



MSystem

MICRO PANEL

GS0

Device description

GS0

micro  innovation

Micro Innovation AG · Spinnereistrasse 8-14 · CH-9008 St. Gallen · Switzerland
Tel. +41 (0)71 243 24 24 · Fax +41 (0)71 243 24 90
www.microinnovation.com · info@microinnovation.com

Copyright

Keep documentation for future use!

This documentation is the intellectual property of **Micro Innovation AG**, which also has the exclusive copyright. Any modification of the content, duplication or reprinting of this documentation, as well as distribution to third parties can only be made with the express permission of **Micro Innovation AG**.

Micro Innovation AG does not accept any liability for damages arising from the use of any incorrect or incomplete information contained in this documentation or any information missing therefrom.

Micro Innovation AG reserves the right to make complete or partial modification to this document.

All brand and product names are trademarks or registered trademarks of the owner concerned.

Proper use

Hardware, software, operating systems and drivers must only be used for the applications specified in this description and only in conjunction with the components recommended by Micro Innovation AG.

Warning !

No warranty claims will be recognized for faults arising from the improper handling of any device.

Devices and communication should not be used for the implementation of any safety functions relating to the protection of personnel and machinery.

No liability is accepted for claims for damages arising from a failure or functional defect.

All data specified in this document does not represent guaranteed specifications in the legal sense.

Contents

1	Introduction	6
1.1	Device concept and application range	6
1.2	Device versions	6
1.3	Scope of delivery	6
1.4	Accessories	7
1.4.1	Mounting kit.....	7
1.4.2	Front plates	7
1.4.3	Design software	7
1.4.4	Download cable	7
1.4.5	Documentation.....	7
2	Device Dimensions	8
3	Arrangement of Connections and Operating Elements	9
4	Connection Assignment and Cable Specifications	10
4.1	System power supply.....	10
4.2	Function and assignment of the programming port (PROG PORT)	10
4.3	Setup of the download cable	11
5	Touch Screen	12
5.1	Function.....	12
5.2	Power up function test	12
5.3	Cleaning and maintenance.....	13
6	Operating Elements and Control Displays	14
7	Display Versions	15
7.1	EL display	15
7.2	LC display.....	15
8	Communication Cards.....	16
9	Installation Instructions	17
9.1	Mounting cutout	17
9.2	Device installation.....	17
9.3	Preparation of the connection cables (EMC).....	18
9.4	Preparing the shield connection	19
10	Startup Messages	20
11	System Masks	22
11.1	Status mask (Trouble Shooting).....	22
12	System Masks	23
12.1	Status mask (Trouble Shooting).....	23
12.2	23
12.2	24
12.3	Download mask (Project Up/Download).....	24
12.4	15.3 Display setup mask	24
12.4	15.3 Display setup mask	25
13	Commissioning.....	26

14 Appendix	27
14.1 Comboard Loader	27
15 Download procedure	28
16 EU Conformity	30
17 Technical Data	31
18 Revision History	33

1 INTRODUCTION

1.1 DEVICE CONCEPT AND APPLICATION RANGE

The Micro Panel GS-0 is a semigraphic visualisation unit with touch zone functions for low to medium complexity automation systems. It meets all the requirements placed on a modern visualisation unit.

The Micro Panel GS-0 is always used in conjunction with a plug-in communications card which handles the connection to the automation system. This card is not described in this documentation. Refer to the appropriate device description for the communications card if necessary.

The Micro Panel GS-0 must be loaded before use with the appropriate project data which is generated and then loaded using the PDT (Panel Design Tool) design software.

This device description serves as a reference for the technical data, mounting, connecting, commissioning and operation of the Micro Panel GS-0.

1.2 DEVICE VERSIONS

The GS-0 comes in two device versions featuring different display technologies:

Type designation	Display technology
GS0-57EQD	Electroluminescent display (EL, yellow on black)
GS0-57SQD	Passive Matrix LCD Module (LCD, black on white)

Sections 3 and 9 describe the different technical features of the two versions.

1.3 SCOPE OF DELIVERY

The following components are supplied:

- GS-0
- Power supply plug connector (Phoenix MSTB 2.5/3-ST-5.08)
- Seal
- Four fixing screws for mounting the device (M4x16 countersunk)
- Installation instructions in five languages

1.4 ACCESSORIES

The following accessories can also be purchased for the device.

1.4.1 MOUNTING KIT

This mounting kit is available for mounting in compliance with degree of protection IP 65. This consists of a conter frame that is mounted on the rear of the device so that the required pressure on the seal is ensured even when fitting to a thin panel.

1.4.2 FRONT PLATES

The GS-0 is also available with a chromium steel plate that is resistant to aggressive substances. Customized front plates are also available on request.

1.4.3 DESIGN SOFTWARE

The Micro Panel GS-0 must be loaded with the appropriate project data in order to operate correctly. This project data must be created using the PDT (Panel Design Tool) design software that runs under MS-DOS.

