Easy-Loading Thermal Printer

Mulde Mini
GPT-4352
GPT-4352-60

with controller system N78

Elektronik und Feinwerktechnik GmbH

Modules and devices for input, analysis, display and printing of analog and digital data.

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Operating Manual

Activities at GeBE

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Content

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".

1 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.

2 Safety Instructions

Read operating manual before operation!
During installation: Always disconnect the power.
Safe operation of this device is only warranteed, if the instructions in this operating manual have been complied with. Usage in accordance with the operating manual is required for product warranty.
If the user attempts to repair the product, all factory warranties will be null and void.
Only use manufacturer's parts and accessories! Make sure that the printer is saved against overvoltage after EN/IEC 60950.

- 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 refer to chapter 19.
- 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

- It is prohibited to operate the device, if the housing is damaged.

  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

3 Packing List

All printer sets GPT-4352(-60) contain:

- tansparent LEVER (exchangeable)
- 5 paper rolls: GPR-T01-058-031-007-060A resp. GPR-T01-058-060-007-060A for GPT-4352-60
- operating manual: SMAN-E-413

In addition the different sets contain:

	GPT-4352	GPT-4352-60
	**SET1** GPT-4352-LV-82-24-LC-at • GKA-406: RS232 interface cabel, 500 mm • GKA-410: Power cable, one side open, 250 mm	**SET1** GPT-4352-60-LV-82-24-LC-at • GKA-406: RS232 interface cabel, 500mm • GKA-410: Power cable, one side open, 250mm
	**SET2** GPT-4352-LV-82-24-V.24-EVAL-at • GKA-406: RS-232 interface cable 500 mm • GKA-416: Connecting cable for charger, 190 mm • GNA-4.8V-1,6Ah-NiMH: Battery, 4x Mignon (AA) • GNG-6V-0.8A-U: Charger	**SET2** GPT-4352-60-LV-82-24-V.24-EVAL-at • GKA-406: RS-232 interface cable 500mm • GKA-416: Connecting cable for charger, 190mm • GNA-4.8V-1.6Ah-NiMH: Battery, 4x Mignon (AA) • GNG-6V-0.8A-U: Charger
	**SET3** GPT-4352-LV-82-24-SPI(4,5V)-EVAL-at • GKA-407: Connecting cable 12pol. to Centronics Adapter • GPT-4382-10: Centronics Adapter 25 pol Sub-D Stift • GKA-410: Power cable, one side open, 250 mm	**SET3** GPT-4352-60-LV-82-24-SPI(4,5V)-EVAL-at • GKA-407: Connecting cable 12pol. to Centronics Adapter • GPT-4382-10: Centronics Adapter 25 pol Sub-D Stift • GKA-410: Power cable, one side open, 250mm
	**SET4** GPT-4352-LV-82-24-IR2-EVAL-at • GCT-4382-20: external IR- adapter • GKA-408: connecting cable to external IR • GKA-416: connecting cable for charger, 190 mm • GNA-4.8V-1.6Ah-NiMH: battery, 4x Mignon (AA) • GNG-6V-0.8A-U: Charger	**SET4** GPT-4352-60-LV-82-24-IR2-EVAL-at • GCT-4382-20: external IR- adapter • GKA-408: connecting cable to external IR • GKA-416: connecting cable for charger, 190 mm • GNA-4.8V-1.6Ah-NiMH: battery, 4x Mignon (AA) • GNG-6V-0.8A-U: Charger
	**SET5** GPT-4352-LV-82-24-V.24-LC-at-DC/DC • GKA-435: Power cable • GKA-414: RS-232 TTL interface cable, 500 mm	**SET5** GPT-4352-60-LV-82-24-V.24-LC-at-DC/DC • GKA-435: Power cable • GKA-414: RS-232 TTL interface cable, 500 mm

Attention

While unpacking, check if all parts on the packing list are present and undamaged. Make sure that all parts delivered are removed from the packaging. Claims for compensation that are based on damage that occured during shipment can only be asserted, if the delivery service is notified immediately.

Please write a damage report and send it back to the supplier together with the defective part(s).

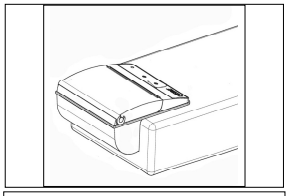
4 Installation

4.1 Installation in a front panel

The plastic housing of the GPT-4352 printer can be installed with two screws in an easily done cut-out of a front panel with up to 4mm thickness. The contact surface is flat. The edge of the housing juts out by 1 mm, covering the space between the panel and the housing.

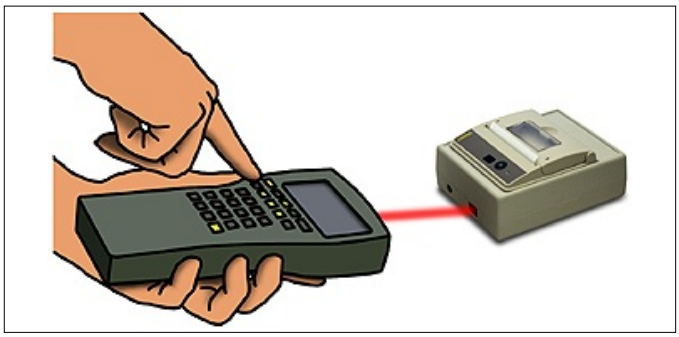
The housing is pushed into the cut-out from the outside, and then easily screwed on.
The two holes of 2.8 mm diameter allow the use of M2.5 screws.

