopen RPDO1 **1 to FFFF FFFF h (1 to 4294967295)**

The CAN ID on which the data is received is configured here. The same ID must be configured as TPDO (Transmit PDO) in the easYgen (refer to easYgen “Interface Manual”).

External IKD Mode

COB-ID CANopen RPDO1 **1 to FFFF FFFF h (1 to 4294967295)**

The CAN ID on which the data for LEDs ① to 8 and of the buttons Button ②① and ②② is received is configured here. The same ID must be configured as TPDO1 (Transmit PDO1) in the easYgen (refer to easYgen “Interface Manual”). The needed protocol for TPDO1 in the easYgen is 65000.

COB-ID CANopen RPDO2 **1 to FFFF FFFF h (1 to 4294967295)**

The CAN ID on which the data for LEDs 9 to ⑭, ⑮ and ⑯ is received is configured here. The same ID must be configured as TPDO2 (Transmit PDO2) in the easYgen (refer to easYgen “Interface Manual”). The needed protocol for TPDO2 in the easYgen is 65001.

COB-ID CANopen TPDO1 **1 to FFFF FFFF h (1 to 4294967295)**

The CAN ID on which the data of buttons ②① and ②② is transmitted is configured here. The same ID must be configured as RPDO (Receive PDO) in the easYgen (refer to easYgen “Interface Manual”). The needed protocol for RPDO1 in the easYgen is 65000.

Internal *and* External IKD Mode

Additional Client-SDO

1st Client->Server COB-ID

580 h to FFFF FFFF h (1408 to 4294967295)

The 1st client -> server COB ID is configured here.

1st Server->Client COB-ID

580 h to FFFF FFFF h (1408 to 4294967295)

The 1st server -> client COB ID is configured here.

1st Node-ID of the Server

1 to 127

The 1st node ID of the server is configured here.

Max answer time ext. devices

1 to 99

The maximum answer time of external devices is configured here. If the acknowledge message of the easYlite-100 is not replied within this time, it will be repeated.



NOTE

Refer to easYgen “Interface Manual” for detailed information about the configuration of the easYlite-100 and the connected genset controller.

The screenshot shows the 'Configure CAN interface' window of the 'easYlite-100' software. The window has a menu bar (File, View, Device, Settings, Tools, Help) and a toolbar with 'Connect' and 'Disconnect' buttons. The main area is divided into several sections:

- Device Information:** Device number (65) and Active code level (5).
- Configuration Fields:**
 - 1702 Device number: 65
 - 3156 Baudrate: 125 kBd (dropdown)
 - 9120 Producer heartbeat time: 2000 ms
- Additional Client SDOs:**
 - 9800 1st Client->Server COB-ID [decimal]: 1537
 - 9802 1st Server->Client COB-ID [decimal]: 1409
 - 9804 1st Node-ID of the Server: 1
 - 9010 Max answer time ext. devices: 3 s
- Receive PDO:**
 - 9300 RPDO 1 COB-ID [decimal]: 385
 - 9310 RPDO 2 COB-ID [decimal]: 386
- Transmit PDO:**
 - 9600 TPDO 1 COB-ID [decimal]: 513
 - 9610 TPDO 2 COB-ID [decimal]: 514

The bottom status bar indicates 'Connected on COM1' and has a 'Details...' button.

Version

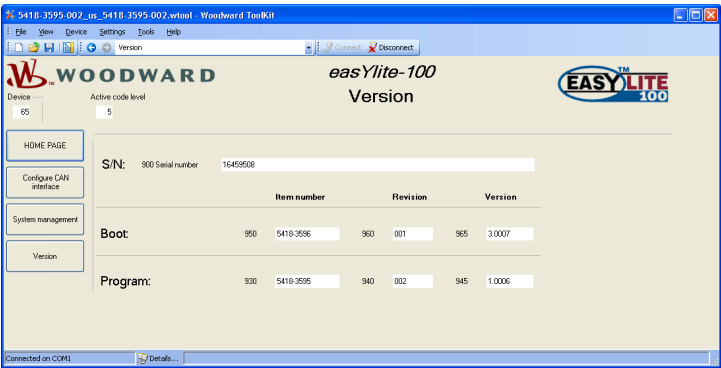


Figure 8-9: Version



NOTE

The following parameters are not configurable. They may be viewed using ToolKit for information purposes only.

Serial number	display only
This is the serial number of the easYlite-100 and identifies the unit.	
Boot item number	display only
This is the item number of the firmware, which is stored on the easYlite-100.	
Boot revision	display only
This is the revision of the firmware, which is stored on the easYlite-100.	
Boot version	display only
This is the version (Vx.xxxx) of the firmware, which is stored on the easYlite-100.	
Program item number	display only
This is the item number of the application software of the easYlite-100.	
Program revision	display only
This is the revision of the application software of the easYlite-100.	
Program version	display only
This is the version (Vx.xxxx) of the application software of the easYlite-100.	

