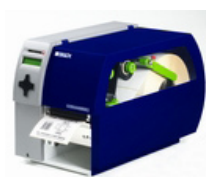
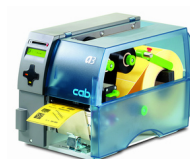


Programming Manual Thermal / Thermal Transfer Printers



**A-Series
BP Precision**



**Hermes A
PAM 3600 Series**



(Former PAM models and Hermes
- are deccribed in a separate
Programming Manual)

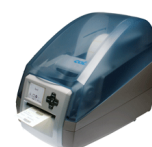
M4



**A4+-Series
BP-PR plus Series**



Mach4



cab Programming Manual

valid for following printer types:

A-Series TM	(BP Precision)
A+ -Series TM	(BP-PR plus series)
Hermes- A Series TM	(PAM 3600 series)
M4 TM	
Mach 4 TM	

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Important Notes:

PRINTING BARCODES

If barcode printing is required we highly recommend to contact the responsible Organisation who released the required barcode type.

This manual contains proprietary information of cab Produkttechnik GmbH Co KG

PRODUCT IMPROVEMENTS AND UPDATES

cab and Brady products are continuously improved. Therefore we recommend to visit the cab or Brady website from time to time to get the newest firmware release.
The procedure how to update the firmware is described in the Operator's manual.

All specifications and signs are subject to change without any notice.

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Before barcodes are printed please refer to the original documentation, provided by the responsible barcode organisations !

Introduction



IMPORTANT : *We highly recommend to read the introduction first !!*

- The described commands and sequences are tested and approved with original cab printers. cab Produkttechnik cannot guarantee that all functions are available on OEM products.
- All sample labels are created with a 300 dpi A-series printer,
- All measurements are in millimeters for the usage in international markets- Label positions have to be recalculated if the printer is set to "country = USA".
- Some described functions are only available if your printer contains the actual firmware. We recommend to download and install the **actual firmware** release from our website at: <http://www.cabgmbh.com>
- We tried our best to write an easy understandable programmer's manual which should contain every possible function of cab printers. Multiple different methods have been used to make sure that every shown example works properly and a few proof reads have been done to avoid any error in this manual. Nevertheless - we would appreciate your comments , where more explanation is required and where we have to do things better. Every comment is welcome and will influence our future work. And if you find any error,- then please let us know. Thank you for your help !

Nomenclature, Syntax of the commands

- All commands are accepted when the line end identifier is transmitted, with the exception of ESC commands, they are processed as soon as the required character is received.
- Carriage returns are not displayed in the headlines and not in the example files of this manual, to keep a better overview. Carriage Returns (ASCII 13, HEX 0D) are only shown in the syntax description in italic letters (*CR*). You may use either *CR* (carriage return), *LF* (line feed) or *CR/LF* (carriage return/ line feed) (See also the ASCII table in the APPENDIX of this manual)
- It is not required to use special characters to create a label format. Data can be keyed in with a simple text editor.
- For a better overview it is allowed to add spaces or tabs within a command line. Numeric parameters accept additional zeroes.
- Separators for the parameters are either semicolons or commas.


Usage of this manual

This manual is designed as online documentation. This page describes the structure and the meaning of some used components.

• Special Notes and infos are shown in italic characters where the finger points to them.

• The examples are mostly reduced to the minimum requirements to print a label, to keep it as simple as possible

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PRODUCT MARKING AND BARCODE IDENTIFICATION

command available ?	A-series	IM	MYF3	Hermes 4A
	X	X	X	X

m - set measuring unit

This command sets the measuring unit for the following label data. Once it is sent, all following settings in a label are measured in the selected unit.

 The printer's default value depends on the selected display language. For all selectable countries the measurement is millimeters, with the exception when country USA was set through the control panel. We recommend to use this command always, especially for international companies where different programmers create labels as the measuring unit is only changed for the individual label being printed.

The measuring unit cannot change within one label. All internal calculations are processed in millimeters, as these values are better to overview and they follow a worldwide standard.

Syntax: `m t CR`

m = Set measuring unit command.
t = The measuring system desired,
"m" for metrics (millimeters) or
"I" for historical (inches, tenths and hundredths of an inch).
The following labels will have the same result, programmed with different measuring units.
The first example is programmed in inches, the second example is programmed with metric measurements.

Example: `m I
J
T 0,79,1,18,0,3,0,2;Measuring Unit
A1`

Example: `m m
J
T 20,30,0,3,5;Measuring Unit
A1`

Measuring Unit


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• Not all commands are available for all printer types. This can easily be recognized on top of each page. It is easy to see if the function is available for your printer.

• In all cases when it was possible we printed an example label, which helps to explain the function of each command

Hyperlinks in the text are in blue colours and underlined.

This sign  shows some important information. The information text is written in *italic letters*.

Restrictions:

Some functions and features are not available on each printing system. So it is for example the case, that all described features which require a display on the printer will make no sense to use them on M-series printers. This is not explicit mentioned in this manual.

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Print Positions:

The Home position or "Zero point" of a label is shown on the picture below. The "Headline" appears first, as it is usual on all laser printers etc. Most users prefer to get the printed label "foot first" out of the printer. This can easily be done when the "O R" command is added to the shown examples. We did not add this command in the samples to keep a better overview. You may add this whenever it is required. "O R" rotates the orientation of the label by 180 degrees. So all shown examples which do not contain the "O R" command have been rotated for a better view in this manual.

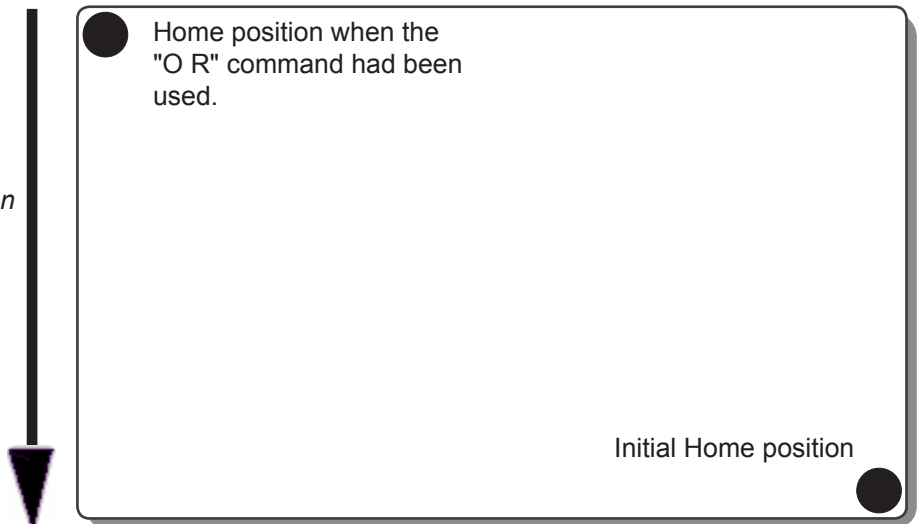


Home position when the "O R" command had been used.

Initial Home position

The Orientation is identical on all printers as it is shown on a A-series printer as an example.

feed direction (paper path)



CHAPTER 1 - Overview

Overview

The programming language of the cab Printers is based almost completely on ASCII characters. Together with the selectability of different codepages it is possible to connect to nearly each computer system.

The printers accept additionally all types of line end identifiers (CR, LF, CR/LF), so that the descriptions of labels can be created with the most simple text editors, such as "Notepad" or "Wordpad" - saved as plain text files.

Instruction types

cab printers are using basically three types of instructions

- ESC instructions,
- Instructions with lowercase letters and
- Instructions with uppercase letters.

1. ESC instructions

are responsible for status queries, control functions, memory management etc. and are usually executed immediately, i.e. even if a printing job runs. They are not absolutely required to print labels, but they offer additional features and possibilities

Example:	ESC ? - Request for free memory.
	ESC c - Cancel Job
	ESC p0 - Ends printer pause state
	ESC s - Printer status request

2. Immediate Commands

Instructions with lowercase letters are used for adjustments and settings which must not have something to do with the actual printjob.

These are for example requests of fonts or graphics which have previously downloaded to the printer.

Example:	a - Activate the ASCII dump mode
	c - Immediate cut
	f - Formfeed
	t - Performs a test print



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3. Label Format Commands

Instructions with uppercase letters are used to describe the label itself.

This has a fix structure, beginning with the startcommand, the description of the labelsize and description of each object in the label.

At the end of the label the printer expects the amount of labels.

Example:

- J** - Job start
- S** - Set label size
- H** - Heat, speed, and printing method
- O** - Set print options
- T** - Text field definition
- B** - Barcode field definition
- G** - Graphic field definition
- I** - Image field definition
- A** - Amount of labels

cab printers use additionally to that 3 command types following special commands for special text formatting, calculations, comparisons etc.:

- Special content fields
- cab database connector commands
- abc - a-series basic compiler commands

Special Content Fields

are used within Label Format commands.

They consist of instructions in squared brackets, [], which offers various data insertion and data manipulation functions.

Example:

- [DATE]** Print date
- [/ :oper1,oper2]** Divide
- [>: oper1,oper2]** Greater than

A huge amount of more complex and powerful commands are explained later in this manual in the "Special Content fields" section.

cab database connector command and "abc" - commands will not be explained here. Please refer to the special sections in this manual.

On the next pages you will find a short training class which shall help you to become familiar with the cab printer programming language "JSCRIPT". We recommend that you try this course first, before you start with your own projects.



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Programming cab printers - a simple lesson

Target:

Learn how easy it is to teach your printer to do what you want.
 Understand the language structure of JScript by testing the following sample.
 Get the feeling what might go wrong if the syntax is not correct.
 Modify this sample with other items of this manual

Create your first label:

1. Connect your printer to the PC, select "Country United Kingdom" on the printer's control panel. The handling is explained in the operator's manual (the language changes to "English" and the measurements to "millimeters" - as the label is designed in millimeters)
2. Start your preferred plain text editor (we will use Notepad for this example)
3. Key in following data and don't forget to press the ENTER key on your keyboard after the "A 1" in the last line is keyed in.

```
J
H 100
O R
S 11;0,0,68,70,100
T 10,10,0,5,pt20;sample
B 10,20,0,EAN-13,SC2;401234512345
G 8,4,0;R:30,9,0.3,0.3
A 1
```

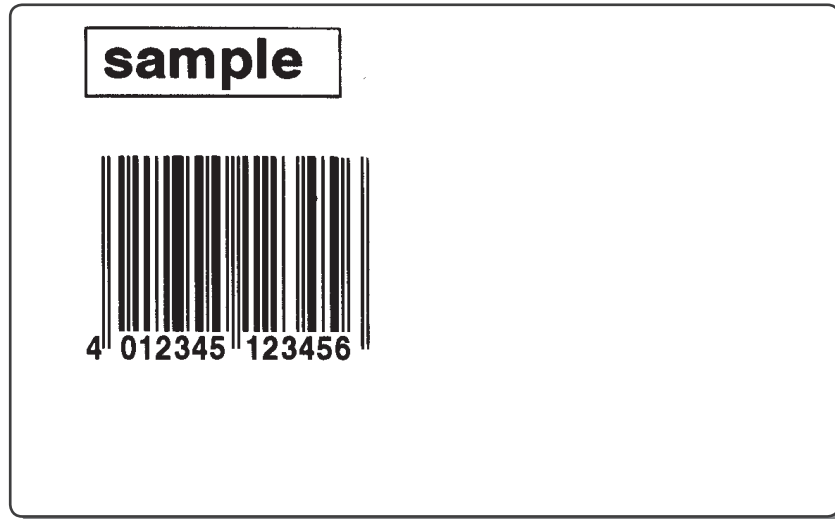
Explanation of this Example

(Details are described in the respective sections of this manual)

J	Job start
H 100	Heat (Speed) setting (100mm/sec)
O R	Orientation Rotated by 180°
S 11;0,0,68,70,100	Size of the Label (68 x100mm, gap 2mm)
T 10,10,0,5,pt20;sample	Text line- font:Swiss bold, 20 pt
B 10,20,0,EAN-13,SC2;401234512345	Barcode EAN 13, size SC 2
G 8,3.5,0;R:30,9,0.3,0.3	Graphic, Rectangle 30x9mm, 0.3mm
A 1	Amount of labels (in this sample 1)

4. Save that file now with the name "sample1.txt" in your root directory of Harddrive C:
5. Switch to the DOS - mode or to the command prompt (depending on your operating system version)
6. At the command prompt key in: C:\> copy/b sample1.txt LPT1: (LPT1: - if the printer is connected to the parallel port of the PC.)

The result should be that the printer prints the label which is shown on the following side



... and if it did not work as expected ? - Then following points might be the reason:

1. The printer receives no data:

- a:** The wrong interface or wrong transmission speed is selected on your printer.
- Check the interface settings in the setup menu of the printer
- b:** Your interface is blocked by another application.
- c:** The cable might be defect- check the connecting cable

2. Printer receives data but shows "ribbon out"

- a:** No ribbon in the printer
- b:** Ribbon is not fixed on the ribbon unwinder

3. Printer receives data but shows "Protocol error" in its display

- a:** Transmitted data is wrong - this might be a missing comma or a accidentally set semicolon instead of a comma or any other wrong data. Spaces after a command may cause a protocol error too! Check your label data carefully.



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Command Overview

The following pages are showing lists of all available printer commands
Details are explained later in this manual.

ESC Commands

ESCESC	Replaces ESC in binary data
ESC!ESC!	Hard reset
ESC*	Activate all RS 485 printers
ESC.	Start and Stop value for binary data
ESC:	Start description of binary data*
ESC<	Back feed of the material behind the photocell
ESC?	Request for free memory.
ESCa	Request for a bc-status
ESCc	c ancel printjob
ESCend-of-data	End description of binary data
ESCf	form f eed (Equal to pressing "form feed" on the navigator pad)
ESCi	Send value from the I NF-memory
ESCI	Request of synchronisation I nfo
ESCp0	End printer 's p ause mode
ESCp1	Set printer into p ause mode
ESCs	Printer s tatus query
ESCt	t otal cancel of all jobs

*) available for Hermes 4A only !

