Easy-Loading Thermal Printer

# GeBE-SKY®

## GPT-4389

**RS232 • Infrared • USB**
**Real Time Clock**

**Elektronik und Feinwerktechnik GmbH**

Module und Geräte zum Eingeben, Auswerten, Anzeigen und Ausdrucken analoger und digitaler Daten.

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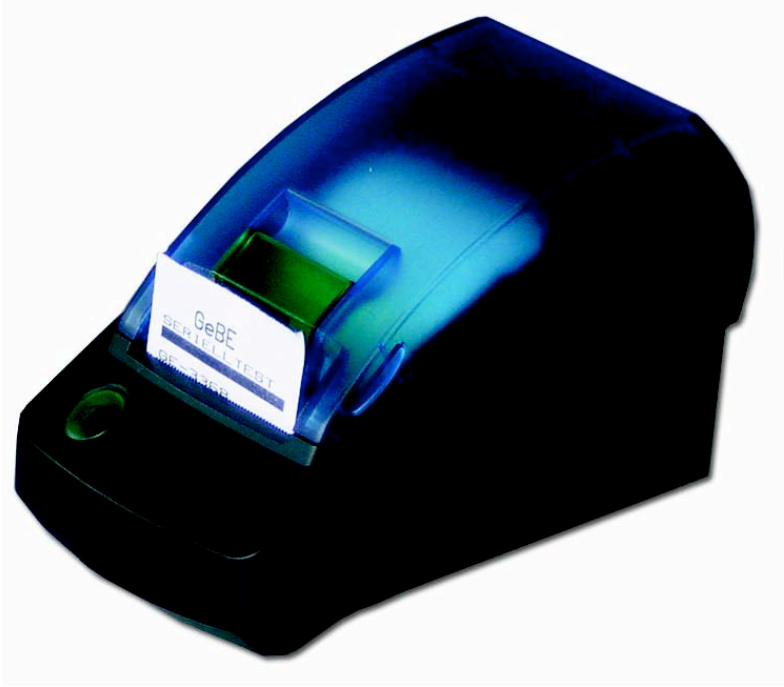


# Operation Manual

**Contacts at GeBE**
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**Keyboards:** GeBE Computer & Peripherie GmbH • Email: sales@tastaturen.com • www.tastaturen.com
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## Contents



The technology and configuration of the product described herein meets the latest national and international requirements with regards to functionality and safety. Further development and improvements are incorporated constantly. For this reason, illustrations, measurements, technical data, and general information that are part of this brochure may change due to product enhancement.

This manual will help you to operate our product, which has been developed and manufactured using the latest technology. Please read these instructions carefully before initial operation, and store them in a place close to the device, so they are on hand when needed.
Should you have any further questions, please contact our staff. You can find the necessary phone numbers and email addresses in the chapter, "Service and Maintenance".

## Symbols and their Meaning

Please carefully read all safety instructions marked with a ⚠ **as well as all important information marked with a** ⚠ .

**Saftey instructions** ⚠ affect your **personal safety** and **must be observed at all times**. It is essential to forward these instructions to all other personnel using this device.
**Important information** ⚠ refers to **equipment safety**.

**The adherence of all instructions, as well as the appropriate application and use in accordance with the operating instructions are binding for product liability and product warranty. Attempts by the customer to repair the device will make all warranty claims null and void.**

**For technical questions, please contact GeBE Technical Support.**

Instructions marked with a 🔧 require consultation with GeBE Technical Support.
Tips are marked with a 👍 and will help you to utilize your printer to its fullest.
Documents or Internet links are marked with a 🔍, referring to more detailed or additional information.

## 1 Safety Instructions

**Safe operation of this device is only warranteed, if the instructions in this operating manual have been complied with.**
**For installation: Always disconnect system power supplies.**
**Only use manufacturer's parts and accessories.**

• The device may only be opened or repaired by authorized personnel. Never open the device or carry out repairs yourself. Always contact an authorized technical servicer.
You can find all necessary service information in the chapter "Service and Maintenance".
• Before the device is turned on, make sure that the system voltage of your installation matches the supply voltage of the device. The device characteristics are printed on the name plate and in the technical data.
- The name plate is located on the underside of the device.
- For the technical data of the device, refer to the chapter "Technical Data".
• The peripheral devices that are connected to the interfaces and the DC circuits of this device have to meet the requirements for low safety voltage in accordance with EN/IEC 60950.
• Switching off the device does not completely disconnect it from the power supply. Your device is only disconnected completely, when the power is unplugged.
• Please make sure that the power supply cable is run in such a way that nobody trips over it, and it cannot be damaged by other devices.

• During operation, surfaces in the surrounding area of the print head may heat up. Therefore, direct contact with the print head must be avoided to prevent burning accidents.
Do not put heat sensitive objects close to this heat source.
• Avoid constant high humidity and condensation. Protect the device from being splashed and from coming in contact with chemicals.
• Only use spare parts and accessories supplied or authorized by GeBE. The use of unauthorized parts or accessories may considerably affect the function and safety of the device. All parts included are listed in the chapter "Packing List", while the original accessories are listed in the chapter "Parts and Accessories ".

• It is no longer possible to safely operate the device, if:
- the housing has been damaged due to mechanical overload.
- moisture reached the inside of the device
- smoke is coming from the inside of the device
- the power supply cord is damaged
- the device stopped working properly.

Unplug or turn off the device immediately, when such a failure occurs, and contact GeBE customer service. See chapter "Service and Maintenance".

• We explicitly state that all product liability and guaratee claims are null and void, if the device has not been used in accordance with the instructions in this operating manual or on the device itself, or if it has been used inappropriately.


• The printer versions with an infrared interface contain a light emitting diode of laser category I. This infrared transmitter does not pose a threat for the human eye or skin, even with long periods of exposure.
• The device complies with laser category I in accordance with EN60825-1/A2:2001
• It is prohibited to operate the device, if the housing is damaged. If this occurs, please contact GeBE Service. You can find the information under "Service and Maintenance". For the description of the infrared interface, please refer to page 7.

## 2 Packing List

Please check during the unpacking process that all parts have been delivered completely and undamaged.
Make sure to remove all parts from the packaging material. Claims for damages caused during transport can only be asserted, if the carrier is informed without delay.
Please prepare a survey report and send it back to the supplier along with the damaged part.

## 2.1 Standard Versions of the Thermal Printers

come in different versions packed as sets. The printer sets contain the parts listed below (see table).
OEM versions of the GeBE-GPT-4389 series are not supplied as sets since they come without any accessories. Accessories are available separately.

