Easy-Load Thermal Printer

GPT-4352

GeBE®

Elektronik und Feinwerktechnik GmbH

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

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Operating Manual

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1. Unpacking, Safety Instructions

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 to the supplier, together with the defective part.

All printer sets GPT-4352 contain:

Tansparent LEVER (exchangeable) • 5 paper rolls: GPR-T01-057-031-007-060A • operating manual: SMAN-E-413

In addition the different sets contain:

GPT-4352-LV-82-24-V.24-LC-at-SET1
- Printer GPT-4302-Low-Voltage
- Controller GCT-4382-LV-24-V.24-LC
- Plastic housing GMT-4392-at (RAL 7016)
- RS232 interface cabel, 500mm: GKA-406
- Powercabel, one side open, 250mm: GKA-410

GPT-4352-LV-82-24-V.24-EVAL-at-SET2
- Printer GPT-4302-Low-Voltage
- Controller GCT-4382-24-V.24-EVAL
- Plastic housing GMT-4392-at (RAL 7016)
- RS-232 interface cable 500 mm: GKA-406
- Battery, 4x Mignon (AA): GNA-4,8V-1,2Ah-NiMH
- Connecting cable for charger, 190 mm: GKA-416
- Charger: GNG-6V-0,5A-U

GPT-4352-LV-82-24-SPI(4,5V)-EVAL-at-SET3
- Printer GPT-4302-Low-Voltage
- Controller GCT-4382-24-SPI-EVAL
- Plastic housing GMT-4392-at (RAL 7016)
- Connecting cable GKA-407 zum Centronics Adapter
- Centr. adapter. GCT-4382-10
- Power cabel, einseitig offen, 250 mm: GKA-410

GPT-4352-LV-82-24-IR2-EVAL-at-SET4
- Printer GPT-4302-Low-Voltage
- Controller GCT-4382-24-IR-EVAL
- Plastic housing GMT-4392-at (RAL 7016)
- External IR- adapter: GCT-4382-20
- Connecting cable to external IR: GKA-408
- Battery, 4x Mignon (AA): GNA-4,8V-1,2Ah-NiMH
- Connecting cable for charger, 190 mm: GKA-416
- Charger: GNG-6V-0,5A-U

Safety Information

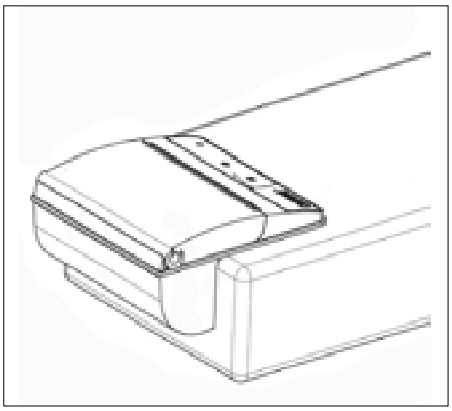
Read operating manual before operation!
During installation: Always disconnect the power.

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.

2. Installation

2.1 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 4 mm 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 M 2.5 screws.



2.2 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 19 mm 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.

2.3 Application examples

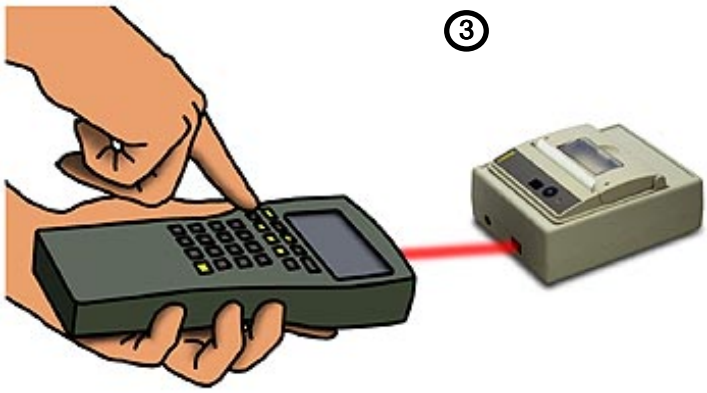
① GPT-4346 printer with rewinder in DIN switchboard housing

② GPT-4352 attached to a handheld computer (PSION-Workabout)