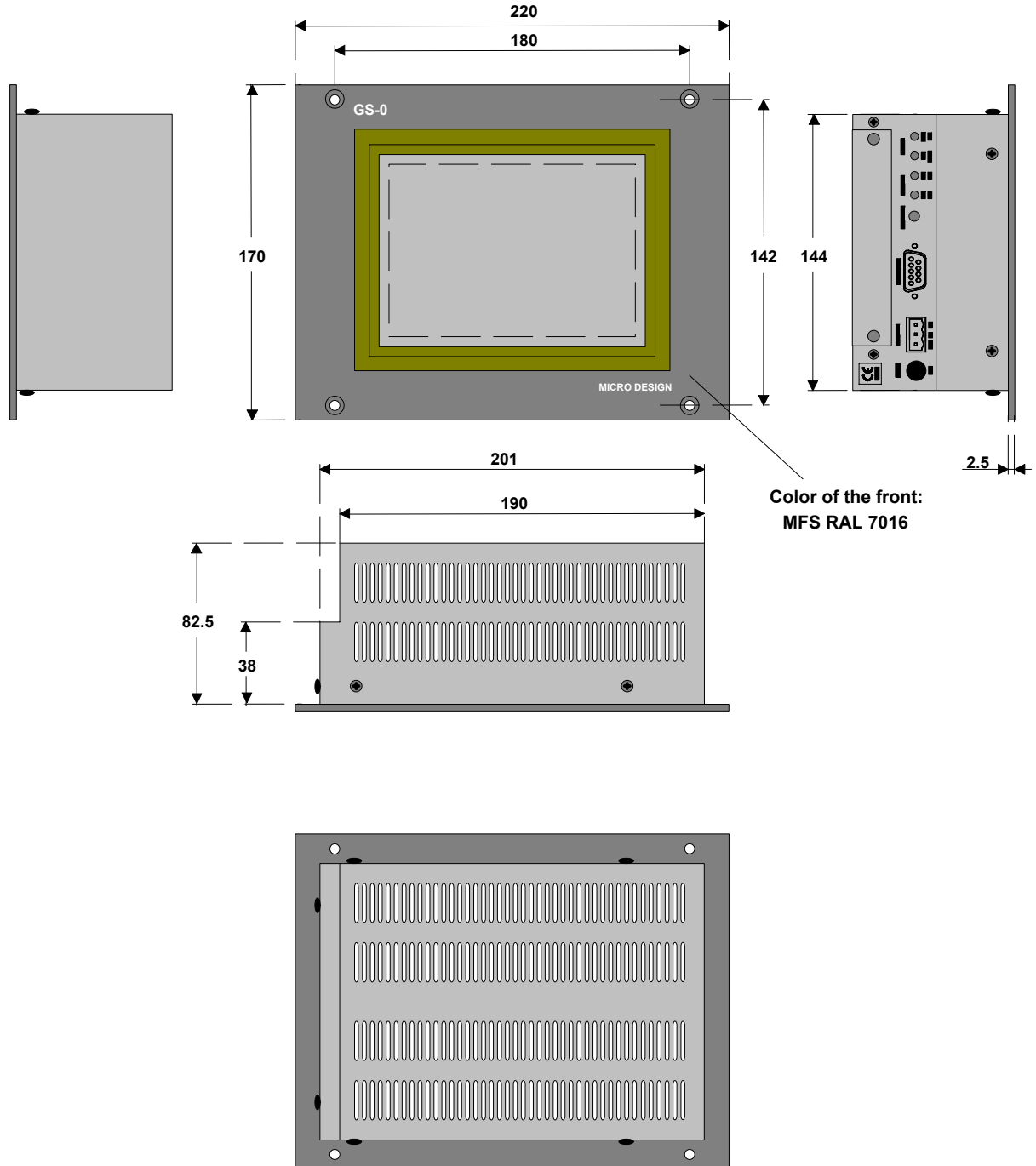
1.4.4 DOWNLOAD CABLE

The download cable is used for the connection between the GS-0 and the PC. This connection is used to transfer project data generated by the design software.

1.4.5 DOCUMENTATION

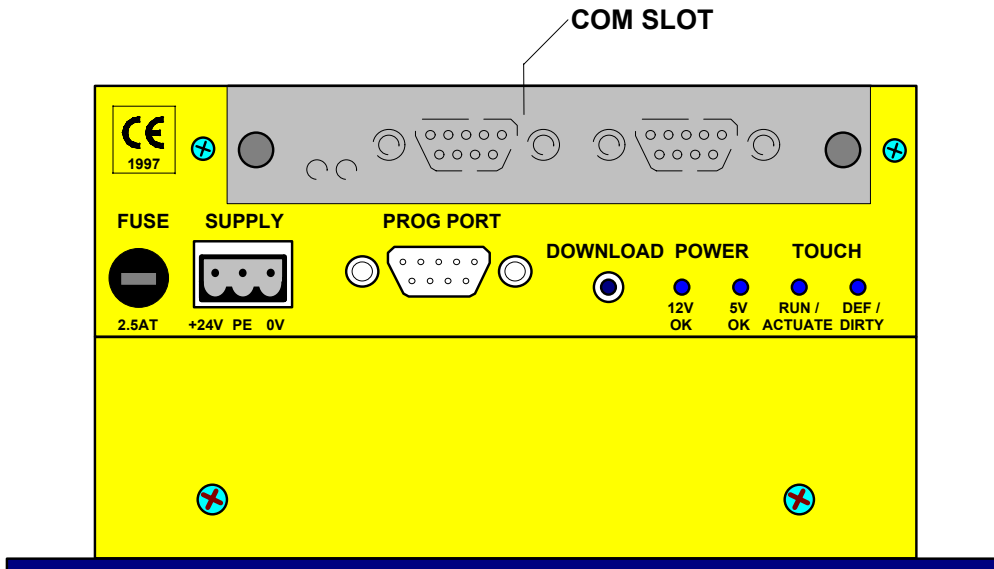
This device description is available both in German and English.

2 DEVICE DIMENSIONS



3 ARRANGEMENT OF CONNECTIONS AND OPERATING ELEMENTS

All connections, operating elements and the plug-in card are accessible from one side of the device. The communications card must be inserted into the COM SLOT and fixed with two knurled screws.

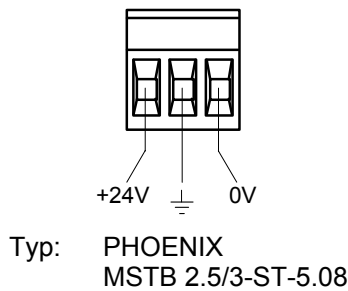
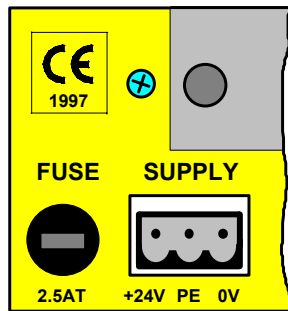


Connector panel of the GS-0 showing the terminals, LEDs, operator elements and plug-in card.

4 CONNECTION ASSIGNMENT AND CABLE SPECIFICATIONS

4.1 SYSTEM POWER SUPPLY

The system power supply is connected via a plug-in screw terminal. The power supply is **not** isolated and is **not** earth-free (PE and 0V connections are located directly on the housing potential). The power supply is protected by a fuse (2.5AT) which can be accessed without having to open the device.



The screw terminal for the connection is supplied. The maximum permissible connection cross section is 2.5mm².

Section of the socket connector panel of the GS-0 with a view on the power supply socket and the fuse.

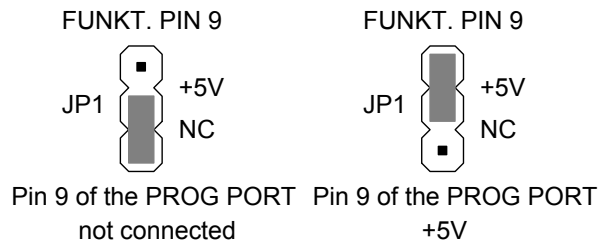
4.2 FUNCTION AND ASSIGNMENT OF THE PROGRAMMING PORT (PROG PORT)

The project data is loaded via the programming port (**PROG PORT**), which can also be used to connect a printer with a serial interface for data logging.

The RS 232 interface of the programming port (**PROG PORT**) is **not** isolated and **not** earth-free.

Pin 9 of the **PROG PORT** can alternatively be used for the power supply of external additional hardware. This is only permissible in conjunction with original GS-0 hardware accessories. Supplying non GS-0 products is not permissible. The connection of +5V to pin 9 of PROG PORT is implemented by refitting jumper JP1 on the main board.

