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HEINZMANN®






Digital Governor Panel

(DGP-01-G)

ARGOS

Operating Manual

Display and Operating Device for
Integration in Cabinet Doors and Control Panels
for Operation by
DGM-01-G (Digital Generator Management)

 Attention	<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>
 Danger	<p>Failure to follow this instruction may result in personal injury and/or damage to property.</p>
 Caution! High Voltage  Danger	<p>Please note before commissioning the installation:</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>
 Danger	<p>To prevent damages to the equipment and personal injuries, it is imperative that the following monitoring and protection systems be provided:</p> <p>Overspeed protection acting independently of the speed governor</p> <p>Overtemperature protection</p> <p>Additional requirements for generator installations:</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>Overspeeding can be caused by:</p> <p>Failure of voltage supply</p> <p>Failure of control unit or of accessory devices</p> <p>Failure of actuator</p> <p>Sluggish and blocking linkage</p>



 Attention	<p>The examples, data and any other information contained 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.</p>
 Danger	<p>Independent testing and verification are especially important in any application where malfunction might result in personal injury or damage to property.</p>
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Table of Contents

	Page
1 General	1
1.1 General Device Description	1
1.2 Further Information	2
1.3 Parameterizing Digital HEINZMANN Controls: General Explanations	3
1.3.1 Parameter Lists	3
1.4 Parameter Value Ranges.....	5
1.5 Levels	5
2 Operating and Display Elements	7
2.1 LCD Display.....	7
2.2 LED Indication	8
2.3 Keypad.....	10
3 Operation Modes and Functions.....	11
3.1 Initialization.....	11
3.2 Programmer Mode.....	11
3.3 Function Selection Menu.....	12
3.4 Measurement Window.....	13
3.5 Save Param Set.....	14
3.6 Clear Errors	14
3.7 Upload/Download Param Set	14
3.8 Clear Error Memory	15
3.9 Mask On/Off; Param In Mask On/Off.....	16
3.10 HP03 Settings/Info	16
3.11 Reset Control Unit.....	17
4 Structure of Operation (General Overview).....	19
5 Technical Data	21
5.1 Specification	21
5.2 Dimensions	21
5.3 Device Dimensions.....	22
5.4 Switchboard Cutout	23
6 Index of Figures.....	25
7 Order Specifications for Manuals.....	27

1 General

1.1 General Device Description

The HEINZMANN Digital Governor Panel ARGOS DGP-01-G provides a human-machine-interface for operation of THESEUS DGM-01-G Digital Generator Management. It can be mounted into panel doors and console front panels.

The primary functions of DGP-01-G are:

- indication of the operating condition of the generator set (status of synchronization and circuit breakers, load values) as well as
- display and adjustment of parameters of the connected control unit.

When in operating mode for display and adjustment of parameters the DGP-01-G provides the complete functionality of the Handheld Programmer HP-03 (Programmer Mode). It can, therefore, also be used to parameterize HEINZMANN digital speed governors installed in the same panel. In this case, however, the display and adjustment features will depend on the type of control unit and may differ from those described in this document.

A 4-line alphanumeric display and 8 LED's are provided for displaying information and a 7-key foil-keypad for control operation.