4.2 Partial installation in plastic casing



As shown in the picture, the printer housing can also be installed at the edge of a casing. This installation variant has the part of the printer housing that contains the paper roll extending beyond the unit casing. This saves room in the device casing for the installation of other components.
To facilitate installation in different casing shapes, the outer wall of the paper storage was left smooth below the bearing collar. The housing can project about 19mm from the casing edge, since about half of the paper storage can be used, right up to the slanting slot for inserting the mounting plate.

4.3 Example for installation and application



Application in a pocket printer with infrared interface.

As the pictures show, the installation types are almost unlimited. The advantage of the compact thermal printer Mini Mulde in its plastic housing consists above all of the fact that it becomes possible to use the practical Easyloading technology of the printer mechanisms also in applications with smaller numbers of items.
For this small GeBE-printer a paper rewinder is available, so that also a printer with presentation stage, like shown above, can be used e.g. in a control panel housing. The Mini MULDE is used also in the Desktop Printer Series POCKET and is suitable for Handheld computers with printing station.

5 Connecting the Printer

Attention

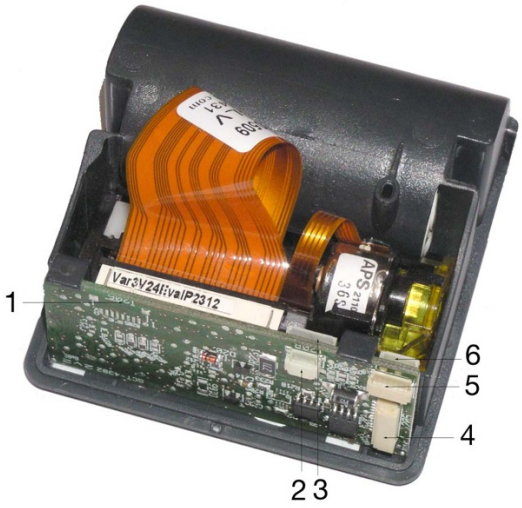
During installation:
Always disconnect from power!

5.1 Connecting the power supply (3)

The printer can be supplied with fixed voltage from a power supply or a battery. Battery or power supply are plugged into the same connector. Through the voltage supply connection, the printer can be supplied with voltages between 3.5 V (for printers with Centronics adapters with 4.5 V) and 6.6 V. The supply for the logic chip is produced on the board. The power cable GKA-410, included in sets 1 and 3, is connected to the connector J4 (3 red wires for + 3.5 -6.6 VDC, 3 black grounding wires, and one white cable for an NTC 6.8 kOhm of a Ni-MH battery). For simple power connections, the white wire remains unconnected. We recommend keeping the length of the line as short as possible. The longer the line, the higher the line resistance, causing bad print quality or even printer failure.

Attention

Avoid confusing the connection poles, because it can cause immediate damage to the printer. Carefully check the power supply connection before you turn on the printer.



Designations:
1 Infrared (if equipped)
2 Connection winder
3 Connection power
4 SPI
5 Connection charger (Akku)
6 Connection RS232 / V.24

5.2 Power Down

Starting with hardware version V1.4c the standard version does not support the power-off mode.
The controller comes with different levels of power saving modes (power down modes):

- Idle mode (8 mA typical)
- Sleep mode (20 µA typical)
- Power-off mode (0.1 µA typical), optional configuration required

During the receiving of data and during printing the controller is in an active status.
With the parallel interface, the ballast resistor R35 is not part of the standard configuration.
Connect jumper J3 for idle mode.
Remove jumper J3 for sleep mode.
Power-off logic ist not in the standard configuration (replaced by R37).

5.3 Connecting the Charger (5)

EVAL printers have a standard charging circuit for 4 Ni-MH cells. An operation with 3 or 5 cells is also possible. The charging is performed by the uncontrolled plug-in power supply GNG-9V-0,6A-CC-EU-AC that has a special internal resistance. It is connected through the cable GKA-416 to the connector J1. The charging time for a 1600 mA/h battery will be about 5 hours. During the charging process, the LED on the control panel will display different pulses that show, whether the fast or trickle charging mode is active.

Attention

Never use a fixed-voltage power supply for charging the batteries. The charging circuit is a "simple switch control", meaning that the current limitation is not done in the charge control of the printer, but in the plug-in power supply. Please use the suitable GeBE power supply GNG-9V-0,6A-CC-EU-AC. In case of technical questions, please contact the GeBE technic support (see chapter 17).

6 Printer Configuration

6.1 Configuration over Initialisation-TextPreserve "TINIT" (Software Switch)

All commands for initializing the controller are filed in the text file "TINIT". TINIT is available in the flash memory of the printer and in the EEPROM (Note: Low-priced controllers with minimal functionality may not have an EEPROM). An entry in the EEPROM cancels entries in the Flash. For example, if a printer is to print double height and inverse in data mode, the relevant commands are entered in the text file "TINIT". After a RESET, the controller will first carry out its basic initialization, read the solder bridge settings, and then process the commands in the "TINIT". Therefore, the commands in the "TINIT" have final authority regarding the valid settings. Custom settings can also be achieved through entries in the text file "TINIT". If an EEPROM is available, "TINIT" can also be altered through an interface.
The basic initialization of the controller corresponds with the following instructions that are initially not entered in the "TINIT: <ESC> "A"; <ESC> "D" "0"; <ESC> "H" "0"; <ESC> "I" "0";
<ESC> "L" "0"; <ESC> "M" "0"; <ESC> "N" 0 0; <ESC> "P" 1; <ESC> "S"0; <ESC> "W" "0".