Pin-Nr.	PROG PORT
1	---
2	TxD
3	RxD
4	DSR
5	GND
6	DTR
7	---
8	---
9	(+5V)
Case	Shield



Pin assignment of the PROG PORT

4.3 SETUP OF THE DOWNLOAD CABLE

The download cable is used to connect the GS-0 and the PC for transferring project data. The download cable is fitted with a 9-pole female D-subminiature connector (DIN 41652) at both ends. The pins 2 to 6 must be connected 1:1 (→ Sections 11.3 and 11.4).

5 TOUCH SCREEN

5.1 FUNCTION

The Touch Screen operates on the active light matrix principle in the infrared range (IR Touch). The optical elements of the light matrix are located behind the IR transparent plastic frame in the front panel of the device. They are located in such a way that their radiation extends slightly out of the front plate. Each emitter is assigned a receiver that is located on the other side. A touch on the screen is detected by the simultaneous interruption of one or several channels in the X or Y axis. Repeated touches and touches that cover an area greater than 20 mm x 20 mm are not evaluated. Continuously interrupted channels caused by severe contamination and dirt, or by the failure of an optical element are detected by the touch controller and are no longer included in the evaluation.

5.2 POWER UP FUNCTION TEST

The GS-0 carries out a function test of the touch screen with each power up of the device (→ Section 12). This test measures the signal levels of all channels and compares them with initial values. The initial values are determined before the device is delivered and stored in a retentive memory.

If the signal of one or several channels is below a minimum level relative to the initial values, this will be indicated by an error message on the screen and a flashing **DEF/DIRTY** LED (→ Section 8). A reduced signal level of this kind is normally due to severe contamination of the IR transparent plastic frame which consequently has to be cleaned (→ Section 7.3). The Touch Screen, however, remains fully functional.

Only an increase in the contamination of the screen will lead to the continuous interruption of one or several IR channels. IR channels that are continuously interrupted will be detected by the Touch Controller and no longer included in the evaluation. In extreme cases, this may mean that individual zones cannot be activated by touch. In this case the **DEF/DIRTY** LED (→ Section 8) will be continuously lit.

CAUTION ! Do not touch the screen whilst the system is being started up, and wait till your application has started.

During the startup the Touch Screen carries out a function test in which the signal levels of the IR channels are measured.

5.3 CLEANING AND MAINTENANCE

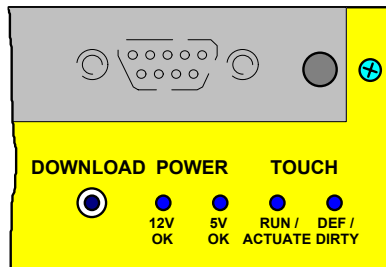
For operation ensure that the signal levels of the channels are not so severely reduced or interrupted due to excessive contamination through dirt. (→ Section 7.2).

Clean the inside of the plastic frame of the device regularly with a damp soft cloth. Ensure that the surface is not scratched or scoured, especially when removing hard deposits and abrasive dusts.

Do not expose the front of the device to solvents which may corrode and loosen the plastic frame (frame material: polymethylmethacrylate, PMMA).

6 OPERATING ELEMENTS AND CONTROL DISPLAYS

The GS-0 provides two LEDs for monitoring the system voltages and two LEDs for monitoring the function of the Touch Controller. Pressing the Download button calls up the Download mask.



View of the GS-0 connector panel, the control LEDs and Download button

6.1.1.1 DOWNLOAD

Pressing the DOWNLOAD button calls up the Download mask (→ Section 13.2). The Download mask provides functions for transferring project data to the GS-0 (Up and Download) and for setting the system clock.

6.1.1.2 POWER

6.1.1.3 +12V OK, +5V OK

When lit the LED indicates the presence of the system voltages (+12V and +5V). If the LED is not lit when the system voltage is applied, check the fuse.

6.1.1.4 TOUCH

6.1.1.5 RUN / ACTUATE

The LED stays initially dark when the system voltage is applied, and is not lit until the Touch Controller has been successfully initialised.

Pressing the Touch Screen will light the LED.

6.1.1.6 DEF / DIRTY

The LED is lit if during the power up function test of the Touch Screen the signal level of one or several IR channels is below the minimum level (→ Section 7.2). A reduction of the signal level is caused by the contamination of the IR transparent plastic frame or the failure of an optical element.

If the LED flashes, this means that the Touch Screen is dirty. The Touch Screen is still fully functional.

If the LED is continuously lit, this means that either the Touch Screen is so severely contaminated that individual channels are not functioning any more or that a channel is faulty.

If this LED flashes or is lit continuously, clean the plastic frame on the front of the device (→ Section 7.3).

When the power supply is switched on, both LEDs for monitoring the Touch Screen will be activated for 1 second as part of an LED function test.

7 DISPLAY VERSIONS

Due to the different display technologies implemented in the GS-0, different hardware versions and different settings are required. Settings can be made via the Display Setup mask which must be made accessible from within the project using the PDT panel design software. (→ Section 13.3)

7.1 EL DISPLAY

The electroluminescent display (EL display) supplies a perfect screen image in all environmental conditions. Consequently, no settings need to be made by the user for this display type. The user can if required change the screen display to inverse in the Display Setup mask.

7.2 LC DISPLAY

The passive matrix LCD module (LC display) requires a backlight as well as the possibility of setting the contrast voltage which adjusts the contrast to the viewing angle used and the ambient temperature.

The backlight consists of a cold cathode fluorescent lamp (CCFL) that is controlled by a regulated DC/AC inverter in order to ensure optimum operation of the backlight. The brightness of the backlight can be changed, and five brightness levels are available from 0, 40, 60, 80 to 100 percent. The LC display can be operated transmissively and reflectively. In transmissive operation the display works with the backlight. In reflexive mode the display operates without the backlight, i.e. only using the surrounding reflected light, thus enabling optimum legibility when the surrounding light is strong. The screen saver reduces the brightness of the backlight in order to increase its lifespan. The brightness of the screen saver can be selected by the user.

The contrast level of the display can be set to one of sixty-four levels via the software. This ensures optimum contrast setting in relation to the conditions at hand (view angle, temperature). As with EL display, the screen display for LCD versions can also be inverted.

8 COMMUNICATION CARDS

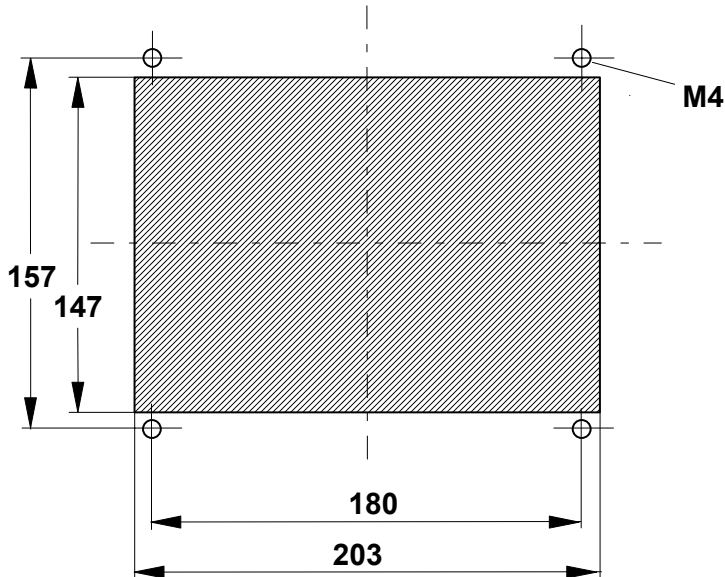
The Micro Panel GS-0 provides a slot for a communications card which is used for the connection to your automation system (e.g. PLC) or the field bus system selected.