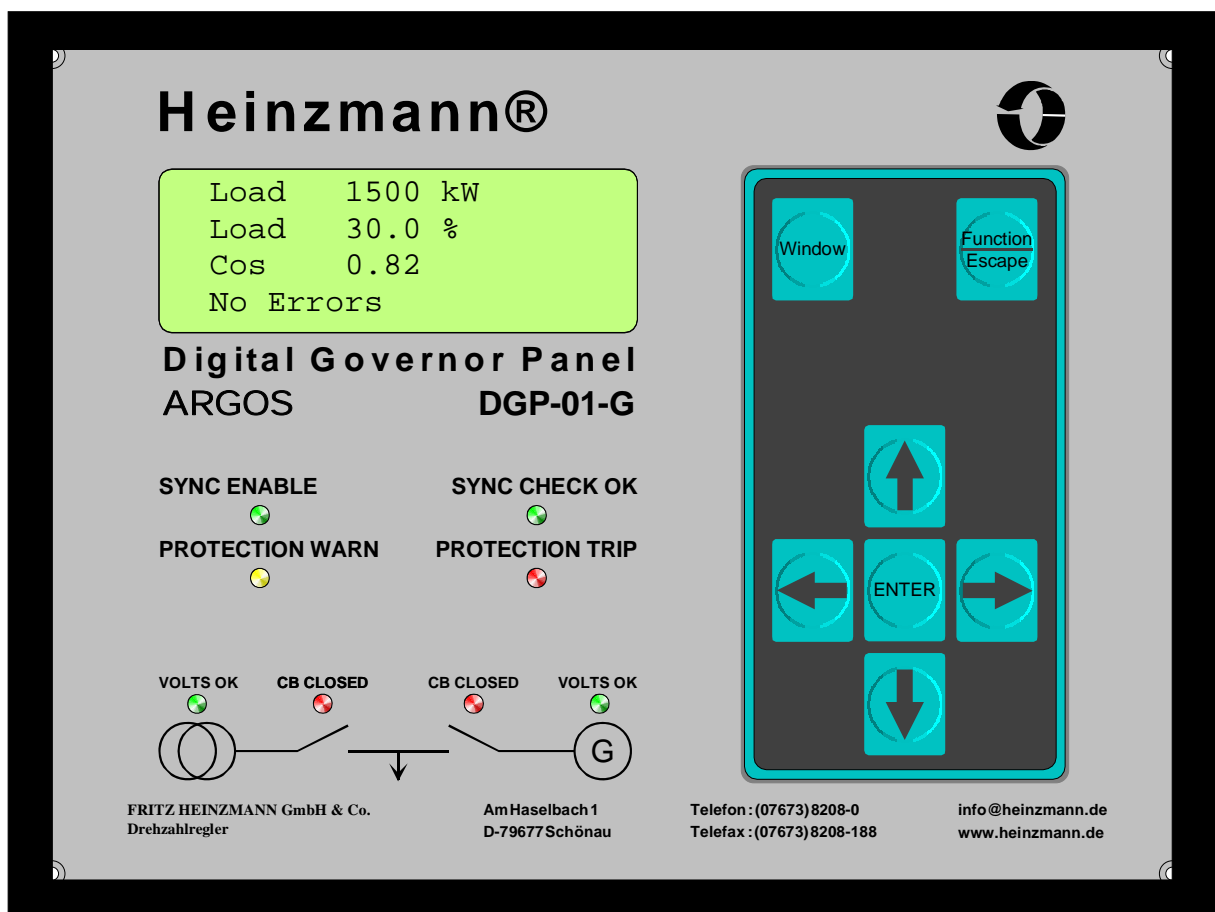


Figure 1 Front View DGP-01-G

1.2 Further Information

This document describes how to operate the DPG-01-G. Detailed descriptions of its application areas and functions as well as of the adjustment of the DGM-01-G Digital Generator Management is to be found in these brochures:

Digital Generator Management (DGM-01) THESEUS: Control Systems for Electronically Controlled Generator Sets in Isolated and Mains Parallel Operation,
Manual No. MV 97-002-e.

Digital Generator Management (DGM-01) THESEUS: Basis Information 2000 for Electronically Controlled Generator Installations in Isolated and Mains Parallel Mode,
Manual No. DG 01 015-e.

The Electronic Generator Management System is shipped configured to customer requirements. To properly execute orders and delivery it is absolutely necessary for the customer to complete the below document and return it to **HEINZMANN**:

DIGITAL THESEUS DGM-01, Digital Generator Management for Installations with Synchronous Generators, Order Information,
Brochure No. DG 99 007-e.

An explanation of the general possibilities of configuring **HEINZMANN** Digital Controls including a description of the functions of the communication software DcDesk 2000 can be found in:

Operating Instructions Communication Programme DcDesk 2000: Version for Digital Speed Control Systems and Magnetic Valve Control,
Manual No. . DG 00 003-e.

A description of the Hand Programmer HP-03-01 which is closely related with the DPG-01-G can be found in:

Operating Instructions Hand Programmer HP-03-01: Version for Digital Speed Control Systems and Magnetic Valve Control:
Manual No. DG 00 002-e.

The numerous application possibilities of **HEINZMANN** Controls are explained in various other publications which can be ordered from **HEINZMANN**.

1.3 Parameterizing Digital HEINZMANN Controls: General Explanations

1.3.1 Parameter Lists

In developing the **HEINZMANN** Digital Controls top priority was given to realizing a combination of universal applicability and high grade functionality. For each individual function a certain number of parameters has to be set and adjusted. Due to the great number of functions a multitude of parameters had to be implemented. For the sake of clarity and easy access the parameters have been grouped into four lists:

1. Parameters Parameters used for adjusting control unit and genset values
(parameter numbers 1..1999)
2. Measurements Parameters for indicating the current conditions of control
unit and genset
(parameter numbers 2000..3999)
3. Functions Parameters for activating and toggling functions
(parameter numbers 4000..5999)
4. Curves Parameters for parameterizing characteristics and maps
(parameter numbers 6000..9999)

For the parameter ranges from numbers 10000 to 19999 and 20000 to 29999 there exist additional groups of four lists each arranged in similar manner as the foregoing.

The parameter ranges are distributed as follows:

1. Speed governor Parameters for hardware based and speed governor
functions
(parameter numbers 1.. 9999)
2. Generator control Parameters for generator control and protection functions
(parameter numbers 10001..19999)
3. Start/Stop
sequence Parameters for starting and stopping the set
(parameter numbers 20001..29999)

Each parameter has been assigned a number and an identifier (abbreviated parameter name). The parameter number also indicates which list the parameter belongs to. Within these lists, the parameters are arranged by groups to facilitate identification and access.

The following table exhibits the different parameter groups in adjacent columns. The contents of this table are specific of the DPG-01-G. Parameter groups for device specific or special accessory functions depend on the type and the particular application of the control device and will therefore be described in the respective documentation.