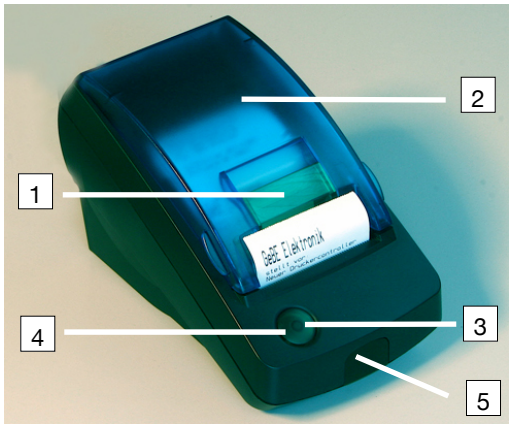
| Product No. | Printer Sets | Paper Roll GPR-T01-056-075-012-060A | Manual SMAN-D-5xx in German or SMAN-E-5xx in English | Cable | Charger / Battery |
|---|---|---|---|---|---|
| 12478 | GPT-4389-V.24 | X | X | GKA-542 | GNG-6V-2.5A |
| 12479 | GPT-4389-USB1 | X | X | GKA-543 | GNG-6V-2.5A |
| | GPT-4389-USB2 | X | X | GKA-543 | GNG-6V-2.5A |
| | GPT-4389-Ir | X | X | - | GNG-6V-2.5A |
| | | | | | |

### 2.2 Possible Configurations of the GPT-4389 Printer Series for OEM

| | | Power | | | | | | Functions | | | | | | | | Interfaces | | | | | | | Options | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| The GPT-4389 series is equipped with GCT-4373 controllers<br>**) various options available | EEPROM KB | Fixed Voltage 4.5 - 6.6V | | | | | | Number of Keys | | | | OPD Settings Menu | Batch Files TINIT/LOGOs | | | RS232 | TTL | IrDA | | GeBE IR-Protocol | USB Printer Class | USB Serial Port emulation | Uhr Alarm | | | |
| GPT-4389-V.24-Set | 8 | x | - | - | - | - | - | 1 | - | - | - | **) | x | - | - | x | **) | - | - | - | - | - | **) | - | - | - |
| GPT-4389-USB1-Set | 8 | x | - | - | - | - | - | 1 | - | - | - | **) | x | - | - | - | - | - | - | - | x | - | **) | - | - | - |
| GPT-4389-USB2 -Set | 8 | x | - | - | - | - | - | 1 | - | - | - | **) | x | - | - | - | - | - | - | - | - | x | **) | - | - | - |
| GPT-4389-Ir-Set | 8 | x | - | - | - | - | - | 1 | - | - | - | **) | x | - | - | - | - | x | - | x | - | - | **) | - | - | - |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |

## 3 Description

The GPT-4389 is a line-powered industrial printer in a robust plastic housing.
The large paper roll of up to 75 mm (60 m length) reduces service effords.
Due to the extended temperature range of -10 to + 60°C with specified paper, the GeBE-GPT-4389 is ideal for outdoor applications.
Inserting paper is easy with the Easy Paper Loading Technology. The closed paper compartment lid with stands vibrations.
The convenient OnPaperDisplay Menu (OPD-Menue®), available as an option, replaces the outdated configuration of the printer through DIP switches.
In addition to wireless interfaces like IrDA or GeBE-Ir the GeBE-GPT-4389 can also be connected through an RS232 or a USB interface.
The GeBE-GPT-4389 is operated through a fixed voltage between 4.5 and 6.6 V.




**Printer Parts and Functions**

1 Opening lever for paper compartment lid (LEVER)
2 Paper compartment lid
3 Button {FEED/ENTER}
4 LED "STATUS"
Button {OFF/NEXT} not shown
5 Window for IR transmitter/receiver
6 RS232 connection
7 USB connection
8 Power 4.5 - 6.6 VDC

## 4 Connection • Operation

During installation:
**Always disconnect the power!**

### Power Supply

**Fixed Voltage Power Supply:** In a special version for OEMs, the printer can be supplied with a stabilized voltage (4.5 to 6.6 VDC/2.5 A ) through the socket (8). An appropriate external power supply is available from GeBE.

**Before initial operation, please make yourself familiar with the chapter "Safety Instructions". The characteristics of your system voltage must must match the characteristics of your device.**

# 5 Interfaces

## 5.1 Serial Interfaces

### RS232 Interface

The interface cable that comes with the set connects to the plug-in connector (6), and directly with an RS232 connection (COM interface of a PC) on the other end. An open-ended cable with 5 single wires is available as an option.

### TTL Interface

A special version with TTL levels is available for OEM.

### GeBE COM

With this setting, the printer uses the GeBE-Ir protocol for communication. The protocol can be used either through the RS232 or the TTL interface.
Due to the CRC guarded transmission blocks, a secure data connection can be achieved.

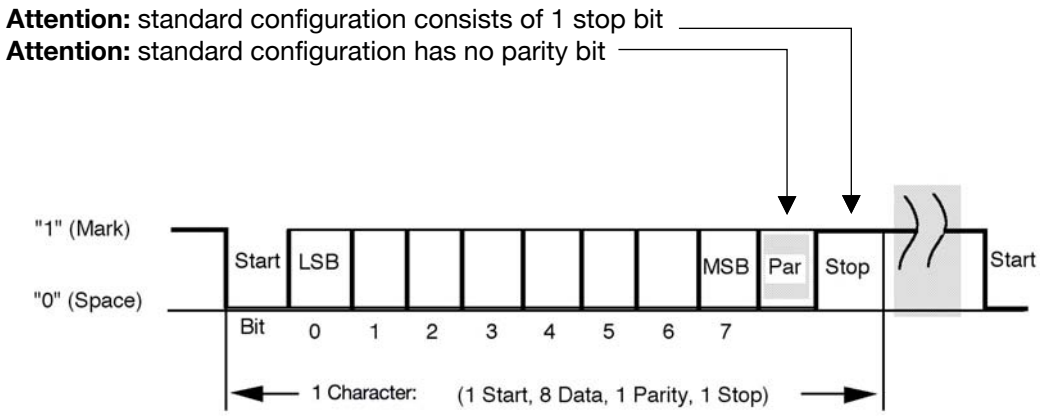
Also see: Infrared Interfaces
GeBE-Doc.No. MAN-E-395

When the printer is operated extremely slowly (<5 mm/s), special settings may become necessary. Please contact our technical support for more information.