Please contact your local Micro Panel dealer or the Technical Support at Micro Design Systems AG for information concerning currently available communications cards and communication protocols.

CAUTION! Safety precautions concerning electrostatic discharge (ESD) must be observed when handling cards. Never plug in the cards with the power supply switched on. Do not run any non-Micro Design components in the slots. Only original hardware from Micro Design Systems AG may be used

9 INSTALLATION INSTRUCTIONS

9.1 MOUNTING CUTOUT



M4 countersink screws are used for fastening the GS-0. These are supplied with the device.

A mounting kit is available for installations complying with degree of protection IP 65. This consists of a conter frame that is mounted on the rear of the device so that the required pressure on the seal is ensured even when fitting to a thin panel. See section 1.4.1 Mounting kit

9.2 DEVICE INSTALLATION

When installing the GS-0, a minimum distance of 5 cm must be ensured between the device and any other components above, behind or beside it, so that the cooling of the system is not impaired. The cooling slits must not be covered by cables or other objects.

The stated operating temperature (→ Section 3) is based on a vertical mounting with unhindered air convection and a location of no more than 2000 m above sea level.

Avoid the exposure of the flat screen to direct sunlight. The radiation from the sun (UV component) reduces the lifespan of the display.

9.3 PREPARATION OF THE CONNECTION CABLES (EMC)

The preparation of the interface cables on the GS-0 (**PROG PORT**) is an important factor in the electromagnetic compatibility (EMC) of the device, both in terms of interference immunity and emission.

The EMC values stated in the technical data can only be guaranteed if the cables are prepared according to the following specifications.

The data cable on the GS-0 (PROG PORT) and on the communications card must be shielded unless unshielded wiring has been specified explicitly. The power supply cable is not shielded.

The cable shield must be made from copper braid. Only use a metal or metallised connector casing. Connect the cable shield directly to the low-impedance connector casing on the GS-0. This ensures that the cable shield is properly connected to the housing of the Micro Panel GS-0 via the screws and the protective metal shroud of the plug connector (low-impedance).

The cables must also be shielded if they are not connected at the other end and are only used, for example, for commissioning and servicing.

Refer to the operating instructions of the device manufacturers concerned as to how to connect the shield at the other end. If no specifications are given, connect the cable shield also at this end to the metal or metallised connector casing.

Avoid leaving the shield open. The data connections to be shielded involve the high-speed transfer of signals between two active systems. The cable shield only functions against asymmetrical interference transients if the shield is connected to the device earths (usually metallic device casing) at both ends.

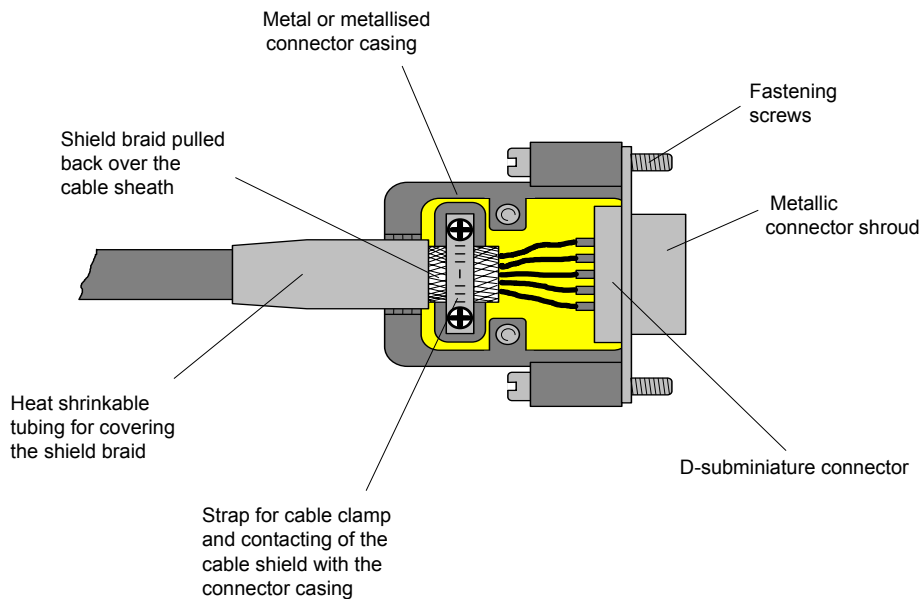
Provide a potential equalisation cable with a suitable cross-section between potentials (control cabinets) if the Micro Panel GS-0 and the communications partner are installed in different control cabinets or at different PE potentials (zero conductor potentials), and if the cable shield at both ends is directly or indirectly connected to the protective earth conductor. This will prevent the occurrence of excessive compensation currents on the shield and shield connections, as may occur in the event of a possible shorting of a (different) device on the protective earth system. These kinds of compensation currents of normally 50 Hz even occur in normal operation and do not represent a problem for data transmission. However, they may cause the destruction of the shield terminals and contacts, particularly in the event of short-circuits in the environment.

9.4 PREPARING THE SHIELD CONNECTION

The connections on the GS-0 and the communications card are mostly implemented with D-subminiature connectors in accordance with DIN 41652. Only use metal or metallised connector casings with a cable clamp for strain relief fastened or clamped on one side of the connector. The clamping of the cable shield ensures an optimum contact area and a low impedance connection with the connector casing of the GS-0.

The following procedure is recommended for making the low-impedance connection for the cable shield:

1. Strip the cable.
2. Shorten the exposed shield braid by approx. 3 cm.
3. Turn back the braid over the cable sheath.
4. Use a heat shrinkable tubing or insulation tape to cover the exposed cable sheath with the folded back shield braid so that 5 to 8 mm of exposed cable shield is left at the sheath end and is cleanly covered at the back.
5. Fit the connector.
6. The cable is then fastened at the exposed shield braid and the cable sheath below it directly underneath the cable clamp strap of the connector casing.



If plug connectors are used for communications cards (not D-Subminiature plug connectors to DIN 41652), then follow the instructions in the relevant Document descriptions

Otherwise the Touch Screen will output an error message

Touch is dirty!

The Touch Screen is dirty and must be cleaned. The device, however, is fully functional.

Touch has defect channels!