Parameters		Measurements		Functions		Curves	
No.	Designation	Nr.	Designation	Nr.	Designation	Nr.	Designation
100	Synchronizing	2000	Speed/Frequency	4000		6000	Voltage Capture
		2100	Voltage/Current	4100		6100	
		2200	Power/Power factor	4200		6200	
300	Measurement voltage/ current; calibration	2300	Speed governor signals	4300		6300	Current Capture
400	CAN bus	2400	CAN bus	4400	CAN bus	6400	
500	Power control	2500	Load setpoints/ DeviceNet	4500	Station overview/ Activation of functions	6500	
600	Voltage control	2600	Status (AVR; Synch.)	4600	Activation of functions	6600	
700	Limitations/Messages	2700	Limitations/Messages	4700	Limitations	6700	
800	Switching functions/ Digital outputs	2800	Switch states/ Digital outputs	4800	Switch configuration	6800	
900	Sensor assignment	2900	Sensors	4900	Sensor assignment	6900	
1000	Substitution values for sensor errors	3000	Current errors	5000	Error handling	7000	
1100		3100	Error memory	5100	Error handling	7100	
1200		3200	Operating mode	5200		7200	
1300		3300		5300		7300	
1400		3400		5400		7400	
1500	Adjustments PWM-/ Analogue inputs	3500	PWM/ Analogue inputs	5500	Analogue inputs	7500	
1600	Adjustments PWM-/ Analogue outputs	3600	Internal measurements	5600	Analogue outputs	7600	
1700	Digital potentiometer amplification	3700	Status (energy counter;voltage)	5700		7700	
1800	Status	3800	Status	5800		7800	
1900		3900	Load of parallel gen sets	5900	Capture curve shapes	7900	Temperature sensors

Table 1 Overview Parameter Lists and Groups

1.4 Parameter Value Ranges

With each parameter, a certain value range is associated. Since there is a multitude of parameters and functions, there also exist a great number of value ranges. Each parameter is displayed including its respective value range.

For certain parameters their value ranges cannot be explicitly specified in advance, but must be set in the control unit by the user. This applies to all parameters indicating physical measurements such as readings from pressure or temperature sensors.

Some parameters have a value range that is capable of two states only, viz. 0 or 1. This type of parameter is used to activate or switch over particular functions or to indicate error conditions or states of external switches, etc. Parameters with this value range are confined to the lists 2 (Measurements) and 3 (Functions)

With these parameters, state "1" signifies that the respective function is active or that the respective error has occurred, whereas state "0" signals the function to be inactive resp. that there is no error.

The parameter names of change-over switches as well as those of parameters provided for selection between two functions always include an „*Or*“ (e.g., 2812 *SwitchDroop2Or1*). The function preceding *Or* in the parameter name is activated by setting the parameter value to 1 whilst the function after *Or* will be active when the value of the parameter is 0.

1.5 Levels

Since it is the Digital Control's primary function to control the aggregate's operational performance with regard to speed, power, etc., parameterization should remain entrusted exclusively to skilled specialists. However, to let also the ultimate customer participate in the advantages of the Digital Control, the parameters of the **HEINZMANN** Digital Control have been organized as a hierarchical system of seven levels:

- ◆ Level 1: Level for the ultimate customer

On this level, it is possible to have the basic operational values (e.g., setpoints and current values of speed, output, etc.) and errors displayed. This level does not allow any manipulations of the control data or the genset data.

- ◆ Level 2: Level for the device manufacturer

The device manufacturer can set speeds within the permissible ranges. Besides, the control's dynamic parameters and dynamic map may be modified and power output reduced.

◆ Level 3: Level for service

Except for the most significant aggregate specific parameters, such as engine output and boundaries of various characteristic diagrams, all types of modifications are permitted on this level.

◆ Level 4: Level for the engine manufacturer

On this level, the entire range of parameters required for parameterizing the control unit is accessible.

◆ Level 5: Level for manufacturers of gensets with specific software

This level is provided for parameters that are required for customer specific software modifications or expansions.

◆ Level 6: Level for the control manufacturer

On this level, control functions may be manipulated directly. Therefore, access remains reserved to **HEINZMANN**.

◆ Level 7: Level for development

This level remains reserved for the **HEINZMANN** development department.

2 Operating and Display Elements

2.1 LCD Display

The DPG-01-G includes a backlit LCD display of four lines with 20 characters each. Depending on the operating mode, it will display different types of information.

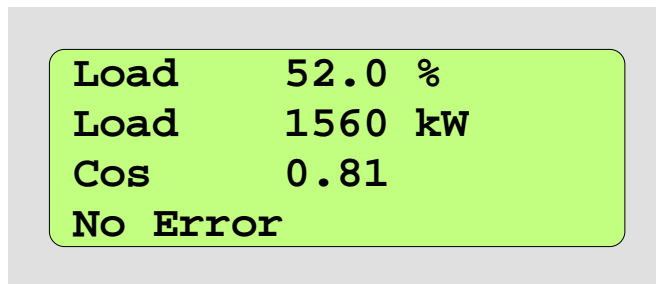


Figure 2 LCD Display in Measurement Window Mode

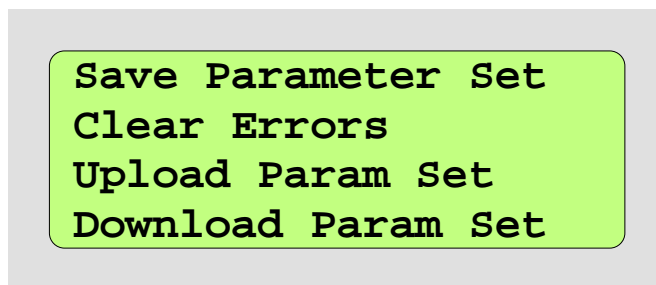


Figure 3 LCD Display in Function Selection Mode

2.2 LED Indication

Beneath the LCD display, there is a field with eight LED's of different colours providing a quick survey of the generator set's operating conditions.