**) not valid for applicators !

Immediate Commands



all Immediate commands are processed when a line end identifier is sent (CR, LF or CR/LF)

<abc>	start of " abc " (a -Series b asic c ompiler)
</abc>	end of " abc " (a -Series b asic c ompiler)
; comment	Comment line
a	set printer in a SCII dump mode
c	Direct c ut
d t;name....	d ownload graphic or font data
e t;name....	e rase data
f	f orm feed
l name	Set l anguage (country)
m unit	Set m easuring unit
p status	p ause printer
q b;name	q uery b itmap font
q d;name	q uery d Base file on memory card
q e;name	q uery format file on memory card
q f	q uery f ree memory
q i;name	q uery i mage availability
q l;name	q uery l abel file on memory card
q m	q uery m emory type
q p	q uery p eripheral types
q r	q uery r ibbon diameter
q s;name	q uery s caleable font availability
q t	q uery t ime and date
r	r eset to default values
s n	s et date/time
t [x]	Run printer self- t est
v	Request firmware v ersion
x d;uo	Set peripheral (x) bits d irectly
x e;uo	Set peripheral (x) e rror value
x m;m	Set peripheral (x) m ask bits
x s;uo	Set peripheral (x) s tandby value
z t	Slashed z ero selection

Label Format Commands



Label format commands are processed when a line end identifier is sent (CR, LF or CR/LF)

A [NO] n	Amount of labels (end job/print)
B [:name;] x, y, r, type,size,text	Barcode field definition
C cnt[,disp1[,disp2]]	Set C utter parameters
C e	Set C utter to end-of-job
D x,y	Global Object Offset (D istance to margins)
E DBF;name	Defines a DBF (database) file
E LOG;name	Defines a LOG file
E TMP;name	Defines TMP (temporary) serial file
E SQL;[IP of cabDatabaseconnector]:portnr	Sets IP address for SQL database access
F number;name	F ont number
G [:name;] x, y, r; type:options, . . .	G raphic field definition
H speed[,h][,t][,r][,b]	H eat, speed, and printing method
I [:name;]x,y,r[,mx,my];imgname	I mage field definition
J [comment]	J ob start
M c	M emory card: content request
M d type;name	M emory card: delete file from card
M f;name	M emory card: format card
M l type;[path]name	M emory card: load file from card
M r	M emory card: repeat last label
M s type;name	M emory card: store data on card
M u type;[path]name	u ploads data to the host
O [M,][R,][N,][p][T,][U,]	Set print O ptions
P [disp]	Set P eel-off mode
R name;value	R eplace field contents
S [type:]yo,xo,length,dy,wide. . .	Set label S ize
T [:name;] x,y,r, font,size . . ;data	T ext field definition
X y[:uo]	Synchronous setting of peripheral (e X ternal)signal

Special Content Fields

Time Functions

[H12]	Print Hour in 12-hour form (1-12)
[H24]	Print Hour in 24-hour form (0-23)
[H012]	Print H0ur in 12-hour form (01-12) -always 2 digits
[H024]	Print H0ur in 24-hour form (01-24) -always 2 digits
[ISOTIME]	Prints the Time in ISO standard format
[MIN]	Print MINutes (00-59)
[SEC]	Print SEConds (00-59)
[TIME]	Print actual TIME in the format of the preset country (e.g. HH:MM:SS)
[XM]	am / pm indicator

Date Functions

[DATE{:+DD{,+MM{,+YY}}}]	Print actual DATE in the format of the preset country (i.e. DD.MM.YY)
[DAY{:+DD{,+MM{,+YY}}}]	Print numeric DAY of the month (1-31)
[DAY02{:+DD{,+MM{,+YY}}}]	Print numeric 2-digit DAY of the month (01-31)
[DOFY{:+DD{,+MM{,+YY}}}]	Print numeric Day OF Year(1-366)
[ISODATE{:+DD{,+MM{,+YY}}}]	Print ISO date
[ISOORDINAL{:+DD{,+MM{,+YY}}}]	Print ISO ordinal
[ODATE{:+DD{,+MM{,+YY}}}]	Print DATE with Offset (in the format of the preset country)
[wday{:+DD{,+MM{,+YY}}}]	Print complete weekday name (0 = sunday)
[WDAY{:+DD{,+MM{,+YY}}}]	Print numeric WeekDAY(0-6)
[wday2{:+DD{,+MM{,+YY}}}]	Print weekday name, 2 - digits shortened (i.e. su)
[wday3{:+DD{,+MM{,+YY}}}]	Print weekday name, 3 - digits shortened (i.e. sun)
[ISOWDAY{:+DD{,+MM{,+YY}}}]	Print numeric WeekDAY(1-7)
[WEEK{:+DD{,+MM{,+YY}}}]	Print numeric WEEK (1-53)
[WEEK02{:+DD{,+MM{,+YY}}}]	Print numeric WEEK with 2 -digits (01-53)
[OWEEK{:+WW}]	Print WEEK with Offset(1-53)



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Special Content Fields

Date Functions (continued)

[mon{:+DD{,+MM{,+YY}}}]	Print <u>3-character</u> month name (i.e. jan)
[month{:+DD{,+MM{,+YY}}}]	Print <u>complete</u> month name (i.e. january)
[MONTH{:+DD{,+MM{,+YY}}}]	Print 2-digit MONTH (1-12)
[MONTH02{:+DD{,+MM{,+YY}}}]	Print 02-digit MONTH (01-12) (leading zeroes, always 2 digits)
[YY{:+DD{,+MM{,+YY}}}]	Print 2-digit Year (00-99)
[YYYY{:+DD{,+MM{,+YY}}}]	Print 4-digit Year (1970-2069)

Special Content Fields

Jalali Date Functions (Arab date)

[JYEAR{:+DD{,+MM{,+YY}}}]	Print Jalali- YEAR , 4 digits
[JDAY{:+DD{,+MM{,+YY}}}]	Print Jalali- DAY
[JDAY02{:+DD{,+MM{,+YY}}}]	Print Jalali- DAY , 02 digits
[JMONTH{:+DD{,+MM{,+YY}}}]	Print Jalali- MONTH
[JMONTH02{:+DD{,+MM{,+YY}}}]	Print Jalali- MONTH ,02 digits
[jmonth{:+DD{,+MM{,+YY}}}]	Print Jalali- month , complete name
[JDIFY{:+DD{,+MM{,+YY}}}]	Print Jalali- Day OF Year
[JWDAY{:+DD{,+MM{,+YY}}}]	Print Jalali- Week DAY (1=saturday)

Special Content Fields

Field Calculations and Comparisons

[+:op1,op2. . ,]	Addition
[-:op1,op2]	Subtraction
[*:op1,op2. . ,]	Multiplication
[/ :op1,op2]	Division
[%: op1,op2]	Modulo
[|:op1,op2]	Logical Or (Result 1, if minimum one operator is not equal to 0)
[&:op1,op2]	Logical And (Result 0, if min. one operator is 0)
[<: op1,op2]	Comparison - Less than (1=TRUE, 0=FALSE)
[=: op1,op2]	Comparison - Equal (1=TRUE, 0=FALSE)
[>: op1,op2]	Comparison - Greater than (1=TRUE, 0=FALSE)
[MOD10:x]	Calculates and prints the Modulo 10 Check digit
[MOD36:x]	Calculates and prints the Modulo 36 Check digit
[MOD43:x]	Calculates and prints the Modulo 43 Check digit
[P:name,mn{o}]	Print result in P rice format
[R:x]	Rounding method
[==:text1,text2]	S tring comparison (1=TRUE, 0=FALSE)

Special Content Fields

Special functions (miscellaneous)

[?:x,y,z,{D},{Lx},{Mx},{R},{J}]	Prompt line on the printer's display
[C:fill{,base}]	Leading zero replacement
[D:m,n]	Set number of D igits to print
[DBF:keyfield,keyvalue,entryfield]	D ata B ase F ield
[I:cond]	I nvisible fields
[J:ml]	J ustification
[LOWER:x]	Converts the input data in lower case characters
[name]	Access a field with a name
[name,m{,n}]	Insert substring from another field
[RTMP{x}]	R ead from a TMP (serial) file
[S:name]	Numeric S cript style
[SER:start{incr,{freq}}]	Insert SER ial numbering
[SPLIT:field,index]	S plits table values
[U:x]	Insert U nicode character
[UPPER:x]	Converts the input data in upper case characters
[WINF]	W rites value into the „ INF “ buffer
[WLOG]	W rite to LOG file
[WTMP]	W rite to TMP (temporary) serial file



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Special Content Fields

Database Connector commands

* **[SQL:Select field from table where Searchvalue]** Query function

*) not available for the M - series printers



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Special Content Fields

Special Barcode functions (not supported by all barcodes)

[ECE: 123456]	Adds information for extended channel to barcodes
[APPEND:m,n,id1,id2]	Adds information for linked barcodes
[APPEND:x,id]	Adds information for ANSI - data identifier
[ANSI_DI]	Adds information for ANSI - application identifier
[ANSI_AI]	

**IMPORTANT !!**

All measurements of the examples in this manual are in millimeters !

The examples will not work properly when "country" is set to USA in the printer's setup menu.

Select "Country = United Kingdom" in the setup menu of the printer, or add "m m CR" for metric measurement setting in the first line of your label sample.

We highly recommend to add the measurement command at the beginning of all of your labels, to avoid trouble with a different setup the printer, unless we did not show this command in our examples in this manual to keep the examples as small as possible.



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CHAPTER 2 - ESC Commands

ESC commands

are responsible for status queries, control functions, memory management etc. and are usually executed immediately, i.e. even if a printing job runs. They are not absolutely required to print labels, but they offer additional features and possibilities.

ESC commands cannot be handled by the most text editors. All other commands can be transmitted to the printer by using simple text editors.

ESC commands are used for activating printers via RS-485, while the printers are "listening" to the bus, for resetting printers, requesting for free memory or for getting a direct status request. Details about each command are described on the following pages.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

ESCESC Replaces ESC in binary data

ESC ESC is used to replace single ESC (ASCII 27 or Hex 1D) in binary data to avoid unexpected reactions of the printers if graphics or fonts are downloaded.

Graphics or fonts may contain data which is identical to a ESC printer command. Replacing these ESC characters in double ESCs will tell the printer that this is part of a graphics or part of a font.

Data formats must be checked before they are transmitted to the printer.

cab Produkttechnik offers additional tools (DOWNLOAD.EXE) to convert data in a format which is understandable by the printer.

Syntax:

ESCESC



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

ESC!ESC! Hard Reset

forces the printer to perform a hard reset. This has the same effect as turning the printer off and on again.

Syntax:

ESC!ESC!

The system starts up with the preset default values and shows in the display that data can be received. The display message depends on the preset language selection.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	-	X	-	-

ESC* Activate all RS 485 printers

Activates all printers in a RS 485 network at the same time

Syntax:

ESC*

Sends the following data to all attached printers at the same time. This function is only available for printers which are (optional) equipped with the RS485 interface.

Please note that this optional interface hardware is not available for all label printing systems.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

ESC. Start and stop value for binary data

Start and Stop value for binary data.

Syntax:

ESC .

To transmit binary data -such as graphics or fonts etc. - it is highly recommended to use this method of data transmission. All ESC characters in a binary file have to be replaced by a double ESC (ESCESC) to avoid unexpected reactions by the printer.

A binary constellation- for example- which contains ESC c would be interpreted as „CANCEL JOB“, as soon as it is received by the printer. Therefore all ESC characters should be exchanged.

A help tool is available on the internet.

You may do a free download of the tool: DOWNLOAD.EXE from our website at:

<http://www.cabgmbh.com>.

This can also be done more comfortable with the "cab cardmanager" which is not free of charge.

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

ESC: Start description of binary data

Start description of binary data

Syntax:

ESC :

cab printers offer a limited possibility to download data without converting them previously. (see also ESC.)

In this case ESC: is required as start sequence, followed by the binary data and finished with ESCend-of-data.



Note: The binary data cannot contain any ESC character (ASCII 27 or HEX 1B) ! This would be automatically misinterpreted by the system.



Note: ESC: cannot be used in networks

The better and cleaner way to download binary data is the usage of ESC. We highly recommend to use the sequence



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	-	-	X	-	-

ESC< Back feed of the material behind the photocell

Backfeed material behind the photocell

Syntax:

ESC<

The ESC < enables the printer to pull the label backward behind the internal photocell which detects the gap of the material.

This function is only available on printing systems which are equipped with additional mechanics to control the material. Otherwise labels would slip out of the feed roller.

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

ESC? Request for free memory

query for free printer memory input buffer - printer returns a response of 0...9 through its interface.

Syntax:

ESC?

value percentage of used memory

0	=	0-9%
1	=	10-19%
2	=	20-29%
3	=	30-39%
4	=	40-49%
5	=	50-59%
6	=	60-69%
7	=	70-79%
8	=	80-89%
9	=	90-99%



Bidirectional communications must be enabled on the requesting computer.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

ESCa - abc-status

Request for abc-status. (Response: XNNNNN)

(abc= a-series basic compiler)

Syntax:

ESCa

X = Condition,
 abc - l = idle,
 C = compiling,
 R = running,
 E = error,
 S = syntax error during compilation

NNNNN = actual line numbers (empty lines will not be counted!)

A detailed description about abc and the available abc commands is shown later in this manual.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

ESCc - Cancel Printjob

The current printjob will be cancelled when this command is received by the printer. Equivalent to pressing the "CANCEL" button on the printer.