Chapter 9.

Configuration easYgen Series

The easYlite-100 offers two operation modes:

easYlite-100			
Internal mode	External IKD mode		
easYgen-1000 Series	easYgen-1000 Series	easYgen-2000 Series	easYgen-3000 Series
Software Version	Software Version		
1.0000 or higher	3.1000 or higher	1.0006 or higher	1.1500 or higher

Table 9-1: easYlite-100 - operation modes

Internal Mode



Setting the Bus Parameters

Configure both devices to the following settings:

Parameter	Setting in easYlite-100	Setting in easYgen
Device number	65	1
Protocol	---	CANopen
Baudrate	125 kBd	125 kBd
CANopen Master	---	YES

Table 9-2: Configuration settings for easYlite-100 and easYgen-1000 - bus parameters



NOTE

The baud rate must be configured the same for all participants on one bus.

Each participant must have an individual device number.

The CANopen Node-ID of the device is the device number.

After a correct CAN bus connection between the easYlite-100 and the easYgen has been established and the same baud rate has been configured, the CAN bus status LED at the easYlite-100 flashes green four times to indicate the missing PDOs.

Data Transmission Settings

Configure according to the following settings:

- the easYlite-100 for CANopen RPDO (receive PDO)
- the easYgen-1000 for CANopen TPDO (transmit PDO) 1, 2, 3, or 4 (default setting 3)

Parameter	Setting in easYlite-100	Setting in easYgen-1000 up to Version 2.0xxx	Setting in easYgen-1000 from Version 2.1xxx
COB-ID	897 dec / 381 hex	897 dec / 381 hex	897 dec / 381 hex
Transmission type	---	255	255
Event timer	---	20 ms	20 ms
1. mapped object	---	3196	15601
2. mapped object	---	0	0
3. mapped object	---	0	0
4. mapped object	---	0	0

Table 9-3: Configuration settings for easYlite-100 and easYgen-1000 - transmission parameters

If the above settings have been configured correctly, the easYlite-100 CAN bus status LED will illuminate green. The CAN bus status LED does not indicate whether the data transmitted with the PDO is correct. It only indicates that a PDO is received. In order to test whether the data is correct, energize a discrete input at the easYgen and check the indication of this DI at the easYlite-100.

Horn Silencing

Configure the easYlite-100 for CANopen RPDO (receive PDO) according to the following settings:

Parameter	Setting in easYlite-100	Setting in easYgen
1st Client->Server COB-ID	1537 dec / 601 hex	---
1st Server->Client COB-ID	1409 dec / 581 hex	---
1st Node-ID of the Server	1	---
Max answer time ext. devices	3.0 s	---

Table 9-4: Configuration settings for easYlite-100 and easYgen-1000 - transmission parameters

The COB-IDs are calculated as follows:

1st Client->Server COB-ID = 600 hex + Node-ID (device number) of the easYgen

1st Server->Client COB-ID = 580 hex + Node-ID (device number) of the easYgen

Examples:	Node-ID	1st Client->Server COB-ID	1st Server->Client COB-ID
	1	601 hex	581 hex
	2	602 hex	582 hex
	3	603 hex	583 hex
	and so on ...		

After setting these parameters, the horn may be silenced.

easYlite-100, easYgen-1000 Series and a PLC

The PLC may receive or send data with PDOs to the easYgen.

This enables the PLC to send start/stop signals with a PDO (for details refer to easYgen “Interface Manual”).

It is not recommended to write or read easYgen data with the SDO (1st Client->Server COB-ID) because this is used by the easYlite-100.

The PLC is Not the CANopen Master

The easYgen starts the communication by setting all devices on the CAN bus to an operational state. (easYgen setting CAN-Open Master must be configured YES)

The PLC is the CANopen Master

The PLC must set the easYgen and the easYlite-100 to an operational state.

(easYgen setting CAN-Open Master must be configured NO)

External IKD Mode



One easYgen and one easYlite-100

Setting the Bus Parameters

Configure both devices to the following settings:

Parameter	Setting in easYgen (1000/2000/3000)	Setting in easYlite-100
Device number	1	2
Baudrate	125 kBd	125 kBd
CANopen Master	YES	---
Producer Heartbeat Time	2000 ms	2000 ms
COB-ID SYNC Message	80 hex	---

Table 9-5: Configuration settings for one easYlite-100 and one easYgen - bus parameters