6.2 Entries into the "TINIT", which are primarily used

Comm. (ASCII)	Comm. (hex)	Function
<ESC>"Y"n	1B 59 1E	Set blackening of the paper to a medium value of 25
<ESC> "[" $40$18	1B 5B 40 18	Power consumption to 64 pixels, medium print dynamics and print quality
<ESC> "e" $05	1B 45 05	Power-down after 5 seconds regardless of the buffer status, if enabled
<ESC> "r" "1"		charging circuit configurated for NIMH cells
<ESC> "]" $0 $0	1B 5D 00 00	Activate the transmitter of the serial interface

6.3 Solder Bridges Sleep Mode, Baud Rate, Text/Data Mode, Adapter SELECT

There are four 0-Ohm bridges and two jumpers on the controller board (optional) .
These bridges will each be inquired once during RESET.

	Name	Meaning	Comment
Br9	enable Power Down	Without Br9, the controller after a Power Up in sleep modus	Default: connected (disable)
BR204	text/data mode	Data mode: printing rotated by 180°, first line at the bottom page margin	Default: open (text mode)
BR203	RS232/Centr	Choice, if the RS232 or the Centronics through SPI (GCT-4382-10) is active.	only connected on version SPI/ Centronics
BR201/ BR202	Baud rate	Baud 9600 19200 115200 57600 BR201 OFF ON ON OFF BR202 OFF OFF ON ON Br201, Br202, Br203 closed and Br204 open Br202, Br203 closed and Br201, Br204 open: activates the OPD-Menue®	Default: open (OFF) Other baud rates on request. Always inquired during RESET.
RN1	Signal- and Handhake lines	Equipped with TTL levels for the serial interface	only connected on version TTL/serial and SPI/Centronics
R9 Br206 Br205	V ADAPTER Select	Pin 4 of the serial interface can either be connected with RTS (Handshake input of the controller) or with Vcc or Vp (power supply for external interface adapter)	Standard: only R9 assembled - Hand-shake entry used for wake-up Option: only Br206 connected - Vp at J2 / Pin 4 Option: only Br205 connected- Vcc at J2 / Pin 4
Br221	/DTR_Blue	Over this line the controller sends the signal for Sleep modus of bluetooth Modul GSW-Blue1.	Default: open - Option: only Br221 connected - /DTR_Blue at J2 / Pin 4

Jumper J3 zur Auswahl des Power Down Modus

	Name	Meaning	Comment
J3	Power Down Mode	Determines together with Br9, if idle mode, sleep mode, or power-off mode is going to be used.	Standard: plugged in = Idle Mode in combination with assembled Br9. open = Sleep Mode

7 Interfaces

Overview

Artikel Nr.	Nomenclature	Interfaces						Batteries		Features			
		USB	RS232, V.24	TTL (3,3V on request)	Infrared on board with plug	**SPI e.g. for Centronics**	8 KByte EEPROM*	LiIion	NiMH charging circuit	Sleep Modus	Rewinder control	Z/Zeile: 24 (32, 42, 54)	Colour RAL7016
12165	GPT-4352-LV-82-24-V.24-at		X							X		X	X
12186	GPT-4352-LV-82-24-V.24-EVAL-at		X			X	X		X	X	X	X	X
11336	GPT-4352-LV-82-24-IR2-EVAL-at		X		X	X	X		X	X	X	X	X
12178	GPT-4352-LV-82-24-TTL(4,5V)-EVAL-at			X		X	X		X	X	X	X	X
12828	GPT-4352-LV-87-24-USB-at	X								X		X	X
12828	GPT-4352-LV-87-24-USB-EVAL-at	X				X	X		X	X	X	X	X
12481	GPT-4352-60-LV-82-24-V.24-at		X							X		X	X
12485	GPT-4352-60-LV-82-24-V.24-EVAL-at		X			X	X		X	X	X	X	X
12482	GPT-4352-60-LV-82-24-TTL(4,5V)-EVAL-at			X		X	X		X	X	X	X	X
12790	GPT-4352-60-LV-87-24-USB-at	X								X		X	X
12791	GPT-4352-60-LV-87-24-USB-EVAL-at	X				X	X		X	X	X	X	X

Attention

Operating the printer at extremely slow speed (<5mm/sec.) special settings might be necessary. Please contact our technical support.

7.1 Serial Interface

RS232

The interface cable that comes with the set connects plug-in connector 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. GeBE-Doc.No. MAN-E-395

7.1.1 Serial interface RS232 (V.24) at connector J2

Connector at printer: JST-SH (5pin). >>> Cable: GKA-406: The other end has a 9 pin SUB-D socket.
The assignment is 1:1, matching the serial interface of the PC.
Please note that the DSR and the DCD are terminated on some interfaces.