③ Application in a pocket printer GPT-4333 with infrared interface

①

③



②

3. Connecting the Printer

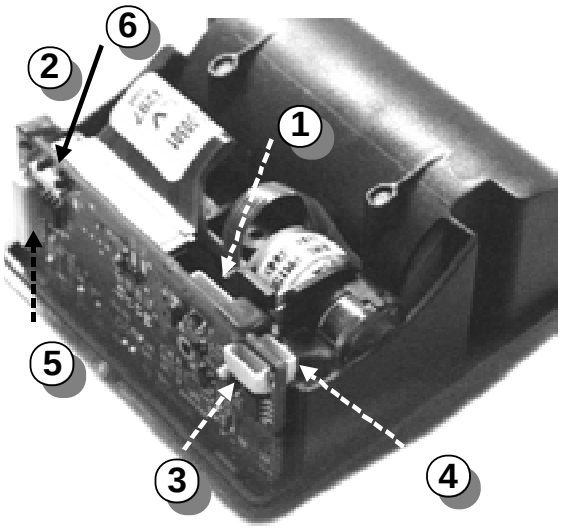
During installation:
Always disconnect the power !!

3.1 Connecting the power supply (1)

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 4.5V) and 7.2 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 -7.2 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.

3.2 Power Down (2)

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).



3.3 Connecting the battery charger (3)

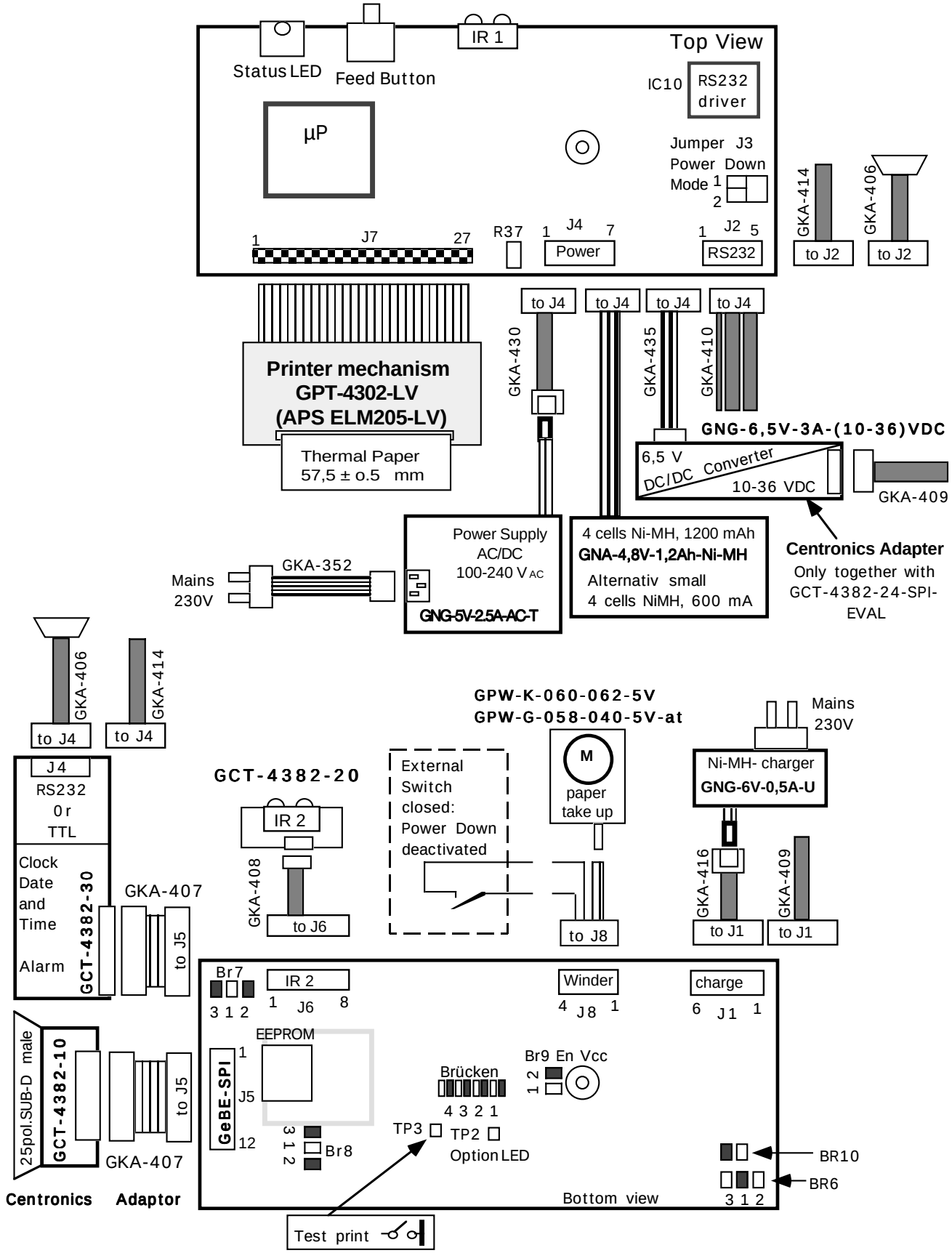
EVAL printers have a standard charging circuit for 4 Ni-MH cells. An operation with 3 or 5 cells is also possible. The charging is performed by the uncontrolled plug-in power supply GNG-6V-0,5A-U that has a special internal resistance. It is connected through the cable GKA-416 to the connector J1. The charging time for a 1200 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-6.0V-0,5A-U.