Data Transmission Settings

One easYgen-1000 and one easYlite-100:

easYgen-1000				easYlite-100		
Parameter				Parameter		
	Receive PDO1				Transmit PDO1	
9300	COB-ID	201h (513d)		9600	TPDO 1 COB-ID	201h (513d)
9050	Function	IKD1	for DI 1..8			
9060	Node-ID of device	--				
9070	RPDO-COB-ID ext. device	--				
	Receive PDO2				Transmit PDO2	
9310	COB-ID	80000000h	Switched off	9610	TPDO 2 COB-ID	--
	Transmit PDO1				Receive PDO1	
9600	COB-ID	181h (385d)		9300	RPDO 1 COB-ID	181h (385d)
9602	Transmission Type	255				
9604	Event-timer	20ms				
9609	Number of Mapped Objects	3				
9605	1. Mapped Object	8001	Is equivalent to data protocol 65000			
9606	2. Mapped Object	8000				
9607	3. Mapped Object	8000				
9608	4. Mapped Object	--				
	Transmit PDO2				Receive PDO2	
9610	COB-ID	182h (386d)		9310	RPDO 2 COB-ID	182h (386d)
9612	Transmission Type	255				

easYgen-1000				easYlite-100		
9614	Event-timer	20ms				
9619	Number of Mapped Objects	4				
9615	1. Mapped Object	8002	Is equivalent to data protocol 65001			
9616	2. Mapped Object	8000				
9617	3. Mapped Object	8000				
9618	4. Mapped Object	8000				
	Transmit PDO3					
9620	COB-ID	80000000h	Switched off			
	Transmit PDO4					
9630	COB-ID	80000000h	Switched off			

Table 9-6: Configuration settings for one easYlite-100 and one easYgen-1000 - transmission parameters

One easYgen-2000 / easYgen-3000 and one easYlite-100:

easYgen-2000 / easYgen-3000				easYlite-100		
Parameter				Parameter		
8940	Producer SYNC Message time	2000ms				
9101	COB-ID TIME message	8000 0000h				
	Receive PDO1				Transmit PDO1	
9300	COB-ID	201h		9600	COB-ID	201h
9121	Event timer	2000ms	After 2s the message is detected as missing			
8970	Selected Data Protocol	65000	DO 1..8			
9910	Number of Mapped Objects	---				
	Receive PDO2				Transmit PDO2	
9310	COB-ID	8000 0000h	Switched off	9610	COB-ID	--
	Transmit PDO1				Receive PDO1	
9600	COB-ID	181h		9300	RPDO 1 COB-ID	181h
9602	Transmission Type	255				
9604	Event-timer	20ms				
8962	Selected Data Protocol	65000				
9609	Number of Mapped Objects	---				
	Transmit PDO2				Receive PDO2	
9610	COB-ID	182h		9310	COB-ID	182h
9612	Transmission Type	255				
9614	Event-timer	20ms				
8963	Selected Data Protocol	65001				
9619	Number of Mapped Objects	---				
	Transmit PDO3					
9620	COB-ID	8000 0000h	Switched off			

Table 9-7: Configuration settings for one easYlite-100 and one easYgen-2000 / easYgen-3000 - transmission parameters

One easYgen and two easYlite-100

Setting the Bus Parameters

Configure the devices to the following settings:

Parameter	Setting in easYgen (1000/2000/3000)	Setting in easYlite-100	Setting in easYlite-100
Device number	1	2	3
Baudrate	125 kBd	125 kBd	125 kBd
CANopen Master	YES	---	---
Producer Heartbeat Time	2000 ms	2000 ms	2000 ms
COB-ID SYNC Message	80 hex	---	---

Table 9-8: Configuration settings for two easYlite-100 and one easYgen - bus parameters

Data Transmission Settings

One easYgen-1000 and two easYlite-100:

easYgen-1000				1. easYlite-100			2. easYlite-100		
Parameter				Parameter			Parameter		
	Receive PDO1				Transmit PDO1			Transmit PDO1	
9300	COB-ID	201h		9600	COB-ID	201h	9600	COB-ID	--
9050	Function	IKD1	for DI 1..8						
9060	Node-ID of device	--							
9070	RPDO-COB-ID ext. device	--							
	Receive PDO2				Transmit PDO2			Transmit PDO2	
9310	COB-ID	202 h		9610	COB-ID	--	9610	COB-ID	202 h
9051	Function	IKD2	DO 9..16						
9061	Node-ID of device	--							
9072	RPDO-COB-ID ext. device	--							
	Transmit PDO1				Receive PDO1			Receive PDO1	
9600	COB-ID	181h		9300	COB-ID	181h	9300	COB-ID	181h
9602	Transmission Type	255							
9604	Event-timer	20ms							
9609	Number of Mapped Objects	3							
9605	1. Mapped Object	8001							
9606	2. Mapped Object	8000							
9607	3. Mapped Object	8000							
9608	4. Mapped Object	--							
	Transmit PDO2				Receive PDO2			Receive PDO2	
9610	COB-ID	182h		9310	COB-ID	182h	9310	COB-ID	182h
9612	Transmission Type	255							
9614	Event-timer	20ms							

easYgen-1000				1. easYlite-100			2. easYlite-100		
9619	Number of Mapped Objects	--							
9615	1. Mapped Object	8002							
9616	2. Mapped Object	8000							
9617	3. Mapped Object	8000							
9618	4. Mapped Object	--							
	Transmit PDO3								
9620	COB-ID	8000 0000h	Switched off						
	Transmit PDO4								
9630	COB-ID	8000 0000h	Switched off						