Syntax:

ESCc

Additional labels will processed if they are in the buffer. Please see also "ESC t" command.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

ESCend-of-data End description of binary data

End description of binary data

Syntax:

ESCend-of-data

finishes the download of binary data. ESC: must be used first, followed by the binary data and closed by ESCend-of-data. Used for font and graphics download.

*Note: **ESCend-of-data** cannot be used in a RS-485 network!*

Fonts and graphics download can be simplified by using the free of charge tool "DOWNLOAD.EXE" which is available on the cab website at <http://www.cabgmbh.com>.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

ESCf formfeed

formfeed - This command is equal to pressing "form feed" on the navigator pad. Causes The printer to search the start position of the next label.

Syntax:

ESCf

Sending a "ESC f" is a simple method to see immediately if an attached printer receives data and if the connection is setup properly.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

ESCi Send value from the INF-memory

ESCi responds the last value of the INF memory. This can be used to get the value of the last printed label. The value uses the actual selected codepage and is finished with a carriage Return.

For more details please view the [WINF] command, described in the section of „Special commands“

Syntax:

ESCi



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

ESCI Request of synchronisation info

ESCI sends information if labels are synchronized and if they are in print position. Delivers also the information about the measured label distance

Syntax:

ESC I

Answer: XNNNN

X = Paper synchronized (Y/N)

NNNN = Label distance in millimeters

If the distance is unknown, the response will be "0000"

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

ESCp0 End printer's pause mode

ends the printer's **p**ause mode. The PAUSE LED on the printer's front panel extinguishes and the printjob in the buffer proceeds.

Syntax:

ESCp0



*Note: This command cancels also existing errors when they are shown in the display of your printer.
- Same function like pressing the PSE button on the navigator pad.*



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

ESCp1 Set printer into pause mode

causes the printer immediately to set the **p**ause mode. This command has the same function such as pressing the "PAUSE" button on the printer

Syntax:

ESCp1



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
		Details described below			

ESCs Printer status query

ESCs Printer status query, which responds through the interface

Syntax:

ESCs

Example:

XYNNNNNNZ

where:

X = Online (Y=Yes, N=No)

Y = Type of error:

NNNNNN = amount of labels to print

Z = Interpreter active (Y=Yes = print job is in process, N=No= printer in Standby mode)

- ---- -----No error
a ----Applicator error----- Applicator in upper position ⁽¹⁾
b ----Applicator error- ----- Applicator in lower position ⁽¹⁾
c ----Applicator error- ----- Vacuum plate is empty ⁽¹⁾
d ----Applicator error----- Label not deposit ⁽¹⁾
e ----Applicator error----- Host stop/error ⁽¹⁾
f ----Applicator error- Reflective sensor blocked/ scanresult negative ⁽¹⁾
g ----Applicator error----- 90° error
h ----Applicator error----- 0° error
i ----Applicator error----- Table not in front position
j ----Applicator error----- Table not in rear position
k ----Applicator error----- Head liftet
l ----Applicator error----- Head down
m ----- Scanresult negative⁽⁶⁾
n ----- Network error ⁽⁴⁾
o ----- Compressed air-error
s ----- System fault (immediately after power on)
u ----- USB error ⁽⁵⁾

B----- Protocol error
C----- Memory card error
D----- Printhead open ⁽²⁾
E----- Synchronization error (No label found)
F----- Out of Ribbon
H----- Heating voltage problem
M----- Cutter jammed ⁽³⁾
N----- Label material too thick (cutter) ⁽³⁾
O----- Out of memory
P----- Out of paper
V----- Input buffer overflow
W----- Print head overheated
X----- External I/O error
Z----- Printhead damaged

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
		Details described below			

ESCs Printer status query



Note: Immediately when a job has started the printer will send a Y and sets this value back to N when the last label of this job is printed.

(1) This status request can only be processed on printing systems which are equipped with an attached applicator !

(2) Printhead open error cannot be displayed on M4, as that printer type has no possibility to sense that condition.

(3) Error messages for optional devices such as "cutter jammed" depend on the availability of the optional device and may vary between different printer types. i.e. No applicator errors on M4 or no cutter errors on Hermes A4 applicators (These options are not available for these models.)

(4) Network error -only on printers with an optional or built in network interface. (No print server)

(5) USB interface is option on A-series printers and Hermes A4 but it is standard on all others. Please refer to the operator's manual of your printing system if you are unsure if this is an option or standard.

(6) Scanresult negative requires an optional barcode scanner. The availability of the optional barcode scanner depends on the printing system.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

ESCt total cancel

ESC t = ttotal cancel - terminates the actual printjob and clears the complete input buffer. Resets also errors in the display. Same effect like pressing "Cancel" button on the control panel multiple times.

Syntax:

ESCt

Please see also ESCc which cancels only the actual printjob.



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CHAPTER 3 - Immediate commands

Immediate commands

Instructions with lowercase letters are used for adjustments and settings which must not have something to do with the actual printjob. They are active as long as the printer is powered up or when these values get overwritten.

command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

<abc> - Start of the **abc** Basic Compiler

This command starts the internal Basic compiler . The Basic compiler offers the functions of the programming language "YABASIC". abc requires good programming knowledge.

The usage of the basic compiler is to convert incoming data into a format which can be processed by the printer (JScript).

Syntax:

```
<abc>CR
```

Possible usage is to convert text strings - sent by a scale into JScript, or to convert incoming data which was prepared for competitive printers into an understandable format for cab printers.

See also the command: </abc> End of the abc Basic Compiler.

abc is not an emulator !! More information can be found in the "abc a-series basic compiler" chapter - later in this manual.

abc is not required for the programming of "standard labels".



Detailed information about Yabasic can be found at <http://www.yabasic.de>



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

</abc> - End of the **abc** Basic Compiler

Sets the end mark for the abc compiler (internal BASIC language)

Syntax:

```
</abc>CR
```

See also: <abc> - Start of the abc Basic Compiler.

command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

; - Comment line

The semicolon ";" is used to identify a comment line. Comments may be placed anywhere in your program code, in a separate line.

Comment lines are ignored by the printer.

Comment lines are very helpful to keep a better overview on the programming data.

Syntax:

```
; comment line CR
```

Example:

```
; My first label - Jobstart
J
; set size of the label
S 11;0,0,68,70,100
; create a text line
T:10,40,0,3,16;Hello cab
; print one label with the command A (amount)
A 1
```



Please note that comment lines need additional time to be transmitted to the printer. Avoid to use comments in time critical situations.



Hello cab

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

a - ASCII Dump Mode

The a command starts the ASCII dump mode. The ASCII dump mode shows all received data and is a very important instrument to detect wrong data in the program code.

The printer's LCD panel shows "ASCII dump mode" in the selected language.

All received data is printed "transparent" and the printer doesn't interpret it.

The ASCII Dump Mode is also selectable through the navigator pad.

Note: After ASCII Dump Mode is selected you must confirm this selection with the ENTER button of the navigator pad.

M-Series only:

The ASCII Dump Mode can be selected during power up and simultaneously pressing the PAUSE button. For details, please refer to the operator's manual.

Syntax:

```
a CR
```

The following data creates a label with one line of text. Please view the picture below which shows the same label in ASCII Dump mode.

Example:

```
a
J
S 11,0,0,68,70,100
T 25,25,0,3,13;ASCII Dump Mode
A1
f
```



If "protocol errors" are shown on the label means, that there is a mistake in the program code!

```
aCLRF
JCLRF
S 11;0,0,68,70,100CLRF
T 25,25,0,3,13; ASCII Dump ModeCLRF
A1CLRF
fCLRF
```

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	-	X	X

c - Direct cut

The c ommand forces the printer to cut immediately when it is received. If required, the printer will do formfeed before the cut is processed.

This command is not available for the Hermes A4 - Series.

Syntax:

`c CR`



The printer shows "Protocol error" on the display when no cutter is attached.

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

d - download data

The d command is used to download data files to the printer. It is used to download graphics, fonts, databases and serial files. Two methods are available to download such data to the printer:

1st Method:



The procedure which we highly recommend, unless this requires that the data has to be prepared for downloading.

2nd Method:

will transmit the data as it is, but it may occasionally misinterpret embedded ESC characters in the data as a printer command. (i.e. ESC t would be misinterpreted as memory reset).

Syntax:

```
d t;name[SAVE] [B:± value]CR ESC.binary data ESC.
```

```
d t;name[SAVE] [B:± value]CR ESC:binary data ESCend-of-data
```

d = download data

t = The type of data that will follow, using standard file name extensions:

Possible graphic formats:

BMP	-	Windows bitmap format	Monochrome, 256 Colors, 24 Bit Truecolor, plane only, uncompressed
GIF	-	Graphic Interchange Format	(GIF 87a and GIF 89a)
IMG	-	GEM Image format	Monochrome
MAC	-	MacPaint format	
PCX	-	Paintbrush format	Monochrome, 16 and 256 colors
PNG	-	Portable Network Graphics	
TIF	-	TIFF Format© Aldus Corp	Monochrome, Greyscale and and color. (4Bit and 8Bit per pixel, RGB 8 Bit per pixel)- Compression: Only packbits and uncompressed.

Vector font format:

TTF - TrueType font format

Database format:

DBF - dBASE IV Database formats

others:

TMP - Serial numbering file in ASCII format

command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

d - download data



We recommend to use monochrome graphics only! The resolution should not be higher than the printer's printhead resolution.

name = Filename to be downloaded with a maximum length of 8-digits. This filename will be recalled on later programming.

[SAVE] = This optional parameter is used for downloading to the printer's memory card.
(The memory card commands (M ... explain more possibilities, - please see there for more details)
The [SAVE] option copies the file from the printers memory to the memory card.

B: ± value= Sets the brightness of dithering on graphics. Valid values are ± 20.

Example:

```
B:+5 makes the picture 5 steps darker.
```

ESC.data ESC

= 1st Method for downloading data. Data format is binary, where the ESC characters (ASCII 27 or HEX 1B) have to be replaced first through a double ESC (ESCESC) to avoid unexpected reactions of the printer.
ESC commands, (requests etc.) can be used during the download of this data.
cab offers the tool: DOWNLOAD.EXE (downloadable at <http://www.cabgmbh.com>) to convert existing files.

Example:

```
d BMP;CABLOGO CR ESC. binary data ESC.
```

Downloads the Graphic: cablogo.BMP to the printer

ESC: data ESCend-of-data

= 2nd Method for downloading data. Data format is binary, starting with ESC: and followed by ESCend-of-data (ASCII 27 or HEX 1B) followed by ASCII text string < end-of-data >.
With this method it is allowed that the data stream contains ESC sequences in the data stream until the ESCendofdata is received.

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

d - download data

Example: `d TTF;ARIAL<CR> ESC: data ESCend-of-data`



We highly recommend to use the 1st Method for data download !!

Example: `d DBF;CDPlayer [SAVE] CR ESC.binarydata ESC.`

Downloads the database file CDPlayer.DBF to the printer.

Database files have to be downloaded with **[SAVE]** option, as they are only used together with the memory card. This function is useful for "small" databases. Big databases need a long search time for single records. In this case we recommend the usage of the optional cab Database connector. See more at the DataBaseConnector command area.
(cab Databaseconnector is not available for the M-series printers)



cab sells a helpful tool (the cab card manager) which can be used to download files through the serial interface to the memory card. This simplifies data conversion and download.

An alternative tool for downloading and editing directly on the memory card is the cab administration tool which connects through the ethernet interface to the printer and which offers more direct access to the printer.

Data can also be saved on a card drive for Compact Flash cards. Please note, that the CF-cards have to be formatted (erased) in the printers memory card slot. This automatically generates also the required folders on the card.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

e - erase data

The e command is used to erase data from the printer's memory, such as fonts and graphics. Data on the memorycard will not be affected by this sequence. Separate commands are available for erasing files from the memory card. ("M" command)

Syntax:

```
e type;name CR
```

- e** = erase data command
- type** = The file types being removed, with following valid file extensions:
BMP,FNT,GIF, IMG,MAC,PCX, PNG,TIF,TTF.
- name** = The name attached to the font or graphic when it was sent to the printer. A wildcard (*) may be used to delete all files of the same type.

Example:

```
e FNT;*
```

Erases all true type fonts which are currently in the printer's memory.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

f - formfeed

This command feeds the media forward until the top-of-form of the next label reaches the printhead. It does the same as pressing the FormFeed button on the printer's control panel.

This process is controlled by the label photocell if die cut label material is used. The printer feeds the material in continuous form mode in the length which had been selected for the last printed label.

Syntax:

f CR

Example:

f CR

f CR

feeds 2 labels



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

I - Change Language (country)

Date format, currency, measurement etc. are changed with this command to the country specific values.

Time and date will be printed as it is usual in the specified country. (See also "Special Content Fields")
The display on the printers LCD will not be changed. (This can be done using the printer's setup through the control panel)

Syntax:

```
l name CR
```

I = Change language/country command.
name = DOS short keyboard code for the country

BG - Bulgaria
BE - Belgium / french
CZ - Czech Republic
DK - Denmark
FR - France

PL - Poland
PT - Portugal
RU - Russia
SA - South Africa
SE - Sweden

GK - Greece
GR - Germany
HU - Hungary
IT - Italy
IR - Iran

SP - Spain
SU - Suomi (Finland)
SF - Switzerland / french
SG - Switzerland / german
TR - Turkey

LT - Lituvia
MA - Macedonia
NL - Netherlands
NO - Norway

UK - United Kingdom (Great Britain)
US - USA **selects measurements in inches !*

Example:

```
l GR
J
S 11;0,0,68,71,100
T 25,25,0,5,8; [DATE]
A1
```

Changes the printer's country and language settings to "Germany".

The Date is displayed in the german style:
Day.Month.Year

10.07.2003

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

m - set measuring unit

This command sets the measuring unit for the following label data. Once it is sent, all following settings in a label are measured in the selected unit.



