Easy-Load Desktop-Thermal Printer

GPT-437x
Portable Thermal Printer
GeBE-FLASH®

RS232 • Infrared • USB • Bluetooth®

Real Time Clock • Magnetic Card Reader

OPD-Menue® • Intelligent Power Management
Robust Housing

Elektronik und Feinwerktechnik GmbH

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

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Operating Instructions

Activities 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 in this manual comply with the latest national and international standards regarding both functionality and safety. Advancements and improvements are incorporated regularly, and, therefore, illustrations, measurements, technical data, and general contents mentioned below are subject to change without notice.

These operating instructions will help you to operate our product, which has been developed and manufactured in accordance with the latest technology, optimally and safely. Please read this manual carefully before operating the product for the first time, and keep it available in order to reference it when needed.

If you have any further questions, please contact our staff. You can find all necessary phone numbers and Email addresses in the chapter "Service and Maintenance".

Symbols and their Meaning

Please read all safety instructions, marked with a ⚠, and important information, marked with a ⚠, very carefully!

Safety instructions regard your **personal safety,** and are to **be adhered to at all times**. It is essential to forward these instructions to all other personal using this device.

Important information ⚠ refers to equipment safety, **preventing you from damaging your device**.

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

If you have 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 personal. 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 safety extra-low voltage (SELV) 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 plug is unplugged.

•Please make sure that the power supply cable is run in 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 getting in contact with chemicals.

•Only use spare parts and accessories supplied or authorized by GeBE. The use of unauthorized parts or accessories may 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.
- 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.
Turn off the device immediately, when a failure occurs, as mentioned above, 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!

•Risk of explosion in case of incorrect battery exchange.
•Please read how to safely exchange batteries in the chapter "Exchanging Batteries".

•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. Please contact GeBE Service. You can find the information under "Service and Maintenance". For the description of the infrared interface, please refer to page 8.

2 Description

The GPT-437x GeBE-FLASH® is a portable, battery operated industrial printer in a robust plastic housing reinforced with fiber glass. The foil on the operating console can be printed with a custom design.
Due to the wide range of operating temperature (-10 - +60°C), the GeBE-FLASH® is ideal for outdoor applications.

Inserting the paper is easy due to Easy Paper Loading Technology. The paper supply lid will always snap securely shut (tested in accordance with DIN EN60068-2-6 vibrations and -29 constant shock)

A convenient OnPaperDisplay menu (OPD-Menue®) replaces the earlier configuration of the printer through DIP switches.

Besides wireless interfaces such as Bluetooth®, IrDA, HP-SIR, or GeBE-Ir , the GeBE-FLASH® can also be addressed through an RS232 or a USB interface.

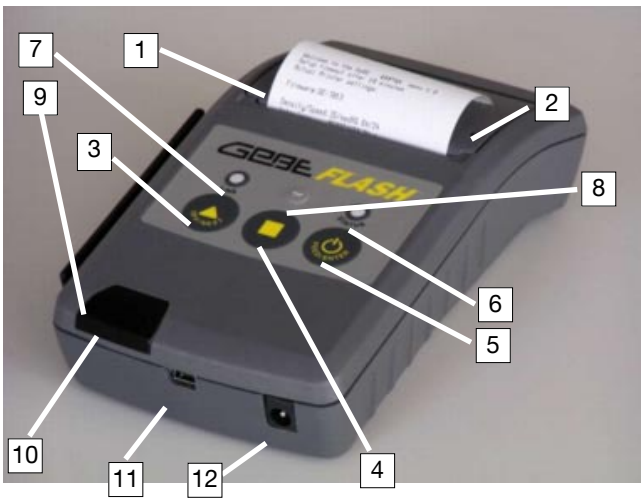
Two charging methods are available. The cost efficient LC standard charge through the Direct Plug-In Wall-Mount Adapter that is part of the standard package, and the HQ charge from a 10-28 VDC fixed voltage, like a cigarette lighter in a car, for example. The charging will take about 3 or 4 hours. With the standard NiMH battery pack, having a capacity of 1500mAh, up to 5 paper rolls can be printed. On request, the FLASH® can be equipped with Li-Ion batteries.

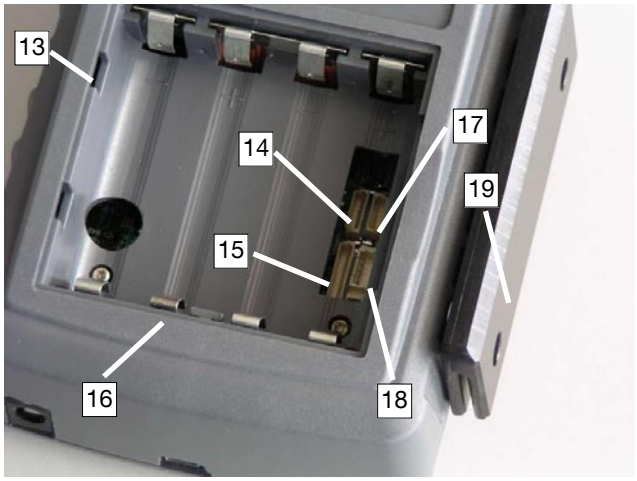
The printer version GPT-4379-FLASH-HP is operated with 4 single AA batteries.

Intelligent power managment increases the operational readiness.The printer can switch into a sleep mode that will still allow it to receive data. In sleep mode, the power consumption can be lower at times than the self-discharge of the battery.

The alarm timer of the optional real-time clock of the GeBE-FLASH® wakes up the printer at the programmed time to perform a previously defined action.

The GeBE-FLASH® is also available with a 3-track magnetic card reader and/or a paper rewinder.





Parts and Functions of the Printer *)

1 Opening lever for paper compartment lid
2 Paper compartment lid
3 Key {OFF/NEXT}
4 Key {SET}
5 Key {FEED/ENTER}
6 LED "STATUS" (green/red)
7 LED "Line" (yellow)
8 LED "M-Card" (yellow)
9 LED "Communication" (yellow)
10 Window for IR transmitter / receiver
11 Serial interface (RS232 or USB)
12 Power supply connector
13 Battery compartment lid - spring-bolt lock
14 Battery connection - connector pair, 7pin
15 Firmware update connector, 12 pin
16 Spring contacts for battery connection (variant)
17 Battery connector pair, 6pin
18 Magnetic card update connection, 5 pin
19 Magnet card reader

*) In this document, features are specific to printer versions: GPT-4378 or GPT-4379.