The Touch Screen is too badly contaminated or the infrared channels are faulty. If cleaning does not cause an improvement, the device should be repaired (it may be that touch zones cannot be activated if channels are faulty).

See also section 7 Operating elements and control displays.

After the initialisation the Touch Screen runs through a system check in which the clock frequency of the CPU and the display type are checked. The project data memory is also tested, with checksums being used to test whether the project data in the memory is correct. Once the system check has been successfully completed, the message `Start application` is output and the application is started.

System message System check and Startup

```
SYSTEM CHECK & STARTUP
-----

Hardware detection finished

CPU clock speed   16  MHz
Display Type     5.7  "
Standard memory   128 kB

Start application
```

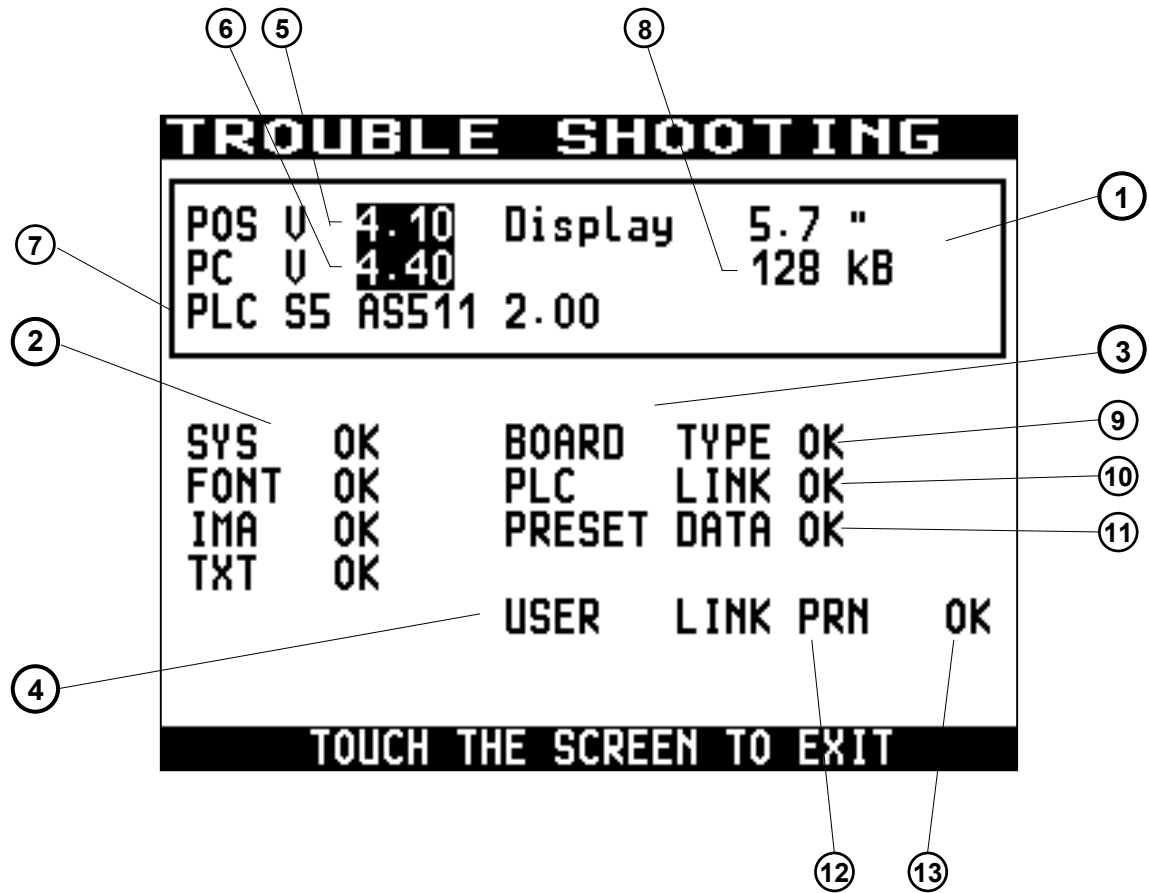
11 SYSTEM MASKS

11.1 STATUS MASK (TROUBLE SHOOTING)

The Status mask (**TROUBLE SHOOTING**) is activated by the operating system in the event of system faults, for example if the communication to the PLC cannot be established during the startup of the panel or is interrupted during operation.

The Status mask provides information on the operating status of the Micro Panel GS-0 and shows some of the system configurations of the hardware and software.

Touching the screen causes the GS-0 to return to normal operating status and carry out the presetting.