3.4 Interfaces

Serial interface (4)
Interface cable GKA-406, included in sets 1 and 2, is connected to the connector J2. For RS232 versions, this cable can be directly connected to a PC. A cable with 5 single wires and one open end is available as an option.
Parallel interface (5)
The printer GPT-4352-LV-82-SPI-EVAL can be connected to the Centronics interface adapter GPT-4382-10 using the cable GKA-407.
Infrared interface (6)
The printer GPT-4352-LV-82-IR-EVAL has an internal IR-tranceiver directly under the red foil window of the control panel. If the infrared interface adapter GCT-4382-20 is connected using the cable GKA-408, the internal tranceiver will automatically turn off.
TTL Interface (4)
On the GPT-4352-LV-82-TTL(4,5V)-EVAL, the RS232 interface driver is not integrated, but the TTL signals of the UART are directly ground through to J2. This enables the connection of opto isolated interface adapters for RS232, RS422/485, and TTY.

Druckerkontroller GCT-4382 V1.4 Rev. 12.10.2002



Blockplan

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File: GCT-4382 V1.4 Block Rev. 12.10

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

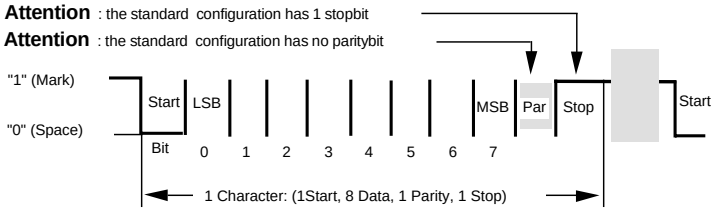
Connector at printer: JST-SH (5pin). >>> Cable: GKA-406: The other end has a 9 pin SUB-D socket. The assignment is 1:1, matching the serial interface of the PC.
Please note that the DSR and the DCD are terminated on some interfaces.

Pin	Signal	Input/ Output	Comment	Assignment Cable GKA-406 D-SUB 9Pin
1	GND signal	GND		5
2	TXD	I	Print data	3
3	RXD	O	Error reports and Xon/Xoff messages	2
4 Selection1 through BR5	RTS	I	Handshake input of the controller (Standard: Reactivation Function)	7
	+3.0V digital	O	Supply for external adapter	
	+3.0V -7.2V 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

3.4.2 Serial Data Format

Standard:

- **9,600 baud**
- **8 data**
- **no pari ty-**
- **1 Stopbit**



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

3.4.3 Status Messages of the Printer

Messages	Serial			Parallel				Status LED			Comments
			CTS Output	Busy	/Fault	Select	Paper End	on:off / flash frequency fast: "S" app. 0.66Hz medium: "M" app. 0.33Hz slow: "L" app. 0.16Hz Parameter "n" refers to the command < ESC> "y" "n" "n" = "0"	"n" = "1"	"n"= "2"	
Faultless operation:					1	1	0	LED on	1:31/ M	LED off	
After reset	"R"		1		0	0	0				Level on the status lines only short-term during phase of initialization; message: <X_{ON}> "R" "X" (or error)>
After watch-dog reset	"R"		1		0	0	0				Crashing program
End of error	"X"		)*		1	1	0	LED ein	1:31/ M	LED aus	Also after hardware, software and watchdog resets
Buffer empty	X ON		1								Buffer emptied by 22 characters <DC1> = $11
Buffer full	X OFF		0	1							Space for 22 more characters in buffer <DC3> = $13
Synchronizing feed-back	all characters		-								Processing synchronizing commands; each transmitted character
Errors:		OK			1	1	0				
Paper end	"P"	"p"	)*		1	0	1	1:1 / S	1:1 / S	1:1 / S	After paper has been inserted, the printer will wait for about 2 s before printing to give enough time for the mechanism to be closed.
Temp. low	"K"	"k"	)*		0	1	0	1:1 / S	1:1 / S	1:1 / S	Print head temperature too low
Temp. high	"T"	"t"	)*		0	1	0	1:1 / S	1:1 / S	1:1 / S	Print head temperature too high
Vp too low	"U"	"u"	)*		0	1	0	1:1 / S	1:1 / S	1:1 / S	Theoretical message, since the voltage limit is below the reset threshold.
Vp too high	"M"	"m"	)*		0	1	0	1:1 / S	1:1 / S	1:1 / S	Error message "M" usually when Vp>7.8V. Error is typ. cleared, when Vp<7.6V.
Parity Error	"?"		-								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"		-								EEPROM byte programming time exceeded
EE-KO	"E5"		-								EEPROM not found
Battery charging:											
Fast charge	"l"	"L"	-					3:1 / L	3:1 / L	3:1 / L	L := charge start l := charge end
Trickle charge	"f"	"F"	-					15:1 / L	LED on	LED on	F := charge start f := charge end