Table 9-9: Configuration settings for two easYlite-100 and one easYgen-1000 - transmission parameters

One easYgen-2000 / easYgen-3000 and two easYlite-100:

easYgen-2000 / easYgen-3000				1. easYlite-100			2. easYlite-100		
Parameter				Parameter			Parameter		
8940	Producer SYNC Message time	2000ms							
9101	COB-ID TIME message	8000 0000h							
	Receive PDO1				Transmit PDO1			Transmit PDO1	
9300	COB-ID	201h		9600	COB-ID	201h	9600	COB-ID	--
9121	Event timer	2000ms	After 2s the message is detected as missing						
8970	Selected Data Protocol	65000	DO 1..8						
9910	Number of Mapped Objects	--							
	Receive PDO2				Transmit PDO2			Transmit PDO2	
9310	COB-ID	202 h		9610	COB-ID	--	9610	COB-ID	202 h
9122	Event timer	2000ms	After 2s the message is detected as missing						
8971	Selected Data Protocol	65001	DO 9..16						
9915	Number of Mapped Objects	--							
	Receive PDO3				Transmit PDO3			Transmit PDO3	
9320	COB-ID	8000 0000h	Switched off	9620	COB-ID	--	9620	COB-ID	--
	Transmit PDO1				Receive PDO1			Receive PDO1	
9600	COB-ID	181h		9300	COB-ID	181h	9300	COB-ID	181h
9602	Transmission Type	255							
9604	Event-timer	20ms							
8962	Selected Data Protocol	65000							
9609	Number of Mapped Objects	--							
	Transmit PDO2				Receive PDO2			Receive PDO2	

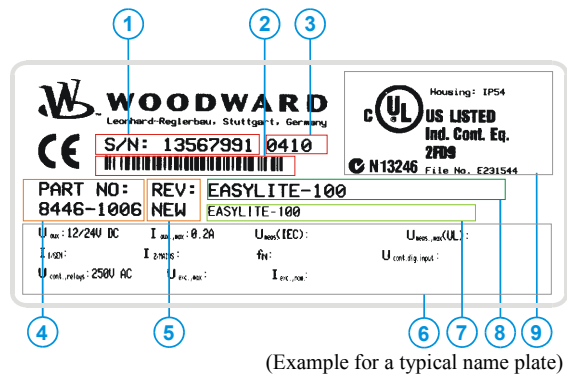
easYgen-2000 / easYgen-3000				1. easYlite-100			2. easYlite-100		
9610	COB-ID	182h		9310	COB-ID	182h	9310	COB-ID	182h
9612	Transmission Type	255							
9614	Event-timer	20ms							
8963	Selected Data Protocol	65001							
9619	Number of Mapped Objects	--							
	Transmit PDO3								
9620	COB-ID	8000 0000h	Switched off						

Table 9-10: Configuration settings for two easYlite-100 and one easYgen-2000 / easYgen-3000 - transmission parameters

Chapter 10.

Technical Data

Name plate -----



1	S/N	Serial number (numerical)
2	S/N	Serial number (Barcode)
3	S/N	Date of production (YYMM)
4	P/N	Item number
5	REV	Item revision number
6	Details	Technical data
7	Type	Unit name
8	Type	Extended description
9	UL	UL sign

(Example for a typical name plate)

Ambient variables -----

- Power supply 12/24 Vdc (6.5 to 32.0 Vdc)
- Intrinsic consumption max. 3 W
- Ambient temperature Storage -20 to +85 °C / -4 to +185 °F
- Ambient humidity Operation..... -20 to +70 °C / -4 to +158 °F
- Ambient humidity..... 95 %, non condensing

Relay outputs ----- potential free

- Contact material..... AgCdO
- General purpose (GP) (V_{Cont, relay output}) DC..... 2.00 Adc@24 Vdc
- Pilot duty (PD) (V_{Cont, relay output}) DC..... 1.00 Adc@24 Vdc

Interface -----

Service interface..... non isolated

- Version RS-232
- Signal level 5V
- Level conversion and insulation by using DPC (P/N 5417-557)

CAN bus interface isolated

- Insulation voltage 500 Vdc
- Version CAN bus
- Internal line termination not available
- Internal cable screen connection with Ground (terminal 3)..... RC element (1MΩ; 3.3 nF)