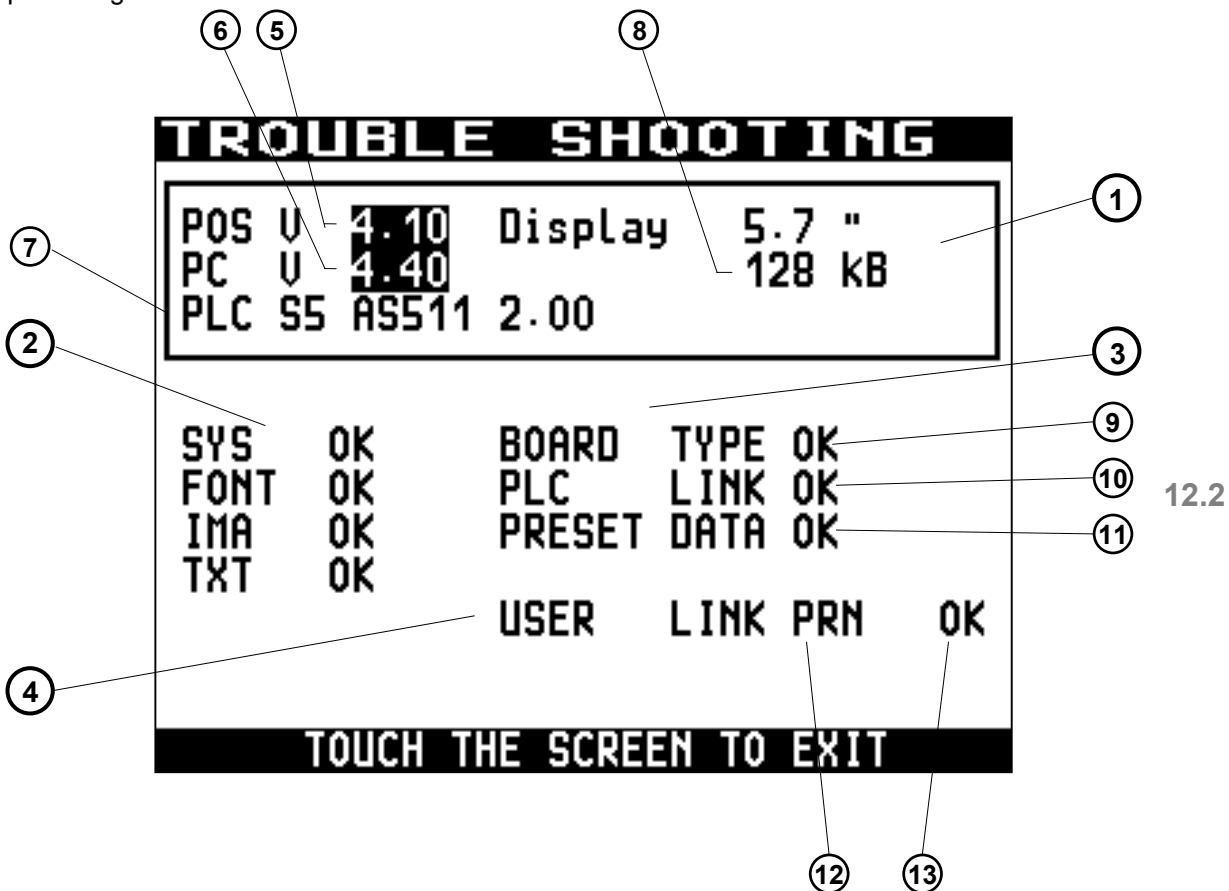
12 SYSTEM MASKS

12.1 STATUS MASK (TROUBLE SHOOTING)

The Status mask (**TROUBLE SHOOTING**) is activated by the operating system in the event of system faults, for example if the communication to the PLC cannot be established during the startup of the panel or is interrupted during operation.

The Status mask provides information on the operating status of the Micro Panel GS-0 and shows some of the system configurations of the hardware and software.

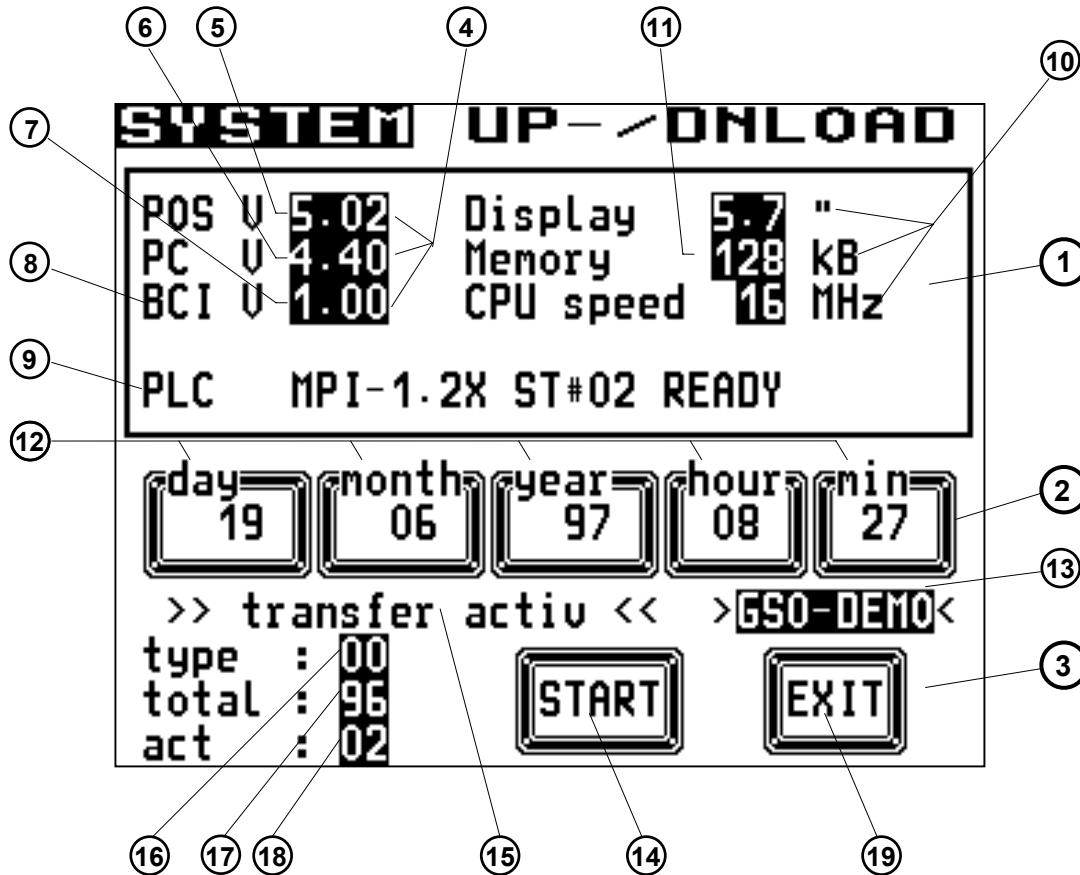
Touching the screen causes the GS-0 to return to normal operating status and carry out the presetting.



- | | | | |
|---|---|----|---|
| 1 | Information field of the system configuration | 8 | Total capacity of the projekt data memory (Flash) |
| 2 | Status and expansion of the system memory | 9 | Status of the communications card
OK → Comm. card initialised |
| 3 | Status of communications card (e.g. MPB-TP) | 10 | Status of the communication with PLC
OK → Communication active |
| 4 | Status of the programming port (e.g. printer) | 11 | Status of the Preset data
OK → Presetting successfully carried out |
| 5 | Version of the operating system (POS) | 12 | Installed application on PROG PORT
e.g. PRN → Printer |
| 6 | Version of the (PDT) panel design tool software which created the projekt-data. | 13 | Status of PROG PORT (Printer) |
| 7 | Initialised communications driver on the communications card | | |

12.3 DOWNLOAD MASK (PROJECT UP/DOWNLOAD)

The Download mask (PROJECT UP-/DOWNLOAD) provides the system functions for transferring project data between the PC and the GS-0 as well as for setting the system clock. It also shows the system configuration of hardware and software. It is called up by pressing the Download button.