3.4.4 Centronics Adapter with SUB-D 25 pin Connector

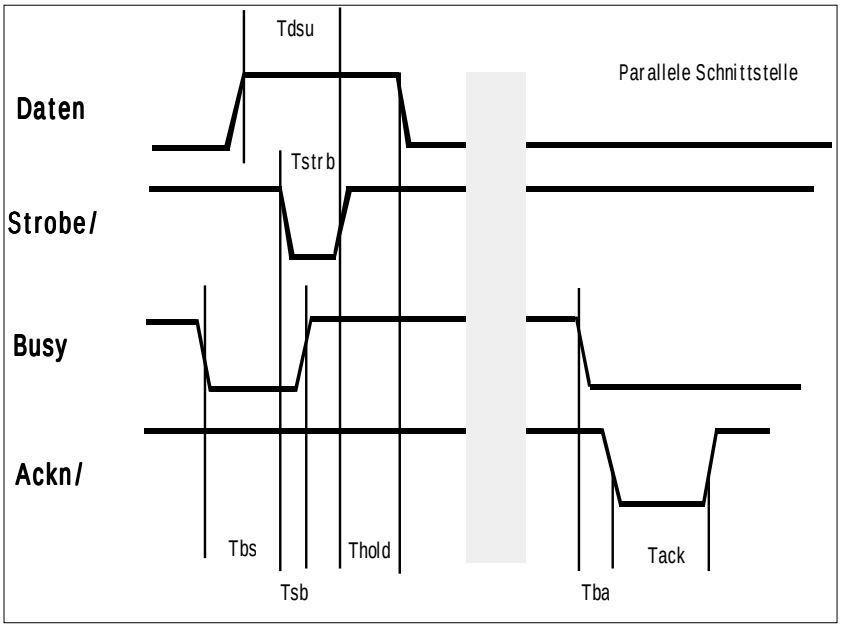
The cable GKA-407 connects the adapter with the printer (at J5).
The cable GKA-302 produces a 1:1 connection of the adapter and the parallel port of a PC.

3.4.5 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		

3.4.6 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 integratingdifferent RC filters.
T_{sb}	delay Strobe-Busy	0,5			
T_{strb}	Strobe pulse width	0,5			



Adapter GCT-4382-10 with Centronics Interface

4. Printer Configuration

4.1 Solder Bridges of the Parallel Interface Module GCT-4382-10

	Name	Meaning	Comment
BR1 oder J3		Return of the AUTO_LF output of the host to SELECT: For a Windows system to report back "printer - SELECT" .	BR1 : standard: open J3 : standard: 2-3 open, auto LF not returned to select
BR2 oder J3		Interrupt SELECT	BR2 : standard: open J3 : standard: 1-2 closed select active

4.2 Configuration through Initialization Text File "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 EE-PROM). 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".
In order to change these settings, they have to be added to the "TINIT".

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

Command (ASCII)	Command (hex)	Function
<ESC> "Y" $1E	1B 59 1E	Set the blackening of the paper to a medium value of 30.
<ESC> "[" $40$18	1B 5D 40 18	Set power consumption to 64 pixels, medium print dynamics and print quality
<ESC> "E" $05	1B 45 05	Power down after 5 seconds, despite the buffer status, when enabeled
<ESC> "r" "1"32FF$01$80AA03FF01$80$23$03		charging connection configured for 4 NIMH
<ESC> "]" 9A	1B 5B 09 0A	serial data format:9600 Baud,no parity,8 Datenbit,1Stopbit
<ESC> "]" $0 $0	1B 5B 00 00	switch on Error output