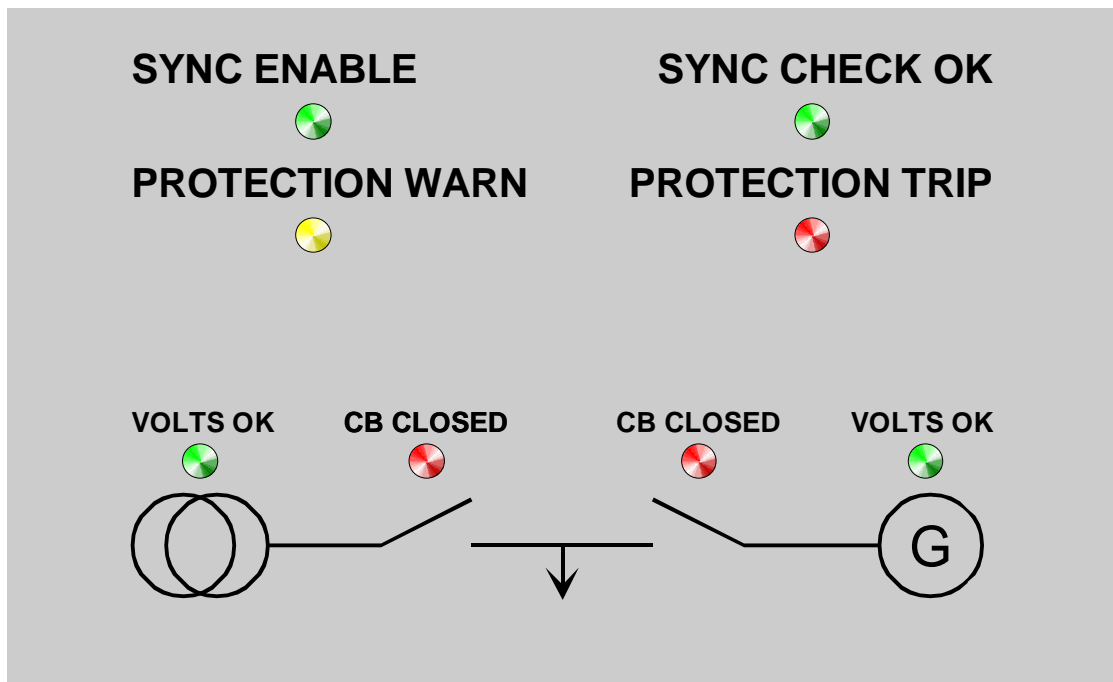


Figure 4 LED Status Indicators

Table 2 contains explanations of the individual indicators and information about the actions the DPG-01-G can be expected to perform in case the respective indicator is activated.

Designation	Colour	Information	Action/Comments
SYNC ENABLE	green	A synchronization command has been issued and is being executed.	When the synchronization conditions are satisfied and the preset delay time has elapsed the breaker is closed automatically!
SYNC CHECK OK	green	Synchronization conditions are satisfied: Voltage, frequency, phase are matched.	When the preset delay time has elapsed the contactor is closed automatically!
PROTECTION WARN	yellow	A generator protection function has detected some fault condition.	After the preset delay time has elapsed or in case the fault condition has worsened the breaker will be opened automatically. The fault condition is indicated by the display in text form.
PROTECTION TRIP	red	A generator protection function has detected some fault condition and the preset delay time has elapsed.	The breaker is opened! The fault condition is indicated by the display in text form.
VOLTS OK	green	Voltage and frequency of all three phases are within the admissible range around the nominal value.	
CB CLOSED	red	The contactor is closed.	

Table 2 Explanation of the LED Status Indicators

2.3 Keypad

The keypad for operating the DPG-01-G is installed on the right hand side of the front plate.

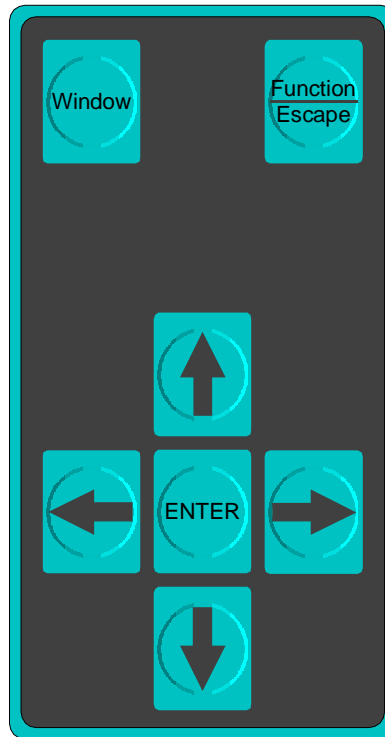


Figure 5 Keypad

Table Table 3 offers explanations of the functions of the different keys.






