



# Diesel – PV Hybrid Systems

„Off the shelf“

Elwin Veenendaal  
Managing Director  
elgris GmbH – Germany

# Agenda



**elgris**

- Introduction elgris
- DC system controllers
- Diesel – PV hybrid controllers
- 0% Diesel load without storage system
- Questions

INNOVATIONS



**elgris**

# Introduction

# Introduction



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- Active with hybrid systems since 2004
- Focus on Diesel generators
- Hybrid battery chargers for Deutsche Bahn, Siemens, Voith Turbo and MTU
- Hybrid battery chargers build based on a fuel cell
- First German company introducing the Diesel-PV control systems in 2011



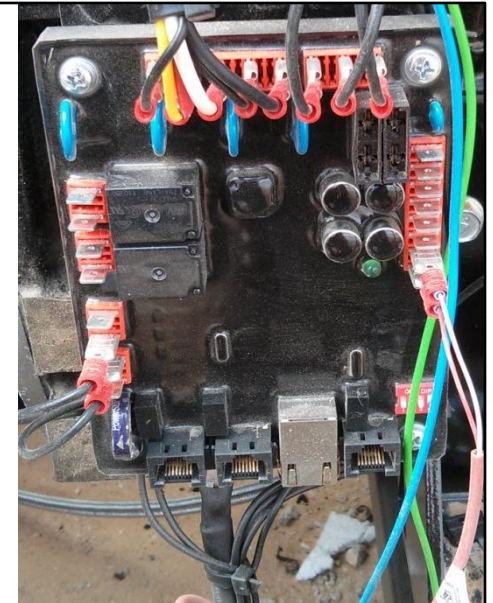
# DC controller

# DC systems



**elgris**

- DC-5 hybrid controller
- Single board solution
- Remote monitoring included
- Easily expansion by means of a serial bus
- Focus on DC coupled system 5 kW



# DC-5 controller



**elgris**

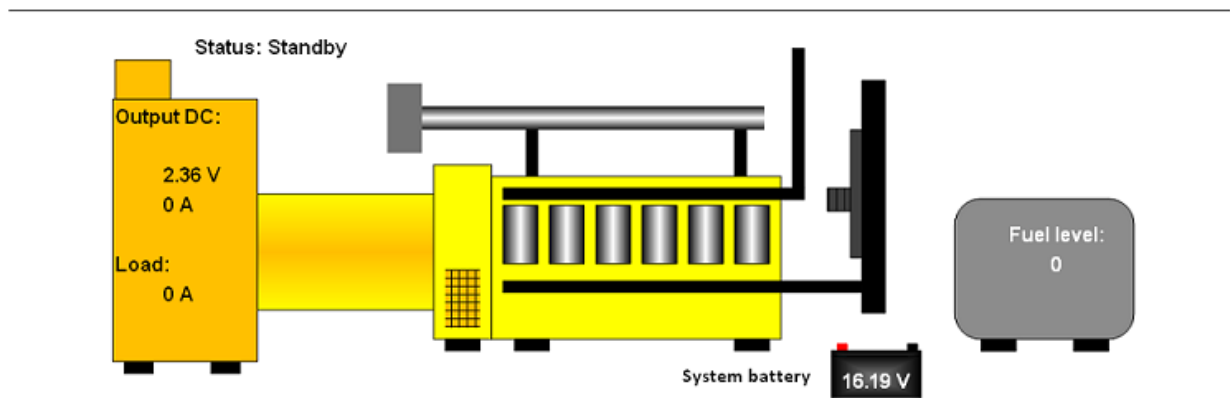


*DC-5 Generator controller*

Version: 2.5.11  
elgris GmbH  
02.04.12 - 15:59

## System Overview

- [Overview](#)
- [Settings](#)
- [Log](#)
- [Manual Control](#)



# DC-5 controller



**elgris**



*DC-5 Generator controller*

Version: 2.5.11  
elgris GmbH  
02.04.12 - 16:09

## System information: elgris GmbH

- [Overview](#)
- [Settings](#)
- [Log](#)
- [Manual Control](#)

**Errors:**

02.04.12 15:58 : Oil sensor problem

**Warnings and user information:**

24.05.12 12:00 : Initialising using user IP  
24.05.12 12:00 : Manual mode  
02.04.12 15:58 : Searching for sensors  
02.04.12 15:58 : Sensor found; none  
02.04.12 15:58 : No battery detected



# DC-5 controller



**elgris**



*DC-5 Generator controller*

*Version: 2.5.11*

## Generator manual control

- [Overview](#)
- [Settings](#)
- [Log](#)
- [Manual Control](#)

On this page you can control the generator manual. Please note that elgris GmbH is **NOT** responsible for any damage.

To prevent the generator for damage there will be a cooling down period after stopping the generator of **15 minutes**. This means that issuing a **START** signal withing this time has no effect.

Before issuing a **START** signal, please check the status of the generator. It should be "**Standby or Ready**"!