**Pin Assignment of the Serial Inteface RS232 at Connector (6)**
Plug-in connector at the printer: (5pin). >>> serial cable. The other end has a 9 pin SUB-D socket.
The assignment is 1:1 matching the COM interface of the PC.

| GCT-4389-6pin RJ12 Connector | | | Pin Assignment of the Serial Interface Cable | COM Interface PC 9pin SUB-D | |
|---|---|---|---|---|---|
| **Pin** | **Signal** | **I/O** | **Comment** | **Signal** | **Pin** |
| 1 | TxD | I | Print data | TxD | 3 |
| 2 | RxD | O | Error messages and Xon/Xoff messages | RxD | 2 |
| 3 | VAUX/RTS | I/O | Choose between VP, VCC, or RTS at the factory through solder bridges | RTS | 7 |
| 4 | CTS | O | If the level is logic-true, the controller can receive data | CTS | 8 and 6 |
| 5 | NC | | | | 1,4,9 = NC |
| 6 | GND signal | GND | | GND signal | 5 |
| | Shield | | At the controller, shield is set to GNDF (Frame-Ground) | shield | |

**Timing of the Serial RS232 /TTL Interface**
The chart below shows the default setting of the timing.
For printers with EEPROM, the data format can be set hrough the settings menu.




| Signal level | Level TTL interface | Level V.24 (RS-232) interface |
|---|---|---|
| **"1" (Mark)** | +5 V (TTL-level) | -3 V ... -12 V |
| **"0" (Space)** | 0 V (TTl-level) | +3 V ... + 12 V |

| Standard Data Format: |
|---|
| 9600 baud |
| 8 data bits |
| no parity bit |
| 1 stop bit |
| TX line on |

| Selectable Data Formats: |
|---|
| 1,200; 2,400; 4,800; 9,600; 19,200; 38,400; 57,600;115,200 baud |
| 7/8 data bits |
| ODD, EVEN, no parity bit |
| 1,2 stop bit |
| TX line turned on/off |

## 5.2 Infrared Interfaces

**The following protocols can be used:**

- **IrDA:** IR LPT (printer service)
  IR COMM 9 wire (optional)
  Also see: **www.irda.org**
- **GeBE-IR:** simple,error-proof, bidirectional dot to dot IR protocol.
  GeBE-Doc.No. MAN-E-395

All standard versions of the printer have the hardware for an IR transmitter/receiver installed, so the protocols GeBE-IR and IrDA are available for all standard printers of the series GPT-4389.
The internal IR tranceiver is installed directly below the red foil window (10). It is important to consider that infrared transmission will only work "line of sight". The radiation angle is about ±15 degrees. The transfer distance to "IrDA standard power" devices is 0.6 meters.
Optionally, the transfer distance can be increased to up to 3 meters by using an additional booster IR-LED.
The printer will signal IR communication through the LED that is located below the Ir window.

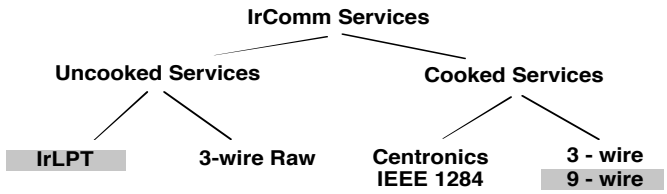
### Use of the Sleep Mode

In the setting "IrDA "or "GeBE IR", the IR receiver will even stay active during sleep mode, so the device will not have to be swiched on explicitly for printing. The power consumption of the printer is only about 25µA in this mode. However, the printer should still be turned off during long periods of inactivity.

### GeBE -IR Protocol

The GeBE-IR protocol is a simple, error protected infrared protocol. Data transmission is processed in CRC protected blocks. With each transmission confirmation, the printer status is sent back to the host.
The implementation is very easy to realize.
The protocol is disclosed.

The printer works with the protocol service IrLPT. In this service, the printer will not send back any messages.
A bidirectional service "IrCOMM 9 wire" is available on request.
In the menu setting, the selected baud rate represents the maximum baud rate. If 57,600 baud is selected, for example, the printer will start to communicate with 9,600 baud and then switch up to 57,600 or 38,400 baud, depending on the transmitter.
The maximum baud rate of 115,200 should only be reduced, if transmission errors occur.
When an infrared transmission is interrupted, the printer will look for the transmitting master device for about 20 seconds in order to complete the transmission. After that, the stack is reset, and new inquiries are answered.




### Driver for IrDA

Windows® 98 / ME / NT / 2000 / XP / WIN CE®
You can find Windows® drivers on our Internet page.

Drivers for Windows® Mobile are available from a third party supplier at: **www.fielsoftware.com**

**Drivers for PALM OS®**, SYMBIAN® series 60 are available from a third party supplier at:
**www.Bachmannsoftware.com**

### IrDA Protocol

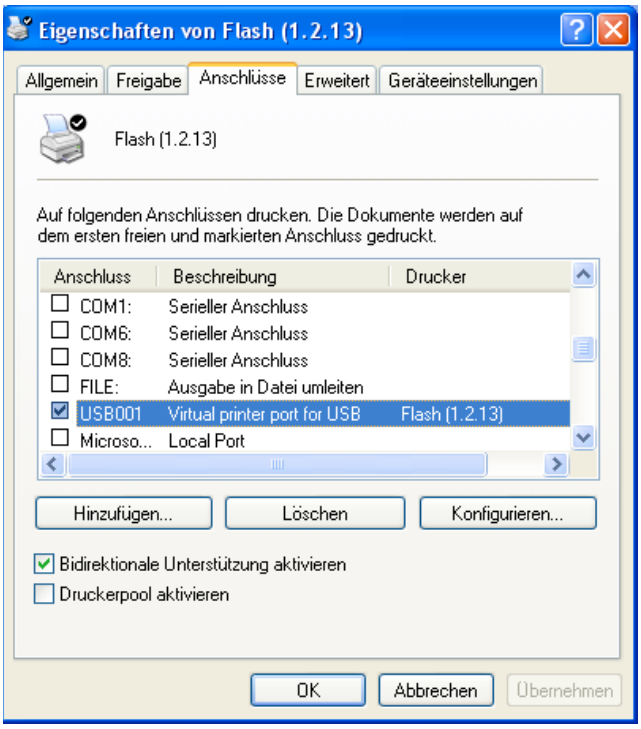
| | | | | |
|---|---|---|---|---|
| IrDA Data Specification | Complies with: IrDA V1.0 Standard Power SIR | | | |
| | min | max | | |
| Radiation input | 40 | 100 | mW/sr | On-axis |
| Min. input radiation intensity | | 4 | W/cm2 | v<(±15° ) |
| Max. input radiation intensity | | 500 | mW/cm2 | v<(±15° ) |
| Peak wave length | | 870 | nm | |
| Safety | Complies with: IEC 825-1 Class 1 (EN 60825) eye safety specifications | | | |
| Range | 0.01 | 0,60 | m | |
| | | | | |
| IrDA<br>Interface parameters | IrDA: Automatic setting in accordance with IrDA ; 9,600; 38,400; 57,600; or 115,200 baud | | | |
| GeBE-IR<br>Interface parameters | GeBE-IR protocol: 9,600; 38,400;57600; or 115,200 baud,<br>8 data bits, no parity, 1 stop bit | | | |

## 5.3 USB Interface

**Option 1: USB1 printer class:**

The USB device class is "Printer Class".
When plugged in, the PC will report "USB printer support" and install a "USB001"USB port.

