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V.A.T. No.: DE145551926

**HEINZMANN®**  
**Electronic Speed Governors**

# Generator Soft Loading Unit

**GSLU 01**

 <p><b>Warning</b></p>	<p>Read this entire manual and all other publications appertaining to the work to be performed before installing, operating or servicing your equipment.</p> <p>Practice all plant and safety instructions and precautions.</p>
 <p><b>Danger</b></p>	<p>Failure to follow instructions may result in personal injury and/or damage to property.</p> <p>HEINZMANN will refuse all liability for injury or damage which results from not following instructions</p>
 <p><b>Danger! High Voltage</b></p>  <p><b>Danger</b></p>	<p><b>Please note before commissioning the installation:</b></p> <p>Before starting to install any equipment, the installation must have been switched dead!</p> <p>Be sure to use cable shieldings and power supply connections meeting the requirements of the <i>European Directive concerning EMI</i>.</p> <p>Check the functionality of the existing protection and monitoring systems.</p>
 <p><b>Danger</b></p>	<p><b>To prevent damages to the equipment and personal injuries, it is imperative that the following monitoring and protection systems have been installed:</b></p> <p>Overspeed protection acting independently of the speed governor</p> <p>Overtemperature protection</p> <p>HEINZMANN will refuse all liability for damage which results from missing or insufficiently working overspeed protection</p> <p><b>Generator installation will in addition require:</b></p> <p>Overcurrent protection</p> <p>Protection against faulty synchronization due to excessive frequency, voltage or phase differences</p> <p>Reverse power protection</p>
	<p><b>Overspeeding can be caused by:</b></p> <p>Failure of the voltage supply</p> <p>Failure of the actuator, the control unit or of any accessory device</p> <p>Sluggish and blocking linkage</p>



**Warning**

**Electronically controlled injection (MVC) will in addition require to observe the following:**

With **Common Rail** systems a separate mechanical flow limiter must be provided for each injector pipe.

With **Pump-Pipe-Nozzle (PPN)** and **Pump Nozzle (PNE)** systems fuel release may be enabled only by the movement of control piston of the solenoid valve. This is to inhibit fuel from being delivered to the injection nozzle in case of seizure of the control piston.



**Warning**

The examples, data and any other information in this manual are intended exclusively as instruction aids and should not be used in any particular application without independent testing and verification by the person making the application.



**Danger**

Independent testing and verification are especially important in any application in which malfunction might result in personal injury or damage to property.

HEINZMANN make no warranties, express or implied, that the examples, data, or other information in this volume are free of error, that they are consistent with industry standards, or that they will meet the requirements for any particular application.

HEINZMANN expressly disclaim the implied warranties of merchantability and of fitness for any particular purpose, even if HEINZMANN have been advised of a particular purpose and even if a particular purpose is indicated in the manual.

HEINZMANN also disclaim all liability for direct, indirect, incidental or consequential damages that result from any use of the examples, data, or other information contained in this manual.

HEINZMANN make no warranties for the conception and engineering of the technical installation as a whole. This is the responsibility of the user and of his planning staff and specialists. It is also their responsibility to verify whether the performance features of our devices will meet the intended purposes. The user is also responsible for correct commissioning of the total installation.

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## 1 Safety Instructions and Related Symbols

This publication offers wherever necessary practical safety instructions to indicate inevitable residual risks when operating the engine. These residual risks imply dangers to

persons

product and engine

environment.

The symbols used in this publication are in the first place intended to direct your attention to the safety instructions!



Warning

*This symbol is to indicate that there may exist dangers to the engine, to the material and to the environment.*



Danger

*This symbol is to indicate that there may exist dangers to persons. (Danger to life, personal injury))*



Danger!  
High  
Voltage

*This symbol is to indicate that there exist particular danger due to electrical high tension. (Mortal danger).*



Note

*This symbol does not refer to any safety instructions but offers important notes for better understanding the functions that are being discussed. They should by all means be observed and practiced. The respective text is printed in italics.*

**The primary issue of these safety instructions is to prevent personal injuries!**

Whenever some safety instruction is preceded by a warning triangle labelled “Danger” this is to indicate that it is not possible to definitely exclude the presence of danger to persons, engine, material and/or environment.

If, however, some safety instruction is preceded by the warning triangle labelled “Caution” this will indicate that danger of life or personal injury is not involved.