Housing -----

- Type Woodward easYpack 158x158
- Dimensions (W × H × D) 158 × 158 × 40 mm
- Front cutout (W × H) 138 [+1.0] × 138 [+1.0] mm
- Connection screw and plug terminals 2.5 mm²
- Recommended tightening torque
 - Connectors 0.5 Nm
 - Housing clamps 0.1 Nm
 - use only 60/75 °C copper leads
 - use only class 1 cables (or similar)
- Weight approx. 450 g

Vibration -----

- Sinusoidal 4 G, 5 Hz to 150 Hz
- Random 1.04 Grms, 10 Hz to 500 Hz, 2 h

Shock -----

- Shock 40 G peak, 11 ms

Protection -----

- Protection system IP54 from front for proper installation with gasket
- Front folio insulating surface
- EMC test (CE) tested according to applicable EN guidelines
- Listings CE marking; UL listing for ordinary locations
- Type approval UL/cUL, Ordinary Locations, File No.: 231544

Standards -----

- Shock EN 60255-21-2
- Vibration EN 60255-21-1; EN 60255-21-3
- Temperature IEC 60068-2-30; IEC 60068-2-2; IEC 60068-2-1

Appendix A. Common

Alarm Classes



The easYlite-100 does not generate alarms. It only displays alarms generated by the easYgen genset control. The easYgen distinguishes between the following alarm classes:

Alarm class	Visible in the display	LED "Alarm" & horn	Relay "Command: open GCB"	Shut-down engine	Engine blocked until ack. sequence has been performed
A	Yes	no	no	no	no
Warning Alarm This alarm does not interrupt the unit operation. A message output without a centralized alarm occurs: ⇒ Alarm text.					
B	Yes	yes	no	no	no
Warning Alarm This alarm does not interrupt the unit operation. An output of the centralized alarm occurs: ⇒ Alarm text + flashing LED "Alarm" + Relay centralized alarm (horn).					
C	Yes	yes	following power reduction <small>not available in the easYgen-1000</small>	after cooling phase	yes
Responding Alarm With this alarm the GCB is opened and the engine is stopped. Coasting occurs. ⇒ Alarm text + flashing LED "Alarm" + Relay centralized alarm (horn) + Coasting + GCB open + Engine stop.					
D	Yes	yes	immediately	after cooling phase	yes
Responding Alarm With this alarm the GCB is opened and the engine is stopped. Coasting occurs. ⇒ Alarm text + flashing LED "Alarm" + Relay centralized alarm (horn) + Coasting + GCB open + Engine stop.					
E	Yes	yes	following power reduction <small>not available in the easYgen-1000</small>	immediately	yes
Responding Alarm With this alarm the GCB is opened immediately and the engine is stopped. ⇒ Alarm text + flashing LED "Alarm" + Relay centralized alarm (horn) + GCB open + Engine stop.					
F	Yes	yes	immediately	immediately	yes
Responding Alarm With this alarm the GCB is opened immediately and the engine is stopped. ⇒ Alarm text + flashing LED "Alarm" + Relay centralized alarm (horn) + GCB open + Engine stop.					

Appendix B. Front Customization

The easYlite-100 is designed to be adapted to any desired language and can be customized to your demands using a paper strip. The paper strip is intended for labeling the configurable LEDs.

The paper strip is divided into 14 lines, one for each LED. You can customize the paper strip to reflect the warning/alarm/status message configured to the respective LED in the desired language.