Either the standard printer driver of the "system78" or the port monitor can be used. During installation of the printer driver, it can be easily guided onto the USB port.




Windows® XP and Windows® CE handle the numeration of a printer differently. Therefore, the printer must be conficurated to the operating system before delivery.

| | | |
|---|---|---|
| USB Specification | V1.1 ( V2.0 compatible) | |
| Device type | Vendor specific device or printer class | |
| USB | Full speed 12 Mbit/s | |
| Power consumption | no printing | Typ. |
| | USB active /printer active | 30 mA |
| | USB active /printer sleeping | 25 mA |
| | USB suspend / printer sleeping | 300 µA |

Never activate an action in the printer driver at the end of a job. This can cause a loss of data.

**Option 2: USB2 Serial Port emulation:**

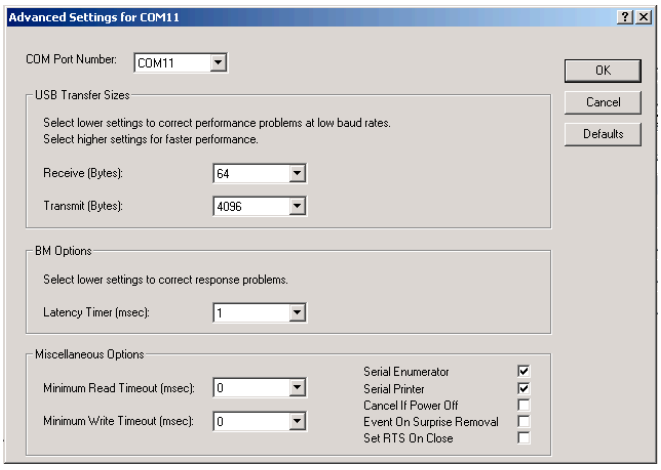
The GPT-4389-USB meets the USB specification V1.1 for full-speed devices. The printer is compatible with USB V2.0 bus systems.
The USB device class is equivalent to a "Vendor Specific Device". Therefore, transmission can be done with virtual COM port drivers. The printer will operate like a serial printer. The virtual COM port drivers are available for the operating systems Windows® 98/98SE/ME/ 2000, and XP. Consequently, standard GeBE printer drivers can be used.
You can find Windows® and USB drivers on our Internet page. Please read the included installation instructions. Before initial operation, the matching virtual COM port driver (VCP driver) and the printer driver have to be installed.

**Setting the VCP Driver**

The example shows the setting with Windows® 2000. The procedure is very similar with XP or Windows® 98. Starting with the Windows® "START" button, select "Settings" -> "System Control" and click on the "System" folder.
Select the "Hardware" tab, and click on "Device Manager".
There, activate the "+" symbol under "Connections (COM and LPT)", and look for the entry "USB Serial Port (COMx)".
Open it and click on "Port Settings", in order to have the settings of the virtual COM port displayed.

It is recommended to use the settings of the virtual COM port according to the settings of the printer: 115,200; n; 8; 1; XON/XOFF.
If the printer is not operated in step mode, "Hardware Flow Control" is recommended.

Click on "Advanced" to see the extended settings. Please make sure that the settings shown below have been carried out
For Windows® 2000 and XP.



# 6 Changing the Paper

The closed printer is protected against static discharges in accordance with the EMV guidelines. Since the user may come in contact with parts that are electrically sensitive, when the printer is open (like the print head during cleaning, or the electronics during a battery exchange), the user should make sure that all possible static charges are discharged through sufficient grounding of the body before touching the printer (e.g. by touching grounded objects like radiators), in order to safely avoid damage to the printer.

**Inserting the paper roll:**

1. Release the printer cover with the green latch.
2. Open the printer cover.
3. Unwind about 10 cm of paper from the roll.
   Insert the paper roll in the paper compartment, so the outside shows toward the printer mechanism.
4. Close the cover by applying strong pressure. You will hear it snap shut. Now you can rip off paper at the tear bar without the cover opening up or the paper sliding through the print head.

**Which side of the thermal paper can be printed on?**
Usually, the printable side is the one on the outside of the paper roll.
See: Troubleshooting and Recovery on page 18.

**1.**

**2.**

**3.**

**4.**

**Which Thermal Paper is Suitable?**
The printer is specified for a paper width of 56.0 ±0.5 mm, 75 mm diameter, 60 g/m² paper thickness. GeBE is offering suitable paper rolls GPR-T01-056-075-025-060A (quality: 5 years) as part of the standard program. Other papers may cause failures.

## Other Types of Paper Available from GeBE:

**High Temperature Paper**
begins to blacken at about 100°C (standard: app. 70 °C), making it ideal for applications like parking receipts.

**Two-Ply Paper**
produces a copy of the first layer with a second layer.
Optionally, the first layer can be rewound.

**Adhesive Labels**
are connected to each other through perforation. A mark for correct positioning is located beween the labels. This is the only kind of label that can be used with the GPT-4389.

**Archivally Safe Paper**
is a paper that maintains printed images for at least 15 and up to 99 years, if stored in a dark and dry environment.

**Two-Color Paper**
prints red with the normal setting, black with a higher temperature setting. The temperature can be set by command.

## 7 Maintenance, Cleaning

After larger print jobs, depending on the paper quality and adverse environmental conditions, it may be necessary to clean print head, sensor, and platen roll, especially, if some areas are no longer printed properly.

1. Open paper supply lid and remove paper roll.
2. Loosen dirt particles at paper, sensor, and tear bar with a small brush.
3. Blow forcefully into the paper supply compart ment in order to remove coarse dust.
4. Soak Q-Tip with isopropanol (IPA) and clean the print head, or use print head clea ning pin / cleaning card.
5. Other stubborn debris may also be removed with a Q-Tip (IPA).

**1.**

**2.-5.**


**Labeling**
9 sensor
10 paper tear bar
11 print head

Never use sharp objects for cleaning. This may damage the print head.

# 8 Button Functions • Menu Guide

## Description of the Button Functions

The buttons have different functions depending on the status – normal operation or print settings menu.
The time for which the buttons are held down also determines functionality.

### FEED / ENTER Button (3)

With this button, the paper can be transported forward. When the feed button is pressed, the printer will first feed one line of the set font. If the button is held down for more than two seconds, it will feed continuously.

**Self Test :**

By starting a self test printout, the printer functions can be tested. For this purpose, the FEED button (5) has to be held down for at least three seconds, when it is pressed to reactivate the printer from power-OFF. The interfaces are not tested. Software version and character set are printed out. For OEM, special printouts can also be activated during the self test.