**Start the generator**

Start Generator

**Stop the generator**

Stop Generator

# CS-200 sensor



**elgris**

- Measure currents up to +/- 800 A
- Voltage range upto 100 V
- RS-485 MOD bus for easy integration into existing systems
- Contactless measurement
- Easy connection to the internet
- String monitoring, load control, current balancer



# Diesel – PV systems

# Diesel – PV



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- First German company with Diesel – PV control systems introduced in 2011
- First German company with Diesel – PV control systems with integrated monitoring and control solutions
- ☞ First German company with 0% Diesel-load / 100 % PV penetration in a (battery) storage less Diesel-Hybrid system (2014)

# HYBRID<sup>©</sup>



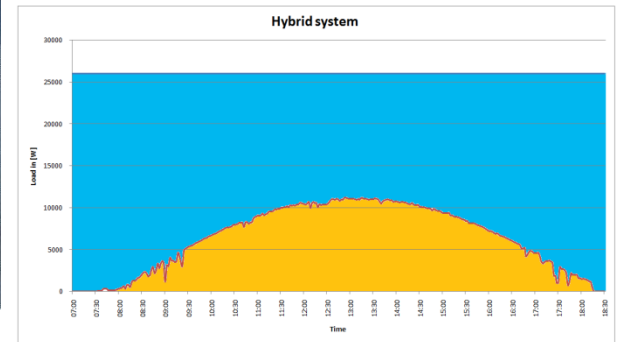
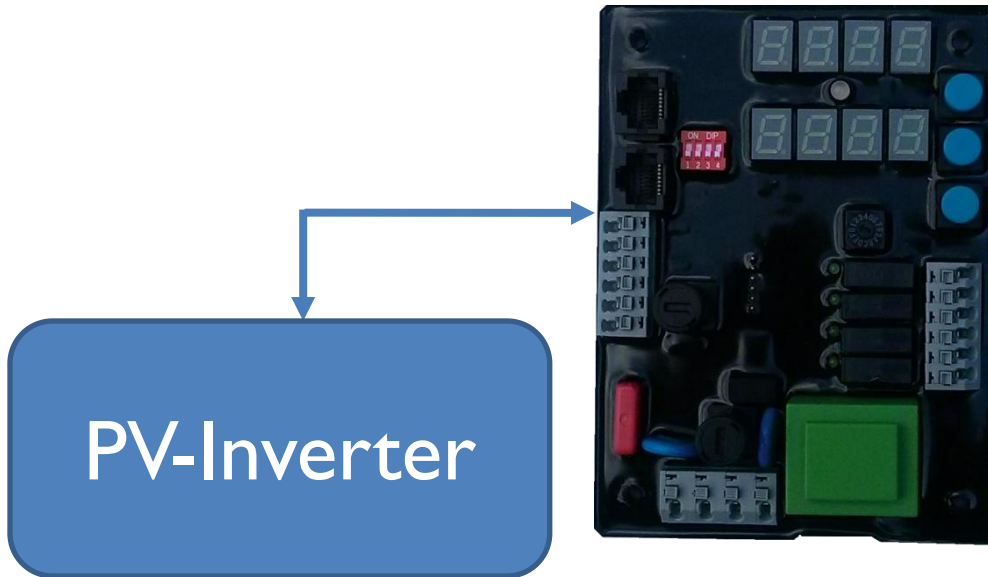
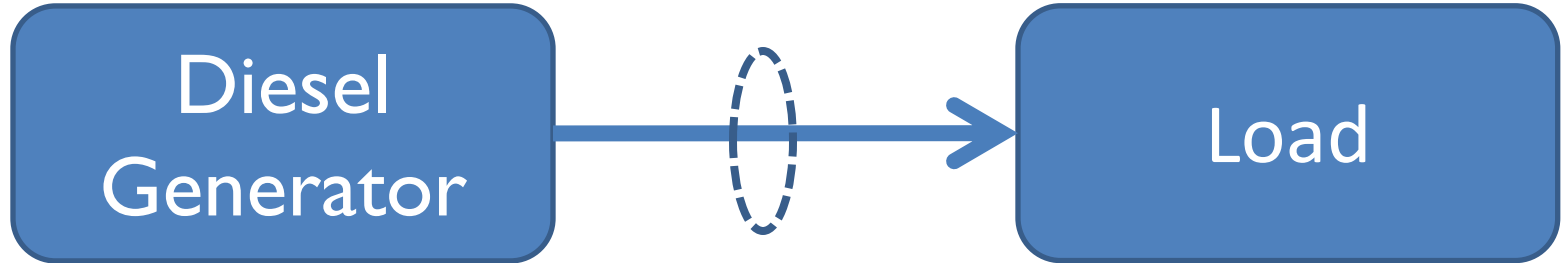
**elgris**

- “Off the Shelf concept”
- No special knowledge about PV systems needed
- No complicated system design
- No expensive training
- Commissioning in only 1 minute, no special tools needed
- Word-Wide access and updates possible

# HYBRID<sup>©</sup>



elgris



# HYBRID<sup>©</sup>



**elgris**

- 3 versions available:
  - Green line for 1 inverter system
  - Blue line for upto 5 inverters per system
  - Red line for upto 15 inverters per system
- Remote access through Ethernet / GSM
- Double user display
- 3 pushbuttons makes it easy to change settings



**0 % Diesel hybrid systems**



# 0% Diesel Load



elgris

- 5 kW version now available
  - Can be used with any type of generator
  - Can be used with any type of PV system
  - Easily scalable upto 250 kW
- Complete package „Out of the Box“

0% Diesel Load



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# Resume



**elgris**

- Active since 2004 with hybrid systems and controllers
- DC-5 controller for DC coupled systems
- CS-200 current sensor with digital interface
- HYBRID controller for AC coupled systems „Off the Shelf“
- 0% power systems for Diesel – PV systems

INNOVATIONS



**elgris**

**Questions ?**

# Contact



**elgris**

elgris GmbH

Langerweher Straße 10

D-52459 Inden

[info@elgrispower.com](mailto:info@elgrispower.com)

[www.elgrispower.com](http://www.elgrispower.com)