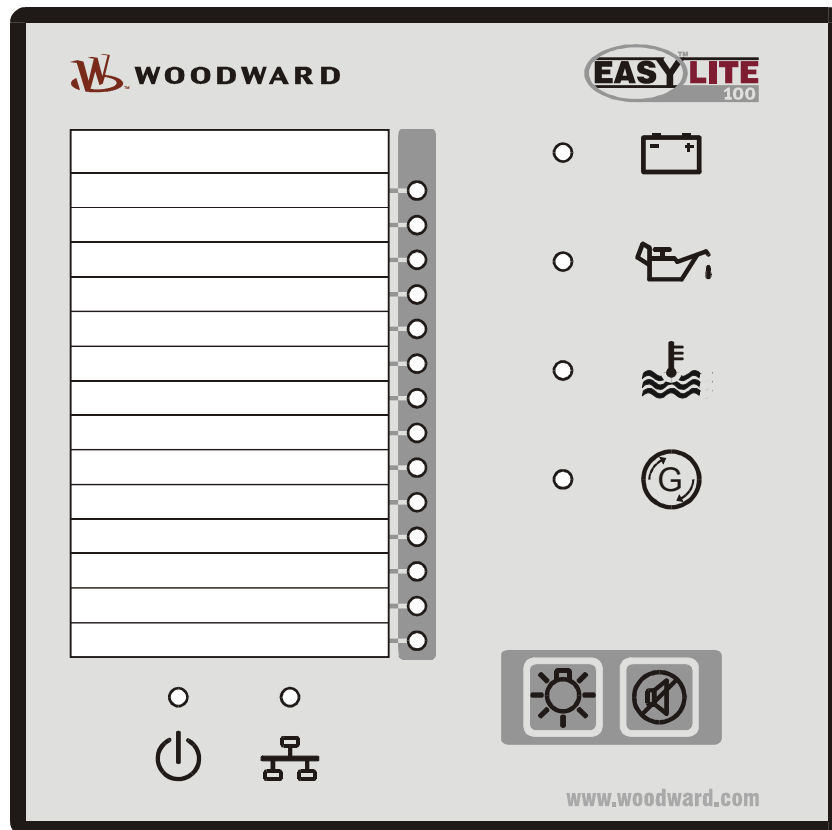


Figure 10-1: Front panel with paper strip

The unit is delivered with an English paper strip with the factory default messages which are assigned to the LEDs.

Templates for paper strips in different languages can be found in the "Paper Strips" directory on the CD delivered with the unit. The templates are in Microsoft Word format and can be customized to your requirements. Please note that the paper strip size must not be modified in the templates. Just edit the text for the paper strips, print them out, cut out the paper strips where indicated, and insert them into the openings at the side of the unit.

Appendix C.

Protocol 65000, 65001 for external IKD mode

Definition of the CANopen RPDOs and PDO for a PLC.

Protocol 65000 is received by the easYlite-100 on CANopen RPDO 1

RPDO 1			
Byte 0	Byte 1	Byte 3	Byte 2, 4-7
Receiving MUX	Desired LED status Bit 0 = 1: set LED 1 Bit 1 = 1: set LED 2 Bit 2 = 1: set LED 3 Bit 3 = 1: set LED 4 Bit 4 = 1: set LED 5 Bit 5 = 1: set LED 6 Bit 6 = 1: set LED 7 Bit 7 = 1: set LED 8	Information Bits Bit 0 = 1: set LED 17 (battery alarm) Bit 1 = 1: set LED 20 (EPS supplying load) Bit 2 = 1: set relay (horn) Bit 3 = 0 Bit 4 = 0 Bit 5 = 0 Bit 6 = 0 Bit 7 = 0	Not applied

Protocol 65001 is received by the easYlite-100 on CANopen RPDO 2

RPDO 2		
Byte 0	Byte 1	Byte 2-7
Receiving MUX	Desired LED status Bit 0 = 1: set LED 9 Bit 1 = 1: set LED 10 Bit 2 = 1: set LED 11 Bit 3 = 1: set LED 12 Bit 4 = 1: set LED 13 Bit 5 = 1: set LED 14 Bit 6 = 1: set LED 18 Bit 7 = 1: set LED 19	Not applied

CANopen TPDO 1 is sent by the easYlite-100 to the easYgen. It there is received as protocol 65000 / 65001 / 65002 / 65003

TPDO 1		
Byte 0	Byte 1	Byte 2-7
Transmit MUX = 0	Bit 0 = 1: Button 21 (lamp test) Bit 1 = 1: Button 22 (horn silence) Bit 2 = 1: State of the easYlite-100 relay Bit 3 = 0 Bit 4 = 0 Bit 5 = 0 Bit 6 = 0 Bit 7 = 0	0

Appendix D. Troubleshooting

If problems are encountered while commissioning or operating the easYlite-100, please refer to the troubleshooting table below and ToolKit prior to contacting Woodward for technical assistance. The most common problems and their solutions are described in the troubleshooting table. If problems are encountered between the easYlite-100 and its wiring and the engine or other devices, refer to the respective manuals for solving the problem.

Symptom	Possible cause	Possible solution	Verify
Unit does not power up (power LED is not illuminated).	Power supply outside operating range.	With power supply voltage connected to terminals 5(+) and 4(-) of the easYlite-100, measure the voltage at these terminals.	Voltage must be no less than 6.5 Volts and no greater than 32 Volts.
	Power supply polarity reversed.	With power supply voltage connected to terminals 5(+) and 4(-) of the easYlite-100, measure the voltage at these terminals.	Voltage measurement reads (+) polarity when meter is connected to terminal 5(+) and 4(-).
	Power supply not connected.	Connect the correct power supply to terminals 5(+) and 4(-).	Check for proper connection of the power supply.
	The LED is defective.	Press the LED test button to check all LEDs.	Check that all LEDs illuminate. Return the unit to Woodward for repair if any LEDs fail to illuminate.
Horn does not sound with the occurrence of an alarm.	Horn is not connected to the relay output terminals 1 and 2.	Connect the horn to the relay output terminals 1 and 2.	Check for proper connection of the horn.
	Power supply to the horn not connected.	Connect the horn power supply between horn and relay output terminals 1 and 2.	Check for proper connection of the horn power supply.
An LED does not illuminate when it should be.	The LED is defective.	Press the LED test button to check all LEDs.	Check that all LEDs illuminate. Return the unit to Woodward for repair if any LEDs fail to illuminate.
	The LED is misconfigured.	Configure the LED to the desired warning/alarm/status.	Check the configuration of the LED in ToolKit.
The CAN status LED is not illuminated green or illuminated red (refer to Function of the Status LEDs on page 17 for details on the status indication).	The LED is defective.	Press the LED test button to check all LEDs.	Check that all LEDs illuminate. Return the unit to Woodward for repair if any LEDs fail to illuminate.
	Configuration	Check configuration	CAN open master must start communication

Appendix E.