### OFF / NEXT Button (3) Optional only with second button

***On request, this button function can be configured through the "Feed Button" or installed as an extra button in the housing.***

By holding down the OFF/NEXT button for more than three seconds during operation, the processing of batch file T2 is initiated. In the µ-P-GPT-4389, the command for power-off (after one second) is filed in batch file T2. This way, the button is programmed as OFF button for the printer (controller with power-off mode).

| Button FEED/ENTER | Button OFF/NEXT | Action |
|---|---|---|
| pressed | not pressed | paper feed by one line |
| pressed > 2s | not pressed | continuous paper feed |
| pressed during power-on < 1s | not pressed | reactivation, no paper feed |
| pressed during power-on<br>paper inserted > 2s | not pressed | call T0 (self test) |
| pressed during power-on<br>no paper > 2s | not pressed | call hexdump mode |
| pressed in hexdunp mode<br>no paper | not pressed | end of hexdump mode |
| not pressed | button released after < 1s in normal paper mode | call T1<br>(default= form feed 1 line) |
| not pressed | button held down > 3s | call T2 (default =power-off after 1 second) |
| pressed | pressed | call print settings menu |

# 9 A Guide through the OPD-Menu®

**Optional only with second button**

The most important printer settings can be easily changed with a few strokes using the OPD Menu® (OnPaper-Display).
They are accessable at any time and can be quickly comprehended with the menu printout.
The inconvenient use of DIP switches and programming through a terminal program are no longer necessary.
The OPD Menu® is operated with only two buttons (OFF/NEXT and FEED/ENTER)
The OPD Menu® is an editor of the initialization batch file "TINIT". See chapter on batch files.

| Button FEED/ENTER | Button OFF/NEXT | Action |
|---|---|---|
| pressed | not pressed | increasing the parameter |
| not pressed | pressed | moving to the next menu item |
| pressed | pressed | leaving menu and saving settings |

## Menu Guide - Example: Optional only with second button

**Bold :** menu printouts
**Normal:** possible settings
**Italics:** comment

**Welcome to the OPD menu 1.0 5**
**Setup timeout after 10 minutes**
**Actual printer settings:**

**Ubat: 52V**
**Tbat: 24°C** *(only displayed when battery is used)*

**Firmware:** **GE-xxxx**

Density 25
**Speed:** **med (64)/low**
**Interface:** **RS232/USB/Blue**
**COM:** **9600,n,8,Tx+**
**Sleep time:** **5 sec**
**Font #:** **1**
**Char. format:** **D0,W0,H0,S0,48**
**? Change actual settings**
**Press ENTER to change**
**Press NEXT to skip**
**Press NEXT+ENTER to save and exit**

**PRINTER SETUP:**
**Press ENTER to modify**
**Press NEXT to store and continue**
**Press NEXT+ENTER to save and exit**

**Density:** **25** 20, 25, 30, 35, 40, 45, 50, 90(2ply)

**Speed/Quality:** **med 64/ low** **(values depending on type of printer)**
low (32)/med, med (64)/med, med (64)/low, high (96)/low

**Interface:** **RS232/USB/Blue** RS232/USB/Blue, IrDA, GeBE-IR, GeBE-COM

**Baudrate:** **9,600** 1,200; 2,400; 4,800; 9,600; 19,200; 38,400; 57,600; 115,200.

**COM parameter:** **n,8,Tx+** n, 7, Tx+ / o, 7, Tx+ / e, 7, Tx+ / n, 8, Tx+ / o, 8, Tx+ / e, 8, Tx+ / n, 7, Tx- / o, 7, Tx- / e, 7, Tx- / n, 8, Tx- / o, 8, Tx- / e, 8, Tx-

**Sleep Time:** **5 sec**
OFF, 5 sec, 30 sec, 1 min, 10 min, 1 h, 12 h, 32 h

**Font #:** **1** 1, 2, 3, 4
**Text orientation:** **Textmode (D0)** Textmode (D0), Datamode (D1)

**Char. size :** **W0/H0**
W0/H0, W0/H1, W0/H2, W0/H3, W1/H0, W1/H1, W1/H2, W1/H3

**Char. spacing :** **0** 0,1,2,3,4,5,6,7
**Print width :** **48 mm** **(Values depending on type of printer)**
48 mm, .... 32 mm

? Return to default settings

**Press ENTER to change**
**Press NEXT to skip**
**Press NEXT+ENTER to save and exit**

ONLY, if clock is included or connected

17.03.03 17:33
**? Change date / time**

**Press ENTER to change**
**Press NEXT to skip**
**Press NEXT + ENTER to save and exit**

**RTC SETUP:**
**Press ENTER to modify**
**Press NEXT to store and continue**
**Press NEXT+ENTER to save and exit**

| | | |
|---|---|---|
| 00 .. 49 | **Year:** | **03** |
| 01 .. 12 | **Month:** | **11** |
| 01 .. 31 | **Date :** | **14** |
| 01 .. 07 | **Day :** | **7** |
| 00 .. 23 | **Hour :** | **13** |
| 00 .. 59 | **Minute :** | **33** |

1 00 : 00 ON
**? Change alarm**

**Press ENTER to change**
**Press NEXT to skip**
**Press NEXT + ENTER to save and exit**

**ALARM SETUP:**
**Press ENTER to modify**
**Press NEXT to store and continue**
**Press NEXT+ENTER to save and exit**

| | | |
|---|---|---|
| 01 .. 07, * | **Day :** | **7** |
| 00 .. 23, * | **Hour :** | **13** |
| 00 .. 59, * | **Minute :** | **33** |
| ON, OFF | **Mode:** | **OFF** |

*** : Means periodic operation,** e.g. if * is selected for "day", the alarm is called every day at the set time

# 10 Status Messages through LEDs

**LED "STATUS" (green) (6)**

The STATUS LED flashes in very short intervals, if everything is okay. When an error occurs, it will flash slowly.

**Status Messages of the Printer through the Interfaces**

Besides the optical status messages through the LEDs on the control panel of the printer, messages are also transmitted through the serial interface. Most of the time, they are sent as single ASCII characters that can be analysed by the host.