PIN-seizure

Pin	Signal	Input/Output	Comment	Assignment Cable GKA-406 D-SUB 9 Pin
1	GND signal	GND		5
2	TXD	I	Print data	3
3	RXD	O	Error reports and Xon/Xoff messages	2
4 Selection through BR5	RTS	I	Handshake input of the controller (Standard: Reactivation Function)	7
	+3.0V digital	O	Supply for external adapter	
	+3.0V -6.6V power	O	Supply for external adapter	
5	CTS	O	If the level is logic-true, the controller can receive data.	8

1,4,6,9 = NC

7.1.2 Timing of serial RS232 /TTL interface

The standard timing is shown in the picture below. The data format can be set via Menue (only printers with EEPROM).

Serial Data Format

Standard:

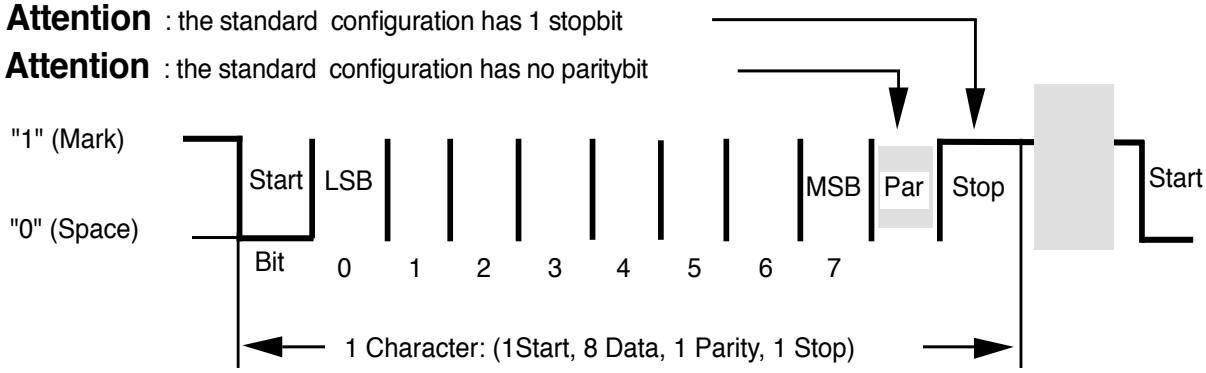
- 9,600 Baud
- 8 Datenbit
- No Paritybit
- 1 Stopbit
- TX line turned ON

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

Attention : the standard configuration has 1 stopbit

Attention : the standard configuration has no paritybit



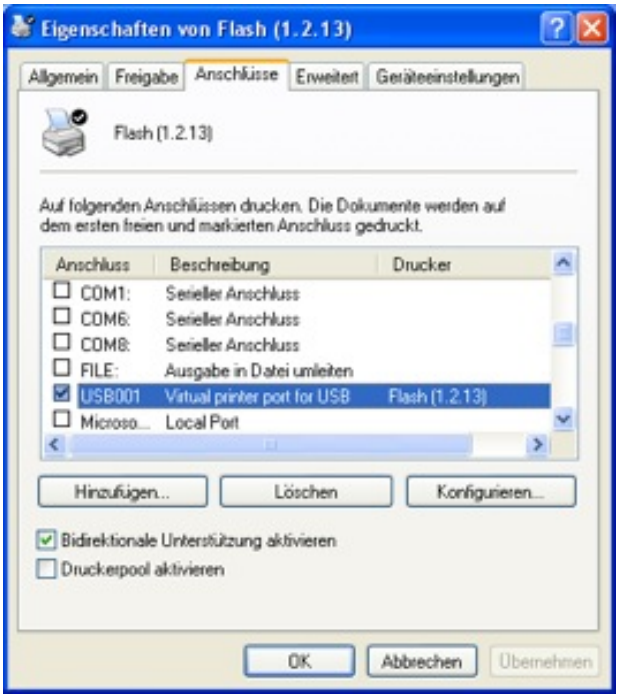
Signal	Level on TTL interface	Level on RS-232 interface
"1" (Mark)	+5V (TTL-level)	-3V ... -12V
"0" (Space)	0V (TTL-level)	+3V ... +12V

7.2 USB Interface

USB 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.



Attention

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

7.3 Parallel Interface

	Meaning	Comment
BR1 or J3	Feedback of the AUTO_LF output of the host on SELECT: Allows a Windows system to report printer - SELECT back to itself.	BR1 : default: open J3 : default: 2-3 open, auto LF not fed back to Select.
BR2 or J3	SELECT interrupt	BR2 : default: open J3 : default: 1-2 closed, select active

7.3.1 Centronics Adapter with SUB-D 25 pin Connector

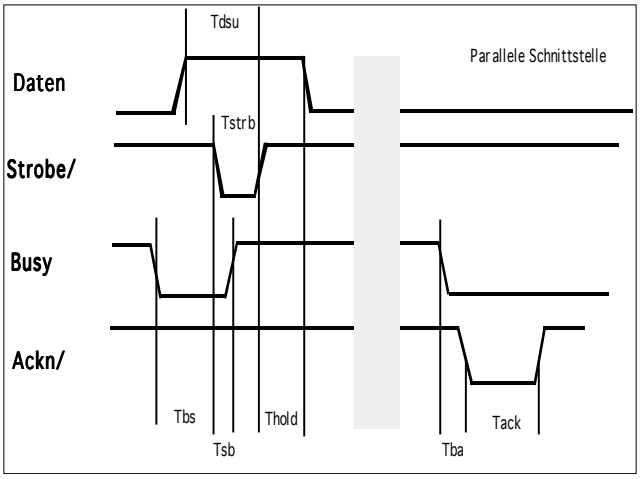
The cable GKA-407 connects the adapter with the printer (at J5).
The cable GKA-302 produces a 1:1 connection of the adapter and the parallel port of a PC.