The printer's default value depends on the selected display language. For all selectable countries the measurement is millimeters, with the exception when country USA was set through the control panel. We recommend to use this command always, especially for international companies where different programmers create labels as the measuring unit is only changed for the individual label being printed.

The measuring unit cannot change within one label. All internal calculations are processed in millimeters, as these values are better to overview and they follow a worldwide standard.

Syntax:

```
m t CR
```

m = Set measuring unit command.
t = The measuring system desired,
"m" for metric (millimeters) or
"i" for historical (inches, tenths and hundredths of an inch).

The following labels will have the same result, programmed with different measuring units.

The first example is programmed in inches, the second example is programmed with metric measurements.

Example:

```
m i
J
T 0.79,1.18,0,3,0.2;Measuring Unit
A1
```

Example:

```
m m
J
T 20,30,0,3,5;Measuring Unit
A1
```

Measuring Unit



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

p - pause Printer

The printer is set in the pause mode or removes it from pause - depending on the parameter.

Syntax:

```
p n CR
```

n = 0 Pause off

n = 1 Pause on

Example:

```
p 1
```

Sets the printer into pause mode, if a print job runs, it will stop after the label is printed. The Pause LED lights on the front panel.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

q - query Printer

The query printer command is used to get multiple information back from the printer and is e.g.. used to find out if a font or a picture exists, so that has not to be downloaded a second time.

The q command responds through the printer's interface,

All bidirectional interfaces can be used.

Syntax:

```
q b;name CR
```

query for a bitmap font. Answer Y/N.
Requests the printer if a specified bitmap font is available

Syntax:

```
q d;name CR
```

query for a database. Answer Y/N
Requests the printer if the database (DBF) file called "name" is available on the memory card.

Syntax:

```
q e;nameCR
```

query for media. Answer Y/N
Requests the printer if the media (FMT) file called "name" is available.

Syntax:

```
q f CR
```

Query for free memory. Answer "xxxxxxxbytes free"
Reports the free (available) memory, which may be used for downloaded data

Syntax:

```
q i;name CR
```

image inquiry. Answer Y/N if available in memory, or C if the pictogram is available on memory card.
Requests the printer if the image (IMG) file called "name" is available either in memory or on memorycard.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

q - query Printer

Syntax:

```
q l;name CR
```

Query for label. Requests if the label (LBL) file called "name" is available.

Syntax:

```
q m CR
```

Query for the memory card type Answer: Format „type, xxx kByte.CR“, - The response will be „No card.CR“ if no memory card is attached to the printer

Syntax:

```
q p CR
```

Query for peripheral equipment. Reports the type of peripheral devices that are connected. Possible responses are:

NONE, CUTTER, REWINDER, DEMAND SENSOR, BLOW ON, TRIGGER (Applicator) Possible answers depend on the printer type and it's available options !!

Used to verify if a label can be processed on the selected printer. Very helpful if multiple printers with different peripheral equipments are connected.

Syntax:

```
q r CR
```

Query for ribbon diameter. Answer: diameter of the ribbon roll in millimeters.
If the ribbon roll has not been measured, the answer will be -1

Can be used to get a early warning when the ribbon is close to be finished.
Answer is sent by SNMP.

Syntax:

```
q s;name CR
```

Query for scaleable fonts. Answer Y/N or C if the font had been found on the memory card.

This command is used to check if a specified font is available, to find out if it has to be downloaded (again).

Syntax:

```
q t CR
```

Query for time and date Answer: yymmddhhmmss CR

Time and date format is identical to the "s" -command.

Used to find out if the printer's date and time must be synchronized or to keep track when a label was printed.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

r - reset to default values

This command resets JScript to the printer's default values.

- resets the language
- resets slashed zero setting
- resets the selected measurement system
- erases the fontcache

Syntax:

`r CR`



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

s - set Date/Time

used to set date and time temporarily to be recalled on a label.

The printer's internal clock chip and enables the user to recall time or date from the printer's internal clock. This is useful when the printer is driven in "Stand Alone" mode, where no external data source is available. (A-Series)

Syntax:

```
s n[ss] CR
```

s = Set date / time command.

n= ASCII - string in following format to adjust date and time in the printer of following format: YYMMDDhhmmss

YY = Year - 2 digits
(values between 70 and 99 are interpreted as 1970-1999. Anything else is treated as year2000)

MM = Month. - 2 digits

DD = day - 2 digits

hh = hour - 2 digits

mm = minutes - 2 digits

[ss] = seconds - 2 digits
(setting of ss is optional)

Example:

```
s 031105091500
```

Sets printer date and time to:
November 24, 2003 9:15 a.m.

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

t - Run Printer Self-test

cab printers have multiple built in self -tests. A self test can be processed through the printer's control panel (see operator's manual) or by software.

The printout of the status information may look different on different printer types. Information about optional equipment, such as interfaces, cutter etc. will only be shown if they are attached.

Syntax:

t CR

Syntax:

t n CR

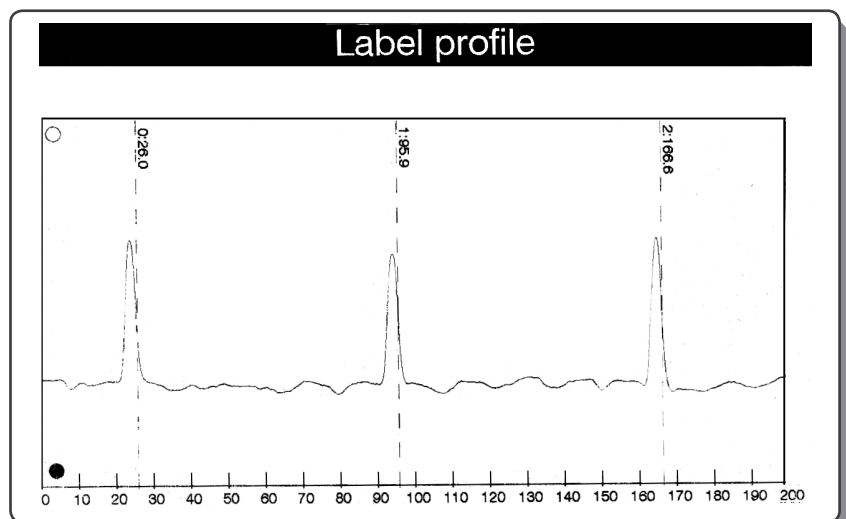
- n = 0 - Prints status information
- n = 1 - prints the font list
- n = 2 - prints the device list
- n = 3 - prints the label profile

The status test is displayed in the selected language of the printer

Example:

t3

produces following result after the printer feeded a few empty labels for the measurement process.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

t - Run Printer Self-test

The label below shows a list of the printer's internal fonts. If additionally downloaded, True type fonts will also be shown on the printout in their actual shape. (see the font list below)

Example: t1

prints a label with a list of all existing fonts.

A detailed description about the internal fonts is shown later in the manual where the usage of textfields is described.

Font list			
No.	Name	Type	Description
-1	_DEF1	Bitmap	Default Font 12x12 dots
-2	_DEF2	Bitmap	Default Font 16x16 dots
-3	_DEF3	Bitmap	Default Font 16x32 dots
-4	OCR_A_I	Bitmap	OCR-A Size I
-5	OCR_B	Bitmap	OCR-B
3	BX000003	TrueType	Swiss 721
5	BX000005	TrueType	Swiss 721 Bold
596	BX000596	TrueType	Monospace 821

Example: t 2

prints the list with all attached devices

Device list	
Name	Description
CPU	A3, #116043751445 PCB-Rev. 9, FPGA-Rev. 10
TPH	300 dpi, 1280 dots
USB [1] [0] Full	Cypress Semiconductor/USB 1.1 4-port Hub Rev. 0.01
USB [2] [1/1] Full	cab/Frontpanel Rev. 2.02
USB [2] [1/1] Full	cab/CompactFlash Rev. 2.02

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X








t - Run Printer Self-test

Example: t0

prints the status information
(here A3-300)



The status printout is different when printed by different printer types. A detailed description of the listed values can be found in the operator's manual. Transmitting "t" without any additional number causes the printer also to do a status printout.

Status print	
	A3/300 (Thomas A3) Firmware V2.83 (Jun 4 2003) Bootloader V1.3 (Jan 24 2002) <small>abc licensed under Artistic license from Yabasic 2.715 (www.yabasic.de) CMU-SNMP ©1988,1989 Carnegie Mellon University, ©1995 Glenn Waters</small>
	Local settings Country United Kingdom Timezone UTC+1 Daylight saving EU Date 09/07/2003 Time 01:53:20
	Machine param. Printhead pos. X 0.0 mm Printhead pos. Y 0.0 mm Tear-off pos. 0.0 mm Brightn. LCD 8 Contrast LCD 8 Time Powersave 5 min Debug mode On
	Print param. Heat level 0 Print speed 100 mm/s Transfer print On Warn level ribbon Off Label sensor Gap Sensor Tear-off mode On Backfeed smart Error-Reprint On Pause reprint Off Width ASCII dump Automatic
	Interfaces Character set Windows 1252 IEEE 1284 Bidirectional On RS-232 Baud rate 57600 Handshake RTS/CTS Ethernet IP 192.168.0.25/255.255.255.0 Gateway Off SMTP-Server 194.97.55.148 Raw-IP-Port 9100 LPD On SNMP Off Timeserver Off
	Security PIN On
	Printer info Operative time 4126h 18min Number of labels 4226 Thermal transfer 155.941m Thermal direct 29.067m Temperature 26 °C Heat voltage 23.4V Brightness 6-14



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

v - Firmware version

The v command requests the firmware version, release date and printer model. The printer responds through the interface.

Syntax:

```
v CR
```

Example:

```
v CR
```

An A3-300 printer will respond on this request with following string:

3.01 Jan 26 2006 (A3/300)

Firmware version	Release date	Printer model

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

X - Synchronous Peripheral Signal Settings

The signal bits of the peripheral connector for **external** connections can be set with this command.
Usage: Together with an optional adapter with electrical protected interface.
The availability of these adapters depends on the used printing system.



IMPORTANT: Never connect any non cab item directly to the printers auxiliary interface !
In all cases you will need an optional adapter with the required interface !!!
Connections directly on the auxiliary interface may damage the printer electronics !
The auxiliary interface does not deliver the the following signals directly.

This command controls the status of the output pins. The x command was added to take control over peripheral device, which is usually other than the offered cab equipment. The four signal bits can be set as follows:

- Control bit 0, set on when a label starts printing
- Control bit 1, toggled when a new print job starts
- Control bit 2, set on for error
- Control bit 3, set on when label is in the peel-off position

Each of these bits can be set or reset for individual needs. The bit signals can be used to control external - non cab - devices.



To reset all of these bits, use ESC!ESC! (see ESC commands)

Syntax:

```
x m;m CR
```

- x = Synchronous Peripheral Signal Setting Command
- m = Mask (hex nibble).

The usage of this command depends on the printer type. The description of the pin assignment can be found in the available documentation for the optional adapters

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

z - print slashed / unslashed zero

The default setting for the zero character is unslashed. With this command the printer can be forced to change the style of the zero character. It can be printed as 0 (unslashed) or Ø (slashed).

This command can only be used with internal bitmap fonts. It is not available for internal vectorfonts (Swiss, Swiss bold and Monotype) or for truetype fonts: The selected method is valid for the complete label.

Syntax:

```
z t CR
```

z = Select slashed zero
 t = 0 - (zero - prints slashed zeros (Ø))
 t = O - (upper case letter O - prints unslashed zeros (0))

Example:

```
z0
J
S 11;0,0,68,71,100
T 25,25,0,-3,x9,y9;1000
A1
```

Prints the number 1000 with slashed zeroes.



1000



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CHAPTER 4 - Label Format Commands



Label Format Commands

Instructions with uppercase letters are used to describe the label itself.

This has a fix structure, beginning with the start command, the description of the labelsize and description of each object in the label. At the end of the label the printer expects the command for amount of labels to print.

The printer starts printing when the Amount command is received, unless it is suppressed by special options.

command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

A - Amount of Labels

The A command is used to define the end of the label definition and it sets the amount of labels to be printed. The printer repeats internally the defined label where the amount is defined by this command.

The label will stay in the printer's internal buffer, after it has been sent to the printer. sending the A command multiple times afterwards will print the amount of labels which is specified by the A command.

Syntax:

```
A n CR
```

n = amount of labels

Multiple options are available:

[NOPRINT] = receives and processes the label, but suppresses a printout.
(Used for saving a label on memorycard)
It is also possible to key in [NO] instead of [NOPRINT]

[?] = printer prompts on its display for the quantity or is also used to be replaced from any attached system

[REPEAT] = Repeats the label at the end (makes only sense together with the [?]option.
It is also possible to use [R] instead of [REPEAT]

[\$DBF] = Prints each record of a database. Number of records = number of labels.

Example:

```
J
S 11;0,0,68,71,100
T 25,10,0,5,8;LABEL PRINTER
A 550
```

prints 550 labels with the text line: "LABEL PRINTER"

Example:

```
J
S 11;0,0,68,71,100
T 25,10,0,5,8;LABEL PRINTER
A
```



Special function: Transmitting "A" without parameter causes the printer to print a infinite number of labels.

Don't forget the "carriage return" after the last command in the label !

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

A - Amount of Labels

Example:

```
J
S 11;0,0,68,71,100
T 25,25,0,3,8;Suppress Printout
A [NOPRINT]
```

Transmits the label for further usage into the label buffer. The Printout is suppressed with the **[NOPRINT]** option.



*It is also possible to shorten the **[NOPRINT]** option into **[NO]** - which has the same function.*

Example:

```
J
S 11;0,0,68,71,100
T 25,25,0,3,8;[?:Input?]
A [?,R]
```

Requests the user (on the printer's display) for data entry (**[?:Input?]**) and prompts for the amount of labels to print.

The data entry will be done through the printers control panel or through an attached keyboard.