The following table shows all the status messages.

| **Status Messages** | Serial Interface | | | | Comments |
|---|---|---|---|---|---|
| | feedback through the serial interface | | on:off /flash frequency<br>fast: "S" app. 0.66Hz<br>medium: "M" app. 0.33Hz<br>slow: "L" app. 0.16Hz | | |
| | | | **Status LED** | | |
| **faultless operation** | | | 1:31 / M | green | |
| after reset | "R" | | | | level on status lines only short-term during initialization phase; message: <XON> "R" "X" (or error)> |
| after watchdog Reset | "R" | | | | crashing program |
| error end | "X" | | | | also after hardware, software, and watchdog resets |
| buffer empty | X ON | | | | buffer emptied by 32 characters <DC1> = $11 |
| buffer full | X OFF | | | | space for 22 more characters in buffer <DC3> = $13 |
| synchronous-feedback | all characters | | | | processing of synchronizing commands; each transmitted character |
| **Errors:** | begin | error end | | | |
| paper end | "P" | "p" | 1:1 / S | green | After paper has been inserted, the printer waits for about 1s before printing in order to allow for enough time for the mechanism to be closed. |
| temp. low | "K" | "k" | | | print head temperature too low |
| temp. high | "T" | "t" | | | print head temperature too high |
| Vp too high | "M" | "m" | | | |
| parity error | "?" | | 1:31 / M | green | parity or framing error / no interruption of printing |
| EE-OK | "E0" | | | | EEPROM command completed without errors |
| EE-invalid | "E1" | | | | invalid text file no. |
| EE-password | "E2" | | | | wrong password for EEPRROM access |
| EE-overflow | "E3" | | | | text file memory overflow |
| EE-time-out | "E4" | | | | programming time for EEPROM byte exceeded |
| EE-KO | "E5" | | | | EEPROM not located |

# 11 Batch Files

Almost all commands that the printer can receive through the interfaces and then perform can be entered in the batch files. When a batch file is processed, the commands it contains are added to the data stream of the print program sequentially, as if they were coming through the interface from outside. This way, all settings that can be done by command can be processed via batch file. Besides settings commands, batch files can also contain text and graphics.
The file structure consists of one TMenu and a TINIT, which are both processed with each system boot-up, as well as 10 files that can be used freely and can be retrieved by command. Some of these files can be addressed through additional events. If the controller has an EEPROM, it contains a file structure that is identical to that of the program memory (GPT-4389).
When a file is retrieved, the printer will check, if it contains data in the EEPROM. If not, the file will be processed in the GPT-4389. This allows GPT-4389 files to be over-written.
GPT-4389 files can only be changed at the factory.

The following batch files are accessible:
**Factory Settings Allocated in the GPT-4389 Memory:**
- "TINIT" settings after hardware RESET
- "T0 " self test through FEED button after reset
- "T1 " form feed through NEXT button <1 sec.
- "T2 " power-off through OFF button >3 sec.
- "T3 - T9": unused


ATTENTION: By using these files in the EEPROM you are changing the standard factory settings!

**Text or Graphics, Batch Files in the EEPROM**
For the printing of text and graphics, the GPT-4389 has an 8 KB EEPROM (app. 6 KB can be used for logos).

It is recommended to store logos PCL compressed.
By using the Windows® driver, compression rates of app. 3 - 4:1 can be achieved.
For comparison: Uncompressed full graphics of 5 cm length take up 20 KB, or app. 5.7 KB compressed.


**Creating and saving logos:**
A special printer driver is available for creating logos.

**Configuration of the Printer with TMenu and TINIT**

After a hardware RESET (connecting the power supply), the printer will check for a described TMenu and/or TINIT in the EEPROM. If the search is successful, it will process the commands in these batch files, and will then be ready for operation. If not, the TMenu and/or the TINIT will be processed in the GPT-4389 with the factory settings.

**TMenu**:
The OPD-Menue® is a printer function that allows the user to edit the TMenu in the EEPROM. The TMenu can only be changed through this menu .

**Structure of the TMenu:**

| | |
|---|---|
| <ESC>Y<18h> | {density} |
| <ESC>[<DEZ64><DEZ48> | {power consumption} |
| <ESC>]<DEZ115><DEZ40 | {baud rate, settings} |
| <ESC>e<DEZ5><DEZ2> | {power-down time} |
| <ESC>P1 | {font} |
| <ESC>D0 | {text orientation} |
| <ESC>W0<ESC>H0 | {text size} |
| <ESC>S0 | {text spacing} |
| <ESC>h48 | {print width} |

**TINIT**:
The TINIT is always processed subsequent to the TMenu. In the TINIT, other presets that were not incorporated in the menu can be executed. It also allows settings to be blocked in the menu by repeating them here.

The following TINIT file is an example of a file that can be modified by the user. It is available for downloading from the Internet at the
**URL: www.oem-printer.com/GPT-4389**
The file will erase the TINIT while printing out all actions in italics at the same time. Any commands can be entered in the TINIT.


If a command of the TMenu is repeated in the TINIT, this value can no longer be changed through the menu.

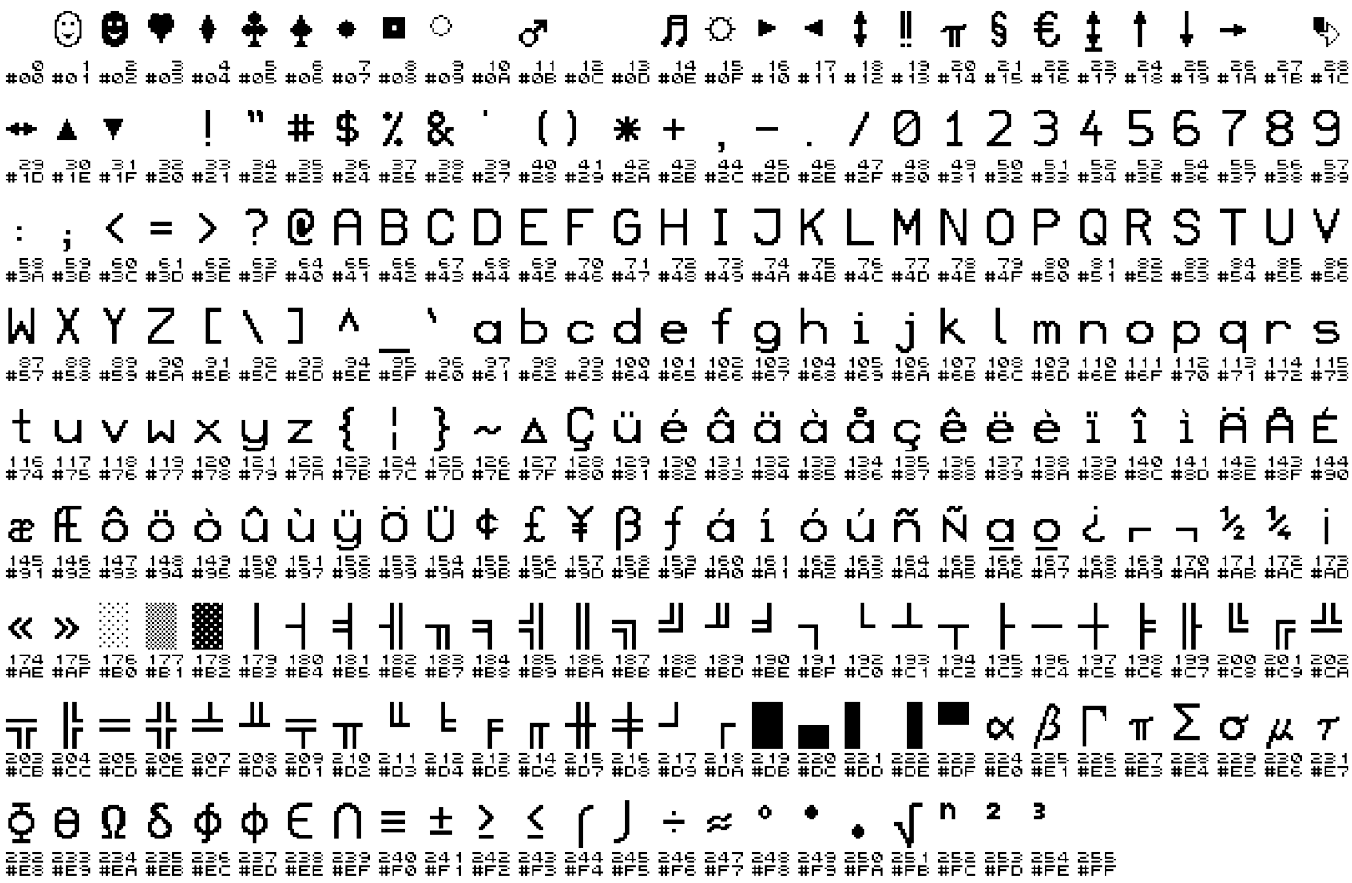
***Erase Tinit ...***
<ESC>uUERAS
***special number S-??? / Status 24nov03***
***Program Tinit with GE-xxxx...***
**{comments}**
<ESC>s@PROG<00h><11h>
<ESC>r1<28h><3Ch><01h><12h> {charging parameters}
<A9h><01h><3Ch><01h><40h>
<19h><01h><85h><0Ah><8Ch>