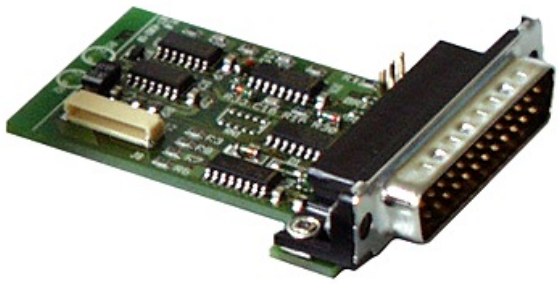
7.3.2 PIN-seizure at the SUB-D 25 of the adapter

Pin	Signal	Input/Output	Comments
1	Strobe/	I	Accepting data DB0 ..7 with rising edge
2	DB0	I	
3	DB1	I	
4	DB2	I	
5	DB3	I	
6	DB4	I	
7	DB5	I	
8	DB6	I	
9	DB7	I	
10	/Acknowledge	O	
11	BUSY	O	Becomes high with the falling edge of /Strobe
12	Paper End	O	See error messages
13	Select	O	See error messages
14	Auto Line Feed	I	Can be connected with select (Windows operation)
15	/Fault	O	See error messages
16	/Input-Prime	I	used for initiating Reset
17	Select in	I	used for initiating the wake up sequence
18-25	GND digital		

7.3.3 Timing of the Parallel Interface

Time	Name	min (μs)	typ (μs)	max (μs)	Comments
Tack	Ackn.pulse width		17		
T_{ba}	Delay busy ackn.			5.5	
T_{bs}	Busy Setup	0.5			Time before the next strobe
T_{dsu}	Data Setup	0.5			
T_{hold}	Data hold	0.5			With open-collector triggering, the minimum time is 3.5 μs. This value can be changed by integrating different RC filters.
T_{sb}	delay Strobe-Busy	0.5			
T_{strb}	Strobe pulse width	0.5			





Adapter GCT-4382-10 with Centronics Interface

7.4 Infrared Interfaces

The following protocols can be used:

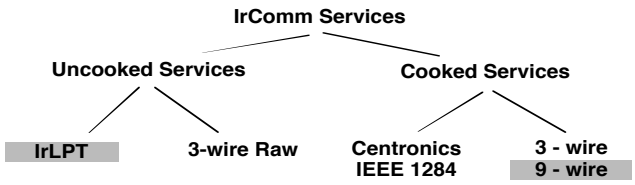
- **IrDA:** IR LPT (printer service)
  IR COMM 9 wire (optional)
  Also see: **www.irda.org**
- **GeBE-IR:** Simple, error-proof, bidirectional, dot to dot IR-protocol.
  GeBE-Doc.No. MAN-D-394
- **HP-IR:** Unidirectional IR transmission
  GeBE-Doc.No. MAN-D-416

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-4352(-60) .
The internal IR tranceiver is installed directly below the red foil window (10). The GPT-4352(-60) has an LED next to the transceiver that signals any Infrared 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 0.6 meter.

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 25 µA 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
The printer works with the protocol service IrLPT. Here the printer doesn't send back.
A bidirectional Service "IrCOMM 9 wire" ist 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 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® 2000 / XP / VISTA / 7
Driver for Windows® are available on our Websites.

WIN CE, PALM OS, SYMBIAN Serie 60
Driver for this systems are also available from third party suppliers.

Please ask us.

IrDA Data Specification	**Complies: IrDA V1.0 Standard Power SIR**			
	min	**max**		
Radiation output	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	0.6	m	
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			

7.5 Bluetooth® Wireless Technology

The GPT-4352(-60) with BT meets the BT specification V1.1 class 2, attaining a transmission range of about 10 to 15 m. On free field longer ranges can be reached. 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-4352" 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 35 mA. 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 21 mA. When the printer is reactivated through the feed button, the BT tranceiver will remain in sniff mode. The power consumption in this mode is about 7 mA. After the set time period, the printer will go back into sleep mode.
We recommend to set the sleep time to "1 minute".

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 receive 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.

Drivers

Windows® 2000 / XP / VISTA / 7
Windows® drivers can be found on our website. www.oem-printer.com

WIN CE, PALM OS, SYMBIAN Serie 60
Driver for this systems are also available from third party suppliers.


Please ask us.


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**		
radio transmission level	4 dBm (class 2)		
range	app. 10 -15 m		
profile	SPP serial port profile		
printer power consumption	no printing	I (mean)	I (peak)
	active link / data traffic at 115 kbit/s - closed range (slave)	33 mA	61 mA
	active link / no data traffic - closed range (slave)	10 mA	56 mA
	Idle / no active link / page&inquiry scan interval 1.28 sec.	8 mA	56 mA
	Sniff mode / 1.25 sec. scan interval	21 mA	78 mA
	Power off	0.3 µA	0.7 µA

CE statement:
The BlueRS+I complies with the European safety regulations EN 60950, and EMV regulations EN 300 328 V1.7.1 and EN 301 489 -1 and -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).