Available Printer Equipment for the GPT-437x-FLASH Series for OEM

				Power						Functions								Interfaces							Options			
No. (see be-low)	Article No.	The Series GPT-4379-FLASH® is equipped with the Controller GCT-4379 (different options possible)	EEPROM KB	Fixed Vpltage 4,5 - 6,5V	External Charging of Battery	Battery Pack 4x NiMH	Li-ION Battery	Charging Battery though GeBE Power Supply	Charging through Fixed Voltage	Number of Keys	DUO LEDs	IR Communications LED	Charging Voltage Display LED	OPD Menu	Batch Files TINIT/LOGO's	Clock with Timer Function	Buzzer	RS232	TTL	IrDA	HP-IR-Protocol	GeBE-IR-Protokoll	Bluetooth®	USB	Paper Rewinder	Magnetic Card Reader	IR-Booster LED	Extended SPI Bus
1	11943	GPT-4379-FLASH-V.24-Ir-Set	32	**)	**)	x	**)	-	x	3	x	x	x	x	x	x	x	x	**)	x	-	x	-	-	**)	**)	**)	x
2	11944	GPT-4379-FLASH-BT-Set	32	**)	**)	x	**)	-	x	3	x	-	x	x	x	x	x	-	-	-	-	-	x	-	**)	-	-	x
3	11983	GPT-4378-FLASH-V.24-Ir-Set	8	**)	**)	x	**)	x	-	2	x	x	-	x	x	-	-	x	**)	x	-	x	-	-	-	-	**)	-
4	11941	GPT-4378-FLASH-BT-Set	8	**)	**)	x	**)	x	-	2	x	-	-	x	x	-	-	-	-	-	-	-	x	-	-	-	-	-
5	11940	GPT-4378-FLASH-USB-Set	8	**)	**)	x	**)	x	-	2	x	-	-	x	x	-	-	-	-	-	-	-	-	x	-	-	-	-
6	11899	GPT-4378-FLASH-HP	8	-	x	-	-	-	-	2	x	-	-	x	x	-	-	-	-	-	x	-	-	-	-	-	-	-

3 Packing List

While unpacking, make sure that all parts are present and undamaged, and that you remove everything from the packaging. Claims for compensation due to transport damages can only be accepted, if the delivery agent is notified immediately. Please write a damage report and send it back to the supplier with the defective part(s).

GeBE-FLASH® Set: optionally available in a carrying case

The standard versions of the thermal printers are available in various packages.
The table below shows the parts contained in each printer set.
Printers of the GeBE-FLASH® series that are not supplied as part of a set (OEM versions) can ONLY be ordered in sets of 10 units, accessories not included!
Please order the accessories separately.

Article No.	Printer Sets	5 Paper Rolls GPR-T01-057-031-007-060A	Manual SMAN-D-470 in German or SMAN-E-471 in English	Cable	Charger / Battery
11983	GPT-4378-Flash-V.24-Ir	X	X	GKA-483	GNG-6V-0,5A-U
11941	GPT-4378-Flash-BT	X	X	-	GNG-6V-0,5A-U
11940	GPT-4378-Flash-USB	X	X	GKA-480	GNG-6V-0,5A-U
11899	GPT-4378-Flash-HP	X	X	-	GNG-4,8V
11943	GPT-4379-Flash-V.24-Ir	X	X	GKA-483	GNG-12V-1,2A
11944	GPT-4379-Flash-BT	X	X	-	GNG-12V-1,2A

- Before the initial operation, please familiarize yourself with the chapter "Safety Instructions".

- The characteristics of your supply voltage must match the device characteristics.

4 Connecting the Printer

Before Installation:
Always disconnect the power in the system !

Voltage Supply

Internal Battery Pack, Charging

The battery pack includes 4 NiMH Mignon (AA) cells with 1,500 mAh. A temperature sensor monitors the battery temperature during the charging process. A bi-metal circuit-breaker is integrated to protect against short circuits and overheating.
The battery is connected with a 7 pin connector (14) through the window in the battery compartment. The battery charging voltage is connected through the polarity protected socket (12).The plug-in power supply for charging is part of the supplied set. It has a connection cable with the matching connector plug attached. A fully charged 1,500 mAh battery will print up to app. 50 m of thermal paper with normal text.

Inserted rechargeable batteries require at least 3 complete charging and discharging cycles in order to reach their full capacity. Incomplete charging and discharging cycles during operation will reduce the life span of the battery.

Battery Operation

The HP version of the printer has a battery compartment (16) for single power MIGNON (AA).
This version does not have a charging circuit. In this case, the printer can either be operated through 4 power batteries, or through 4 externally charged batteries (Mignon,AA).

For battery operation, please use reliable alkaline batteries type LR6.
Carbon zinc batteries (type: R6) are NOT suitable for this printer!

Options

Fixed Voltage Power Supply:
In a special OEM version, the printer can be operated with a stabilized power voltage (4.5 to 6.5VDC) through the socket (12). A suitable external power supply for this version is available from GeBE.

Lilon batteries A special OEM version of the printer is equipped with an Li-ION battery.

GPT-4378/79 Power Management

Whenever the printer does not have data to process, it will automatically switch to idle mode. In this mode, it appears to be 100% active and is ready to accept data. The power consumption in this mode is typically app. 5mA.

Sleep Mode

If a sleep time has been set via menu, the printer will switch to the power-down mode after the set time has passed. Any kind of data transfer (even infrared), activities on control lines, connecting the charger, or simply pushing of the FEED/ENTER button will reactivate the printer immediately without changing its settings. Only the print buffer will be erased.
The necessary reactivation and waiting for the ready message of the printer has to be considered in the printer drivers.
The power-saving sleep mode can be turned on or off through the following functions:
• print settings menu • command from the host or from the batch file TINIT

Power Off

The printer is switched off by holding down the"OFF/NEXT"button for >3 seconds. It is turned on by pressing the FEED/ENTER button or by connecting the charger. There is a component option available that allows the printer to be switched through the RTS line.

Charging the GPT-4378/79

The GPT-4378 is equipped with an intelligent charging circuit without charging current limiting. The current limiting is ensured through the use of the power supply that is supplied with the printer.

Additionally, the GPT-4379 has an internal control for the charging current. This allows the printer to be charged from any fixed voltage source between 10 and 28V that supplies at least 1A . Cables for connecting to a 12/24V automotive power supply system are available as accessories.

The use of a charger different from the one supplied can cause damage to the printer.
The recommended temperature range for charging the battery is between 20 and 25°C.

The charging process is devided into three steps:

Formatting Charge

If the battery is over-discharged, it is first charged with a low-current formatting charge in order to prevent damage to the battery. The formatting charge is not signaled externally. Depending on the status of the battery, the formatting process can take about 1 to 5 minutes.

Fast Charge

As soon as the battery voltage has exceeded the operating voltage of the printer, the printer will start a fast charge. This is signaled through a slow flashing STATUS LED and a message through the interface.
For empty batteries, the charging process takes about 4 hours for the GPT-4378 and about 3 hours for the GPT-4379.

Trickle Charge

As soon as one of the criteria for disconnecting has been reached, the printer will switch to a trickle charge. In this mode, the formatting current flows permanetly. In addition, the fast charge is activated every 8 minutes for 20 seconds. This is signaled through permanent lighting of the STATUS LED and a message through the interface.

5 Interfaces

5.1 Serial Interfaces

RS232
The interface cable that comes with the set connects plug-in connector (11) with the 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
For OEM, a special version with 3.3V TTL levels is available.

GeBE COM
In this setting, the printer uses the GeBE - Ir protocol for communicating. The protocol can be used through the RS232 as well as the TTL.