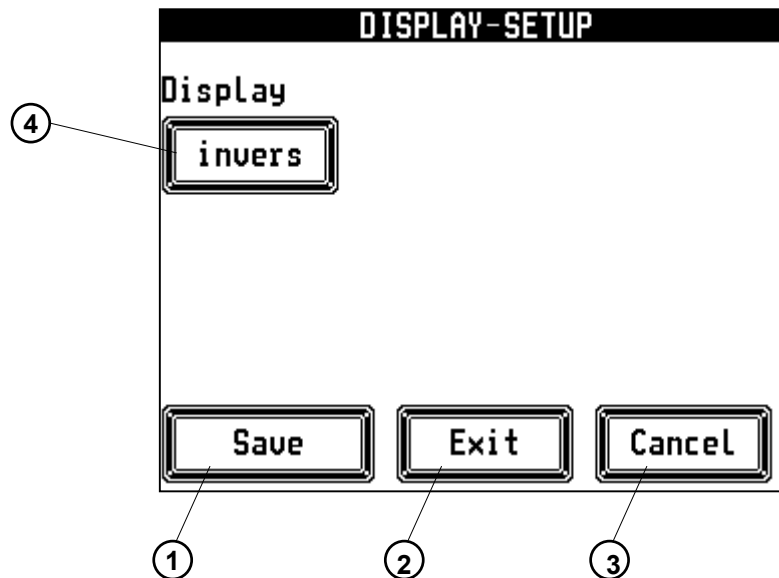


- | | |
|---|---|
| <p>12.4</p> <ul style="list-style-type: none"> 1 Information field of the system configuration 2 Setting and display of system clock 3 System functions for upload and download 4 Display field for software version 5 Operating system (POS) version on System 6 Panel design tool (PDT) software version which the project data was created 7 Firmware version on the communication card fitted(e.g. MPB-TP) 8 Identification of the communicatoin card fitted 9 Initialised communication driver on the communication card 10 Hardware configuration of the system 11 Total capacity of the project data memory 12 Selection zone and display for setting parameters of the system clock.
If a parameter is selected a keyboard appears to change the parameter. | <ul style="list-style-type: none"> 13 Projekt name of the project loaded on the system memory. 14 Touch zone for starting the data transfer from or to the PC (in conjunction with the PDT). 15 Display of the transfer status.
As long as Transfer Activ is flashing, the data transfer from the PC can be started. 16 Display of the data blocks of the data type displayed. 17 Total number of the data blocks of the data type displayed. 18 Current number of transfered data blocks of the data type displayed. 19 Exit touch zone for exiting the Download mask. |
|---|---|

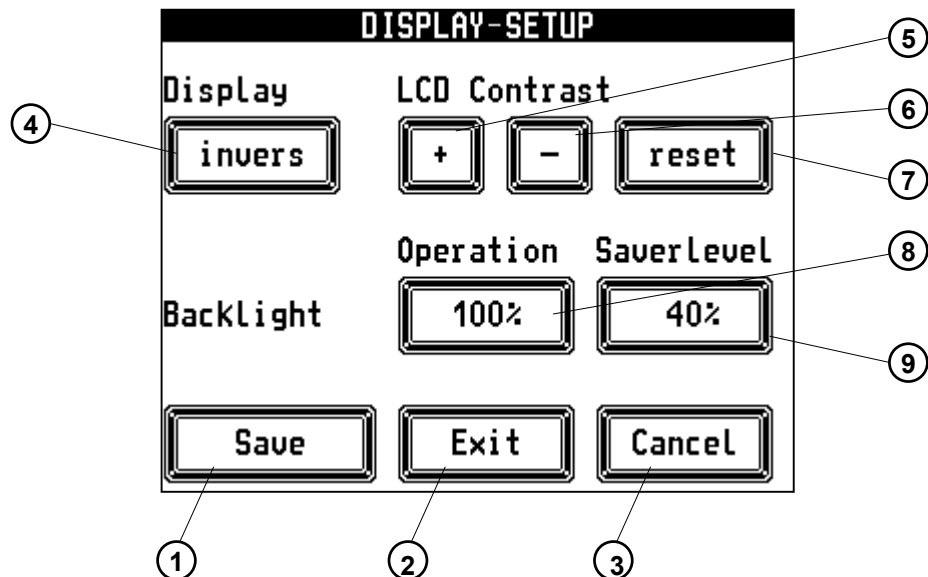
12.5 DISPLAY SETUP MASK

The Display Setup mask can be called up by programming special function 64 in the project (see PDT manual). See also the section Function Generator - Special Functions as well as the Appendix of the PDT manual. The setup of the mask depends on the device type concerned.

EL version



LCD version



1 Storing the settings

The settings will be stored in a retentive memory and loaded at the next startup.

2 Keep the settings only for this session

The settings won't be stored.

3 Cancel the settings

Restore the settings which were activated before the display setup mask.

4 Switching between normal and inverse display

5 Increase contrast voltage

6 Decrease contrast voltage

7 Brightness of the backlight normal operation

8 Brightness of the backlight if the screen saver is activated.

13 COMMISSIONING

1. Check whether the fitted communications card has been correctly configured. For this refer to the appropriate description of the communications card.
2. Connect the power supply terminals of the GS-0 (→ Section 6) to the 24 V power supply which must still be switched off. Do not yet connect the cable to the PLC.
Supply voltage range: +20.4...+28.8VDC eff. (absolute value with ripple +18.5...+30.2V)
Typical current consumption: 0.9 A
Switch on the supply voltage.
3. Check whether the initialisation of the Touch Screen by **TCL2-INIT** was completed successfully. Do not touch the Touch Screen during this phase. The status message "**Touch Ready!**" indicates that the Touch Screen was properly initialised.
4. Check whether the system test **SYSTEM CHECK & STARTUP** is being run (indicated on screen) followed by the display of a project mask on screen. The GS-0 is supplied with a loaded demo project.
5. After a few seconds the **TROUBLE SHOOTING** status mask will appear since the communication to the PLC cannot yet be established.
The following communication status should be present :

BOARD	TYPE	OK
PLC	LINK	NOK
PRESET	DATA	NOK

Touch the screen in order to leave the **TROUBLE SHOOTING** mask and return to the project mask.
6. Press the **DOWNLOAD** button to enter the Download mask (**PROJECT UP-/DOWNLOAD** Section 13.2).
7. Connect the Download cable (→ Section 6.3) to the **PROG PORT** of the GS-0 and the serial interface of the PC (COM1 or COM2).
8. Press the **START** button in the Download mask. This will activate the flashing **Transfer Activ** message. When this message is flashing, it is possible to transfer a project to the GS-0.
Further information on Download operations is given in the PDT design software manual.
9. Once the Download has been successfully completed, the GS-0 is automatically restarted and displays the first project mask after the system test (**SYSTEM CHECK & STARTUP**). A few seconds later the GS-2 returns to the **TROUBLE SHOOTING** mask since communication to the PLC has not yet been established.
10. Connect the communications cable to the communications card of the GS-0 and the communications port of the PLC. The GS-0 will automatically establish communication with the PLC. The **PLC LINK** system message switches from **NOK** to **OK** as soon as communication is running.
If communication cannot be established check the configuration of the communications card and whether the correct communications driver was initialised.
11. Touch the screen. The GS-0 will then run through the first Presetting operation and will then activate operation.
12. End of commissioning.

Troubleshooting: If the GS-0 does not respond in the way described, refer to section "Trouble shooting" in the PDT design software manual.