**The symbols used in the text do not supersede the safety instructions. So please do not skip the respective texts but read them thoroughly!**

**In this publication the Table of Contents is preceded by diverse instructions that among other things serve to ensure safety of operation. It is absolutely imperative that these hints be read and understood before commissioning or servicing the installation.**

### **1.1 Basic Safety Measures for Normal Operation**

- The installation may be operated only by authorized persons who have been duly trained and who are fully acquainted with the operating instructions so that they are capable of working in accordance with them.
- Before turning the installation on please verify and make sure that
  - only authorized persons are present within the working range of the engine;
  - nobody will be in danger of suffering injuries by starting the engine.
- Before starting the engine always check the installation for visible damages and make sure it is not put into operation unless it is in perfect condition. On detecting any faults please inform your superior immediately!
- Before starting the engine remove any unnecessary material and/or objects from the working range of the installation/engine.
- Before starting the engine check and make sure that all safety devices are working properly!

### **1.2 Basic Safety Measures for Servicing and Maintenance**

- Before performing any maintenance or repair work make sure the working area of the engine has been closed to unauthorized persons. Put on a sign warning that maintenance or repair work is being done.
- Before performing any maintenance or repair work switch off the master switch of the power supply and secure it by a padlock! The key must be kept by the person performing the maintenance and repair works.
- Before performing any maintenance and repair work make sure that all parts of engine to be touched have cooled down to ambient temperature and are dead!
- Refasten loose connections!
- Replace at once any damaged lines and/or cables!
- Keep the cabinet always closed. Access should be permitted only to authorized persons having a key or tools.

- Never use a water hose to clean cabinets or other casings of electric equipment!

### **1.3 Before Putting an Installation into Service after Maintenance and Repair Works**

- Check on all slackened screw connections to have been tightened again!
- Make sure the control linkage has been reattached and all cables have been reconnected.
- Make sure all safety devices of the installation are in perfect order and are working properly!

## **2 Application**

The HEINZMANN GSLU 01 Generator Soft Loading Unit has been designed for use in conjunction with a HEINZMANN LMG 10 Load Sharing Unit. It allows single sets to be soft loaded and unloaded onto an island system. The GSLU 01 allows full isochronous governing over the full load ramping range.



## **3 Gensets Load Sharing**

### **3.1 Loading**

The generator set will be allowed to parallel to the existing load share lines by virtue of ramping the load sharing unit up to the common parallel load share line. Once this has happened, the load sharing unit automatically connects to the isochronous load share line.

By closing a separate contact, it is also possible to get a connection to the load share line directly.

### **3.2 Unloading**

During this operation the GSLU 01 unit isolates the load share line from the generator which has to be unloaded by ramping down the load and allows the generator to unload to a preset level at which the breaker can be opened.

### **3.3 Base Load Function**

- 1.) This is used to set a load of a preset amount against the island system or the mains if the total island system is parallel to the mains.
- 2.) This is used for running a generator set isolated from the load share lines and running at a set level.