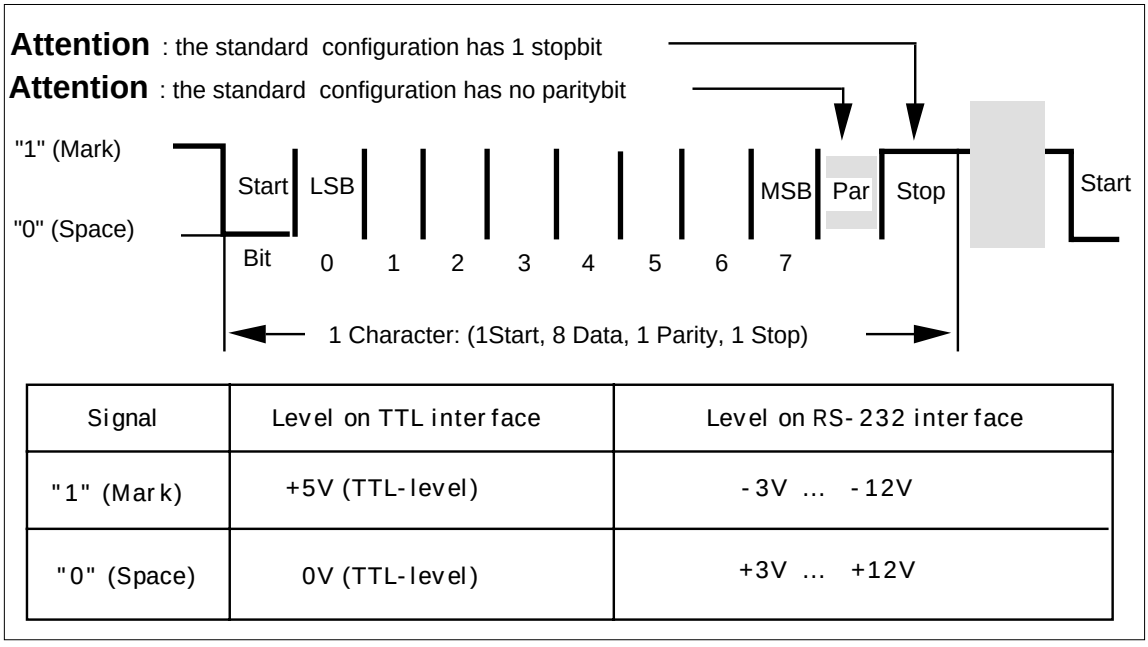
Through the CRC protected transmission blocks, a secure data connection can be realized.

Also see: Infrared Interfaces

Pin Assignment of the Serial Interface RS232 (V.24) at the Connector (11)
Connector at the printer: (5pin). >>> serial cable. The other end has a 9 pin SUB-D socket. The assignment is 1:1 matching the serial COM interface of the PC.

GCT-4378/79-FLASH5pin Mini-USB Connector			Pin Assignment of the Serial Interface Cable	COM Interface PC 9pinSUB-D	
Pin	Signal	I/O	Comment	S	Pin
1	CTS	O	If the level is logic-true, the controller can receive data.	CTS	8
2	TxD	I	Print data	TxD	3
3	RxD	O	Error messages and Xon/Xoff messages	RxD	2
4	VAUX/RTS	I/O	VP, VCC, or RTS selectable at the factory through solder bridges	RTS	7
5	GND signal	GND		GND signal	5
	screen		At the controller, screen is connected to GNDF (frame ground)	screen	1,4,6,9 = NC

Timing of the Serial RS232 /TTL Interface
The standard timing is shown in the diagram.
For printers with EEPROM, the data format can be set through the print settings menu.



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

Standard Data Format
- 9,600 baud
- 8 data bits
- NON 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 and 115,200 baud
- 7/8 data bits
- odd, even, non 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-D-394
- **HP-IR:** Unidirectional IR transmission
  GeBE Doc.No. MAN-D-416

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-437x.
The internal IR tranceiver is installed directly below the red foil window (10). The GPT-4379 has an LED next to the transceiver that signals any IR communication. It is important to consider that infrared transmissions only work "at sight". The radiation angle is about +/-15 degrees. The transfer distance, which also strongly depends on the efficiency of the opposite side, is about 1.0 meter. It can be expanded to < 3 meters by installing a booster-IR LED.

Use of the Sleep Mode

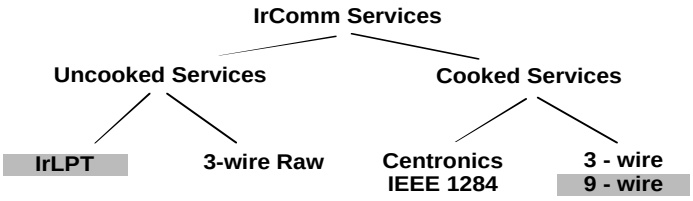
In the setting "IrDA "or "GeBE IR", the IR receiver will even be active in the sleep mode, so the device will not have to be switched on explicitly for printing. The power consumption of the printer is only about 25µA in this mode. However, the printer should still be turned off during long periods of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

GeBE -IR Protocol

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

IrDA Protocol

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 problems 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

Windowstreiber finden Sie auf unserer Internetseite.

WIN CE , PALM OS , SYMBIAN Serie 60

Treiber für diese Betriebssysteme finden Sie bei einem-Drittanbieter unter:

www.Bachmannsoftware.com

Da Pocket PCs keinerlei Druckunterstützung haben, liefert Bachmann eine Applikation (Printboy) mit der man dennoch aus z.B. Pocket Word drucken kann.

IrDA Data Specification	Erfüllt: IrDA V1.0 Standard Power SIR			
	min	max		
Radiation output	40	100	mW/sr	On-axis
Booster radiation output	100	150	mW/sr	zusätzlich
Min. input radiation intensity		4	W/cm2	v<(±15°)
Max. input radiation intensity		500	mW/cm2	v<(±15°)
Peak wave length		870	nm	
Peak wave length booster LED		880	nm	optional
Safety	Complies with IEC 825-1 class 1 (EN 60825) eye safety specifications			
Range	0,01	1	m	
Range booster LED	0,05	< 3	m	optional
IrDA Interface parameters	IrDA: automatic setting in accordance with IrDA ; 9,600, 38,400, 57,600, or 115,200 Baud			
GeBE-IR Interface parameters	GeBE IR-Protocol: 9,600; 38,400; 57,600; or 115,200 baud, 8 data bits, non parity, 1 stop bit			

5.3 HP IR Interface

The GPT-4378-HP emulates an HP82240B in text AND graphics printing.
The transmission range reaches 20 cm - 1 meter.

Command Set

HP	Description	GeBE
0Ahex	CR/LF	0Ahex
04hex	No action	
ESC FFhex	Reset	ESC @
ESC FEhex	Self test	ESC T0
ESC FDhex	Wide print ON	ESC W1
ESC FChex	Wide print OFF	ESC W0
ESC FBhex	Underline ON	ESC L1
ESC FAhex	Underline OFF	ESC L0
ESC F9hex	ECMA 94 character set	ESC P2
ESC F8hex	ROMAN 8 character set	ESC P1
ESC F7hex	Hexdump mode	ESC z
ESC 01h - A6h	Graphics	
ESC<data> +80 hex	GeBE command patch	ESC <data>

Due to a command patch, the GeBE commands remain usable, if 80hex are added to the command operator, e.g.: Switch to double height :
ESC "H+80hex" "1" = ESC C8hex "1"

Graphics

A transmitted HP graphics byte is zoomed to the GeBE-FLASH® printer mechanism for adjusting. Each pixel is trippled in the direction of printing.
In horizontal direction, two sequential pixels are trippled, but each third pixel is just doubled. This results in a zoom factor of 2.66:1. This allows special characters to be printed as graphics.

HP-Ir Protocol

While the GeBE-IR protocol and the IrDA protocol act bidirectionally, the HP-IR protocol only works unidirectionally,i.e. the printer receives print data, but it cannot send messages back (e.g. buffer full). For this reason, the timing of the data transmission is tuned, so the printer is guaranteed to always be able to print out the data received through the HP-IR interface without the loss of any data. The transmission speed is limited to app. 800 baud.

When defective characters are received, they are corected, if possible, or replaced with a ? character, if they are uncorrectable. A buffer overflow is indicated through the character FChex.