Example:

```
m m
J
S 11;0,0,68,73,100
E DBF;CDPLAYER
T:IDX;25,225,0,3,5;[SER:100]
T0,40,0,3,6;>>[DBF:TYP,typ,NAME]<<
A [$DBF]
```

Prints all records of the database CDPLAYER.DBF, where the serial numbering function is used to create the index file, starting at 100.

command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode Definition

The B command defines a barcode field in the label format. The most common barcode types are supported by the cab printers.

The parameters for each barcode are different, depending on the selected barcode type. Barcodes can be printed in one of four different directions (0°, 90°, 180° and 270°). Height and width of the barcode elements are adjustable. Human readable text lines can be easily added.

Syntax:

```
B[:name;]x,y,r,type[+options],size;text CR
```

B	=	Barcodefield
[:name;]	=	Optional fieldname
x	=	X - Coordinate
y	=	Y - Coordinate
r	=	Rotation
type	=	Barcode type
[+options]	=	Optional parameters
size	=	Barcode height and width, ratio
text	=	Barcode data

This is the global structure of a barcode field, a detailed description follows below.

B

Descriptor of a Barcode field, this is identified by the printer that the following data is used to create a barcode.

[:name;]

describes the field name and is optional. The maximum length of this name is 10 characters, no special characters allowed. A field name can be used for further operations, such as calculations, as linked field, for field replacements or for the enhanced usage when downloaded to a memorycard etc. The field name must be unique in each label.

x

The x - coordinate is the horizontal start position of a barcode (in millimeters or inches), the distance between the left margin of a label and the upper left corner of the barcode.

y

The y - coordinate is the vertical start position of a barcode, the distance between the top margin of a label and the upper left corner of the barcode. The maximum coordinate depends on the printer type. Please refer to the operator's manual.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode Definition

y

The y - coordinate is the vertical start position of a barcode, the distance between the top margin of a label and the upper left corner of the barcode. The maximum coordinate depends on the printer type. Please refer to the operator's manual.

r

Rotation - Rotates a barcode in 4 directions. Valid values are 0, 90, 180 and 270. Measurement in degrees.

type

Barcode type - This defines the barcode symbology. Barcode types with upper case names produce barcodes with human readable characters, while lower case names for the barcodes suppress the human readable line. The size of the human readable characters are depending on the selected barcode type.

More details are shown in the examples on the following pages.

cab printers are able to extract necessary portions of a barcode name, which means that e.g. EAN-13, EAN 13 and EAN13 will print identical results.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode Definition - options

[+options]

Depending on the barcode type, several options are available. Which option is valid for which barcode is described for each barcode type on the next pages.

Following options are available:

+MODxx

offers the possibility to add a modulo check digit to a barcode

MOD10	adds a modulo 10 check digit
MOD11	adds a modulo 11 check digit
MOD16	adds a modulo 16 check digit
MOD36	adds a modulo 36 check digit
MOD43	adds a modulo 43 check digit

The available check digits depend on the barcode type

+WSarea

white space area - prints white zone markers for design purposes. The white space size defines the quiet zone which is required for a good scanability of the printed code.

+BARS

Prints boundary lines above and below the barcode.

+XHRI

(Extended Human Readable Interpretation) adds start - and stop characters (*) for Code 39.

Adds start and stop boxes for Code 93.

Reduces the size of UPC-A and UPC-E (see details in the examples)

+NOCHECK

suppresses the check digit calculation for variable weight barcodes (EAN-13 and UPC-A with specific start numbers :21, 24...29)

+ELx

Error Level . sets the redundancy of some 2D barcodes. Valid values for x depends on the barcode type - please see the details later in the manual

+RECT

Barcode type DataMatrix can be printed as a rectangle or a square. The default value is square. The +RECT option forces the printer to print this barcode as a rectangle.

+WSarea

white space area - prints white zone markers for design purposes. The white space size defines the quiet zone which is required for a good scanability of the printed code.

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode Definition - options

+VERIFYn

Used to verify the barcode data. +VERIFYn needs an optional barcode testing equipment which is available as an option. If required please ask cab Produkttechnik for taht additional equipment and describe the application. cab offers a solution for 1 D codes whereby the scanner is attached through a specific interface directly in front of the printer. +VERIFYn does a string comparision with the data received by the printer plus the calculated checksum.



Restrictions:

1. + VERIFYn can be used only once in a label and starts the scan when the barcode arrives in the read window of the scanner.
2. +VERIFYn does not work when a barcode is sent as graphics to the printer. For graphical barcodes use the ,GOODREAD function, described later in the chapter.
3. Functionality and technical possibilities depend strongly on the barcode reader type. Please refer to the barcode reader manual for detailed information. Please contact cab for further information.

Example:

```
J
O R
S 11;0,0,68,70,100
B 10,16,0,CODE39+VERIFY9,20,.5,4;987656789
A 1
```

GOOD/BAD and content check - attached USB sanner verifies the data. In this example, the scanner starts at 9 mm from top of the barcode with scanning and compares the read data with the transmitted data string.

+GOODBADy

same function as +VERIFYn without checking the content. Only good read or bad read will be controlled. Checks the answer on NoReadString "?"

Example:

```
J
O R
S 11;0,0,68,70,100
B 5,12,0,CODE39+GOODBAD5,5,.5,4;1234567890
A 1
```

In this example, the scanner starts at 5 mm from top of the barcode with scanning and verifies only if the barcode is readable or not (GOOD or BAD) NO content check will be done in this case



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode Definition - options

,GOODBADy

Controls the readability of barcodes which have been transmitted as graphics (i.e. by some labelling programs). Controls only good read or bad read.

Example:

```
J
O R
S 11;0,0,68,70,100
I 10,10,0,1,1,GOODBAD10;PICT1
A 1
```

In this example, the scanner reads the previously downloaded graphical barcode and does a good read or bad read check.

+VERIFYn, +GOODBADy and ,GOODBADy are available for all barcodes, this will not be mentioned explicit in the description of each single barcode on the following pages.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode Definition

size

defines the height and width of the bars in a barcode. Height and narrow element is defined for ratio oriented barcodes. For EAN, JAN or UPC it is also possible to define the standard code size which is expressed through "SCx". The height calculation includes the human readable characters if enabled.

height

Defines the barcode height in the pre selected measurement - millimeters or inches. A-series printers will print a grey rastered field if the barcode does not fit including the white space area on the label.

narrow element (ne)

Defines the width of the smallest element of the barcode. The input is in millimeters or inches. The narrow element (ne) size depends on the printer's resolution. One dot is the smallest possible element - therefor it depends on the printhead resolution-how big or how small the thinnest line can be printed. (it is not possible to print a "half" dot)

ratio

The ratio between narrow and wide bars. (i.e. 3:1 means that the widebar is three times the width of the small bar)

SCx,

SC = Standard Codesize. Unified barcode sizes of EAN and UPC barcodes. Sets the size of the barcode to a defined standard code size. x is a numeric value (0-9) and the possible barcode size depends on the printer's resolution. Used instead of height and ne (narrow element)

text

contains the barcode data to be encoded in a barcode. Depending on the selected barcode type. Different rules are used for different barcodes. Some barcodes allow only characters, some others have a fixed length etc. More information can be found at the samples of each barcode.

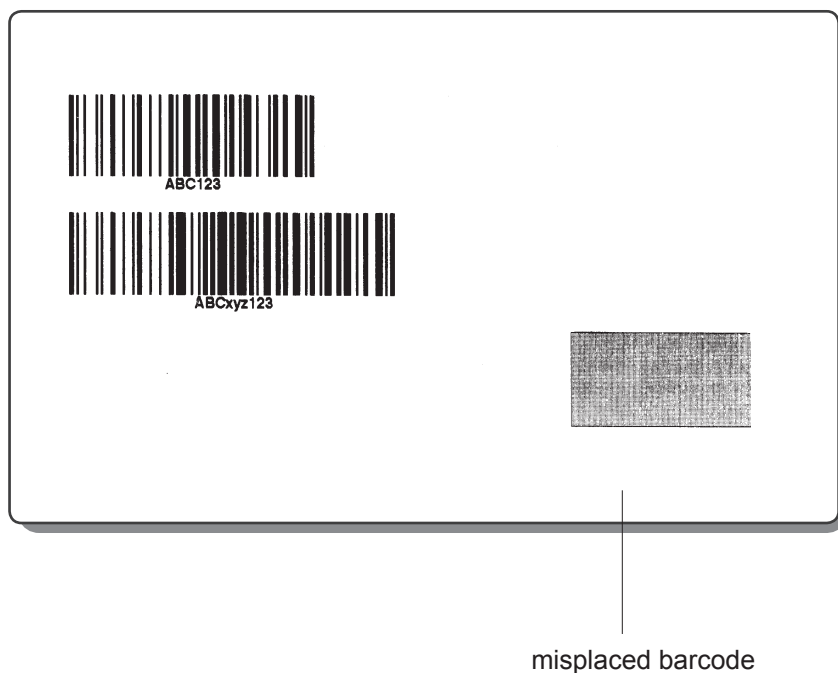
Helping companies to improve productivity, performance, safety and security

command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode Definition

cab printers will print a rastered area if a barcode would not fit on the label. The printers intelligence checks this for you to avoid later reading problems. This includes also the required white space for the barcode readability. Check the barcode width, height and x / y positions to make sure that the barcode is placed correct.

The following picture shows what happens when a barcode is misplaced. A-series printers will print a raster instead of a barcode as demonstrated on the following label in the lower right corner.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

Barcode overview list



Size options on ratio barcodes are different to the size options of non ratio barcodes.

Capital letter for the barcode name produce barcodes with human readable text line, as far as this is defined in the barcode specs. Capital or lower case letters have no influence on barcodes which are not specified to have a human readable textline.

Shortcode: For a limited time shortcodes have been used alternatively which are no longer supported. Therfor we highly recommend that these short codes will no longer be used !! We added these short codes to the overview table, in the case if you need to debug some old program code.

Barcode name	Shortcode	Ratio	1D /2D code*
2 of 5 Interleaved	D	yes	1D
Add-On 2	M	no	1D
Add-On 5	N	no	1D
Aztec Code	---	no	2D
Codabar	I	yes	1D
Codablock F	---	no	stacked
Code 39	A	yes	1D
Code 93	O	no	1D
Code 128	E	no	1D
Data Matrix	W	no	2D
DBP (German Post code)	---	yes	1D
EAN 8	G	no	1D
EAN 13	F	no	1D
EAN 128	Q	no	1D
FIM	S	no	1D
German Parcel	---	yes	1D
JAN 8	---	no	1D
JAN 13	---	no	1D
HIBC	H	yes	1D
MaxiCode	U	no	2D
Micro PDF	---	no	2D
MSI	K	yes	1D
PDF-417	Z	no	2D
Plessey	X	yes	1D
Postnet	P	no	1D
QR -Code	---	no	2D

*1D = One dimensional barcode, 2D = Two dimensional barcode



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

Barcode name	Shortcode Ratio 1D /2D code*		
RSS-14	-		1D
RSS-14 composite CC-A	-		composite
RSS-14 truncated	-		1D
RSS-14 truncated composite	-		composite
RSS-14 truncated composite	-		composite
RSS-14 stacked	-		stacked
RSS-14 stacked composite	-		composite
RSS-14 stacked composite	-		composite
RSS-14 stacked omnidirectional	-		
RSS-14 stacked omnidirectional composite	-		composite
RSS-14 stacked omnidirectional composite	-		composite
RSS limited	-		
RSS limited composite	-		composite
RSS limited composite	-		composite
RSS expanded	-		
RSS expanded composite	-		composite
RSS expanded composite	-		composite
RSS expanded stacked	-		
RSS expanded stacked half line	-		
RSS expanded stacked composite (CC-A)	-		composite
RSS expanded stacked composite (CC-B)	-		composite
UCC 128	Q	no	1D
UPC-E0	C	no	1D
UPC-A	B	no	1D
UPC-E	Y	no	1D

*1D = One dimensional barcode, 2D = Two dimensional barcode
A composite barcode contains 1D and 2D code elements

We highly recommend to read carefully the specifications of the required barcode which is available from the responsible organisation, whenever a barcode needs to be printed !

The usage of a barcode reader / verifier is also recommended, when barcodes are used, to verify the contents and the readability of the printout.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

Available check digits:

- MOD 10 (numerical data only).
- MOD 10 (for MSI is calculated different (Weighting 2/1 instead of 3/1).
- MOD 10 GP (2 of 5, Weighting 3/1 + 1, - German Parcel only).
- MOD 11 (numerical data only).
- MOD 16 (Codabar only).
- MOD 36 (CODE 39 only)
- MOD 43 (only Code 39 and Code 128).

Code 128 and EAN/UCC-128 use automatically modulo 103 check digit.

EAN-13, EAN-8, UPC-A, UPC-E and UPC-E0 use automatically modulo 10 check digit.

POSTNET uses automatically modulo 10 (without weighting).

DBP is the 12- or 14-digit barcode of the Deutsche Post AG. It uses automatically modulo 10 check digit with weighting 4/9. It is allowed to add dots and spaces as much as it might be required.

Each barcode has own specs which are defined by the responsible organization who developed the specific barcode type.

We recommend to read and follow the barcode specifications of the responsible organisations.