4.4 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
R37 or Br9	enable power down	Without R37, the controller will be in sleep mode after a power-up					Default: connected (disable)
BR4	text/data mode	Data mode: printing rotated by 180°, first line at the bottom page margin					Default: open (text mode)
BR3	RS232/Centr	Choice, if the RS232 or the Centronics through SPI (GCT-4382-10) is active.					only connected on version SPI/ Centronics
BR1/ BR2	baud rate	Baud	**9,6**	19,2	38,4	57,6	Default: open (OFF) Other baud rates on request. Always inquired during RESET.
		BR1	OFF	OFF	ON	ON	
		BR2	OFF	ON	ON	OFF	
		Br1, Br2, Br3 closed, Br4 open: See"Help with Unknown Interface Parameters" in the Manual.					
RN1	signal and handhake lines	Equipped with TTL levels for the serial interface					only connected on version TTL/serial and SPI/Centronics
R9, R13, R38	V ADAPTER Select	Pin 4 or 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).					Default: only R9 connected - Handshake input is used for reactivation. option: only R13 connected - Vp at J2 / Pin 4 option: only R38 connected - Vcc at J2 / Pin 4

Jumper J3 for Selecting the Power Down Mode

	Name	Meaning	Comment
J3	power down mode	Determines together with R37 and Br9, if idle mode, sleep mode, or power-off mode is going to be used.	Default: plugged in = idle mode in combination with resistor R37 (power-off mode without R37 and Br9). open = sleep mode

5. 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.

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

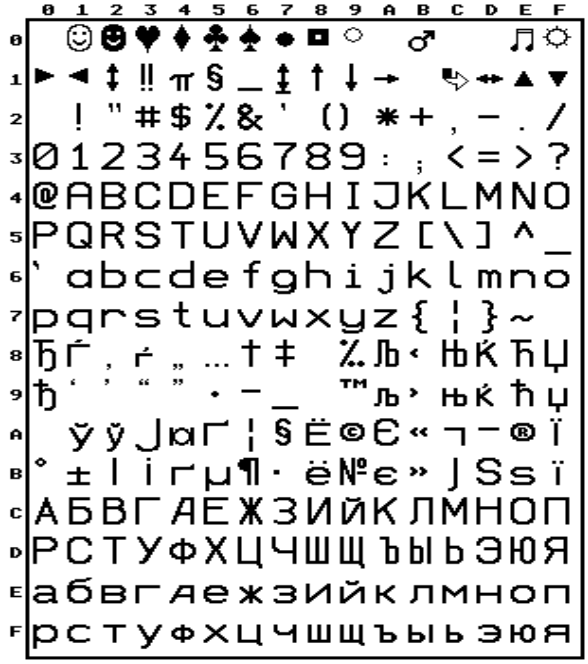
Font No.	Dots (horiz./vert.) characters / line
1	16 / 24 24
2	9 / 22 42
3	7 / 16 54
4	12 / 24 32

5.2 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.
GeBE will gladly create other character sets on request.

	Dots (horiz. x vert.) characters / line
IBM II	16 x 24 24
IBM II	14 x 22 27
IBM II	11 x 22 34
IBM II	9 x 22 42
IBM II	7 x 16 54
IBM II 90°	16 x 11 "24"
Cyr	16 x 24 24
Cyr	14 x 22 27
Cyr	11 x 22 34

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



6. Command Set

6.1 Nomenclature

- **Hexadecimal values are marked with a $ symbol** (Example: decimal 10:= $0A)
- **Control codes of the ASCII character set are put in <>** (Example: "Line Feed": <LF> := $0A)
- **Binary form of the flag represents one byte in [ ]** (0:= not set, 1:= set, or x:= not relevant)
- **Printable characters or character strings of the ASCII character set are in "** (Example: "E": = $45)
- **Symbols for names or character strings are written in ( )** (Example:(Name):="ABC":= "A" "B" "C" := $41 $42 $43)
- **Many value ranges of any kind are written in { }**
- **Variable parameters are small letters, (l, m, n ...)** Their value can be {0, ... , 255}