14 APPENDIX

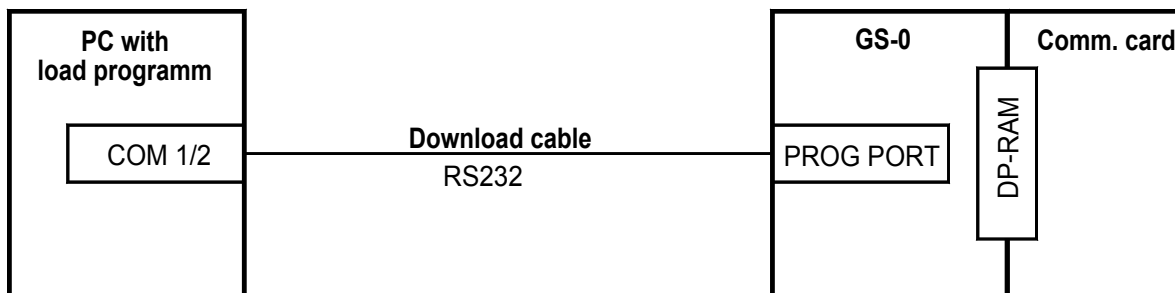
14.1 COMBOARD LOADER

The firmware of special communications cards can be loaded into a retentive Flash memory, thus enabling the simple updating of drivers. Refer to the relevant device description of the card concerned as to whether this kind of download is possible.

The following accessories are required for downloading the firmware:

- Download cable
- PC with serial interface (COM1 or COM2)
- Load program
- Files with firmware

The download is handled by the PC via the PROG-PORT of the GS-0. The GS-0 passes on data via the DP-RAM to the communications card.



Schematic diagram of the download of firmware for the to the communications card.

15 DOWNLOAD PROCEDURE

1. Remove the card from the GS-0. **(not energised!)**
2. Set the Download jumper from RUN to PRG.
3. Refit the card in the slot of the GS-0.
4. Connect the download cable between the serial interface of the PC (COM1 or COM2) and the PROG PORT of the GS-0.
5. Switch on the power supply. The "ERROR" LED on the communications card must be lit and the ACTIVE LED must flash four times in four seconds. Both LEDs will then go out and the communications card is ready for programming

The following mask will appear on the GS-0:

```
COMBOARD LOADER
-----
VERSION 2.00
-----
ADDRESS  0100
REPEAT   00
CODE     00
```

6. Start the load program on the PC. Refer to the load program documentation and the device description of the card for the relevant operating instructions.
7. The red ERROR LED and the communications card will not be lit if the data transfer is correctly completed.

8. Switch off the power supply and remove the card again from the GS-0.
9. Change the Download jumper on the communications card from PRG to RUN.
10. Fit the card in the slot of the GS-0.
11. Connect the communications card to the PLC and switch on the power supply.
12. The new driver is now active. Always check in the SYSTEM UP-/DNLOAD system mask whether the correct driver version is shown.

The screenshot shows the following text on the screen:

```
SYSTEM UP-/DNLOAD
POS V 5.02   Display 5.7 "
PC V 4.40   Memory 128 kB
BCI V 1.00   CPU speed 16 MHz
PLC MPI-1.2X ST#02 READY
day month year hour min
 19  06  97  08  27
>> transfer activ << >GS0-DEMO<
type : 00
total : 96
act : 02
START EXIT
```

Two callout boxes are present:

- A box labeled "Identification of the fitted communications card" points to the BCI V 1.00 line.
- A box labeled "Initialised communications driver on the communications card" points to the >> transfer activ << line.

16 EU CONFORMITY

The **Micro Panel GS-0** meets the requirements specified by the Directives of the EU Council for harmonizing the regulations of EU member states relating to electromagnetic compatibility (**89/336/EEC**) and electrical safety (Low-Voltage Directive **73/23/EEC**).

The generic standards below were used to assess the electromagnetic compatibility of the Micro Panel GS-0:

EN 50081-2 (Emission)

EN 50082-2 (Interference immunity)

The following standard was used to assess the electrical safety of the Micro Panel GS-0:

EN 60950



Manufacturer: Micro Innovation AG
Manufacturer address: Spinnereistrasse 8-14
9008 St.Gallen
Switzerland

17 TECHNICAL DATA

Display**EL version (GS0-57EQD)**

Technology	Electroluminescent display (EL, yellow on black)
Resolution	320 x 240 pixels 35 x 15 characters
Display area	115.1 x 86.3mm, 5.7"
Scan rate	56 Hz
Contrast ratio	min.: 19:1 normally: 50:1

LCD version (GS0-57SQD)

Technology	Passive matrix LCD module (LCD, black on white)
Resolution	320 x 240 pixels 35 x 15 characters
Display area	115.1 x 86.3mm, 5.7"
Scan rate	56 Hz
Contrast ratio	min.: 7:1 (transflective) typ.: 10:1 (transflective)
Lifespan of backlight	25'000 POH min. (without backlight saver)

Operation

TCL2 (Touch Control Logic 2nd Generation)	
Optical light matrix in infra-red range (IR touch)	
Resolution, physical:	24 x 16 (13 x 15 pixels)
Resolution, logic:	47 x 31 (7 x 8 pixels)

Power supply

Non-isolated and not earth-free	
Rated voltage	24 VDC
Voltage range	24 VDC in accordance with DIN 19240 +20.4...28.8 VDC effective, absolute value with ripple +18.5...30.5V
Power consumption	25W max. (with maximum system expansion)
Current consumption	0.5 A normally (at 24V, without plug-in card)
Fuse	2.5A slow, accessible from outside
Startup current	1.1A ² s max.

Interfaces / Slot

1 slot for communications card

Programming port

RS 232, non-isolated and not earth free
max. connection length 20 m
9 Pol D-Sub. Male

Technical Data

Printer connection	On programming port RS 232, non-isolated and not earth-free max. connection length 20 m 9 Pol D-Sub. male	
System clock	Accuracy	± 1 Minute / month at 25°C
Ambient conditions	Operating climate	0...55°C, 20...80% rel. air humidity
	Storage climate	-25...70°C, 5...95% rel. air humidity
	Mech. shock	IEC 68-2-27 (10 shocks, half-sinus 15g/11ms)
	Vibration	IEC 68-2-6 (10...57Hz/0.15mm, 57...150Hz/2g)
	EMC	IEC 1000-4-2, EN 61000-4-2, 6 kV / 8 kV IEC 1000-4-3, ENV 50140, 10 V/m IEC 1000-4-4, EN 61000-4-4, 2 kV IEC 1000-4-8, EN 61000-4-8, 30 A/m IEC 801-6 Draft, ENV 50141, 10 VEMF
	Radio interference suppr.	CISPR 11, EN 55011, class A
	Degree of protection (front)	IP 65 (NEMA 12), acc. EN 60529
mounting kit!(→ Sect. 10.2)		Degree of protection IP65 only with additional Degree or protection rear IP20
Weight	Approx. 2.0 kg (without communications card)	
Outer dimensions	220 x 170 x 85 mm	

All data specified does not represent guaranteed specifications in the legal sense.

18 REVISION HISTORY

Index	Date / Visum	Alteration
01	08.12.03 / RA	Included in DokV

**Micro Innovation AG
Spinnereistr 8-14
CH-9008 St. Gallen
Switzerland**

**Tel : ++41- 71 243 24 24
Fax : ++41- 71 243 24 90
email : info@microinnovation.com
homepage : <http://www.microinnovation.com>**