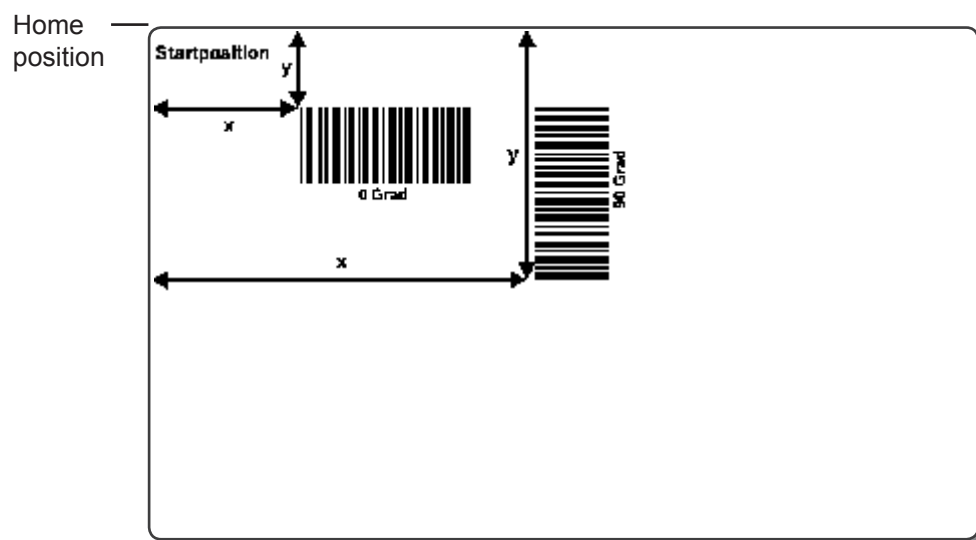
It is also recommended to test the printed barcodes for scanability !

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

Startpositions of Barcodes

The picture below shows the start position of barcodes. Please see also the option-command "O", which offers a couple of possibilities to manipulate the complete label.



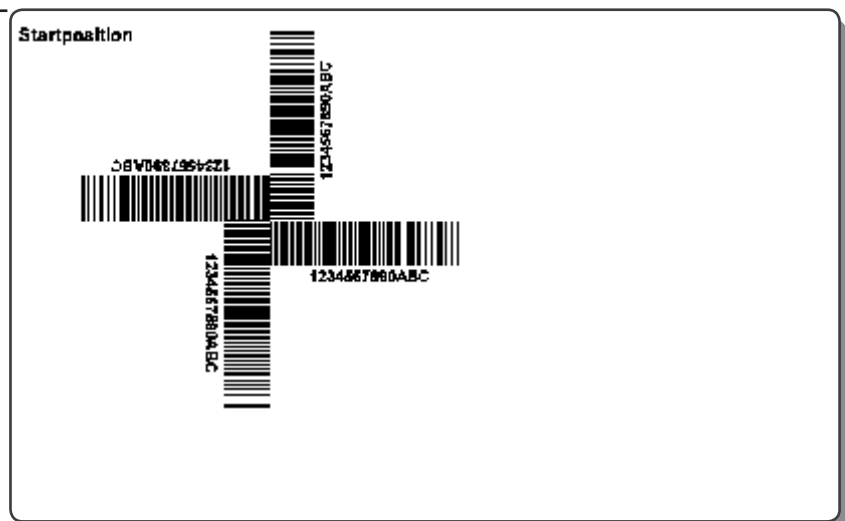
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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

Barcodes - printing direction

In the following picture it is shown how it looks when a barcode is rotated. The X and y starting points are identical. Only the rotation parameter has been changed. Barcodes can be rotated in an angle of 90 degrees. So rotation 0,90,180 and 270 degrees has been used for the label below.

Home
position





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **2 of 5 Interleaved**

Barcode type: 2 of 5 Interleaved

Length:	variable, always even.
Valid characters:	numeric, digits: 0-9,
check digits:	optional
ratio oriented:	yes Encodes numbers in pairs

The 2 of 5 interleaved (interleaved 2/5) is a numerical barcode which encodes the numbers pairwise. Automatically a leading zero is added, if the number is odd. Interleaved 2of 5 can be printed very small as it contains only numeric values.

Syntax:

B [:name;]x,y,r,**2OF5INTERLEAVED** [+options],height,ne,ratio;textCR

[+options] = +WSarea,

White Space area prints quiet zone markers around the bar code, to make sure that the barcode can be read after printing. This option is for design purposes only and should be removed after the label is programmed.

+MODxx,

offers the possibility to add a modulo check digit to the barcode.

+BARS

Prints boundary lines above and below the barcode. Can be used for a better readability. Helps to avoid incorrect readings of this barcode.

We recommend to use a fixed length of this barcode and set the barcode reader to that fixed amount of digits to ensure a good readability.

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode 2 of 5 Interleaved

Example:

```
J
S 11;0,0,68,71,100
B 5,5,0,2 OF 5 INTERLEAVED,10,.3,3;1234567890
B 5,20,0,2of5interleaved+BARS,10,.3,3;1234567890
B:Bar3;5,35,0,2OF5 INTERLEAVED+MOD10,10,.3,3;1234567890
A 1
```





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **Add-On2**

Barcode type: Add-on2 (EAN/UPC Addendum 2)

Length: fixed 2-digits

Valid characters: numeric only

check digits: no

ratio oriented: yes

Add-On2 is an addendum code which is used together with EAN or UPC barcodes. Mainly used for magazines to display the magazine publication release (normally a 2 digit number of the week or month)

The size must fit to the printed size of the EAN or UPC code. We recommend to use SC sizes with this barcode.

Syntax:

```
B[:name;]x,y,r,ADDON2,[+options],height,ne;text CR
```

[+options] = +BARS,

Prints boundary lines above and below the barcode.

SCx,

sets the size of the barcode to a defined standard code size.

x is a numeric value (0-9) and the possible barcode size

depends on the printer's resolution. Used instead of height and

ne (narrow element)



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **Add-On2**

Example:

J
 S 11;0,0,68,71,100
 B 10,5,0,EAN13 ,SC2;402345607891
 B 45,5,0,**ADDON2**,SC2;09
 A 1





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **Add-On5**

Barcode type: Add-on5 (EAN/UPC Addendum 5)

Length: fixed - 5 digits

Valid characters: numeric only

check digits: no

ratio oriented: yes

Add-On5 is an addendum code which is used together with EAN or UPC barcodes. Mainly used for books (ISBN number) and magazines to display the magazine publication release or the price.

The size must fit to the printed size of the EAN or UPC code. We recommend to use SC sizes with this barcode.

Syntax:

```
B[:name;]x,y,r,ADDON5,[+options],height,ne;text CR
```

[+options] = +BARS,

Prints boundary lines above and below the barcode.

SCx,

sets the size of the barcode to a defined standard code size. x is a numeric value (0-9) and the possible barcode size depends on the printer's resolution. Used instead of height and ne (narrow element).



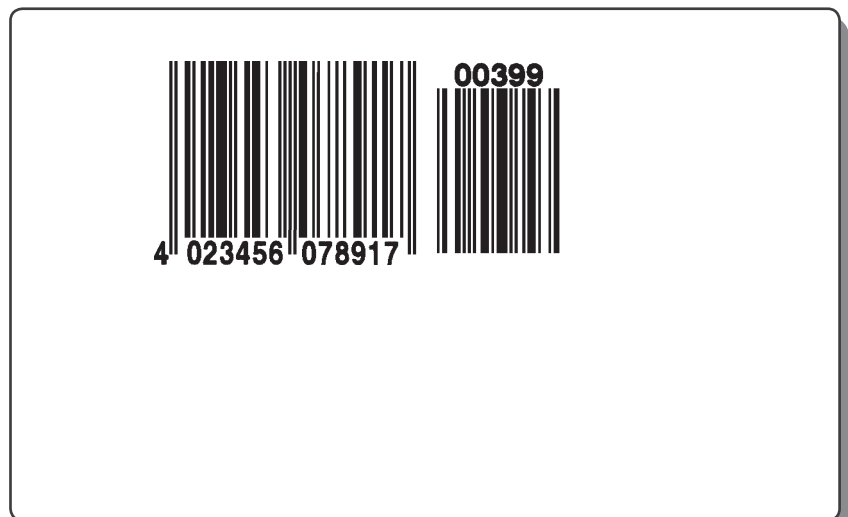
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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **Add-On5**

Example:

```
J
S 11;0,0,68,71,100
B 10,5,0,EAN13, SC2;402345607891
B 45,5,0,ADDON5, SC2;00399
A 1
```





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **Aztec - Code**

Barcode type: Aztec - Code

Length: 2D - Code with variable
Valid characters: alphanumeric

Aztec Code is a 2 - dimensional matrix symbol developed by Welch Allyn. It was designed using the combination of the best characteristics of the first generation 2D codes.

Syntax:

B[:name;]x,y,r,**AZTEC**, [+ELn],dotsize;text CR

+ELxx Error levels are set by this value. Possible error levels: 5-95
Default error level: 23
The barcode size is influenced by the dotsize and the error level

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **Aztec - Code**

Example:

```
J
S 11;0,0,68,71,100
B 5, 5,0,Aztec+EL55,1;CAB Produkttechnik GmbH & Co KG
B 45,5,0,Aztec+EL90,0.6;CAB Produkttechnik GmbH & Co KG
A 1
```

The same barcode contents with variations on error level and dot size.





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **Codabar**

Barcode type: Codabar

Length:	variable
Valid characters:	numeric, special characters: - \$: / . + and special start stop codes (A,B,C,D)
check digits:	yes (Mod 16)
ratio oriented:	yes

Each character of this barcode is built with 7 elements (bars and spaces), where the spaces do not contain information. Codabar is mostly used in medical environments for photo laboratories and libraries. The exact specifications are described in the Norm: EN 798. The start and stop characters are additionally A,B,C or D.

Syntax:

```
B[[:name;]x,y,r,CODABAR[+options], height,ne,ratio; text CR
```

[+options] = **+WSarea**,

White Space area prints quiet zone markers around the barcode, to make sure that the barcode can be read after printing. This option is for design purposes only and should be removed after the label is programmed.

+MODxx,

offers the possibility to add a modulo check digit to the barcode.

+BARS,

Prints boundary lines above and below the barcode. Can be used for a better readability. Helps to avoid incorrect readings of this barcode.

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **Codabar**

Example:

```
J
S 11;0,0,68,71,100
B 5, 5,0,CODABAR, 12,.3,3;A12345678A
B 5,20,0,CODABAR, 12,.3,3;A23456789C
B 5,35,0,CODABAR+MOD16,12,.3,3;A13572468C
A 1
```





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **Codablock F**

Barcode type: Codablock F

Length:	variable
Valid characters:	alpha numeric, max. 2725 Characters
	stacked barcode
check digits:	yes (Mod 43)
ratio oriented:	no

Codablock F: Based on the structure of Code 128, can consist of 2 - 44 lines in a length of 4-62 characters. Requires big space for printing. Codablock was developed at a time where more information needed to be encoded in a barcode, before 2D codes existed. Today Codablock F is a seldom used barcode, as 2D codes offer better compression and smaller sizes.

Syntax:

```
B[ :name; ]x,y,r, CODABLOCKF, height,module,ratio; text CR
```

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **Codablock F**

Example:

```
J
S 11;0,0,68,71,100
B 5, 5,0,CODABLOCKF,12,.3,3;CAB Produkttechnik GmbH & Co KG
A 1
```



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **Code 39**

Barcode type: Code 39 (Code 3 of 9)

Length:	variable
Valid characters:	alphanumeric, uppercase A-Z, digits: 0-9, special characters: \$ / + % . - and space
check digits:	no
ratio oriented:	yes

Code39 is designed to encode 26 upper case letters, 10 digits and 7 special characters: Start/ Stop characters are added automatically. Invalid characters are automatically transformed into spaces. Start/stop characters will be printed as " * " when the option +XHRI (Extended Human Readable Interpretation) is used. Most common ration for this barcode is 3:1 . cab printers automatically convert lower case letters into upper case letters, if lower case letters are keyed in.

Syntax:

```
B[ :name; ]x, y, r, CODE39[+options], height, width, ratio; text CR
```

[+options] = +WSarea,

White Space area prints quiet zone markers around the bar code, to make sure that the barcode can be read after printing. This option is for design purposes only and should be removed after the label is programmed.

+XHRI,

+XHRI (Extended Human Readable Interpretation) adds start and stop characters.



Code 39 is also used for the PZN number (Pharma Zentral Nummer) - a specific number which is used for german pharmacie products. The PZN number is a 7 digit number which uses Modulo 11 as check digit.