6.2 Table of Commands

Command (ASCII)	Function	Values
<CR>	Print command, one line paper feed	
<CR> <LF>	Print command, one line paper feed	
<LF>	Print command, one line paper feed	
<LF> <CR>	Print command, one line paper feed	
<ESC> "@"	Initialize the printer with a RESET pulse	
<ESC> "A"	Erase the data in the print buffer	
<ESC> "b" p1 ....p8	Print bar code (EAN8, EAN13, CODE 39, 2 of 5 interleaved), others on request	
<ESC> "D" n	Print text mode / data mode	n:= {0,1}
<ESC> "e" n [Flags]	Sleep mode	
<ESC> "E" n	Power off	n:= {0,1}
<ESC> "F" lh ll	Paper feed by l_h x 256 + l_l lines	
<ESC> "G" g1....gn	Pixel graphics, print graphic line (old command)	
<ESC> "g" n g1....gn	Pixel graphics PCL5 , print graphic line with a length of n bytes	
<ESC> "H" n	Select character height from 0: normal height to 7: eightfold height	n:={0,1, ...,7}
<ESC> "h" n	Set virtual width of printer mechanism	
<ESC> "I" n	Print black on white / white in black	n:= {0,1}
<ESC> "j" n	Control LED 2 (option LED)	n:= {0,1}
<ESC> "k"	Send back current status	
<ESC> "L" n	Print with / without underline	n:= {0,1}
<ESC> "M" n	Print black / gray	n:= {0,1}
<ESC> "m" n	Select graphic mode	
<ESC> "N" p_h p_l	Absolute TAB to dot position p = 256 x p_h + p_l.	
<ESC> "n" n (Data)	Send back data string through serial interface	
<ESC> "P" n	Select character set no. n	n:={1, .. ,4 }
<ESC> "R" p_h p_l	Relative TAB forward/reverse by p dots; p = 256 x p_h + p_l	
<ESC> "r" p1 ... p15	Configure battery charging circuit	
<ESC> "S" n	Increase horizontal spacing	
<ESC> "s" n	Load stored text file or TINIT	x:= { 0 ...9, A, Q, R, S)
<ESC> "T" "x"	Print text file no."x".	x:= { 0 ...9, A, Q, R, S)
<ESC> "T" "A"	Switch to hex-dump mode	
<ESC> "u" n	Erase stored text file or TINIT	x:= { 0 ...9, A, Q, R, S)
<ESC> "V" "X"	Send synchronizing character "X" through the serial interface	
<ESC> "v"....	Read out stored text file from flash or serial EEPROM	
<ESC> "v" "5" "T"	Read the available memory space for text files T0-T9 in the EEPROM	
<ESC> "v" "5" "U"	Read the available memory space for TINIT in the EEPROM	
<ESC> "v" "6"	Read the size of the serial EEPROM memory	
<ESC> "v" "7"	Read out text file x from the serial EEPROM	
<ESC> "v" "8"	Read out text file x from the flash	
<ESC> "W" n	Print normal width / double width	n:= {0,1}
<ESC> "y" "n"	LED energy saving mode - select table	

7. Operation

7.1 Which thermal paper is suitable ?

The printer is specified for a paper width of 57.5 ± 0.5 mm, with a weight of 60 g/sq m. GeBE is offering suitable paper rolls (GPR-T01-057-031-007-060A) as part of the standard program. Other papers may not be suitable for use.
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.

7.1.1 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.

7.1.2 How do I insert the paper?

Use paper rolls that are coated on the outside with a width of 57.5 mm ± 0,5mm and a winding diameter of 31 mm.

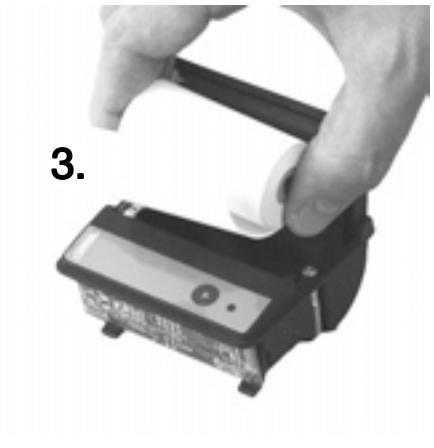
Standard: GPR-T01-057-031-007-060A

1. Unwind about10 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.



7.2 The control elements of the printer

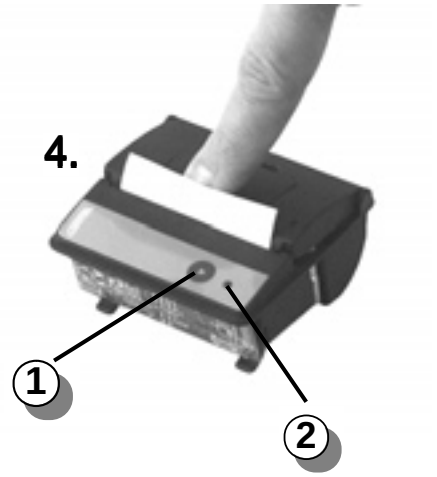
7.2.1 Paper feed button

This button wakes up the printer from the sleep mode and feeds the paper.

Self test: Before connecting the printer to the host (PC), the functions of the printer can be tested by doing a self test. Keep the paper feed button pressed while turning on the power supply. When the feed button is released, the self test will begin. This test will only check the functions of the inner circuit, not the interfaces.

7.2.2 Status LED

This LED shows the status of the printer during operation and - if it is equipped with a charging circuit and a battery - the charging status of the battery during the charging process.
See also "Messages of the Printer".