Key	Function
	Switching to next parameter list (available only in programmer mode)
	Calling the function menu or abandoning menus/operation modes
	Moving within the parameter lists, menus, etc.
	Switching between characters/decimal places when entering values/passwords
	Selection/Confirmation

Table 3 Explanation of Keys

3 Operation Modes and Functions

3.1 Initialization

On applying operational voltage, the DPG-01-G passes through an initialization phase during which the address and phone number of the **HEINZMANN** Company will be displayed. After that, the display will show the fix-programmed maximum user level, the identification number and the access mask of the particular DPG-01-G. The initialization phase will be over as soon as operating values of the genset are being displayed. The DPG-01-G will then be in measurement window mode (description: ↑ 3.4).

3.2 Programmer Mode

Programmer mode is the standard operating mode of the DPG-01-G. Depending on the user level, individual parameters may be displayed or adjusted.

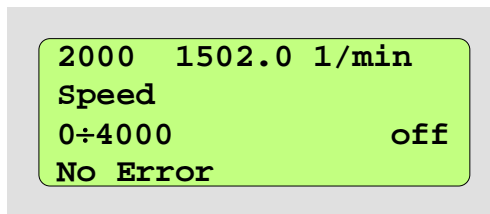


Figure 6 LCD: Programmer Mode

For each parameter/measurement, the first line will show its number, its value and the respective unit. The second line will display its name, while the third contains its value range as well as information concerning the user mask. The fourth line of the display will indicate any active error. If there is more than one error active, error indication will change cyclically.

Table 4 exhibits the operating possibilities in programmer mode:













Action	Keys
Parameter indication: Show next/preceding parameter/measurement	 
Parameter indication: Go to next parameter list (parameter displayed last in list)	
Parameter indication: Activate direct parameter selection (first digit of parameter value is flashing)	
Parameter indication: Edit displayed parameter value (last digit of parameter value is flashing)	
Entering parameter value/number: Switching between decimal places	 
Entering parameter value/number: Increasing/decreasing value at flashing decimal place	 
Entering parameter value/number: Termination without accepting changes	
Entering parameter value/number: Termination accepting changes	
Parameter indication: Activation of function selection menu	

Table 4 Operating Possibilities in Programmer Mode

3.3 Function Selection Menu

The function selection menu is activated by pressing the key 'Function/Escape' in programmer mode. This menu allows to call further functions of the DPG-01-G.

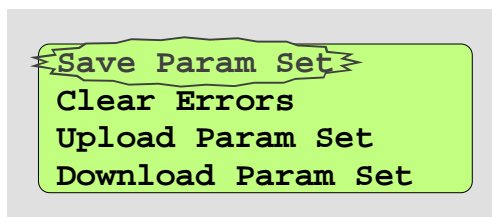


Figure 7 LCD: Function Selection Menu

Table Table 5 shows the operating possibilities of the function selection menu:





Action	Keys
Choose next/preceding menu item	 
Execute selected function	
Exit menu (return to programmer mode)	

Table 5 Operating Possibilities of Function Selection Menu

3.4 Measurement Window

The measurement windows offer the possibility of having up to three parameters simultaneously displayed. For this reason, the measurement window mode can be regarded to be the main operating mode of the DPG-01-G during normal generator operation and to replace or complement the existing instrumentation for voltages, currents, power output, power factors, synchronization and others. On turning on the control unit and thereby the DPG-01-G, the measurement window will be automatically displayed as soon as initialization has been executed.

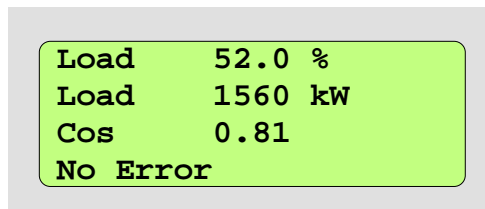


Figure 8 LCD: Measurement Window

Each of the first three lines will show an abbreviated name, the current value and the respective unit for one parameter/measurement. The fourth line will indicate any currently active error. If there is more than one error active, this indication will change cyclically.

Table Table 6 shows the operating possibilities in programmer mode:




Action	Keys
Show next/preceding group of parameters/measurements	 
Leave measurement window (return to programmer mode)	

Table 6 Operating Possibilities in Programmer Mode

3.5 Save Param Set

On selecting the menu item ‘Save Param Set’ all parameters are automatically stored in the control unit. When storage is complete, a message telling whether execution has been successful or unsuccessful will be displayed for about 3 seconds. During this procedure, operating the DPG-01-G will not be possible.

3.6 Clear Errors

When the menu item ‘Clear Errors’ is selected, all active errors stored in the control unit are cleared. Any errors, however, that are still active will continue to be displayed.

3.7 Upload/Download Param Set

The procedures ‘Upload Param Set’ und ‘Download Param Set’ permit to upload all actual parameter values from the control unit and store them in the DPG-01-G as well as to download them back into the control unit.

When selected, upload will be executed automatically without any further acknowledgment. The procedure is visualized by a progress bar in the fourth LCD line, and a message is displayed for about 3 seconds whether execution has been successful or unsuccessful.

