Protocol Printer

GPT-686x

Printer for Frontpanel Solutions or Paper Catch Systems

RS232 • Centronics • 203 dpi • Text • Graphics Barcode • Logoprint extensive Status Messages

Elektronik und Feinwerktechnik GmbH

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

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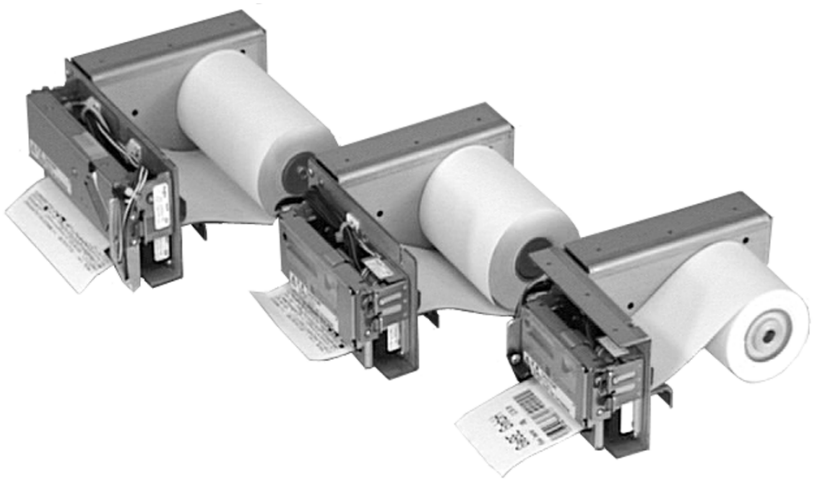


Operating Manual

Activities at GeBE

Printers: GeBE Elektronik und Feinwerktechnik GmbH • Email: sales.ef@gebe.net • www.oem-printer.com
Keyboards: GeBE Computer & Peripherie GmbH • Email: sales@tastaturen.com • www.tastaturen.com
Internet Applications: www.GeBE.net

GeBE Elektronik und Feinwerktechnik GmbH
Beethovenstr. 15 • 82110 Germering • Germany • www.oem-printer.com
Phone:++49 (0) 89/894141-0 • Fax:++49 (0) 89/8402168 • E-Mail: sales.ef@gebe.net

Safety Instructions!

Please read the operation manual carefully before operation!
During installation: Always disconnect the power.
The appropriate application and operation according to the operation manual is required for product liability and warranty. If the user attempts to repair the product, all factory warranties will be null and void. For technical questions please contact the GeBE technical support.

1 Unpacking

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).

The standard versions of this thermal printers are available in various packages.
The table below shows the parts contained in each printer set.
Printers of the GPT-686x INFO series that are not supplied as part of a set (OEM versions) are coming without accessories!
Please order the accessories separately.

GPT-686x-Set - Packing List:
- Printer
- Thermalpaper 1 Roll (depending on printer width)
- Interface cable for RS232 or Centronics
- Power Supply
- Paper Catch
- Mounting Bolts
- Operating Manual SMAN-E-439 in English bzw. Operating Manual SMAN-D-438 in German

Drivers for the printer series INFO

Drivers are available on the Internet.
Please download at www.oem-printer.com/info

Documentation about the System GPT-686x (INFO)

All further documents can be found on the Internet at www.oem-printer.com/info. The user manual MAN-E-377 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 GPT-686x printer series is available at www.oem-printer.com/info.

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.

2 Description

The printer system INFO was designed for industrial applications. Equipped with top-quality Fujitsu thermal printer mechanisms with fixed print lines, this printer system meets the high demanded requirements.
The thermal printer mechanisms are completely maintenance-free, only the paper has to be exchanged for operation. The series INFO was mainly developed for paper catch systems, however, it can also be used for front panel solutions. The serial RS232 interface and the 24 V power supply are carried out on the back through standard connectors.

Service-Friendly

The paper path is easily accessable throughout its entire length. This makes it easier to change the paper and considerably speeds up the removal of faults. It also allows the printer to be installed in places without easy access. The cutter can be opened up with one hand and will also remain in the open position. The insertion of paper is supported by an insertion guide and an auto paper load.