8. Error Detection

Not every error is a printer error.
You will save time and money by clearing simple errors yourself.

The following hints might help you:

Symptom	Cause	Remedy
The printer seems to print, but there is no blackening	Wrong side of paper against the print head	Insert paper correctly
At the start of printing, the LED goes out shortly.	The power supply is not laid out and/or connected optimally	Use a sufficiently proportioned power supply and short lines. Check all plug-in connections for transfer resistances. Since high peak currents occur with thermal printers, even the smallest transfer resistances result in excessive voltage drops. In this case, no power supply would be strong enough. Buffering with capacitors is possible, if the power supply is only slightly too weak, and large capacitors (e.g. 4700µF) are used.
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. When I enter more, it won't print at all.		
The print-out is incomplete after a few characters.	The printer buffer is "over-run" (256 bytes), so data is getting lost.	Solution: Check or start using handshake. (software: XON/XOFF, or hardware: CTS). If necessary, lower output speed, e.g. down to1.200 baud. See manual MAN-D-400, "Interface Settings".
The printer prints incorrect characters.	RS232 instead of TTL interface or the other way around. (characters of the upper area are printed).	Use correct interface.
	Wrong baud rate was selected. (a lot of "?" are printed).	Set baud rate through solder bridges or TINIT.
	Bad ground connection on the printer. If the printer is not grounded correctly, a part of the printing current will flow through the interface, causing a voltage rise and therefore, a data falsification.	Check and improve ground connection; supply power through short, thick lines.
	Host sends a break signal after printjob (only "?" are printed).	Turn off "framing error ". See manual MAN-E-401, "Interface Settings".
Centronics printer works with a PC, but not with my machine.	Printer electrically not compatible with host.	Measure line levels. Contact GeBE for adjustment.
The described command does not work.	Parameter were e.g. set in ASCII values instead of binary values.	Reset parameters.

9. Product Versions, Options, Accessoires

Article No	Nomenclature	Interface					Memory		Akku					
		RS-232 V.24	TTL	Infrared on board and connector	**SPI (for Centronics adapter)**	SPI (for clock and RS232)	2 KByte RAM	8 KByte EEPROM*	Li-Ion charging circuit	NiMH charging circuit	Power down	Rewinder control	cpl: 24, (32, 42, 54)	Color graphite RAL7016
11292	GPT-4352-LV-82-24-V.24-at	X					X				X		X	X
11335	GPT-4352-LV-82-24-V.24-EVAL-at	X				X	X	X		X	X	X	X	X
11382	GPT-4352-LV-82-24-SPI-EVAL-at				X		X	X		X	X	X	X	X
11336	GPT-4352-LV-82-24-IR-EVAL-at			X		X	X	X		X	X	X	X	X
11561	GPT-4352-LV-82-24-TTL(4,5V)-EVAL-at		X			X	X	X		X	X	X	X	X

9.1 Options

Serial EEPROM for stored print files
16, 32, or 64 KByte EEPROM for LOGO download

Interface adapters
- 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)

9.2 Accessories

9.2.1 Mounting frames

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

9.2.2 Paper

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

- Thermal paper Standard 5 years: GPR-T01-057-031-007-060A (Art.11347) ex stock
- Thermal paper Standard 5 years: GPR-T01-057-031-007-060A-(MAXI) (Art.11555) package à 15 Rolls
- Thermal paper Standard 15 years: GPR-T11-057-031-007-060A on request
- Thermal paper Standard 99 years: GPR-T21-057-031-007-060A on request
- Thermal paper two-ply: GPR-T02-057-031-012-120A on request
- Thermal paper adhesive : GPR-T04-057-031-012-120A on request
- Thermal papre low sensitivity : GPR-T13-057-031-000-060I on request

9.2.3 Power supplies and charging devices

- Desk power supply (5V, 2.5A): (for printers w/o battery): GNG-5V-2.5A-T (Art.11445)
- Plug-in power supply: (for printers with 4 Ni-MH battery cells): GNG-6.0V-0,5A-U (Art.11360)