On selecting ‘Download Param Set’, the software number of the software currently used by the control unit will be displayed for comparison with the number of the parameter set stored in the DPG-01-G. At this point, the procedure can be aborted without starting the download procedure. If download is confirmed by pressing ‘Enter’ a progress bar is displayed. On successfully completing the download procedure, it will be possible to either store the parameter values immediately in the control unit (as described in: ↑ 3.5) or to return directly to programmer mode. Table 7 shows the possibilities of operation that are available after selecting parameter download or after executing download, respectively.



Action	Keys
Execute selected function	
Leave menu (return to programmer mode)	

Table 7 Operating Possibilities for Storing Parameters

3.8 Clear Error Memory

This menu item permits to reset the error memory of the control unit. On executing this procedure, any simultaneously active error messages will be cleared. Any errors, however, that are still active will continue to be reported and kept in the error memory. Depending on the level of access, execution of this function will require to enter a password.

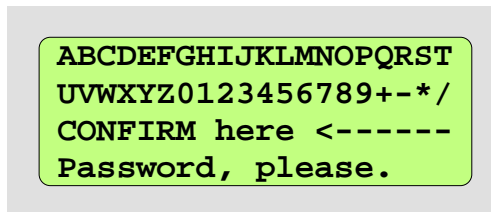


Figure 9 LCD: Password Input

Navigation within the display for password input is by means of the cursor keys. The first two lines serve to select the characters of the password, and the third line to start clearance of the error memory by confirming the entered password. Misentry will be acknowledged by the message ‘Invalid password’. Table 8 offers an overview of the possible entries:








Action	Keys
Changing position (lines 1 and 2 only)	 
Switching between the lines 1, 2 and 3	 
Leave menu (return to programmer mode)	
Selection of character for password (lines 1 and 2 only)	
Confirm password (line 3 only)	

Table 8 Password Input for Clearing Error Memory

3.9 Mask On/Off; Param In Mask On/Off

By activating a mask, the number of available parameters can be reduced in programmer mode for easier survey and access.

While being displayed in programmer mode, any parameter can be included in or removed from the mask by activating the function menu and selecting the item 'Param In Mask On/Off'.

The mask itself is activated or deactivated by selecting the function menu item 'Mask On/Off'

In programmer mode, the status of the mask is indicated in the third line of the LCD display:

- ,On' ➔ Parameter mask is not active; the parameter will, however, be displayed when the mask is active
- ,Off' ➔ Parameter mask is not active; the parameter will, however, be displayed when the mask is not active
- ,MASK' ➔ Parameter mask is active; only parameters included in the mask will be displayed

3.10 HP03 Settings/Info

The menu item 'HP03 Settings/Info' permits to adjust brightness and contrast of the display and serves to display status values and electrical operating parameters of the DPG-01-G. For this function, three different windows can be selected.

The first window serves for indicating and adjusting the values of brightness and contrast of the display and for indicating the number of the software used by the DPG-01-G.

The second window serves very much like during initialization to indicate the fix-programmed user level, the identification number and the access mask of the present DPG-01-G.

The third window indicates the values of the supply voltage provided by the control unit and of the internal 5 Volts reference.

Table 9 informs about the possibilities of input:












Action	Keys
Activate adjustment of contrast and brightness (in first screen only)	
Adjustment of contrast and brightness: Change position (lines 1 and 2 only)	 
Adjustment of contrast and brightness: Increase/Decrease value at flashing place	 
Adjustment of contrast and brightness: Terminate input without accepting changes	
Adjustment of brightness: Change from brightness to contrast	
Adjustment of contrast: Terminate input accepting changes	
Switching between the screens	 
Leave window (return to programmer mode)	

Table 9 Adjustmens and Device Information

3.11 Reset Control Unit

The menu item ‘Reset Control Unit’ permits to access the reset function of the control unit. On selecting this item, it will be possible to either confirm execution of the reset or to return to programmer mode without executing a reset. In case of confirmation, a message is displayed that the system is waiting for acknowledgment from the control unit. As soon as the reset has been executed, the DPG-01-G will return to programmer mode. If resetting is not possible due to the control's operating condition, the message ‘Reset not possible...’ will be displayed for about 3 seconds.