Use of the Sleep Mode

After the sleep time set in the menu has passed, the printer turns itself off.
(standard value = 10 minutes).
The IR receiver is off during sleep mode. Therefore, the device has to be turned on explicitly for printing. The power consumption is only about 18 µA in this mode. However, for longer periods of inactivity, the printer should be turned off completely by holding down the NEXT/OFF key.

Character Sets

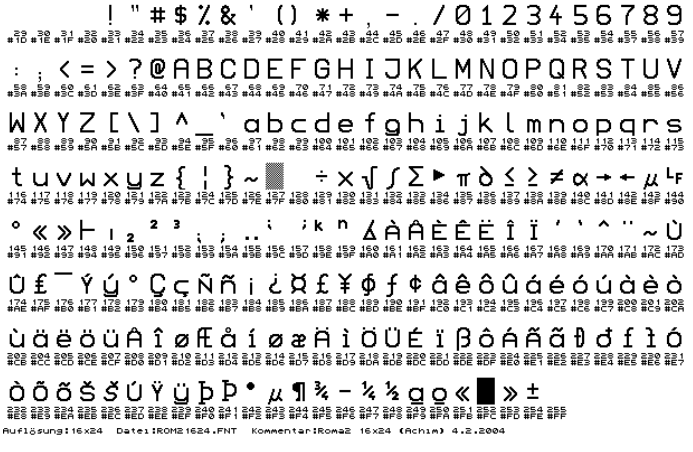
The standard GPT-4378-HP supports the following character sets:

Font 1	ROMAN 8	ESC F8hex
Font 2	Gebe 9x22	ESC D0hex "2"
Font 3	GeBE 7x16	ESC D0hex "3"
Font 4	ECMA 94	ESC F9hex

Special character sets available on request.

1. Font Roman 8

2. Font ECMA 94



Data Transmission Format for Failure-Free Operation of the GeBE-FLASH® :

The IR receiver of the GeBE-FLASH® has the ability to inhibit failures due to ambient light. However, continously sent data of more than 140 bytes without a pause between the bytes may cause the printer to become sensitive to ambient light. The optical filter that is installed as a standard will reduce this effect, but it cannot completely cancel it. It is therefore recommended to increase the specified interframe delay from 600µs to at least 1.5 ms after a continous data transmission of no more than 140 bytes. A general interframe delay of 1.5 ms between the transmitted bytes would be even better.
Generally, this should not be a problem regarding the print speed, since most pint data is sent in blocks with a waiting period between the blocks, in order to prevent older, slower printers from being overrun with data.

5.4 USB

The GPT-437x-FLASH-USB meets the USB specification V1.1 for full-speed devices. The printer is compatible to 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, and possibly WinCE from the third quarter of 2004. For Linux V2.40 and up, there is a direct Kernel support. Therefore, a driver is not required. Standard GeBE printer drivers can be used.

Operation

If a sleep mode has been selected for the printer, it will switch to sleep mode after the preset time period has passed. The USB interface, however, remains active, being directly fed from the USB bus. A new print job with the standard driver reactivates the printer without any loss of data. The USB suspend mode also has the printer internal USB interface turned off. In this mode, the printer will "go to sleep" after the preset sleep time.

USB Drivers

Windows 98 / ME / NT / 2000 / XP
Windows and USB drivers can be found on the GeBE website. Please read the included installation instructions. Before the initial operation, the matching virtual COM port driver (VCP driver) and the printter driver have to be installed.

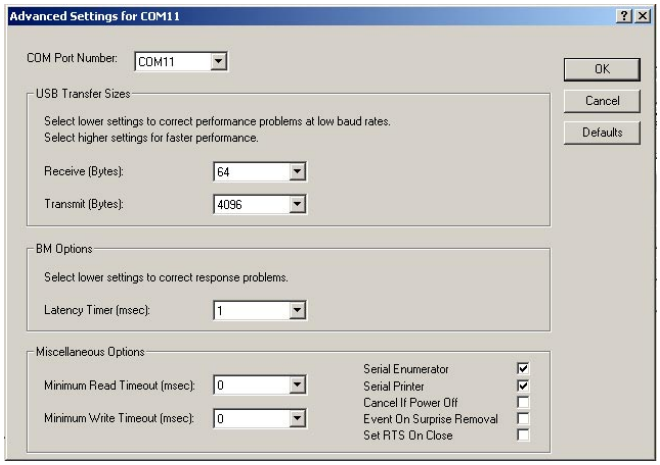
Setting the VCP Driver

The example shows the setting with Windows 2000. The procedure is very similar with XP or Windows 98. Starting with the Windows "START" menu, select "Control Panel" -> and click on the "System" folder.
Select the "Hardware" tab), and click on "Device Manager".
There, activate the "+" symbol under "Connections (COMand 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.

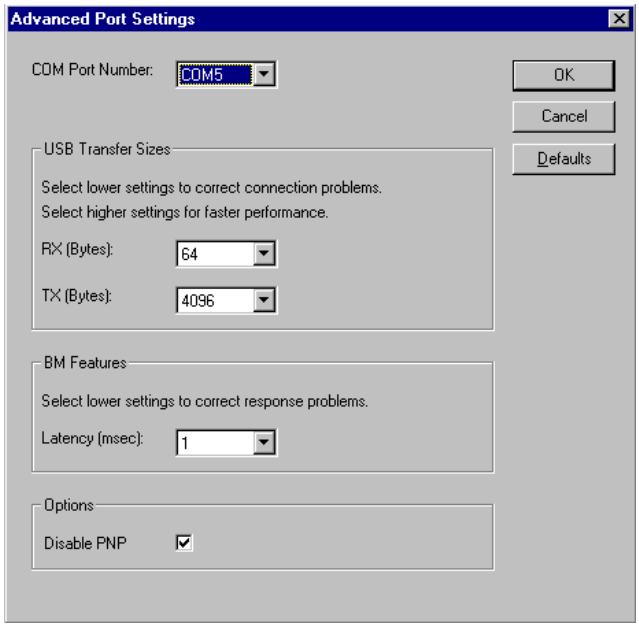
It is recommended to use the settings of the virtual COM port according to the settings of the printer:: 115,200, n, 8, 1, XON/XOFF.
If the printer is not operated in step mode, "Hardware Flow Control" is recommended.

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



For Windows 98 and ME



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

USB Specification	V1.1 (V2.0 compatible)			
Device type	Vendor specific device			
Speed	Full speed			
Power consumption printe	no printing	min.	Typ.	max.
	USB active /printer active		30 mA	
	USB active /printer sleep		25 mA	
	USB suspend / printer sleep		300 µA	

5.5 Bluetooth® Wireless Technology

The GPT-437x-FLASH-BT meets the BT specification V1.1 class 2, attaining a transmission range of about 10 -15 m. If you require a longer transimission range, please contact us. The printer can be operated with a customary BT dongle that comes with a virtual COM port driver.
A RS232 remote receiver is available on request.

Operation

The printer responds to an inquiry scan with its name "GPT-4378/79-FLASH" and its BT address. However, it can also be addressed directly, without a scan, with its BT address.
A "BT connect" activates the printer. The printer will maintain a connection until it goes into sleep mode. The online power consumption of the printer with an active BT link is about 35mA. The sleep mode disconnects an active connection and activates the BT sniff mode. In this mode, the printer scans its environment for possible calls every 1.25 seconds. During these inquiry scans, it remains visible and responsive. It will then take about 2-3 seconds to establish a connection.
The power consumption in this mode is about 1.5mA. When the printer is reactivated through the feed button, the BT tranceiver will remain in sniff mode. After the set time period, the printer will go back into sleep mode.