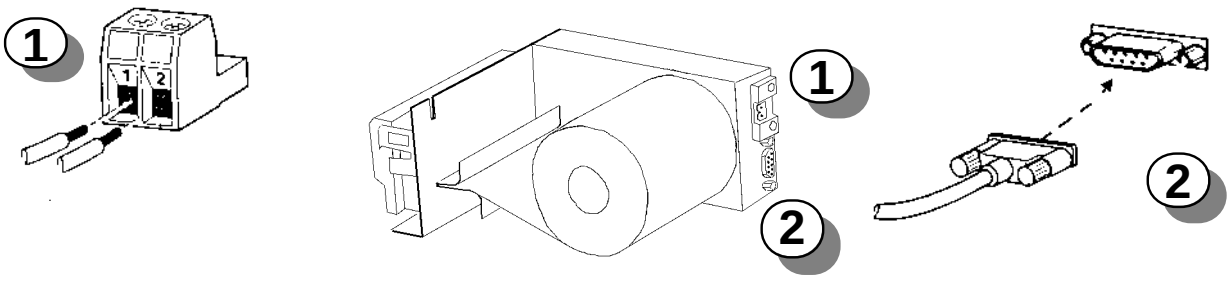
Closed System Solution

Extensive sensors und self diagnose routines will constantly monitor the print system after it is turned on and during operation. They report the status online or on request to the host system. With the synchronizing command, the printer reports the current processing status of the print buffer. This way, the host can be informed on what has just been printed, even if the buffer is filled. The printer will detect the fed paper length, since the last change of paper, in 1/10 meter increments and will display this information on request. In addition, a remaining-paper sensor will report, when about 10% paper is left on the roll.
An optional paper output sensor reports whether the cutting was successful and the ticket fell into the paper catch. The total output, the operating time, total cuts and the last ten error messages will be stored . Logos, initializations or even macros can be filed in 13 stored text files in the EEPROM. They can be called by command.
On request (licence), the printer can be prepared for firmware updates through the RS232. As a standard, the printer has a RS232 interface that can be operated with baud rates up to 115 kbps. In the graphics mode, the printer supports PCL5 compatible compression procedures and can therefore reach calculated transmission rates up to 400 kbps. This allows printing of full graphics with up to 80 mm/s.
Optionally, the printers are available with Centronics, serial TTL , RS422/485, Current Loop, or USB (in preparation).
For mobile applications, we offer an active paper roll brake as well as a paper guide on the side.

3 Connecting the Printer

During installation:
Always disconnect the power.

Attention



Power Supply

The power supply is connected through a standard power connector from Phönix.
The connector has screw clamps. For installation, only a screw driver size 1 is required.
Litz wires have to be terminated with multicore cable ends.
Connector type MSTB-2.5/2-ST-5.08

Cable diameters

0.5 mm^2 if cable length < 0.5 m
0.8 mm^2 if cable length < 1.5 m
1.0 mm^2 if cable length < 2.0 m

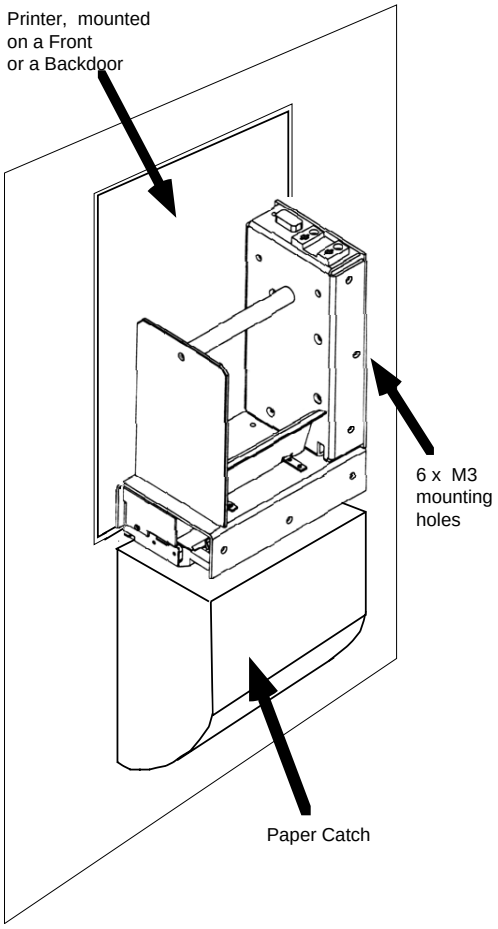
Serial Interface

The RS232 is connected through standard Sub-D connectors.
A connection to a PC only requires a 1:1 cable (connector / socket) (no 0-modem).
Line length max. 9 m (twisted: 15 m)

4 Installation

Installation as a Printer with Paper Catch

The GPT-686x has six M3 mounting holes each on the upper and the lower mounting plane of the housing. Please select the mounting plane according to the paper bend and the arrangement of the paper catch.
The mounting plane is clear in the area around the paper roll. Therefore, paper roll diameters up to 150mm can be used.
The GPT-686x has 3 alternative paper roll inputs to optimize the roll diameters and the mounting plane. Please indicate, which mounting plane you want to use.
For mobile applications, the cutter may have to be secured against opening on its own.