4 Structure of Operation (General Overview)

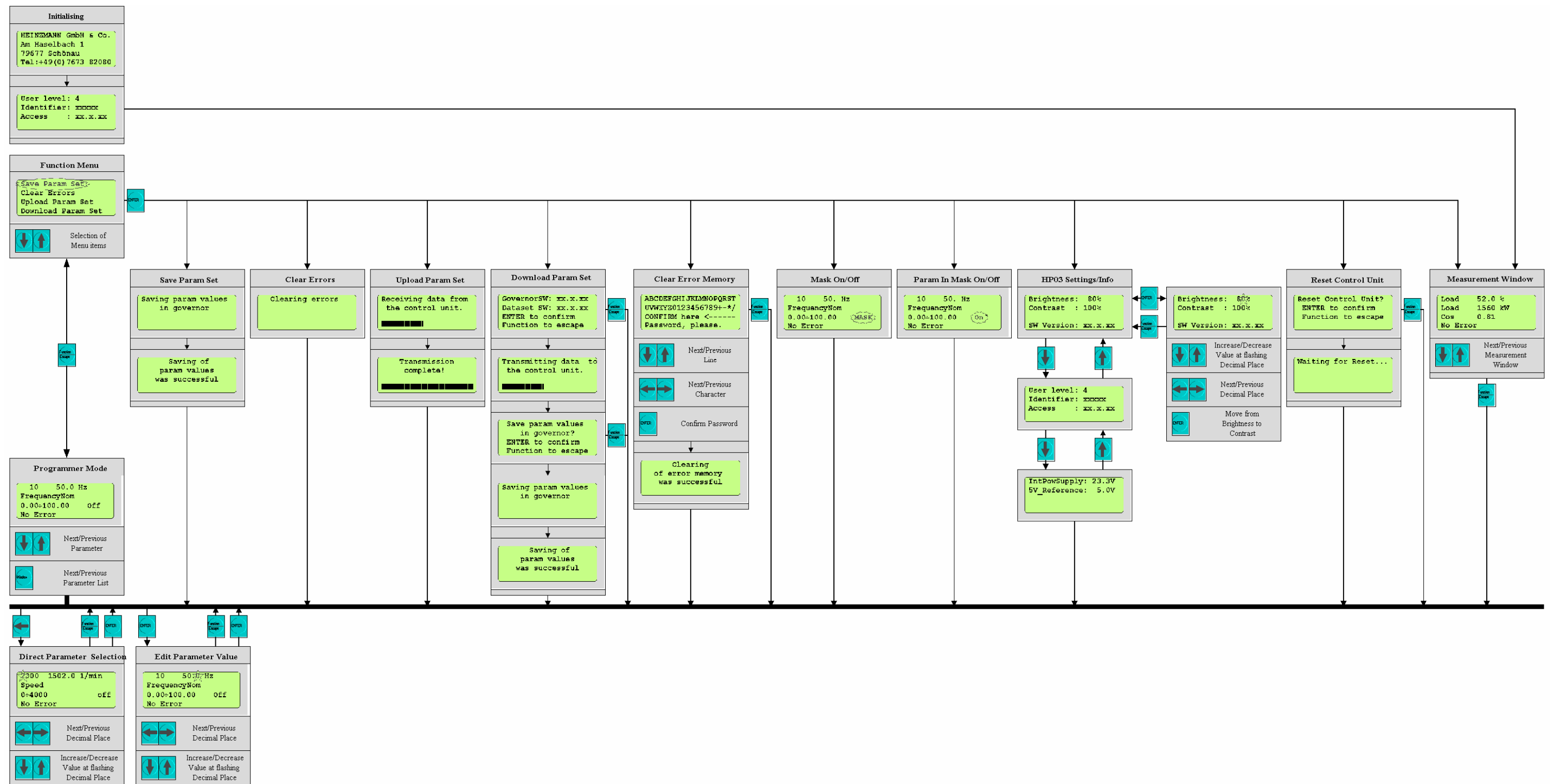


Figure 10 Structure of Operation (General Overview)

5 Technical Data

5.1 Specification

Operating Voltage	24 V DC (directly from control unit)	
Current consumption	<100mA	
LCD display	4 x 20 characters, backlit	
Additional indication elements	8 LED's	
Keypad	Foil keyboard, 7 keys	
Plug connectors	Communication:	1 x 8-polig, male
	LED control:	1 x 8-polig, female
Admissible ambient temperatures		
Storage	-40 °C to + 70 °C	
Operation	0 °C to + 50 °C	
Admissible air humidity	maximum 70 %	
Protection grade	IP 23	
Weight	0.5 kg	

5.2 Dimensions

All specifications without connector and without mounting clips

	Width	Height	Depth (ca.)
Case and frame	B	H	D
	192.0	144.0	60.5
Case body	b	h	d
	184.0	136.0	53.5
incl. rivets for mounting clips	b'		
	186.6		
Switchboard cutout	Ib	Ih	
	186.0 + 1.1	138 + 1.0	