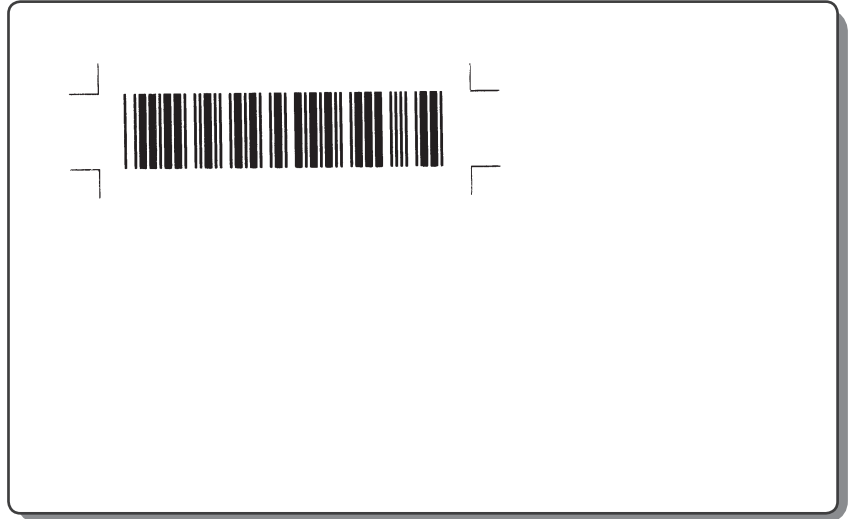
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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode Code 39

Example:

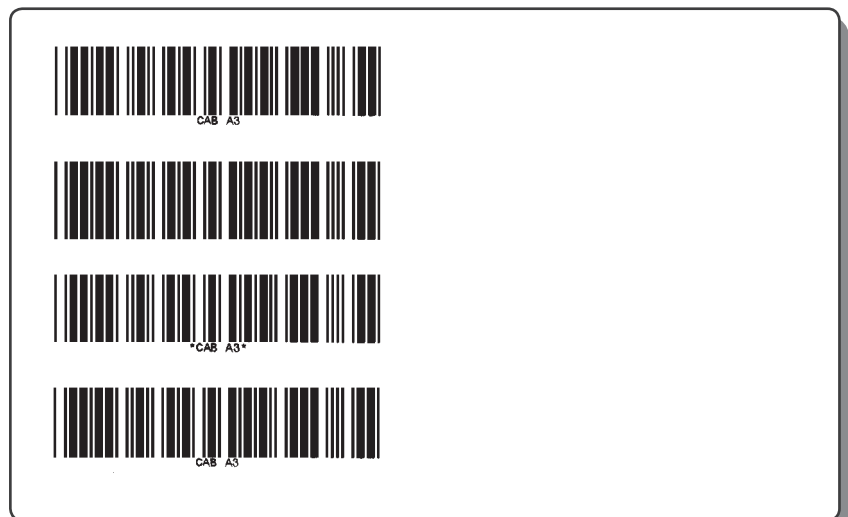
This barcode shows the functionality of the WSarea



Example:

```
J
S 11;0,0,68,71,100
B 5, 5,0, CODE39,10,0.3,3;CAB A3
B 5,20,0,code39,10, .3,3;CAB A3
B 5,35,0, CODE39+XHRI,10,0.3,3;CAB A3
B 5,50,0, CODE39,10, .3,3;cab A3
A 1
```

This example shows how the barcode varies with different options





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **Code 39 FULL ASCII**

Barcode type: Code 39 (Code 3 of 9)

Length:	variable
Valid characters:	alphanumeric, Full ASCII
check digits:	no
ratio oriented:	yes

Code 39 Extended – this encoding variant allows the full ASCII table, 128 characters to be encoded. Start/ Stop characters are added automatically. Invalid characters are automatically transformed into spaces.

Start/stop characters will be printed as " * " when the option +XHRI (Extended Human Readable Interpretation) is used. Most common ration for this barcode is 3:1 .

cab printers automatically convert lower case letters into upper case letters, if lower case letters are keyed in.

Syntax:

```
B[ :name; ]x,y,r, CODE39 [+options], height,width, ratio;text CR
```

[+options] = +WSarea,

White **S**pace **a**rea prints quiet zone markers around the bar code, to make sure that the barcode can be read after printing. This option is for design purposes only and should be removed after the label is programmed.

+XHRI,

+XHRI (Extended Human Readable Interpretation) adds start and stop characters.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **Code 39 FULL ASCII**

Example:

```
J
S 11;0,0,68,71,100
B 30, 30,0, CODE39FULL,10,0.3;CAB A3[U:CR]
A 1
```





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **Code 93**

Barcode type: Code 93

Length:	variable
Valid characters:	alphanumeric, encodes all 128 ASCII characters including control characters
check digits:	yes
ratio oriented:	no

Code 93 is a alphanumeric barcode which can contain all 128 ASCII characters including the control characters. The checksum is automatically calculated by the cab printers.

Syntax:

```
B[:name;]x,y,r,CODE93, [+options], height,narrow;text CR
```

[+options] = +BARS,

Prints boundary lines above and below the barcode.

+XHRI,

+XHRI (Extended Human Readable Interpretation) prints the start and stop characters as a square to the human readable text.

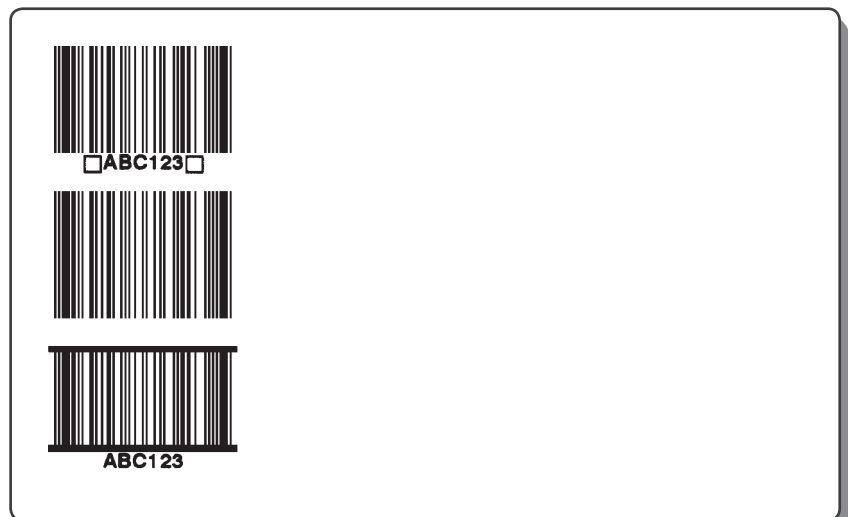
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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **Code 93**

Example:

```
J
11;0,0,68,71,100
B 5, 5,0, CODE93+XHRI,16, .28,3;ABC123
B 5,24,0, code93, 16, .28,3;ABC123
B 5,44,0, CODE93+BARS, 16, .28,3;ABC123
A 1
```





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **Code 128**

Barcode type: Code 128

Length:	variable
Valid characters:	all 128 ASCII characters
check digits:	yes (MOD 103)
ratio oriented:	no

Code 128 has a modulo 103 check digit which is the standard check digit of this barcode. An additional check digit can be added with the +MOD option if required.

Code 128 consists of 3 code subsets. cab printers select automatically the best subset of this barcode as described in the code 128 specification. The best subset is the subset with the highest data compression as described in the original specs of code128.

Subcode A

contains uppercase alphanumeric characters, special characters and control characters. The printer can be forced to use subcode A with the option: [U:CODEC] in the barcode text string.

Subcode B

contains all standard characters, upper case, lower case, special characters and control characters. Subset B is the default value when data is transmitted. The printer can be forced to use subcode B with the option: [U:CODEB] in the barcode text string.

Subcode C

is used to encode exceptional numeric values with a good compression rate.

Encodes pairs of numbers.

The printer can be forced to use subcode C with the option: [U:CODEC] in the barcode text string.

Syntax:

B[:name;]x,y,r, **CODE128** [+options], height,ne; [U:subcode]text CR

Height is the barcode height and ne is the narrow element.

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode Code 128

[+options] = +WSarea,

White Space area prints quiet zone markers around the bar code, to make sure that the barcode can be read after printing. This option is for design purposes only and should be removed after the label is programmed.

+MODxx,

offers the possibility to add a modulo check digit to the barcode.

+BARS

Prints boundary lines above and below the barcode. Can be used for a better readability. Helps to avoid erroneous readings of the barcode.

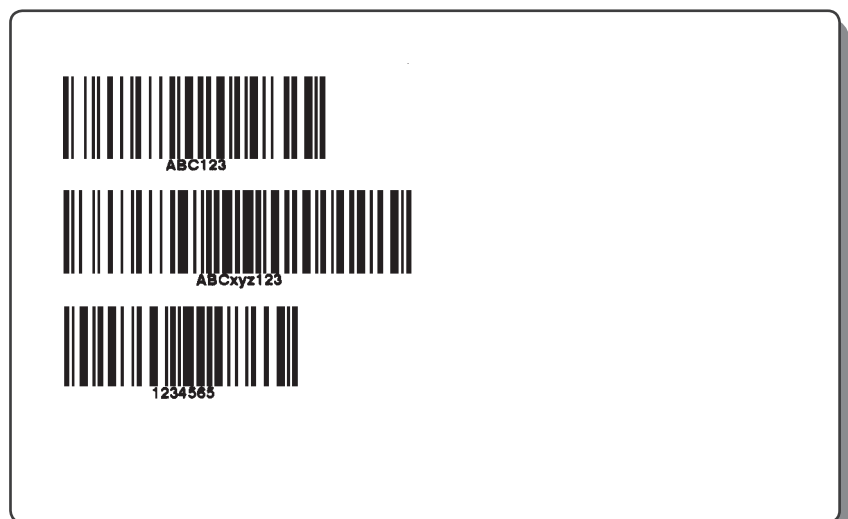
[U:subcode]

Enables the selection of a specific subcode, otherwise it is selected by the printer's internal intelligence.

Valid input: [U:CODEA], [U:CODEB] or [U:CODEC]

Example:

```
J
S 11;0,0,68,71,100
B 5, 5,0,CODE128, 12, .3;ABC123
B 5,20,0,CODE 128,12, .3;ABCxyz123
B 5,35,0,CODE128+MOD10, 12, .3;[U:CODEC]123456
A 1
```





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **Data Matrix**

Barcode type: Datamatrix

Length:	2D - Barcode - up to 2335 ASCII characters
Valid characters:	alpha numeric all 128 ASCII characters

The Data Matrix symbol is a 2 Dimensional symbology used to encode large amounts of text and data securely and inexpensively. Up to about 2335 ASCII characters can be encoded in a Data Matrix symbol. We recommend to limit this to maximum 800 characters, as the most 2D barcode readers have problems to decode symbols which use a higher amount of data.

The cells of a Data Matrix code are made up of square modules that encode letters, numbers, text and actual bytes of data, and encode just about anything including extended characters, unicode characters and photos.

The encoding and decoding process of Data Matrix is very complex and several methods have been used for error correction in the past. ECC200 is the newest and most standard version of data matrix error correction. It supports advanced encoding and error checking with Reed Solomon error correction algorithms. These algorithms allow the recognition of barcodes that are up to 60% damaged.

Syntax:

```
B[ :name; ]x,y,r,DATAMATRIX [+RECT],height;text CR
```

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode Data Matrix

Example:

```
J
S 11;0,0,68,71,100
B 25, 5,0,DATAMATRIX,1;30Q324343430794<OQQ
B 60, 5,0,DATAMATRIX+RECT+WS2,1;cab Produkttechnik
B 25,35,0,DATAMATRIX,1;[U:PROG]
B 60,35,0,DATAMATRIX+WS2,1;[U:ANSI_AI]cabProdukttechnik
A 1
```





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **DBP - German Post Identcode**

Barcode type: DBP - German Post Identcode Code
(**DBP** - Ident- und Leitcode der Deutschen Bundespost)

Length:	11 or 13 digits
Valid characters:	numeric,
check digits:	yes
ratio oriented:	yes

Developed by the Deutsche Post AG for automated sorting of mails. Base code is a 2of 5 interleaved barcode with the fixed length of 11 or 13 digits and an additional check digit.

cab printers convert invalid characters automatically into zeroes, while the human readable shows a hash sign.

Syntax:

```
B[ :name; ]x, y, r, DBP[+options], height, ne, ratio; text CR
```

[+options] = +WSarea,

White Space area prints quiet zone markers around the bar code, to make sure that the barcode can be read after printing. This option is for design purposes only and should be removed after the label is programmed.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **DBP - German Post Identcode**

Example:

```
J
S 11;0,0,68,71,100
B 5,10,0,DBP,10,.3;2134807501640
B 60,10,0,DBP,10,.3;56.310.243.031
A 1
```



21348.075.016.40 1



56.310.243.031 3



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **EAN-8 / JAN-8**

Barcode type: EAN-8 / JAN-8 (European / Japanese Article Numbering)

Length:	fixed - 8 digits
Valid characters:	numeric, digits: 0-9,
check digits:	yes
ratio oriented:	no

The EAN 13 code is used in retail environment in Europe with a fixed length of 8 digits. The 8th digit contains the calculated checksum. cab printers expect 7 digits, while the 8th digit is calculated by the printer.
JAN 8 is the japanese version of EAN 8.

Syntax:

```
B[:name;]x,y,r,EAN8[+Options],height,ne;text CR
```

[+options] = +WSarea,

White Space area prints quiet zone markers around the bar code, to make sure that the barcode can be read after printing. This option is for design puposes only and should be removed after the label is programmed.

+XHRI,

+XHRI (Extended Human Readable Interpretation) Reduces the size of the barcode (see the example)

Height and narrow element (ne) can be replaced by an SC value(see example on the next page)

SCx,

sets the size of the barcode to a defined standard code size. x is a numeric value (0-9) and the possible barcode size depends on the printer's resolution. Used instead of height and ne (narrow element)



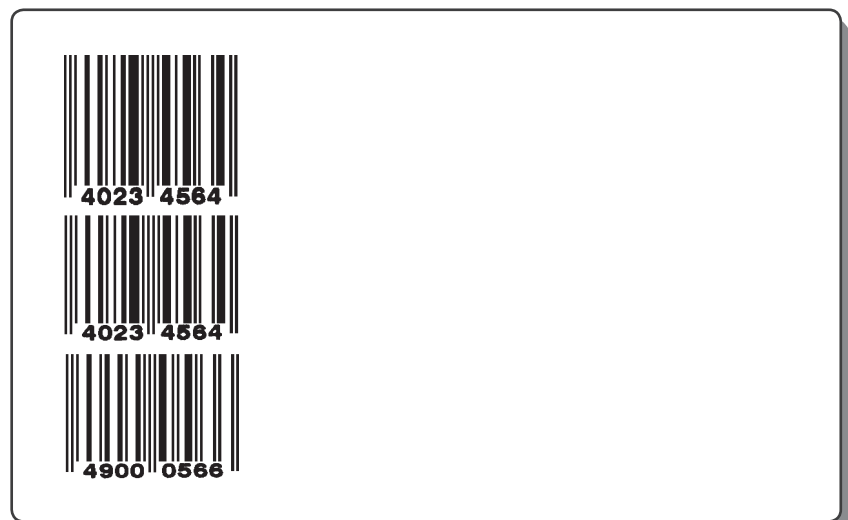
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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **EAN-8 / JAN-8**

Example:

```
J
S 11;0,0,68,71,100
B 10, 5,0,EAN8, SC1;4023456
B 10,26,0,EAN8,16, .35;4023456
B 10,44,0,JAN8,16, .35;4900056
A 1
```





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **EAN-13 / JAN-13**

Barcode type: EAN-13 / JAN-13 (European / Japanese Article Numbering)

Length:	fixed - 13 digits
Valid characters:	numeric, digits: 0-9,
check digits:	yes
ratio oriented:	no

The EAN 13 code is used in retail environment in Europe with a fixed length of 13 digits. The 13th digit contains the calculated checksum. cab printers expect 12 digits, while the 13th digit is calculated by the printer.
JAN 13 is the japanese version of EAN 13.