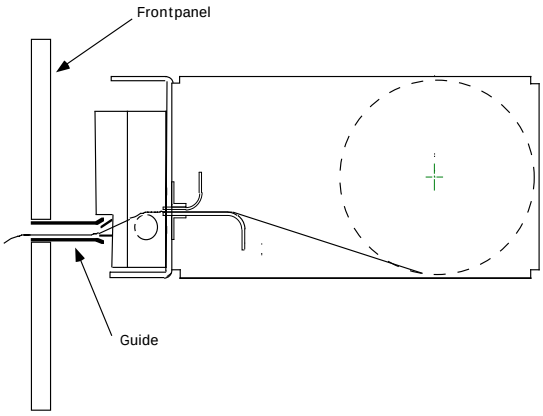


Problems with Paper Catch Solutions

1. Static Charging of the Receipt:
The friction of the paper against plastic or ungrounded areas may cause static build-up. This build-up can cause stickiness during the feeding process.
Preventative Action:
Potential equalization of metal areas, possibly installation of additional metal areas.Use of anti-static paper.
2. Humidity in the Paper
Operation at the dew point during lower temperatures results in the paper absorbing moisture. This can cause stickiness during the feeding process.
Preventative Action:
Climatization of the device.
Use top coat paper.

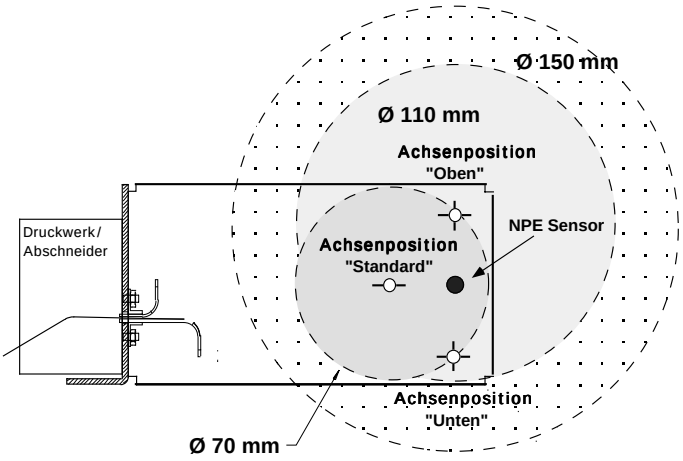
4.2 Installation as a Front Panel Printer

The GPT-686x has six M3 mounting holes each on the top and bottom of the housing.
For the paper path from the mechanism to the front slot a guide is required. If all the receipts have the same length, the guide can be about 1cm shorter than the receipt. This will prevent the paper from getting obstructed during the print process.



4.3 Moving the paper axle for large diameter paper rolls

The GPT-686x provides three axle positions for the use of paper rolls with different diameters. The default setting is “standard axle position” (-AS).
A paper roll diameter of 70 mm does not exceed the exterior dimensions in the standard axle position. The maximum roll diameter for this position is 130 mm.
The top (-AO) and bottom (-AU) axle positions allow a roll diameter of up to 150 mm. With the use of 110 mm diameter rolls, the mounting surfaces of the printer across from the axle are not exceeded.
To change positions, the axle is to be loosened counterclockwise and remounted in the new position. The new screw joint is to be secured with threadlocker compound and tightened.