8 Operation

8.1 Which thermal paper is suitable?

The printer is specified for a paper width of 57.0 ± 0.5 mm, with a weight of 60 g/sqm. GeBE is offering suitable paper rolls (GPR-T01-058-031-007-060A resp. GPR-T01-058-060-007-060A for GPT-4352-60) as part of the standard program. Other papers may not be suitable for use.

Which side of the thermal paper can be printed on?
On the paper roll, the side to print on is, in almost all cases, the outside.
If you should have any doubts, just do the fingernail test:
Quickly drive the edge of a fingernail with slight pressure over the paper.
The thermosensitive side will turn black as a result of the frictional heat.

Thermal papers that are resistant against water, grease, or alcohol are available for special applications. We will gladly assist you in your selection of the suitable thermal paper.

How do I insert the paper?

Use paper rolls that are coated on the outside with a width of 57.0 ± 0.5 mm and a winding diameter of 31 mm and 60 mm for GPT-4352-60.
Standard GPT-4352: GPR-T01-058-031-007-060A
Standard GPT-4352-60: GPR-T01-058-060-007-060A

1. Unwind about 10 cm (4") of paper from the roll. Keep the layers wound tightly.
2. Open the printer cover by slightly pressing the LEVER in the cover upwards. The print roll is lifted from the mechanism together with the cover. The cover is now easy to open.
3. Insert the paper roll in the paper storage, so the outside shows toward the printer mechanism. Only this outside can be printed on.
4. Close the cover by applying strong pressure. You can 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.

1.

2.

3.

4.

8.2 Maintenance, cleaning

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.

On principle the printer has to be kept dust-free.

- 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.
Do not touch the print head. This might cause damage through electrostatic charge.

9 Key Functions

9.1 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 button (1)

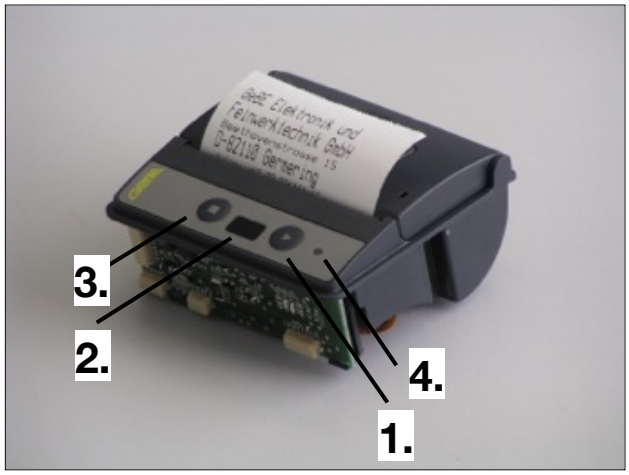
Through this key, the printer can be reactivated from sleep mode, and the paper can be transported forward. When the feed key is pressed, the printer will first feed one line of the set font. If the key is held down for more than 2 seconds, it will feed continuously.

Self Test

With this, the printer functions can be tested through a printout. To start the self test the FEED Button {FEED} (1) has to be held down for more than 3 seconds when waking up the printer out of the Power OFF mode. The interfaces won't be tested in this case. Software version and character set will be printed out. For OEM special printouts can be activated during this operation self test.

OFF / NEXT button (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).



Designations:
1 FEED / ENTER button
2 IR window
3 OFF / NEXT button
4 Status LED (see chapter 11 "Status Messages")

Key FEED/ENTER	Key OFF/NEXT	Action
pressed	not pressed	paper feed by one line
held down > 2s	not pressed	continuous 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

10 OPD-Menue®

The most important settings of the printer can be changed with a few key strokes using the OPD-Menue® (OnPaperDisplay).
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 12 "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 OPD menu 1.0 5
Setup timeout after 10 minutes
Actual printer settings:
Ubat: 52V
Tbat: 24°C *(displayed only with battery)*
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** **(Depending on the Printer typ)**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: **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-

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

Font #:	**1**		1, 2, 3, 4
Text orientat:	**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**	**(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 with clock option / clock 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**	*** :** means periodic enterprise, e.g. if "day" is adjusted to *, each day to the adjusted time an alarm is called
00 .. 23, *	**Hour :**	**13**	
00 .. 59, *	**Minute :**	**33**	
ON, OFF	**Mode:**	**OFF**	

11 Status Messages

LED "STATUS" (green/red) (4)
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.

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 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
Battery charging:					
Formatting		"L"	off		L := charge start l := end of charge
Fast charge	"l"	"L"	LED flashes (1:3)		L := charge start l := end of charge
Trickle charge	"f"	"F"	LED permenently on		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 have enough time to close the mechanism.
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	
Unsuccessful 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.

12 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.

12.1 Text or Graphics, Batch Files in the EEPROM

For the printing of text and graphics, the GPT-4352(-60) has an 8 kB EEPROM (app. 6 kB can be used for logos), and the GPT-4352(-60) 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. 5.7 kB when compressed.