If you are not planning to operate the printer for several days, switch it off with the OFF/NEXT key. After the power is turned on, it will take a minimum of 10 seconds for the printer to become ready to recieve data.

The printer does not ask the master for any authentication.
Should your transmitter require a PIN number, type in "0000".

Please always set your printer to 115,200, n, 8,1.

We recommend to set the sleep time to "1 minute".

Drivers

Windows 98 / ME / NT / 2000 / XP

Windows drivers can be found on our website.

WIN CE , PALM OS , SYMBIAN Serie 60

For WIN CE, PALM OS, and Symbian series 60 devices, you can find a driver support at:

www.Bachmannsoftware.com

This printer contains a 2.4 GHz radio transmitter. For health reasons, a distance of at least 1.0 cm must be kept between the printer surface and the body of the user, except hands, fists, feet, and joints. As a precaution, any body contact during operation should be kept to a minimum.

Bluetooth Specification	V1.1			
RF transmit level	4 dBm (class 2)			
Range	app. 10 -15 m			
Profiles	SPP serial port profile			
Power Consumption Print	no printing	min.	Typ.	max.
	Active link/data traffic at 115 kbps	50 mA	62 mA	85 mA
	Active link	25mA	35 mA	45 mA
	Idle	18mA	25 mA	30 mA
	Sniff mode (1.25 sec. scan)	1 mA	1.5 mA	2.5 mA
	Power off	0 µA	0.5µA	0.9 µA

CE statement:
The BlueRS+I complies with the European safety regulations IEC 60950, and EMV regulations ETS 300 328-2 and ETS 301 489 -1 und -17.

FCC statement:
The printer contains a BlueRS+I OEM serial adapter with the FCCID: RFR-BRSI / IC: 4957A-BRSI .
The BlueRS+I complies with part 15 of the FCC rules and with RSS-210 of Industry Canada.

The BlueRS+I has been qualified as a product in accordance with the Bluetooth® Qualification Program (BQP).

A class 1 version (up to 100 m range) is under way.

6 Operation: Inserting Paper • Batteries

The closed printer is protected against static discharges in accordance with the EMC 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.

Replacing the Paper

Inserting the Paper Roll

1. Unwind about 10 cm of paper from the roll. Hold the layers tightly wound, and open the lid of the printer by slightly pulling the LEVER inside it upward.

2. Put the paper roll in the paper compartment making sure that the outside is turned toward the printer mechanism.

3. Close the lid by pressing on it. It will audibly snap into place, so that the paper can be torn off at the tear-off edge without the lid opening up, and without the paper sliding through the print head.

Which side of the thermal paper can be printed on?

Usually, the printable side of a thermal paper roll is on the outside.

See: Error Detection and Recovery on page 22.

Which thermal paper can be used?

The printer is specified for a paper width of 57.5 ± 0.5mm, a roll diameter of 31 mm, and a paper thickness of 60 g/m2. The matching paper rolls GPR-T01-057-031-007-060A (quality: 5 years) are available from GeBE. Other papers might cause failure.

Other Paper Available from GeBE:

High Temperature Paper
is a paper that will not start to turn black before 100°C (standard app. 70 °C).
This makes it ideal for applications like parking tickets.

Two-ply Paper
prints two layers.
The first layer can be taken up) with the paper rewinder option.

Adhesive Labels
are connected through perforation. There is a black mark between the labels for correct positioning. This is the only type of labels that can be printed with the GeBE-FLASH®.

long preservation Paper for Documents
is a paper that preserves its printed image for at least 15 or 99 years, if stored dark and dry.

Two-Color Paper
prints red with normal heat setting, black with higher heat setting. The heat setting can be selected by command.

1.

2.

3.

Exchanging Batteries

4 . The lid of the battery compartment on the bottom of the printer can be easily opened by pressing a coin against the spring latch.

For operations with a clock, you have max. one minute to exchange batteries before the clock loses its setting.

5 . Exchanging Battery Packs

The 7 pin battery connector (14) is accessable through the window in the bottom of the battery compartment (see description on page 3). By pulling at the connection cable of the battery pack with force, connector (14) is unplugged from the socket. The connector of the new battery pack can be plugged in using taper-nose pliers (tweezers).

Replacing battery cells for printer versions with contact springs inside the battery compartment

Each cell has to be oriented according to the polarity as shown at the bottom of the compartment (alternating from one position to the next).

Only order the battery type given in this manual. Before inserting it, check for the correct part number, to ensure you are using the correct type.

Please- dispose of batteries in accordance with your local environmental regulations, or send them on your costs (DDP) back to us. Never throw batteries in the garbage.

6 . Maintenance, Cleaning:

Attention

The GeBE-FLASH® is secured against usual maloperations. An explosion risk due to the insertion of a wrong battery type, a short circuit, manipulations at the battery, or temperatures above 80 °C can not be excluded.

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

• Open paper supply lid and remove paper roll.

• Loosen dirt particles at the paper sensor and the tear-off bar with a small brush.

• Blow forcefully into the paper supply compartment in order to remove the coarse dust.

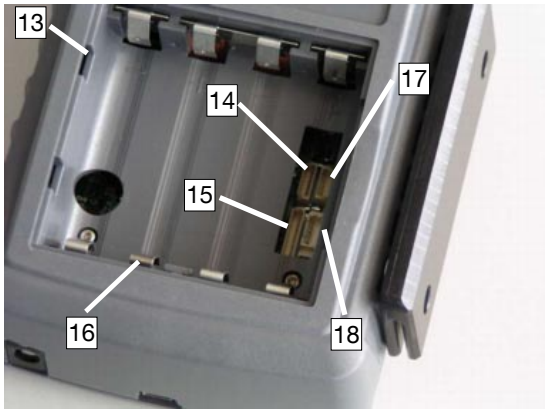
• Soak Q-tip in isopropanol (IPA) and clean the print head, or use print head cleaning pin/cleaning card.

• Other stubborn debris can also be removed with a Q-tip (IPA).

Never use sharp objects for cleaning. This might cause damage to the print head.

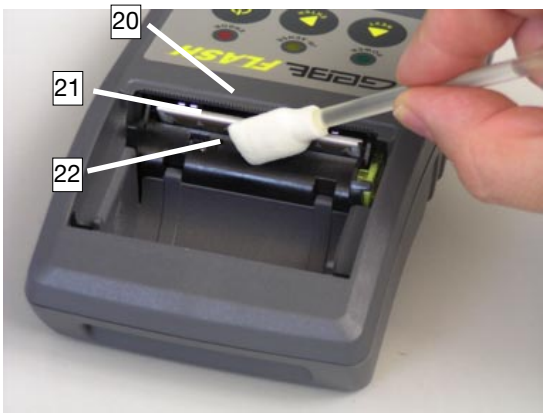
4.

5.



13 Battery compartment lid with spring catch
14 battery plug connection, 7pin
16 Spring contacts for battery connection (option)
17 battery plug connection, 6pin

6.



20 Paper tear-off bar
21 Print head
22 Paper sensor

7 Key Functions

Description of the Key Functions

The keys can have different functions depending on the status – normal operation or print settings menu. The time for which the button is held down is also an issue.

Feed / Enter (5)

Through this key, the printer can be reactivated from sleep mode, and the paper can be transported forward. When the feed key is pressed, the printer will first feed one line of the set font. If the key is held down for more than 2 seconds, it will feed continously.