9.2.4 Batteries

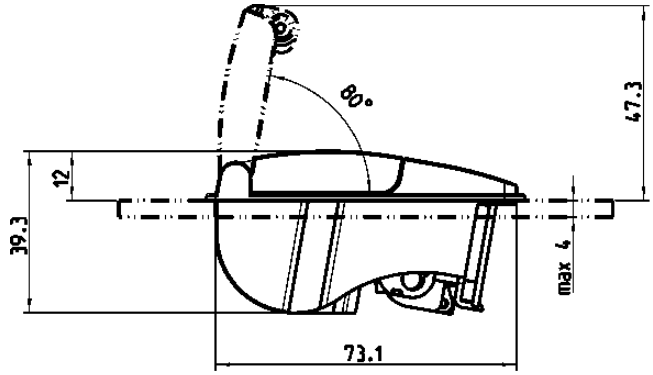
- 4 cells Ni-MH 1200 mAh: GNA-4,8V-1,2Ah-NiMH (Art.11361)
- 1 cell Li-Ion 800 mAh: GNA-3,6-0,8-Li-Ion (auf Anfrage)

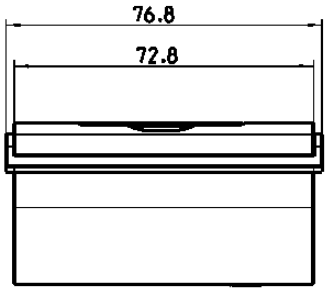
9.2.5 Cables

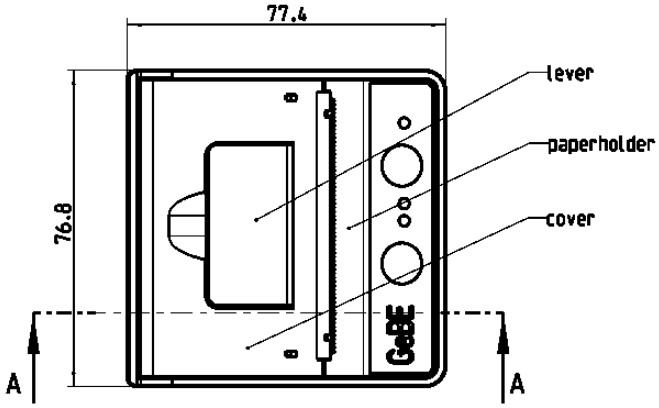
- power supply: ST(7pins) 250 mm, open end: GKA-410 (Art.11353)
- RS232 ST(5 pins) 1000 mm to PC ST(SUB-D, 9 pin socket): GKA-406 (Art.11352)
- TTL: ST(5pins), 500 mm, open end: GKA-414 (Art.11387)
- charging supply, ST(6pins) 190 mm to charging socket: GKA-416 (Art.11433)
- SPI-bus: ST(12pins) 250 mm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

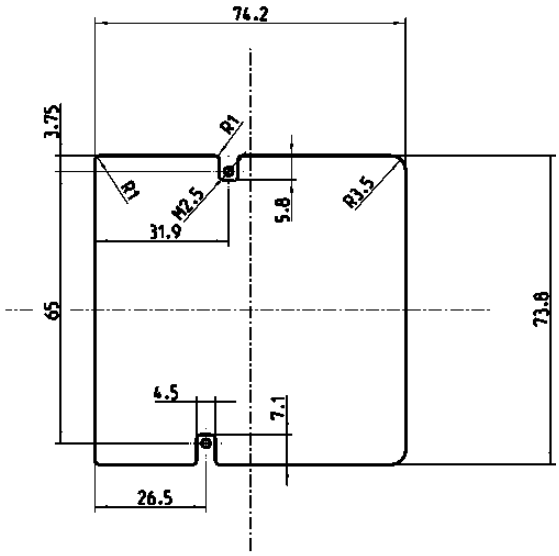
10. Technical Data

10.1 Housing Dimensions









10.2 Important Technical Data

	GPT-4352-...-V.24 / IR	GPT-4352-...-TTL / SPI
Print technique	Fixed thermal print line	
Paper - / printing width	57,5 ± 0,5 mm / 48 mm	
Resolution	8 dots / mm , 384 dots / line	
Print speed	up to 50 mm/s	
Voltage supply	(3,0) 3,3 - 7,2 V	4,5 - 7,2 V
Batteries	4 (3 or 5 on request) NiMH cells. Optional: charging circuit for 1 Li-Ion cell (3.6V)	
Current max. sleep mode	< ca. 1 µA or 150µA / with infrared interface	
Current max. idle:	app. 3 mA , depending on components	
Current max. printing	Adjustable by command to max. 0.7 A - 6 A, depending on operating voltage	
Serial interfaces	RS232 up to 57.6 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	Baud rates:1,200; 2,400; 4,800; **9,600**; 19,200; 38,400; 57,600 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, 2 out of 5 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 mm x 77.4 mm x 39.3 mm / installation depth: 27 mm	
Roll diameter	max. 31 mm/app. 12m bei 60 g/sq m	
Weight	125 g with paper roll	
Housing material	ABS (different colors possible)	
Norms	**CE :** see declaration of confomity	

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