Table 10 Dimensions

5.3 Device Dimensions

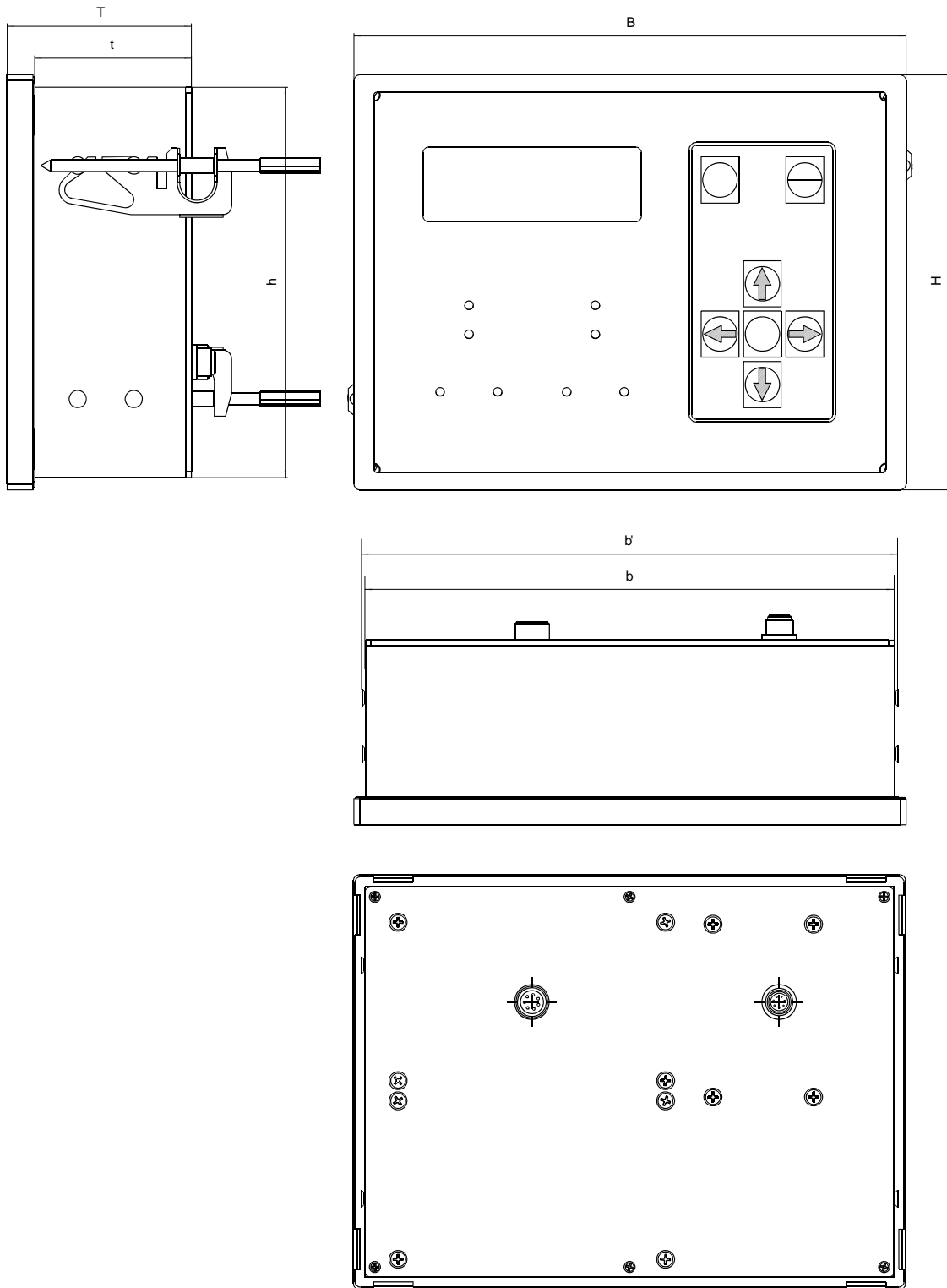


Figure 11 Dimensional Drawing

5.4 Switchboard Cutout

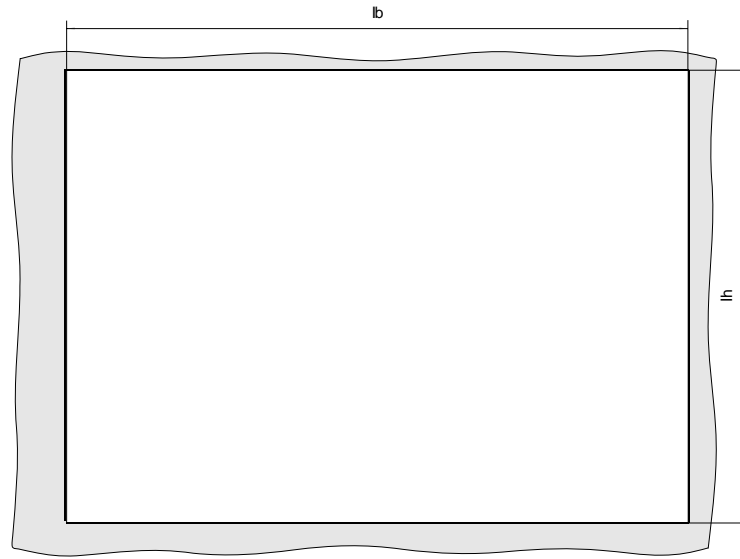


Figure 12 Dimensional Drawing of Switchboard Cutout

6 Index of Figures

Figure 1	Front View DGP-01-G	1
Figure 2	LCD Display in Measurement Window Mode.....	7
Figure 3	LCD Display in Function Selection Mode	7
Figure 4	LED Status Indicators.....	8
Figure 5	Keypad.....	10
Figure 6	LCD: Programmer Mode.....	11
Figure 7	LCD: Function Selection Menu.....	12
Figure 8	LCD: Measurement Window.....	13
Figure 9	LCD: Password Input	15
Figure 10	Structure of Operation (General Overview)	19
Figure 11	Dimensional Drawing.....	22
Figure 12	Dimensional Drawing of Switchboard Cutout	23

7 Order Specifications for Manuals

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

Order the necessary manuals on our speed governors from your nearest

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

Please include the following information:

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