5 Status Messages of the Printer

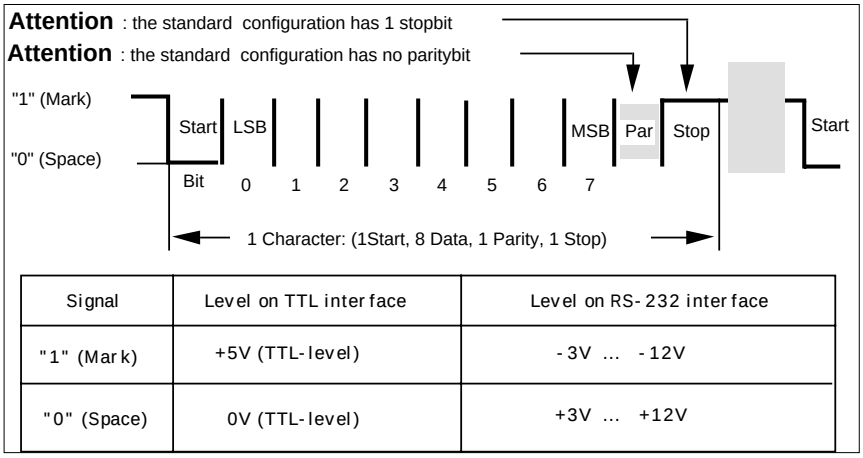
Every error is reported through the serial interface.
When an error is cleared,the corresponding small letter will be sent, followed by an "X".

Meassges	Error Occured	Error Cleared	Comments
Reset	"R"		
Watchdog reset	"R"		
End of error		"X"	always, also after hardware, software, and watchdog reset
Buffer empty	<Xon> = $11		
Buffer full	<Xoff> = $13		
Synchr. message	all char.		Each sent character is reported back
Paper end	"P"	"p"	
Paper <10%	"Z"	"z"	
Head open	"H"	"h"	
Paper output	"G"	"g"	
Cutter blocked	"C"	"c"	
Temp. low	"K"	"k"	Temperature at the print head too low
Temp. high	"T"	"t"	Temperature at the print head too high
Vp too low	"U"	"u"	
Vp too high	"M"	"m"	
Motor temp. high	"E"	"e"	Temperature at the printer motor too high
EE-OK	"E0"	"E0"	Faultless completion of EEPROM command
EE-invalid	"E1"	"E1"	Invalid stored text file or statistics variable no
EE-password	"E2"	"E2"	Wrong password for EEPROM access
EE-overflow	"E3"	"E3"	Overflow of text file memory
EE-time out	"E4"	"E4"	EEPROM byte programming time exceeded
EE-KO	"E5"	"E5"	EEPROM not found

5 Serial Interface RS232 (V24)

Connector SuB-D 9 pin socket with a 1:1 assignment to the PC.
Therefore, a 0-modem connection is not necessary

Pin	Signal	Input/Output	Comment
1	DCD	O	Connected with CTS and DTR
2	RXD	O	Error messages and Xon/Xoff messages
3	TXD	I	Print data
4	DTR	I	Connected to DCD and CTS
5	GND signal		
6	DSR	O	Level logic 0 := controller ready
7	RTS	I	Handshake input of the controller
8	CTS	O	Connected to DCD and DTR
9	RI		not connected



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

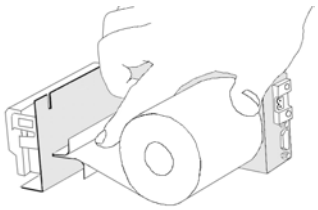
6 Operation: Inserting Paper

Which thermal paper is suitable?

The printers are specified for paper widths of 59.5, 84.5, and 113.5 mm +/- 0.5, up to 100 (120) g/m2. Paper type : STORA T7051. Other papers can be problematic.
As a standard, GeBE is offering paper rolls with a diameter of 70 mm (app. 40 m length) with 76g/m2. Thermal papers that are resistant against water, grease, and alcohol are available for special applications. We will gladly assist you in your selection of the suitable thermal paper.

Which side of the GeBE thermal paper can be printed on?

On the paper roll, the inner side is always the side to print on. If you should still have doubts, just do the fingernail test. The thermosensitive side will turn black under the pressure of a sharp object.