Creating and Saving Logos:
A special printer driver is available for creating logos.

12.2 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.

12.3 TMenue

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 the OPD Menue®.

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}

12.4 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. Please ask us for further information.
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-xxx / 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!


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

13 Option Magnetic Card Reader

The magnetic card reader of the GPT-4352(-60)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 contains:
- 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

The Magnetic Carsd Reader can be combinated with:
USB, Bluetooth, RS232/TTl, und IrDA-9 wire

The Magnetic Carsd Reader **can not** be combinated with:
HP-Ir, GeBE-Ir and IrDA IrLPT

EC Card		
Track	**Place**	**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	**Place**	**Content**
2	x	like EC card
3	1-4	identification (0059, S-card)
3	9-24	like EC card
Credit Card		
Track	**Place**	**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 2 and 3

P 3210	equals	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 1

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	_

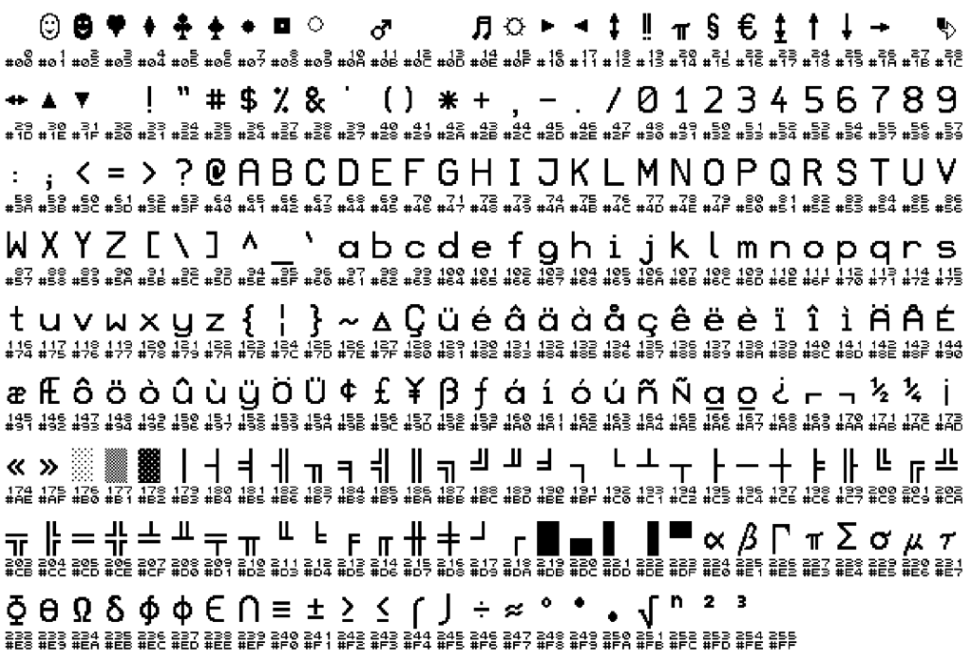
14 Character Sets

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

14.1 GeBE Standard Character Set

Resembles IBM II Code Table 850

Font No.	Dots (horiz./vert.) characters / line	
1	16 / 24	24
2	9 / 22	42
3	7 / 16	54
4	12 / 24	32



14.2 Optional Character Sets

The following character sets are available at this time and can be programmed into the FLASH memory of the µ-processor in exchange for other character sets. Please send us you inquiry.

Optional character set: cyrillic, Based on: IBM code table 850

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

GeBE will gladly create other character sets on request.

15 Error Detection

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:

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 or 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 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.
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 printer loaded over night however it prints only few or not	The rechargeable battery is used up or was not correctly loaded. Each over-discharging damages the battery strongly and leads to a loss of capacity.	Fully discharged batteries can disturb the charging in such a way that it breakes in at less than 30 minutes and switches to preservation charge. In this case please start to charge again by reputting. Please always switch off the printers if they lengthen are not used and please load them every 3 months.
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 ".
Centronics Interface		
Centronics interface does work on the PC but not on my device.	Printer is electrically not compatible to host.	Measure the level of the cables. Ask GeBE for adaption.
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 Options and Accessories

16.1 Options

Serial EEPROM for stored print files

- 32 KByte EEPROM for LOGO download

Interface adapter

- Centronics (for GPT-4352-LV-82-24-SPI-EVAL-at): GCT-4382-10 (Art. 11340)
- Infrared (for GPT-4352-LV-82-24-IR-EVAL-at): GCT-4382-20 (Art. 11339)
- Clock and 2nd RS-232 (for GPT-4352-LV-82-24-EVAL): GCT-4382-30 (Art. 11473)
- Bluetooth®-Module

16.2 Accessories

16.2.1 Mounting frames

GPT-4352

- 3HE front for 19" racks ,18TE width: GMS-4352-3HE-18TE (Art. 11415)
- 96x96 front for DIN housings: GMS-4352-96x96 (Art. 11414)

GPT-4352-60

- 3HE front for 19" racks, 18TE width: GMS-4352-60-3HE-18TE (Art. 12610)

16.2.2 Paper

GeBE offers standard paper rolls with outside coating (60 g/m^2)