Self Test

With a self test, the inner function of the printer is tested by starting a printout. For this, the paper feed button (5) {FEED} is held down for at least 3 seconds, while the printer is being reactivated from power-off. The interfaces are not checked at this time. The software version and the character set are printed. For OEM, special printouts can be activated during a self test.

OFF / NEXT Key (3)

By holding down the OFF/NEXT key for more than 3 seconds during operation, the processing of batch file T2 is initiated. In µ-P flash, the command for power-off (after 1 second) is filed in batch file T2. This way, this key is programmed as an OFF button for the printer (controller with power-off mode).

SET Key

Currently without function.

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

8 OPD-Menue®

The most important settings of the printer can be changed with a few key strokes using the OPD-Menue® (On-PaperDisplay).
They can be called at any time, and can be quickly understood with the menu printout.
The inconvenient accessing of DIP switches and the programming through a terminal program are a thing of the past.
The OPD-Menue® is operated with only two keys (OFF/NEXT and FEED/ENTER)
The OPD-Menue® is an editor of an initialization batch file "TMENUE" that is called before the "TINIT".
See chapter on batch files.

Key FEED/ENTER	Key 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:

Bold : printout of the menu
Normal: possible settings
Italic: comment

Welcome to the GeBE OPD menu 1.0 3 *(menu version)*
Setup timeout after 10 minutes *(The menu will automatically finish after 10 minutes.)*
Actual printer settings:

Ubat: 5.2V *(battery voltage, between 4.8 volts (empty) and app. 5.8 volts (full))*
Tbat: 24°C *(battery temperature, only displayed when battery pack is present)*

Firmware: **GE-xxxx** *(software version)*

Density **25** *(setting of blackening : default 25 / 2ply is for 2-ply paper)*
Speed: **med(64/48)** *(medium setting: 64 pixels are heated simultaneously/dynamics 24)*
Interface: **RS232/USB/Blue**
COM: **9600,n,8,Tx+** *(Tx+ : XON/XOFF and error messages are transmitted)*
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(2-ply)
(paper blackening; high values lower the print speed and the effective battery life)

Speed/Quality: med(64/48) low 32/24, medHQ 64/24, medLQ 64/48, high 96/48
(1. value: number of pixels that are heated simultaneously; high values increase the print speed and lower the effective battery life)
(2. value : number of virtual segments that can be heated simultaneously. High values increase the print speed, while lowering the print quality.)

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

Baud rate: **9600** 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200.

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-
(parity bit, data bits, Tx line on/off)

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 orientat: **text mode (D0)** Text mode (D0), data mode (D1)
(in data mode, the printer is positioned upside down)

Char. size : **W0/H0** W0/H0, W0/H1, W0/H2, W0/H3, W1/H0, W1/H1, W1/H2, W1/H3
(W0: single width, W1 double width, H0 single height ,H1 double height ....)

Char. spacing : **0** **0,1,2,3,4,5,6**
(distance between the characters in pixels)

Print width : **48 mm** 48 mm, ... 32 mm
(Set printing width, which also determines the <characters per line)

? Return to default settings *(reset to standard settings of the printer)*

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

17.03.03 17:33

? Change date / time *(Set real time clock; if present)*

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

Year:	**03**	00 .. 50
Month:	**11**	01 .. 12
Date :	**14**	01 .. 31
Hour :	**13**	00 .. 23
Minute :	**33**	00 .. 59

9 Status Messages through LEDs

LED "STATUS" (green) (6)

The STATUS LED will flash green slowly, when everything is in order. It will flash red in regular intervals in case of a failure. During fast charging, the STATUS LED will flash green in regular intervals, while it permanently glows green during trickle charge.

LED "IR Communication" (red) (7)

During data transmission, the LED under the IR window lights up red.

Only for GCT-4379:

LED "Line" (yellow) (8)

This LED signals an input voltage between 10-28V.

LED "M-Card" (yellow) (7)

If the magnetic card has been successful read, this LED lights up once for about 2 seconds, if not, 3x short.

Buzzer

The buzzer can be controlled by command from the host. Whenever a magnetic card has been read successfully, the buzzer will beep once for about 2 seconds. Otherwise, 3x shortly.

Status Messages of the Printer through the Interfaces

Besides the optical status messages displayed by the three 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 analyzed by the host. The following table shows all status messages.

Status Messages	**Serial Interface**				Comments
	Feedback through the serial interface		on:off /flash frequency fast: "S" app. 0.66Hz medium: "M" app. 0.33Hz slow: "L" app. 0.16Hz		
			Status LED		
Faultless operation:			1:31 / M	green	
After reset	"R"				Level on the status lines only short-term during phase of initialization. Message: < XON> "R" "X" (or error)>
After watch-dog reset	"R"				Crashing program
Error end	"X"				also after hardware, software, and watchdog resets
Buffer empty	X ON				Buffer emptied by 22 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
Battery charging:					
Formatting		"L"	off		L := charge start l := end of charge
Fast charge	"l"	"L"	LED permenently on		L := charge start l := end of charge
Trickle charge	"f"	"F"	LED flashes (1:3)		F := charge start f := end of charge
Errors:	start	error end			
Paper end	"P"	"p"	1:1 / S	red	After paper has been inserted, the printer waits for about 2s 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 found
			IR communication		
IR Reception			LED on	red	
			Reading magnetic cards		
Successful read			LED on 2sec.	yellow	
Unsuccesstul read			3x short LED on		
			Charging voltage (line)		
Chaging Voltage			LED on	yellow	LED is on if voltage is higher than 9 - 10 V in order to signal a valid charging voltage.

10 Batch Files

Almost all commands that the printer can receive through the interfaces and then perform can be put into 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 TINIT, which is processed with each system boot-up, as well as 10 files that can be used freely, which are 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 (Flash).
When a filed is retrieved, the printer will check, if it contains data in the EEPROM. If it does not, the file will be processed in the Flash. This allows Flash files to be over-written.

The following batch files are accessable:
Allocated in the Flash Memory, Factory Settings:
• "TINIT" ...settings after hardware RESET

• "T0 " .....self test through FEED key after reset
• "T1 " .....form feed through NEXT key <1 sec.
• "T2 " .....power-off through OFF key >3 sec.

• "T3 - T9" : unused

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-4378 has an 8 KB EEPROM (app. 6 KB can be used for logos), and the GPT-4379 has a 32 KB EEPROM (app. 30 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, while they only require app. 5,7KB when 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 prescribed TMenu and/or TINIT in the EEPROM. If it finds one or both, it will process the batch file commands and will then be ready for operation. If not, it will process the TMenu and/or the TINIT containing the factory settings in the Flash.

TMenu:

The OPD Menu® is a printer function that allows the user to edit the TMenu in the EEPROM. The TMenu can only be changed through the OPD 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.

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

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/flash .
The file will erase the TINIT, while printing out all actions in italic at the same time.
Any commands can be entered in the TINIT.

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!

11 Magnetic Card Reader (optional)

The magnetic card reader of the GPT-4378/79 can be used for magnetic cards of the type ISO 3554. It reads up to 3 tracks simultaneously. The permissible swiping speed is 10 - 100 cm/s.
The recording density and the number of bits per character differ from one track to the next according to ISO 3554. They determine the maximum number of characters including start and stop characters that can be recorded on each track:

Track	bpi	Bit	Characters
1	210	7	79
2	75	5	40
3	210	5	107

In accordance with the norm, track 1 and 2 are just read during operation.
Track 3 is the only one that is also used for recording.