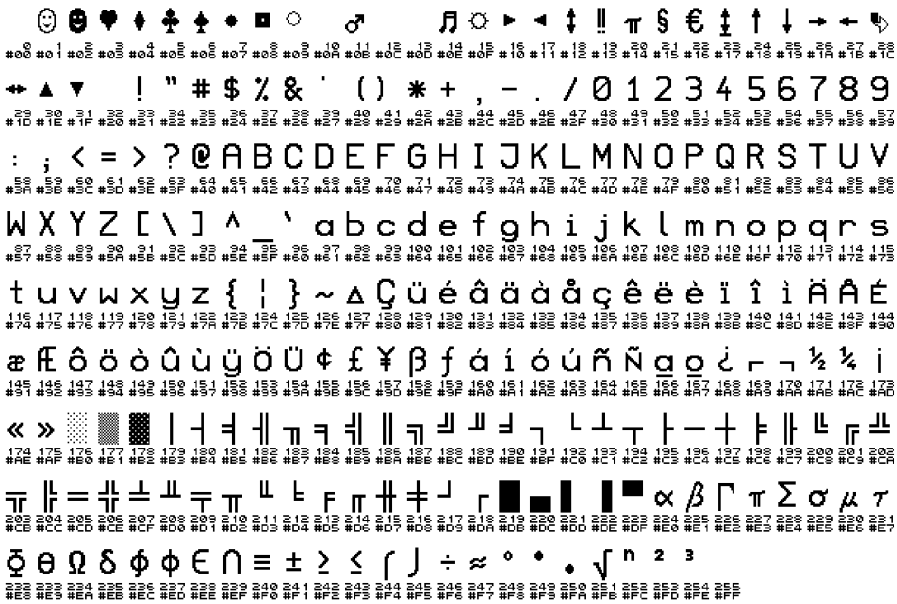


How to insert the paper?

Pull off the empty paper roll from the roll holder. Insert new paper roll.
Put paper on the paper guide, and push it toward the mechanism (see draft).
As soon as the mechanism recognizes the paper, it will automatically be pulled in.
The paper is now inserted.
For printers with the side paper guide, open quick-release fastener and lift off metal sheet for paper insertion. After the paper was pulled in, reassemble the side guide, having the paper run under the guide axle.

7 Character Sets

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



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.

Font Sizes of the Character Sets

Font Nr.	Dots (horiz./vert.)	Characters/Line
1	16 / 24	24
2	9 / 22	42
3	7 / 16	54

Optional Character Set: Cyrillic

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 sets.

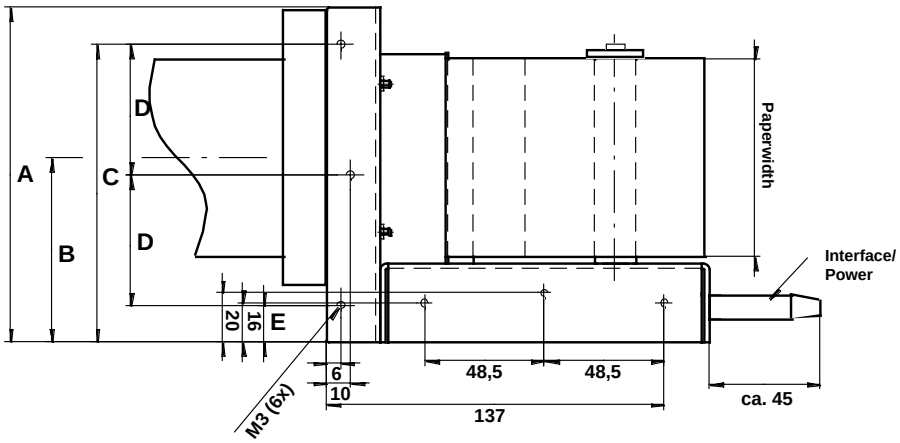
	Dots (horiz. x vert.) Characters/Line
IBM II	16 x 24 24
IBM II	14 x 22 27
IBM II	11 x 22 34
IBM II	9 x 22 42
IBM II	7 x 16 54
IBM II 90°	16 x 11
Kyr	16 x 24 24
Kyr	14 x 22 27
Kyr	11 x 22 34

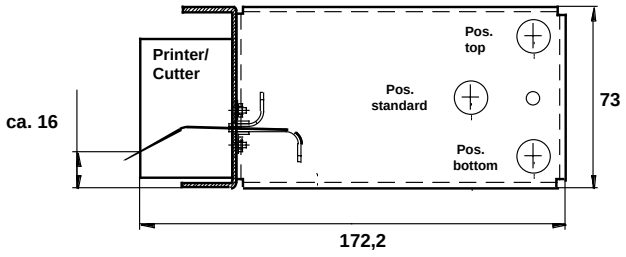
8 Error Detection and Recovery

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 dicconnecting the printer from power supply and connecting again after a short time. This causes the printer to be set to the parameters in the batch file TINIT-F or TINIT-E