***All programmed!***

## 12 Character Sets

The four character sets in the GPT-4389 memory of a standard controller can be selected by command. Other character sets on request. The Euro character is located at 16 hex.

**GeBE Standard Character Set: Resembles IBM II Code Table 850**



**Font Sizes of the Character Sets**

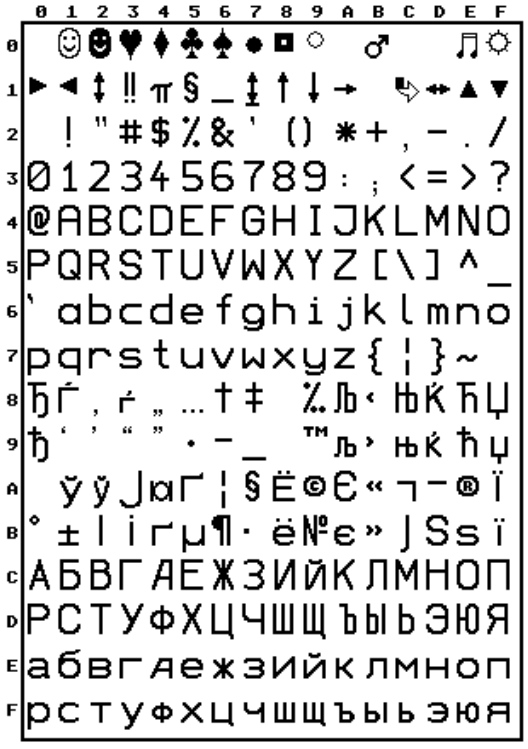
| Font No. | Dots (Horiz./Vert.) Characters/Line |
|---|---|
| 1 | 16 / 24 24 (not for IrComm 9 wire) |
| 2 | 9 / 22 42 |
| 3 | 7 / 16 54 |
| 4 | 12 / 24 32 |

**Optionally Available Character Sets**

The following character sets are available at this time and can be programmed into the GPT-4389 memory of th µ-processor in exchange for other character sets. Please send us your inquiry. GeBE will gladly create other character sets on request.

| | Dots (horiz. x vert.) Characters / Line |
|---|---|
| **IBM II** | 16 x 24 24 |
| **IBM II** | 14 x 22 27 |
| **IBM II** | 11 x 22 34 |
| **IBM II** | 9 x 22 42 |
| **IBM II** | 7 x 16 54 |
| **IBM II 90°** | 16 x 11 |
| **Cyr** | 16 x 24 24 |
| **Cyr** | 14 x 22 27 |

**Optional Character Set: Cyrillic**



# 13 Accessories and Spare Parts

| Art. No. | Art. Name | Description | For Printer |
|---|---|---|---|
| | | | |
| | GKA-542 | RS232 data cable at D-SUB 9 pin to PC | |
| | GKA-543 | USB data cable at USB type A to PC | |
| | | | |
| | GNG-6V-2,5A | power supply 6V 2.5A | |
| | | | |
| | GPR-T01-057-075-025-060A | thermal paper rolls | |
| | | | |
| | on request | labels | |
| | on request | high temperature | |
| | on request | two-ply | |

**OEM Options for the Printer**

- **custom housing color, design foil**
- **program versions and special character sets**
- **large EEPROM:** up to 32KB

# 14 Service and Warranty

## Warranty

We guarantee, that the delivered goods will show the assured properties. The warranty for OEM products is 12 months starting with date of delivery. Other terms have to be confirmed in writing.
Liability is excluded if defects are not claimed immediately with apparence of the fault in written form.
Please find detailed information about warranty in our delivery and payment terms, which is available on our homepage www.oem-printer.com/lzb (chapter: About us).

**Service ( GeBE Technical Support)**
For service or questions, please contact:
GeBE Elektronik und Feinwerktechnik GmbH
Beethovenstr. 15
82110 Germering Germany
www.oem-printer.com
Phone: +49 (0) 89/894141-0, Fax: +49 (0) 89/8402168, email: sales.ef@gebe.net

**Further Information**
Further information on the series GeBE-GPT-4389 is available at www.oem-printer.com/GPT-4389.
At this address, you can also find a personal consultant you can turn to with your questions.
Or, simply send an **email** to the GeBE **sales team** at: **sales.ef@gebe.net**
For orders you can use this **fax** number**: +49 (0) 89/894141-33**

**Documents for the System GPT-4389-GPT-4389**
All further documents are listed on the Internet at www.oem-printer.com/GPT-4389.
You can request the software manual SoMAN-D-484 or -E-485 (English) from GeBE via email (sales.ef@gebe.net).