Operation

After the swiping of the card, the LED lights up for about 2 seconds, if the card was read correctly. If an error occured, the LED will flash rapidly 6 times.
While the LED is on, another reading process is not possible. After the LED has gone out, the internal buffers are getting ready for the next reading process, waiting for a new card to be swiped.

The printer puts out the card data for each track with a header. The data set is concluded with a check sum.

The card data per track contain:
- the number of data on this track
- status byte (type of error, if occured)
- data

A detailed description can be found in the software manual.

Applications

Track 1 and 2 for credit cards.
Track 2 and 3 for Eurocheque
Track 2 for access control
Track 3 for time recording

EC Card		
Track	**Stelle**	**Content**
2	1-3	identification 672
2	9-18	account number
2	21-22	year of expiration
2	23-24	month of expiration
3	1-4	identification (0159, EC card)
3	5-12	bank identification code
3	14-23	account number
3	37-40	remaining amount that can be withdrawn
3	41	final digit of the year of the last withdrawal
3	61-62	year of expiration
3	63-64	month of expiration
S-Card		
Track	**Stelle**	**Content**
2	x	like EC card
3	1-4	identification (0059, S-card)
3	9-24	like EC card
Credit Card		
Track	**Stelle**	**Content**
1	2-17	credit card number
1	19-44	last name of the card holder
1	46-47	year of expiration
1	48-49	month of expiration
2	1-16	credit card number
2	18-19	year of expiration
2	20-21	month of expiration

Numeric Character Track 1		
P 3210	entspr	Meaning
1 0000	0	
0 0001	1	
0 0010	2	
1 0011	3	
0 0100	4	
1 0101	5	
1 0110	6	
0 0111	7	
0 1000	8	
1 1001	9	
1 1010	:	control
0 1011	;	start sentinel
1 1100	<	control
0 1101	=	field seperator
0 1110		control
1 1111	?	end sentinel

ALPHA Character Track 2 and 3					
P 543210	hex			hex	
1 000000	00	space	0 100000	20	@
0 000001	01	!	1 100001	21	A
0 000010	02	,,	1 100010	22	B
1 000011	03	#	0 100011	23	C
0 000100	04	$	1 100100	24	D
1 000101	05	%(start)	0 100101	25	E
1 000110	06	&	0 100110	26	F
0 000111	07	'	1 100111	27	G
0 001000	08	(	0 101010	28	H
1 001001	09	)	1 101011	29	I
1 001010	0A	*	1 101000	2A	J
0 001011	0B	+	0 101001	2B	K
1 001100	0C	,	0 101100	2C	L
0 001101	0D	-	1 101101	2D	M
0 001110	0E	.	1 101110	2E	N
1 001111	0F	/	0 101111	2F	O
0 010000	10	0	1 110000	30	P
1 010001	11	1	0 110001	31	Q
1 010010	12	2	0 110010	32	R
0 010011	13	3	1 110011	33	S
1 010100	14	4	0 110100	34	T
0 010101	15	5	1 110101	35	U
0 010110	16	6	1 110110	36	V
1 010111	17	7	0 110111	37	W
1 011000	18	8	1 111010	38	X
0 011001	19	9	0 111011	39	Y
0 011010	1A	:	0 111000	3A	Z
1 011011	1B	;	1 111001	3B	[
0 011100	1C	<	1 111100	3C	\
1 011101	1D	=	0 111101	3D	]
0 011110	1E	>	0 111110	3E	^(field)
0 011111	1F	? (end)	1 111111	3F	_

12 Character Sets

The flash memory of a standard controller contains four character sets that can be selected by command. Other character sets available on request. The Euro character is located at 16 hex.

GeBE Standard Character Set: Similar to IBM II Code Table 850

Font Sizes of the Character Sets

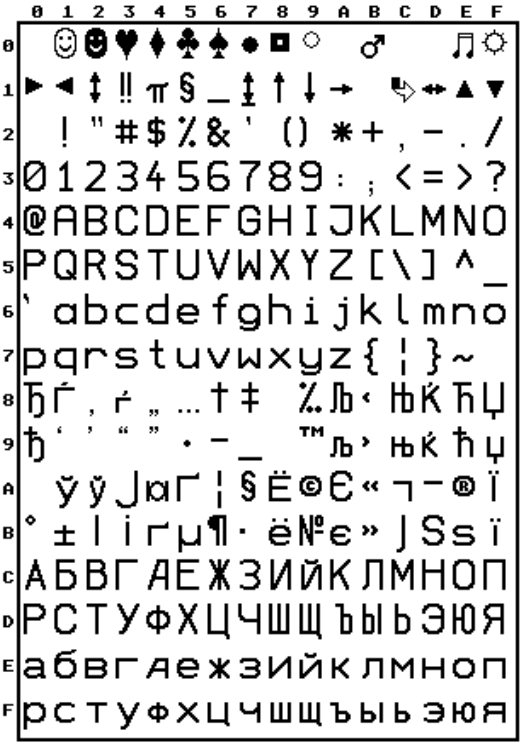
Font No.	Dots (horiz./vert.) Characters/Line
1	16 / 24 24 (not with IrComm 9 wire)
2	9 / 22 42
3	7 / 16 54
4	12 / 24 32

Optionally Available Character Sets

The following character sets are currently available and can be programmed into the Flash memory of the µ-processor in exchange for other character sets. Please contact us with your inquiry.
On request, GeBE can also create other character

	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
Kyr	16 x 24 24
Kyr	14 x 22 27
Kyr	11 x 22 34

Optional Character Set: Cyrillic



13 Accessories and Spare Parts

Art.Nr.	Nomenclature	Description	For Printer (s.o.)
11937	GMT-437x-Flash-Tasche	Belt holster	1-6
11542	GMT-4392-LEVER-tr	Opening lid / lever transparent	1-6
11975	GKA-484-1-2000	Charging cable, one end open	1, 2
12004	GKA-488-FLASH-CAR	12/24V automotive charging cable	1, 2
	GKA-492	RS232 data cable, one end open	1, 3
11953	GKA-483	RS232 data cable at D-SUB 9 pin to PC	1, 3
11919	GKA-480	USB data cable at USB type A to PC	5
	GNG-4,8V-1,5Ah-NiMH-Pack-070	NiMH battery pack 4 cells 1500 mAh	1-5
11360	GNG-6V-0,5A-U	Charger GPT-4378 EU	3 - 5
11453	GNG-6V-0,5A-UK	GPT-4378 UK	3 - 5
11908	GNG-6V-0,5A-US	GPT-4378 USA	3 - 5
11909	GNG-12V-1,2A-AC	Charger GPT-4379	1, 2
11347	GPR-T01-057-031-007-060A	Thermal roll paper	1-6
11555	GPR-T01-057-031-007-060A-(Maxi)	Thermal roll paper in maxi letter -ready for shipment	1-6
	on request	Thermal roll paper - Labels	1-6
11471	GPR-T01-057-30-000-060I	Thermal roll paper - High Temp.	1-6
	on request	Thermal roll paper - 2-ply	1-6

OEM Options for this Printer

- **Custom housing color, design foil**
- **Program versions and special character sets**
- **Large EEPROM:** up to 32KB
- **Magnetic card reader:** three tracks simultaneously
- **Clock with alarm register:** automatic wake-up
- **SPI-BUS Extensions** (e.g. keyboard, LC display)
- **Paper rewinder**
- **External power supply**
- **Operation with externally charged batteries or non-rechargeable batteries**

14 Service and Maintenance

Documentation about the System GPT-437x-FLASH

All further documents can be found on the Internet at www.oem-printer.com/flash. The software manual SoMAN-D-484 is available from GeBE via Email (sales.ef@gebe.net).