### 4 Functional Block Diagram

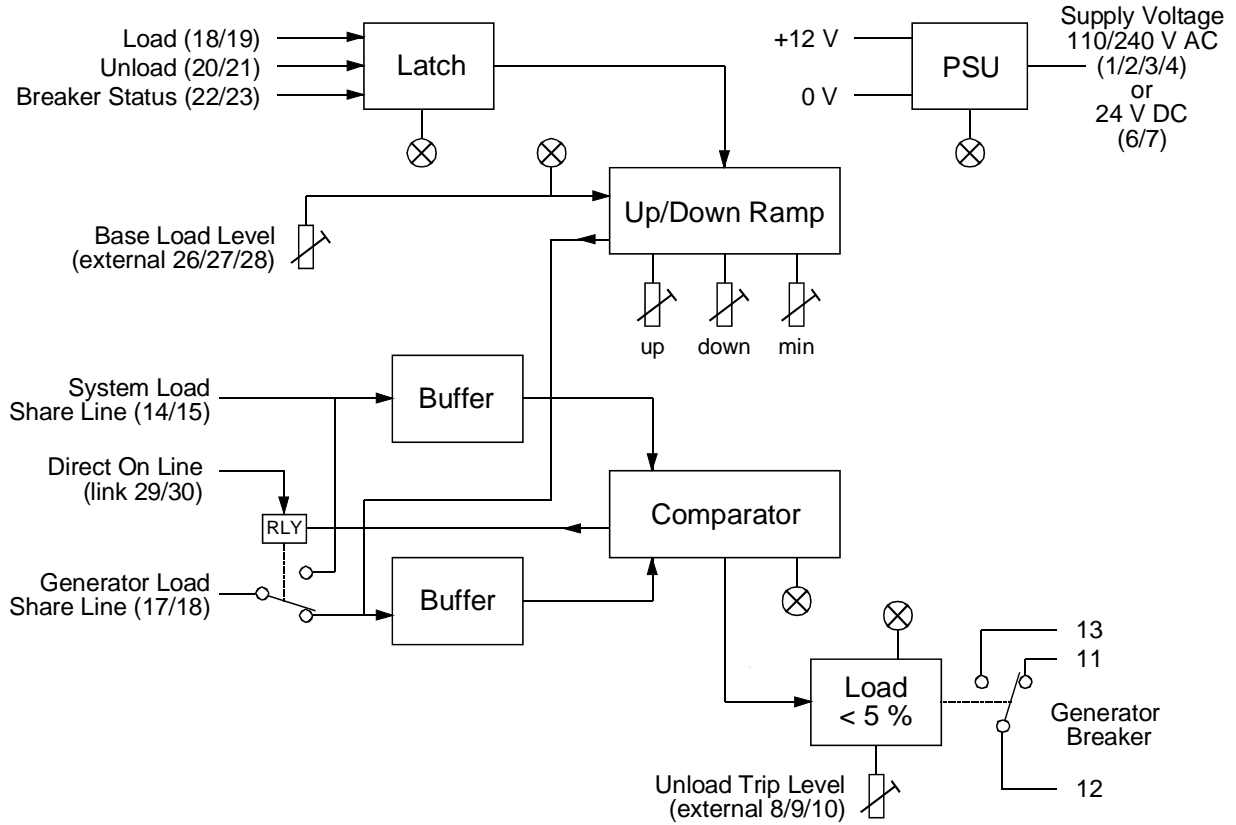


Figure 1: Functional Block Diagram of GSLU 01

## 5 Specification

Supply voltage		24 V DC $\pm$ 20%, 300 mA maximum
	or	110/240 V AC $\pm$ 15%, 6 VA maximum
Maximum residual ripple of supply voltage DC		10% at 100 Hz
Control switches		24 V DC, 25 mA
Relay contacts		250 V AC, 1 A
	or	28 V DC, 1 A
Unload trip level		0..80 %
Ramp-up adjustment time		5..60 seconds, (0..3 min optional)
Ramp-down adjustment time		5..60 seconds, (0..3 min optional)
Temperature range		0..+70 °C
Enclosure		DIN rail mount
Protection grade		IP 00
Weight		0.67 kg