List of Parameters

Unit number P/N _____ Rev _____

Version easYlite- _____

Project _____

Serial number S/N _____ Date _____

Parameter	Setting range	Default value	Customer setting	
-----------	---------------	---------------	------------------	--

MAIN MENU				
easYlite LED mode	Internal Ext. IKD	Ext. IKD	<input type="checkbox"/> Internal <input type="checkbox"/> Ext. IKD	<input type="checkbox"/> Internal <input type="checkbox"/> Ext. IKD
Random number for password	Info	---		
Password CAN	0000 to 9999	0000		
Password DPC	0000 to 9999	0000		

APPLICATION				
Displayed alarm LED1	from message list *	EPS supplying load		
Displayed alarm LED2	from message list *	Not in automatic mode		
Displayed alarm LED3	from message list *	Start fail		
Displayed alarm LED4	from message list *	Underspeed 1		
Displayed alarm LED5	from message list *	Digital input 1		
Displayed alarm LED6	from message list *	Batt. overvolt 1		
Displayed alarm LED7	from message list *	Batt. undervolt 1		
Displayed alarm LED8	from message list *	Horn		
Displayed alarm LED9	from message list *	Digital input 3		
Displayed alarm LED10	from message list *	Digital input 3		
Displayed alarm LED11	from message list *	Digital input 3		
Displayed alarm LED12	from message list *	Digital input 3		
Displayed alarm LED13	from message list *	Digital input 3		
Displayed alarm LED14	from message list *	Digital input 3		
Displayed alarm LED17	from message list *	Digital input 3		
Displayed alarm LED18	from message list *	Digital input 3		
Displayed alarm LED19	from message list *	Digital input 3		
Displayed alarm LED20	from message list *	Digital input 3		
Relay 1	Horn CAN fail CAN fail or horn	Horn	<input type="checkbox"/> Horn <input type="checkbox"/> CAN fail <input type="checkbox"/> CAN / horn	<input type="checkbox"/> Horn <input type="checkbox"/> CAN fail <input type="checkbox"/> CAN / horn

COMM. INTERFACES

CAN INTERFACES				
Device number	1 to 128	065		
Baudrate	20/50/100/125/250/ 500/800/1000 kBd	125 kBd		
Producer heartbeat time	0 to 65530	02000 ms		

CANOPEN RPDOS				
RPDO 1 COB-ID	1 to 4294967295	0000000385		
RPDO 2 COB-ID	1 to 4294967295	0000000386		

CANOPEN TPDOS				
TPDO 1 COB-ID	1 to 4294967295	0000000513		
TPDO 2 COB-ID	1 to 4294967295	0000000514		

ADDITIONAL C-SDO				
1st Client->Server COB-ID	1408 to 4294967295	0000001537		
1st Server->Client COB-ID	1408 to 4294967295	0000001409		
1st Node-ID of the Server	1 to 127	001		
Max answer time ext. devices	1 to 99	3.0 s		

SYSTEM

CODES

Code level CAN port	Info	0		
Code level serial port / DPC	Info	5		
Commissioning level code	0000 to 9999	0003		
Temp. commissioning level code	0000 to 9999	0200		
Factory settings	YES / NO	No	<input type="checkbox"/> YES / <input type="checkbox"/> NO	<input type="checkbox"/> YES / <input type="checkbox"/> NO
Set default values	YES / NO	No	<input type="checkbox"/> YES / <input type="checkbox"/> NO	<input type="checkbox"/> YES / <input type="checkbox"/> NO

VERSION

Serial number	Info	---		
Boot item number	Info	---		
Boot revision	Info	---		
Boot version	Info	---		
Program item number	Info	---		
Program revision	Info	---		
Program version	Info	---		

* Internal mode: refer to Table 8-2 for the messages which may be configured here

Appendix F. Service Options

Product Service Options



The following factory options are available for servicing Woodward equipment, based on the standard Woodward Product and Service Warranty (5-01-1205) that is in effect at the time the product is purchased from Woodward or the service is performed. If you are experiencing problems with installation or unsatisfactory performance of an installed system, the following options are available:

- Consult the troubleshooting guide in the manual.
- Contact Woodward technical assistance (see "How to Contact Woodward" later in this chapter) and discuss your problem. In most cases, your problem can be resolved over the phone. If not, you can select which course of action you wish to pursue based on the available services listed in this section.