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: 0049 (0) 89/894141-0 • Fax: 0049 (0) 89/8402168 • Email: sales.ef@gebe.net

Further Information

Further information on the GeBE-FLASH® series is available at www.oem-printer.com/flash.

At this address, you can also find a personal consultant who you can turn to with your questions.

Or simply send an **Email** to the GeBE **sales team**: **sales.ef@gebe.net**

For orders, you can use the **fax number : 0049 (0) 89/894141-33** , which is located in the sales department.

15 Error Detection and Recovery

Not every error means that there is a printer error that cannot be cleared by the user.
Users will save time and money by recognizing and clearing simple errors on their own.
The following tips are meant to help with this:
Hardware RESET: Triggered by holding down the OFF/NEXT key for more than 3 seconds.
This causes the printer to be set to the parameters in the batch file TINIT-F or TINIT-E. See REF! on page REF!.Test printout: Is triggered by holding down the FEED feed key for more than 3 seconds after reactivation from power OFF (switching off with the OFF/NEXT key).
Hexdump mode: Is triggered by holding down the FEED key for more than 3 seconds after reactivation from power OFF, if no paper is inserted. After the paper has been inserted, the printer prints the data it recieves as hex numbers with the appropriate ASCII code without interpreting the data. This shows, which information the printer "reads" from the recieving data. In order to leave the HEXdump mode, the FEED key has to be held down for at least 3 seconds, while there is no paper inserted. After it leaves the HEXdump mode, the printer will process TINIT for a reinitialization.

Symptom	Possible Cause	Remedy
Power Supply		
The printer seems to be printing. Paper is transported, but is not blackened.	Paper: Wrong side toward print head. 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). 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 can not be reactivated by pressing the FEED key.	No power. **Rechargeable battery:** not charged. **Batteries:** not inserted orare empty	Check power supply. Recharge battery. The green LED should light up no later than after 1 minute.
At the beginning of printing, the LED goes out just briefly The printer only prints a few dots in one line. The paper feed works, but the self test does not. The printer only prints a few characters in one line. If more is entered, it stops printing completely.	The power supply is not optimal. **Rechargeable battery:** not charged. **Batteries:** empty, bad quality, no batteries inserted. **External power supply:** Cross-section of power feeding lines to small, Current output of the power supply too low.	**Batteries**: Different qualities are available. Only use batteries that are able to supply high currents, and that have a high energy capacity. **External power supply:** Use power supply with sufficient dimension and short feed lines. Check all connections for possible transfer resistances. 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.
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). 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?). Is the transmission cable too long?
	Wrong data format was set. ("?" is printed repeatedly.)	Select the correct baud rate through the menu. Check data format.
	External power supply: Bad ground connection that causes a part of the printing current to flow through the interface cable. This leads to an increase in potential there, which causes 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 print speed is extremely slow with high baud rate settings.	The host ignores the "turn-around time" set by the printer.	Host sends a break signal after print job (only "?" are printed).
Bluetooth®		
The printer cannot be found in the BT network.	Possible undervoltage at the BT transmitter or the printer	Restart transmitter. Turn off printer and wait for app. 5 seconds. Switch printer on and wait for app. 10 seconds. Then search again.
USB		
The printout stops after a short time or is constantly repeated.	Wrong COM port settings	Set virtual COM port according to installation instructions.

16 CE Certification

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

DECLARATION OF COMFORMITY

in compliance with EN45014

KONFORMITÄTSERKLÄRUNG

in Übereinstimmung mit EN45014

Supplier: **GeBE Elektronik und Feinwerktechnik GmbH**
Anbieter:

Address: **Beethovenstr.15**
Anschrift: **82110 Germering**
Germany

Products: begining with Serial Number: **0501xxxx**
Produkte: beginnend mit Seriennummer: **0501xxxx**
GPT-4378-Flash-V.24-Ir
GPT-4378-Flash-BT
GPT-4378-Flash-USB
GPT-4379-Flash-V.24-Ir
GPT-4379-Flash-BT

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

DIN EN 55022 1998

DIN EN 55024 2003

Germering, the 04/29/2004
Germering, den 29.04.2004

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-0,5A-U	CE	EN 55024; 50082-1; 60335-1; 60742; 60950/A1 and A2
GNG-12V-1,2A-AC	CE	EN 55024 / 55022 61000 60950 50081-1-2
Bluetooth® transmitter (RS+	CE	IEC 60950 / ETS 300 328-2 / ETS 301 489 -1 and -17 FCC Rules Part 15 / RSS-210
IrDA receiver		Complies with EN 60825 (IEC 825-1 Class 1 eye safety specifications)

17 Technical Data

	GPT-4378 / 4379
Print procedure	Complete fixed thermal line
Paper/print width/ diameter	Thermal paper: 57.0 ± 0.5mm / 48mm / max. 31mm / app. 12m at 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 print lines high
Layout options	Text; graphics, Text-/data mode; bar code; gray on white; inverted white on black, characters spread in height and width
Character sets, cpl	24 (32, 42, or 54) select by control command or menu
Bar code	Code39, 2 of 5 int, EAN13, EAN8
RS232 /TTL interface parameters	Serial RS232 (option TTL) Baud rates: 1,200; 2,400; 4,800; 9,600; 19,200; 38,400; 57,600; 115,200 Data bits: 7, 8; stop bits: 1, 2; parity: non, odd, even Handshake: Hardware and XON / XOFF
Infrared interface parameters	HP IR Protocol: app. 800 baud, only reception GeBE IR Protocol: 9,600, 38,400, 57,600, or 115,200 baud, 8 data bits, non parity, 1 stop bit IrDA: automatic setting acc. to IrDA ; 9,600, 38,400, 57,600, or 115,200 baud
Magnetic card reader (option)	Magnetic card reader, ISO 3554, 3 tracks
Batch files	Text and graphics (logo printing); presetting of parameters through menu
Data compression	(PCL) factor app. 3 :1 (for graphics commands); PC compatible; Windows driver
Batteries	Battery pack 4x NiMH cells, 1,500 mAh • options for OEM: Li-Ion battery
Charger for GPT-4378	unregulated plug-in power supply 6 V, 500 mA
Charger for GPT-4379	10 - 28VDC, min. 800 mA
Batteries /rechargeable batteries	Option for OEM: 4x Mignon (AA) type: LR6 in battery compartment, connected through spring contacts
Max. current during printing	Can be limited by command to max. 0,7A - 6A (adjustment to operating voltage)
Power cons. standard	Online idle mode: typ. 5 mA; sleep mode: typ. 25 µA; power-off mode: < 1 µA
Power consumption BT	Online idle mode: typ. 5 mA; sleep mode: typ. 1,5 mA; power-off mode: < 1 µA
Power consumption USB	Online idle mode: typ. 5 mA; sleep mode: typ. 25 µA; power-off mode: < 1 µA
Environment	0 °C to 50 °C (-10 °C to +60 °C with GeBE HQ paper) 10% to 80% relative humidity, no moisture condensation
MTBF	50 km printed paper (with thermal paper specified by GeBE)
Dimensions in mm	76.8 mm x 77.4 mm x 39.3 mm
Weight	app. 350 g incl. paper roll
Housing	PC-ABS with 15% fibre glass, similar to RAL 7015
Norms	CE: see declaration of conformity

18 Mechanical Dimensions