Symptom	Cause	Remedy
The print seems to print, but there is no blackening	Paper inserted wrong	Insert paper correctly
The printer only prints a few dots in one line.	The power supply is not optimal.	Use a suitable power supply and short lines. Check all plug-in connections for trasfer 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. A bufferingwith capacitors is possible, if the power supply is only slightly too weak, and large capacitors are used (e.g. 4,700 µF) .
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 "run over" (160 bytes), so data are getting lost .	Solution: Check or start using handshake. (XON/ XOFF, or hardware). If necessary, lower output speed, e.g. go down to 1,200 baud. See MAN-D-376, "Interface Settings"
The printer prints wrong characters.	RS232 instead of TTL interace or reverse. (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 of the printer. If the printer is not grounded right, a part of the printing current will flow through the interface, causing a voltage riseand therefore, a data falsification.	Repair ground connection.
	The Host system is sending a break signal after print job. (only "?" printed)	Please call us. GeBE can adjust this.
My Centronics printer works with a PC, but not with my machine.	Printer is electronically not compatiblewith host.	Measure level of the line that is reporting the error. GeBE can adjust this.

10 Mechanical Dimensions





9 Technical Data

	GPT-6862	GPT-6863	GPT-6864
A	**109,7**	**135,6**	**162,7**
B	**55,3**	**74,7**	**81,3**
C	**94,7**	**120,6**	**147,7**
D	**39,4**	**52,8**	**66,3**
E	**16**	**16**	**15**
Resolution	448 dots / line	576 dots / line	832 dots / line
Cutter	Full and Half cut		
Print buffer	160 Byte		
EEPROM	8 KByte, optional up to 32KByte		
Near paper end sensor	serial report to the host system, Statistics		
Paper exit sensor	optional, serial report to the host system		
Paper / printing width	60 / 56 mm	85 / 72 mm	114 / 104 mm
Print Speed	up to 80 mm/s	up to 70 mm/s	up to 50 mm/s
Voltage supply	16 - 26,5 V		
Current max. idle:	40 mA		
Current max. printing app	2 A	3 A	4 A
Interfaces Standard = **bold**	Baud rates:1,200; 2,400; 4,800; ,600; 19,200; 38,400; 57,600; **115200 (115,n. 8,1)** Mode: adjustable: 7.**8** data bits, **1**.2 stop bit , **none**, odd, even parity Handshake: **hardware handshake and XON / XOFF**		
Data Compression	Factor app. 3 :1 (for graphic commands); PC-compatible; Windows driver		
Characters, cpl	28,49 and 64	36,64 and 82	52, 92 and 118
Bar Code	Code39, 2aus 5 int, EAN13, EAN 8		
Environment	0 °C to 50 °C (-10 °C to +60 °C with GeBE HQpaper) 10% to 80% rel. humidity, no moisture condensation		
MTBF	50 km printed paper 500.000 cuts		300.000 cuts
Roll Diameter	max. 150 mm in position "Oben" or Unten" (25mm core)		
Paper	60 - 100 g/m^2 (120 g/m^2 on request)		
Housing Material	Steel 2 mm		
Norms	**CE :** see conformity declaration		
Weight	995 g	1.100 g	1.350 g
Dimensions in mm	172,2 x 73 x 109,7	172,2 x 73 x 135,6	172,2 x 73 x 162,7

Options

- Centronics
- Active Paper Roll Break for mobile Applications
- Paper Guide at the side to stabilize the paper roll
- Paper Exit Sensor
- 32 KByte EEPROM for LOGO-Download

12 Accessories

Paper (standard)

GeBE offers paper rolls that are coated on the inside, 76 g/m^2

GPT-6862 thermal paper 70 mm Ø (ca. 40m) GPR-T01-060-070

GPT-6863 thermal paper 70 mm Ø (ca. 40m) GPR-T01-085-070

GPT-6864 thermal paper 70 mm Ø (ca. 40m) GPR-T01-114-070

Cables

- Mechanism to controller, 16 single wires, 240mm, JST : GKA-271-240
- Power supply 2 single wires, 1,0mm^2, 500mm : GKA-245
- RS232 open: Mica 10-connector, open end, 1000 mm : GKA-304
- RS232 on PC: controller: MICA-10 connector, PC: 9pin Sub-D 2000 mm : GKA-304
- Centronics open: MICA-16 connector, 1000 mm, open end : GKA-074
- Centronics on PC: controller: MICA-16 connector, PC: 25pin Sub-D, 1000mm : GKA-181

Power supply

- Desktop Power supply 24V, 2,5A : GNG-24V-2,5A-T
- Open Frame Power supply 24V, 6,5A : GNG-24V-6,5A