- Thermal paper for GPT-4352, standard 5 years: GPR-T01-058-031-007-060A, ex stock (Art.11347)
- Thermal paper for GPT-4352-60, standard 5 years: GPR-T01-058-060-007-060A, ex stock (Art.12410)

16.2.3 Power supplies and charging devices

- Desk power supply (6 V, 2.5 A): (for printers w/o battery): GNG-6V-2.5A-AC-T (Art. 12290)
- Plug-in power supply: (for printers with 4 Ni-MH battery cells): GNG-9V-0.6A-CC-EU-AC (Art. 12663)

16.2.4 Batteries

- 4 cells Ni-MH 1600 mAh: GNA-4.8V-1.6Ah-NiMH (Art. 11360)

16.2.5 Cables

- power supply: ST (7 pins) 250 mm, open end: GKA-410 (Art.11353)
- RS232 ST (5 pins) 1000 mm to PC ST(SUB-D, 9 pin socket): GKA-406 (Art.11352)
- TTL: ST (5 pins), 500 mm, open end: GKA-414 (Art.11387)
- charging supply, ST (6 pins) 190 mm to charging socket: GKA-416 (Art.11433)
- SPI-bus: ST (12 pins) 250 mm to Centronics adapter ST (12 pins): GKA-407 (Art.11406)
- Cable ST (4 pins), rewinder, external power down active/inactive: GKA-446 (Art.11564)
- USB cable Molex, 2,0 m: GKA-570 (Art. 12872)

17 Service and Maintenance

Warranty

We guarantee that all goods supplied by GeBE possess the warranted features. The guarantee period for OEM's is 12 months unless other terms have been agreed upon in writing, and is calculated from the date of shipment. The warranty is null and void, if the customer fails to claim an occuring defect without delay and in writing. Detailed information on our warranty is part of our terms of delivery and payment, which can be seen and downloaded at www.oem-printer.com/lzb (home page 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) 89/894141-31, Fax: +49 (0) 89/8402168, Email: sales.ef@gebe.net

Further Information

Further information on the GPT-4352(-60) is available at www.oem-printer.com/gpt-4352. The software manual SoMAN-E-485 in English bzw. 484 in German is available from GeBE via email (sales.ef@gebe.net).
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: +49 (0)89/894141-33** , which is located in the sales department.

18 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: **0704xxxx**
Produkte:	beginnend mit Seriennummer: **0704xxxx**
	GPT-4352-LV-82-24-V.24-LC
	GPT-4352-LV-82-24-V.24-EVAL
	GPT-4352-60-LV-82-24-V.24-LC
	GPT-4352-60-LV-82-24-V.24-EVAL
	GPT-4333-Pocket-82-24-V.24
	GPT-4333-Pocket-82-24-BT

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 02/08/2007, den 08.02.2007

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-AC-T	CE	EN60950-1/A11:2004
GNG-9V-0.6A-CC-EU-AC	CE	EN 55022 / EN 61000-3-2, -3, -4
Bluetooth® transmitter (RS+I)	CE	EN 60950 / EN 300 328-2 V1.7.1 / EN 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)

19 Technical Data

	GPT-4352-...-V.24 / IR	GPT-4352-...-TTL / SPI
Print technique	Fixed thermal print line	
Paper - / printing width	57.0 ± 0.5 mm / 48 mm	
Resolution	8 dots/mm, 384 dots/line	
Print speed	up to 50 mm/s	
Voltage supply	3.5 - 6.6 V	4.5 - 6.6 V
Batteries	4 (3 or 5 on request) NiMH cells, optional: charging circuit for 1 Li-Ion cell (3.6 V)	
Power cons. standard	Online: typ. 5mA; Sleep: typ. 25 µA; Power Off: < ca. 1 µA	
Max. current during printing	Adjustable by command to max. 0.7 A - 6 A, depending on operating voltage	
Seral Interfaces	RS232 up to 115 kbps Optional infrared on board or with external adapter	Serial through TTL, opto isolated RS232, TTY, RS422 and RS485 through TTL adapter; Parallel through SPI/Centronics adapter, USB and RS232 through adapter
Interfaces	Baudrates: 1200, 2400, 4800, 9600, 19200, 38400 and 57600, 115200 Mode: adjustable: 7, 8 data bits, 1, 2 stop bits, none, odd, even parity Handshake: hardware handshake and XON / XOFF	
Data compression	Factor app. 3:1 (for graphic commands); PC compatible; windows® driver	
Character sets, cpl	24 (32, 42 or 54) selectable by control command	
Bar code	Code39, 2of5 int, EAN13, EAN 8	
Environment	0 °C to 50 °C (-10 °C to +60 °C with GeBE HQ paper) 10% to 80% rel. humidity, no moisture condensation	
MTBF *)	50 km printed paper (using specified thermal paper)	
Dimensions in mm	76.8 x 77.4 x 39.3 mm mounting depth: 27 mm	76.8 x 111.4 x 72.0 mm mounting depth: 58.2 mm
Roll diameter	max. 31 mm approx. 11 m with 60 g/m2	max. 60 mm approx. 40 m with 60 g/m2
Weight incl. paper roll	approx. 150 g	approx. 260 g
Housing Material	ABS (several colours available)	PA66 - GF15
Norm	**CE:** see Declaration of Conformity	

*) according to mechanism testing conditions of the manufacturer

20 Mechanical Dimensions