## 6 Electrical Connection

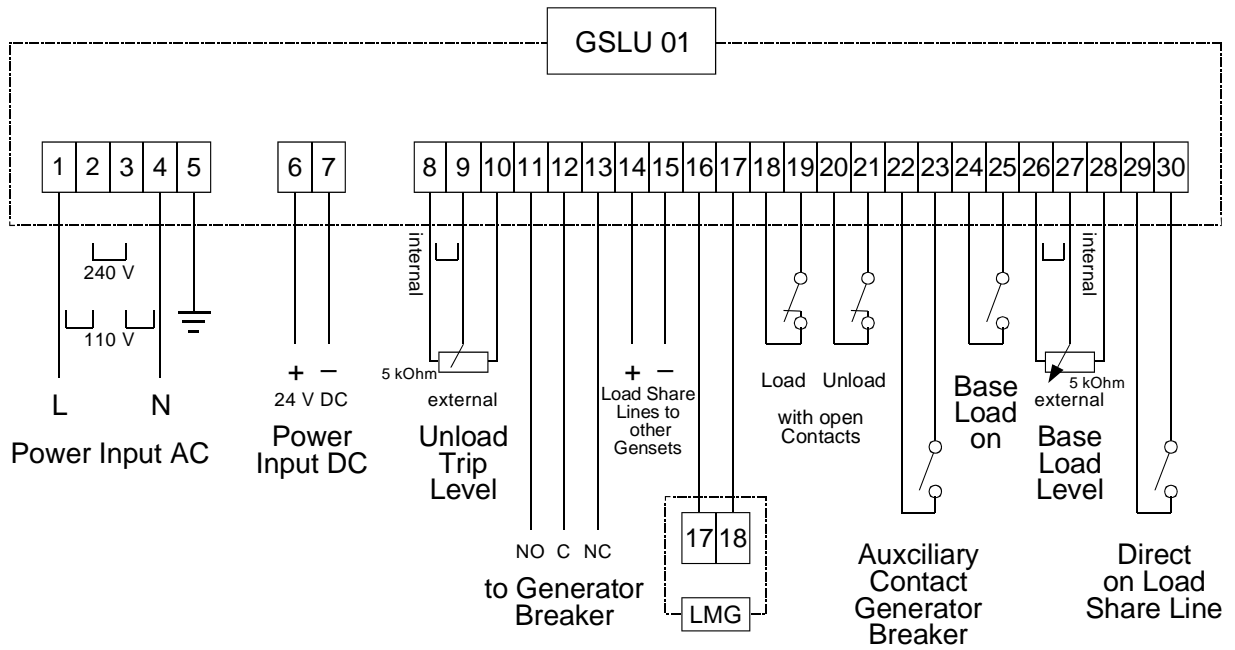


Figure 2: Connection of GSLU 01

7 Measurements

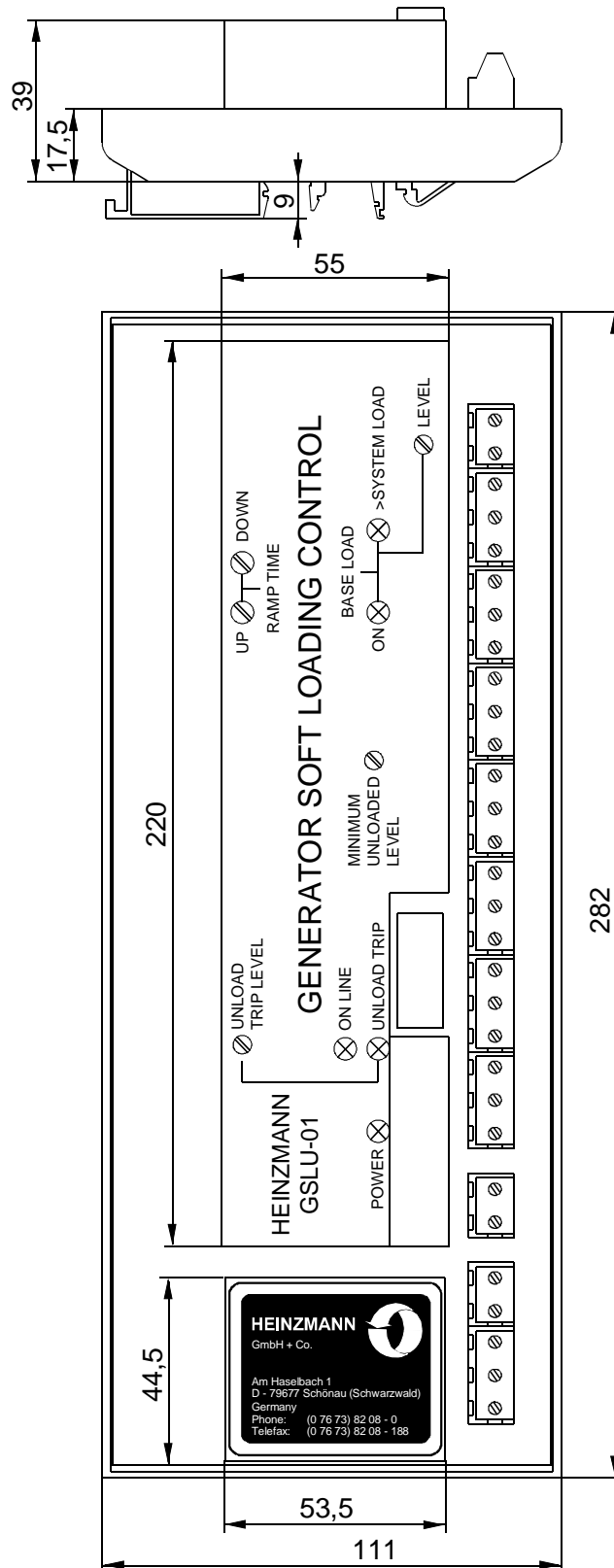


Figure 3: Measurements of GSLU 01

## 8 Indications and Adjustments

### 8.1 Indication and Operation Elements on the Board

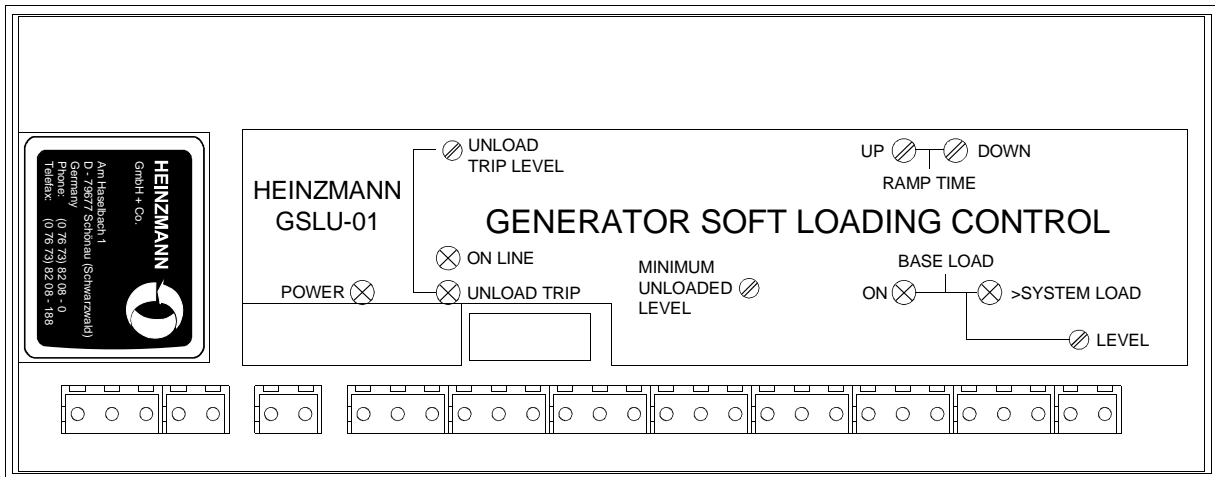


Figure 4: Indication and Operation Elements of GSLU 01

### 8.2 Functions of Indication Lamps

#### LED Power

Indicates the unit is powered up.

#### LED On Line

Indicates that the system load share lines are connected to the generator load share lines.

#### LED Unload Trip

Normally on. Goes out at unload trip level.

#### LED Base Load On

Indicates that the base load mode has been selected.

#### LED Base Load System Load

Indicates that the base load value is set higher than the system load. The generator is prevented from going up to its base load setting in this case.

## **8.3 Adjustments**

### **Ramp Time Up**

This potentiometer sets the time to ramp up from zero to full load.

### **Ramp Time Down**

This potentiometer sets the time to ramp down from full load to zero load.

### **Minimum Unloaded Level**

This potentiometer sets the minimum load before loading up. With this adjustment possibility it is avoid going into reverse power if the generator is parallel but not told to load up.

### **Unloading Trip Level**

The unloading trip level can be set internal or external. The terminals 8/9 have to be linked to use the internal potentiometer.

This potentiometer sets the load level at which the generator breaker gets the signal to open when unloading. The opening of the breaker contact connected to terminals 22/23 resets this so that the contact to open the breaker only operates during unloading.

### **Base Load**

The base load can be set internal or external. The terminals 26/27 have to be linked to use the internal potentiometer.

This potentiometer sets the base load the genset has to run at. This function is selected by the base load switch connected to terminals 24/25. When the function is selected, if the genset is loaded, the genset will unload to base level. If the genset is unloaded, it will load up to base load when it is commanded to load.

## **9 Order Specifications**

The order specification for the **Generator Soft Loading Unit** is:

GSLU 01



## 10 Order Specifications for Manuals

There is no charge for our technical manuals ordered in reasonable quantities.

Order the necessary manuals on our speed governors from your nearest

[HEINZMANN location](#).

(Please click on “HEINZMANN location” to see the list of our subsidiaries and agents in the world).

### **Please include the following information:**

- your name,
- the name and address of your company (you can simply include your business card),
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You can directly use the following fax-form for ordering one or several manuals.

Most of the manuals are available as acrobat PDF-files, too. On request they can be send via e-mail.

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