Returning Equipment For Repair



If a control (or any part of an electronic control) is to be returned to Woodward for repair, please contact Woodward in advance to obtain a Return Authorization Number. When shipping the unit(s), attach a tag with the following information:

- name and location where the control is installed;
- name and phone number of contact person;
- complete Woodward part numbers (P/N) and serial number (S/N);
- description of the problem;
- instructions describing the desired type of repair.



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*.

Packing a Control

Use the following materials when returning a complete control:

- protective caps on any connectors
- antistatic protective bags on all electronic modules
- packing materials that will not damage the surface of the unit
- at least 100 mm (4 inches) of tightly packed, industry-approved packing material
- a packing carton with double walls
- a strong tape around the outside of the carton for increased strength

Return Authorization Number RAN

When returning equipment to Woodward, please telephone and ask for the Customer Service Department in Stuttgart [+49 (0) 711 789 54-0]. They will help expedite the processing of your order through our distributors or local service facility. To expedite the repair process, contact Woodward in advance to obtain a Return Authorization Number, and arrange for issue of a purchase order for the unit(s) to be repaired. No work can be started until a purchase order is received.



NOTE

We highly recommend that you make arrangement in advance for return shipments. Contact a Woodward customer service representative at +49 (0) 711 789 54-0 for instructions and for a Return Authorization Number.

Replacement Parts



When ordering replacement parts for controls, include the following information:

- the part numbers P/N (XXXX-XXX) that is on the enclosure nameplate
- the unit serial number S/N, which is also on the nameplate

How To Contact Woodward



Please contact following address if you have questions or if you want to send a product for repair:

Woodward GmbH
Handwerkstrasse 29
70565 Stuttgart - Germany

Phone: +49 (0) 711 789 54-0 (8:00 - 16:30 German time)
Fax: +49 (0) 711 789 54-100
e-mail: stgt-info@woodward.com

For assistance outside Germany, call one of the following international Woodward facilities to obtain the address and phone number of the facility nearest your location where you will be able to get information and service.

Facility	Phone number
USA	+1 (970) 482 5811
India	+91 (129) 409 7100
Brazil	+55 (19) 3708 4800
Japan	+81 (476) 93 4661
The Netherlands	+31 (23) 566 1111

You can also contact the Woodward Customer Service Department or consult our worldwide directory on Woodward’s website (www.woodward.com) for the name of your nearest Woodward distributor or service facility. [For worldwide directory information, go to www.woodward.com/ic/locations.]

Engineering Services



Woodward Industrial Controls Engineering Services offers the following after-sales support for Woodward products. For these services, you can contact us by telephone, by e-mail, or through the Woodward website.

- Technical support
- Product training
- Field service during commissioning

Technical Support is available through our many worldwide locations, through our authorized distributors, or through GE Global Controls Services, depending on the product. This service can assist you with technical questions or problem solving during normal business hours. Emergency assistance is also available during non-business hours by phoning our toll-free number and stating the urgency of your problem. For technical engineering support, please contact us via our toll-free or local phone numbers, e-mail us, or use our website and reference technical support.

Product Training is available on-site from several of our worldwide facilities, at your location, or from GE Global Controls Services, depending on the product. This training, conducted by experienced personnel, will assure that you will be able to maintain system reliability and availability. For information concerning training, please contact us via our toll-free or local phone numbers, e-mail us, or use our website and reference *customer training*.

Field Service engineering on-site support is available, depending on the product and location, from our facility in Colorado, or from one of many worldwide Woodward offices or authorized distributors. Field engineers are experienced on both Woodward products as well as on much of the non-Woodward equipment with which our products interface. For field service engineering assistance, please contact us via our toll-free or local phone numbers, e-mail us, or use our website and reference *field service*.

Technical Assistance



If you need to telephone for technical assistance, you will need to provide the following information. Please write it down here before phoning:

Contact

Your company _____

Your name _____

Phone number _____

Fax number _____

Control (see name plate)

Unit no. and revision: P/N: _____ REV: _____

Unit type easYlite- _____

Serial number S/N _____

Description of your problem

Please be sure you have a list of all parameters available. You can print this using ToolKit. Additionally you can save the complete set of parameters (standard values) and send them to our Service department via e-mail.

We appreciate your comments about the content of our publications.

Please send comments to: stgt-documentation@woodward.com

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



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Homepage

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

Woodward has company-owned plants, subsidiaries, and branches, as well as authorized distributors and other authorized service and sales facilities throughout the world.

Complete address/phone/fax/e-mail information
for all locations is available on our website (www.woodward.com).

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