# 15 Troubleshooting and Recovery

Not every failure means that there is an error that cannot be cleared by the user himself. You will save time and money by recognizing and fixing simple errors on your own. The following tips are meant to help you with this:

**Hardware RESET:** Unplug and then reconnect power supply.

**Hexdump mode:** Triggered by holding down the FEED button for more than three seconds after plugging the printer in, if no paper is inserted. After the paper has been inserted, the printer will print the data it received as hex numbers with the appropriate ASCII code without interpreting the data. This will make obvious, which information the printer "reads" from the incoming data.
In order to leave the HEXdump mode, the FEED button has to be held down for at least three seconds, while the paper is removed. After leaving the HEXdump mode, the printer is re-initialized by processing the TINIT.

| Symptom | Possible Cause | Remedy |
|---|---|---|
| Power Supply | | |
| The printer seems to be printing. Paper is transported, but not blackened. | Paper:<br>Wrong side facing the print head.<br>Only one side of the paper can be printed on. | Insert paper correctly. The thermosensitive side should be turned to the outside of the roll (most of the time).<br>Try the finger nail test: Drag the tip of a finger nail across the paper, pressing down. The friction heat causes the thermosensitive side to blacken. |
| Printer cannot be activated by pressing the FEED button. | No power. | Check power supply. |
| At the beginning of printing, the LED goes out just briefly. | The power supply is not optimal.<br>Cross section of feed line too weak.<br>Supplied power too low. | Use short feed lines with sufficient thickness.<br>Check all connections for possible transfer resistances.<br>Since high peak currents occur with thermal printers, even the smallest transfer resistances can result in intolerable voltage drops. In this case, no power supply would be strong enough. |
| The printer only prints a few dots in one line. | | |
| The paper feed workst, but the self test does not. | | |
| The printer only prints a few characters in one line. If more is entered, it stops printing altogether. | | |
| Serial Interface | | |
| After a few characters, the printout starts to be incomplete. | The printer buffer is "over-run" (256 bytes), causing a loss of data. The print data transmitter shows no reaction to handshake. | Use or check handshake. (software: Xon/Xoff or hardware: CTS).<br>If necessary: slow down transmission speed, e.g. down to 1,200 baud. |
| The printer prints the wrong characters. | interface problem. The transmission is faulty. (characters of the upper area are printed). | Use correct interface level. (RS232, TTL?).<br>The transmission cable may be too long. |
| | Wrong data format is set. (the "?" is printed often). | Set the correct baud rate through the menu.<br>Check data format. |
| | Bad ground connection that causes a part of the printing current through the interface cable. This leads to an increase in potential there, which results in data corruption. | Check and improve ground connection. Feed current through short, thick lines. |
| | Host sends a break signal after print job (only "?" are printed). | Turn off "framing error ". |
| IrDA | | |
| The printer prints extremely slowly, when high baud rated are set. | Host ignores turn-around time specified by the printer. | Set lower baud rate. |
| USB2 | | |
| The printout stops after a short time or is repeated constantly. | Wrong COM port settings, or "job end" action activated in Windows® driver. | Set virtual COM port according to installation instructions. Deactivate "job end" action in Windows® driver. |

# 16 CE Certification

DECLARATION OF COMFORMITY
in compliance with EN45014

KONFORMITÄTSERKLÄRUNG
in Übereinstimmung mit EN45014

| | |
|---|---|
| Supplier:<br>Anbieter: | **GeBE Elektronik und Feinwerktechnik GmbH** |
| Address:<br>Anschrift: | **Beethovenstr.15**<br>**82110 Germering**<br>**Germany** |
| Products:<br>Produkte: | begining with Serial Number: **0611xxxx**<br>beginnend mit Seriennummer: **0611xxxx**<br>**GPT-4389-V.24**<br>**GPT-4389-V.24-S476** |

**The Products described above are in conformity with:**
**Die oben beschriebenen Produkte ist konform mit:**

**EMC Directive / EMV Richtlinie .....89/336/EWG**
Information technology equipment
Einrichtungen der Informationstechnik
Radio disturbance characteristics .....EN 55022 1998
Funkstöreigenschaften
Immunity characteristics.....EN 55024 2003
Störfestigkeitseigenschaften

Germering, the 11/06/2006, den 06.11.2006

Klaus Baldig
Head of R&D/ Leiter der Entwicklung

GeBE Elektronik und Feinwerktechnik GmbH GKV 027-1

| | | |
|---|---|---|
| Component | CE | in particular |
| Printer | CE | see Declaration of Conformity |
| GNG-6V-2,5A | CE | EN60950 , EN60555-2 , EN 55022 |
| IrDA transmitter | | in compliance with EN 60825 ( IEC 825-1 Class 1 eye safety specifications) |

The failure-free operation of the printer (assessment criterion A) is achieved, when all printed information remains recognizable in case of a short-term failure, and the printer, on the other hand, automatically returns to its normal functional status afterwards.

## 17 Technical Data

| | GPT-4389 |
|---|---|
| Print procedure | completely fixed thermal print line |
| Paper / print width/ diameter | thermal paper: 56.0 ± 0.5 mm / 48 mm / max. 75 mm / 60 g/m2 |
| Resolution | 8 dots / mm (203 dpi) , 384 dots / print line |
| Print speed | up to 50mm/s / 16 lines/s line / 3mm, i.e. 24 Linien high |
| Layout options | text; graphics, text/data mode; bar code; gray on white; inverted white on black, characters spread in widths and height |
| Character sets, cpl | 24 (32, 42, or 54) to select via control command or menu |
| Bar code | code39, 2 of 5 int, EAN13, EAN8 |
| RS232 /TTL Interface parameters | serial RS232 (option TTL)<br>baud rates: 1,200; 2,400; 4,800; 9,600; 19,200; 38,400; 57600; or 115,200<br>data bits: 7, 8; stop bits: 1, 2; parity: no, odd, even<br>handshake: hardware and XON / XOFF |
| Printer input buffer | 255 bytes / XOFF at 224 bytes / XON at 32 bytes |
| Infrared interfaces / interface parameters | GeBE-IR protocol: 9,600; 38,400; 57,600; or 115,200 baud, 8 data bits, no parity, 1 stop bit<br>IrDA: automatic setting acc. to IrDA ; 9,600; 38,400; 57,600; or 115,200 baud |
| Batch files | text and graphics (logo printing); presetting of parameter through menu |
| Data compression | (PCL) factor app. 3 :1 (for graphic commands); PC compatible; Windows® driver |
| Operating voltage | 4.5 -6.6VDC |
| Max. current during printing | Can be limited to max. 0.7A - 6A by command (adjustment to operating voltage) |
| Power consumption standard | online idle mode: typ. 3 -7 mA |
| Power consumption USB | online idle mode: typ. 10 - 15 mA |
| Environment | 0 °C to 50 °C ( -10 °C to +60 °C with GeBE HQ paper)<br>10% to 80% rel. humidity, no moisture condensation |
| MTBF | 50 km printed paper (on thermal paper specified by GeBE) |
| Dimensions in mm | 160 x 97 x 107 |
| Weight | app. 1.010 kg incl. paper roll |
| Housing | black, blue transparent |
| Standards / printer | see 16. Standards |

## 18 Mechanical Dimensions