Syntax:

```
B[:name;]x,y,r,EAN13[+Options],height,ne;text CR
```

[+options] = +WSarea,

White Space area prints quiet zone markers around the bar code, to make sure that the barcode can be read after printing. This option is for design purposes only and should be removed after the label is programmed.

+XHRI,

+XHRI (Extended Human Readable Interpretation) Reduces the size of the barcode (see the example)

+NOCHECK

suppresses the check digit calculation for variable weight (EAN 13 with specific start numbers :21, 24...29)

Height and narrow element (ne) can be replaced by an SC value(see example on the next page)

SCx,

sets the size of the barcode to a defined standard code size. x is a numeric value (0-9) and the possible barcode size depends on the printer's resolution. Used instead of height and ne (narrow element)

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode EAN-13 / JAN-13

Example:

```
J
S 11;0,0,68,71,100
B 10, 5,0,EAN13, SC1;402345607891
B 10,30,0,EAN13,16,.35;270072610950
B 10,48,0,JAN13,16,.35;490005607891
A 1
```





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **EAN 128 / UCC 128**

Barcode type: EAN 128 / UCC128

Length:	variable
Valid characters:	ASCII characters
check digits:	yes (Mod 103)
ratio oriented:	yes

EAN = European Article Numbering

UCC = Uniform Code Council

EAN 128 / UCC 128 is based on Code 128 and contains shipping information.

It has very specialized contents which are described in the barcode specs of the responsible organisation. This huge amount of rules have to be used to create this barcode.

EAN 128/UCC 128 contains application identifiers which are clearly described in these specs. This barcode needs additionally a start code and some so called Application identifiers (AI).

The application identifiers are described in the barcode specifications. Allowed data contents which follows after the application identifiers depend on the application identifier its self. Do not use this barcode unless you have read the specification !!

Syntax:

```
B[:name;]x,y,r,EAN128, [+options], height,ne; text CR
```

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **EAN 128 / UCC 128**

Example:

```
J
S 11;0,0,68,71,100
B 5, 5,0,EAN128,12,.3;(00)345678901234567890
B 5,20,0,UCC128,12,.3;(00)345678901234567890
B 5,35,0,EAN128, 12,.3;(00)345678901234567890
A 1
```



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **EAN-18 / NVE / SSCC-18 ***

Barcode type: EAN-18 / NVE / SSCC-18 based on (EAN 128 / UCC128)

Length:	18 digits
Valid characters:	ASCII characters
check digits:	yes (Mod 10)
ratio oriented:	yes

EAN = European Article Numbering
 NVE = Nummer der Versandeinheit (German name for this code)
 SSCC = Serial Shipping Container Code

The EAN-18 / NVE / SSCC-18 is used throughout the supply chain as an identifier for product tracing and internal control. It consists always of 18 digits. There is no special command available, as this code is based on EAN 128. We added this description, as we got multiple requests for that barcode type.

Please see also EAN 128/UCC 128.

Structure:

- The first 2 numbers are the Application Identifier of the EAN-128: (00).
- The first digit of the data field is the extension digit. Currently a „3“ is standard.
- The next 7 digits is the company prefix.
- The following 9 digits are the serial reference number.
- The last digit is the check digit.

Syntax:

```
B[:name;]x,y,r,EAN128,height,ne;text CR
```



Do not use this barcode unless you have read the specification, available at the EAN organisation in your country !!



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode EAN-18 / NVE / SSCC-18 *

Example:

J
 S 11;0,0,68,71,100
 B 5,20,0,EAN128,20,.3;(00)1006530055555558
 A 1





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **FIM**

Barcode type: FIM (Facing Identification Mark)

Length:	fixed
Valid characters:	A,B,C or D
check digits:	yes (Mod 16)
ratio oriented:	yes

FIM Code is a barcode which is used by some postal organisations and contains only 4 patterns: A, B, C or D. FIM (Facing Identification Mark) is designed for automatic mail sorters.

Syntax:

```
B [:name;]x,y,r,FIM, [+options],height,ne;text CR
```

[+options] = +WSarea,

White Space area prints quiet zone markers around the barcode, to make sure that the barcode can be read after printing. This option is for design purposes only and should be removed after the label is programmed.

+BARS,

Prints boundary lines above and below the barcode. Can be used for a better readability. Helps to avoid erroneous readings of this barcode.

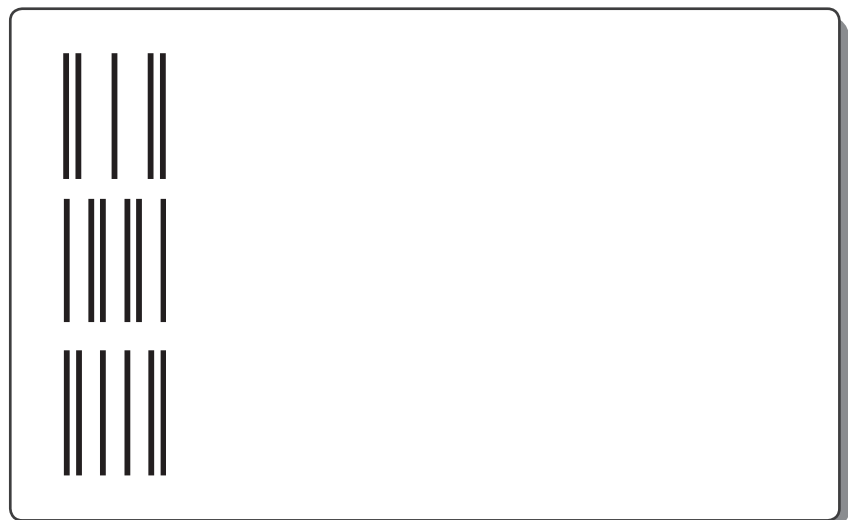
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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **FIM**

Example:

```
J
S 11;0,0,68,71,100
B 5, 5,0,FIM,16,.3,3;A
B 5,24,0,FIM,16,.3,3;B
B 5,44,0,FIM, 16,.3,3;C
A 1
```





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **HIBC (Health Industry Barcode)**

Barcode type: HIBC

Length:	variable
Valid characters:	alphanumeric, uppercase A-Z, digits: 0-9, special characters: \$ / + % .- and space
check digits:	yes (Mod 43)
ratio oriented:	yes

HIBC (Health Industry Barcode) is a modified Code 39 with a modulo 43 check digit and added start and stop characters. Leading "+" characters need to be added manually to the data string.

Syntax:

```
B[:name;]x,y,r,HIBC[+options],height,width,ratio;text CR
```

[+options] = +WSarea,

White Space area prints quiet zone markers around the barcode, to make sure that the barcode can be read after printing. This option is for design purposes only and should be removed after the label is programmed.

+BARS,

Prints boundary lines above and below the barcode. Can be used for a better readability.

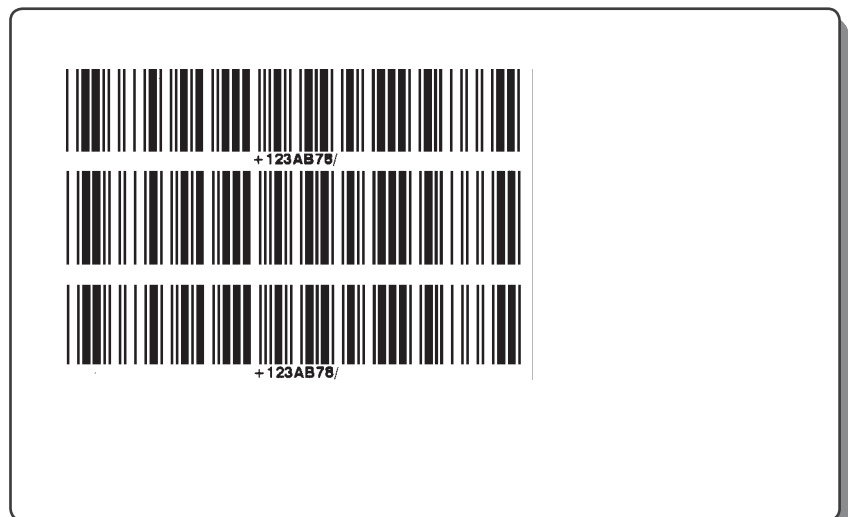
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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **HIBC (Health Industry Barcode)**

Example:

```
J
S 11;0,0,68,71,100
B 5, 5,0,HIBC,12,.3,3;+123AB78
B 5,18,0,hibc,12,.3,3;+123AB78
B 5,33,0,HIBC, 12,.3,3;+123AB78
A 1
```



command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **ITF-14 *** / **SCC-14 ***

Barcode type: ITF-14 (This code is based on the "2 of 5 Interleaved" barcode)
 SCC-14 (Shipping container code - same barcode type)

Length:	14 digits
Valid characters:	numeric, digits: 0-9,
check digits:	Modulo 10
ratio oriented:	yes Encodes numbers in pairs

The ITF-14 is not an independently barcode. The name ITF-14 is a composition of the interleaved 2 of 5 barcode. Therefore it is no separate command available.

Here is how it works:

ITF-14 is based on the 2 of 5 interleaved (interleaved 2/5) barcode and has some restrictions. The length of this code is 14 digits fixed length. It is a numerical barcode which encodes the numbers pairwise. The first digit is a number which describes the "logistic variant" (Packaging indicator), followed by the contents of an EAN-13 barcode (12 digits). The last digit is the Mod 10 check digit.

Syntax:

B[:name;]x,y,r,**2OF5INTERLEAVED**[+options],height,ne,ratio;textCR

[+options] = +WSarea,

White Space area prints quiet zone markers around the barcode, to make sure that the barcode can be read after printing. This option is for design purposes only and should be removed after the label is programmed.

+MOD10,

needs to be used for the MOD 10 check digit calculation

+BARS

Prints boundary lines above and below the barcode. Can be used for a better readability. Helps to avoid incorrect readings of this barcode.



* This barcode type is based on the interleaved 2 of 5 barcode.
 We highly recommend to read the original specification of this barcode.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **ITF-14 *** / **SCC-14 ***

Example:

```
J
S 11;0,0,68,71,100
B 5,20,0,2 OF 5 INTERLEAVED+MOD10,30,.3,3;3071234567890
A1
```





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **Maxicode**

Barcode type: MaxiCode

Length: 2D
Valid characters: alphanumeric

Uses different Modes
Used for transportation industry

Maxicode is a fixed-size matrix barcode which prints hexagonal dots around a circled finder pattern with omnidirectional readability. This barcode is mostly used by UPS for package tracking.

Following modes are available:

Mode 2 - developed for the transport industry, Mode 2 encodes zip codes as numeric data. Usage in USA.

Mode 3 - developed for the transport industry, Mode 3 encodes zip codes as alphanumeric data. Usage international

Mode 4 - encodes text messages and has a fixed length of 93 characters

Mode 6 - encodes also text messages of 93 characters. This mode is used for programming the barcode reader.

Syntax:

```
B[:name;]x,y,r,MAXICODE [+MODE]; [ZIPCODE], [COUNTRY], [SERVICE],  
. . . . . [TEXT] CR
```

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

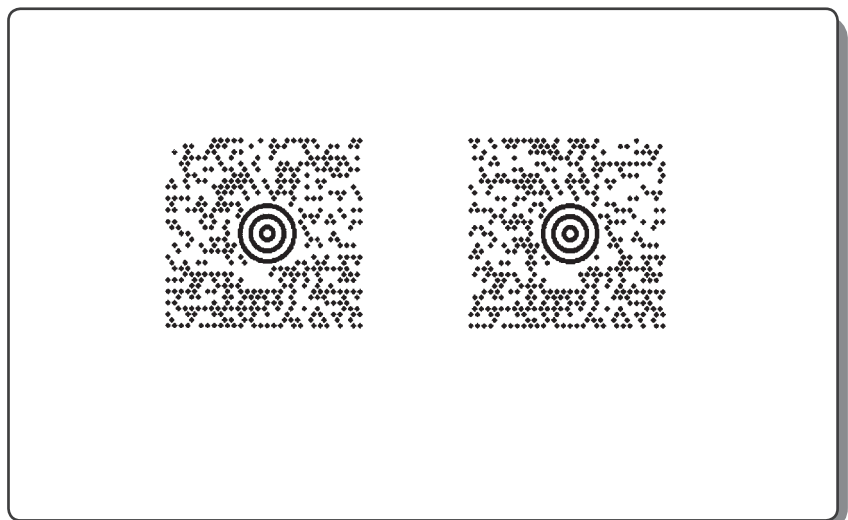
B - Barcode **Maxicode**

Example: ; UPS Maxicode certification labels

```
J sample message 1
O R
S 11;0,0,68,70,100
B 20,25,0,maxicode+mode2;[U:ANSI_TM]96841706672,840,024,1Z123
45677[U:GS]UPSN[U:GS]12345E[U:GS]100[U:GS][U:GS]1/2[U:GS]12[U:
GS]N[U:GS]123 MAIN ST B3F4[U:GS]SALT LAKE CITY[U:GS]UT[U:RS]

;sample message 2
B 60,25,0,maxicode+mode2;[U:ANSI_TM]9684170,840,024,1Z12345677[
U:GS]UPSN[U:GS]12345E[U:GS]100[U:GS][U:GS]1/2[U:GS]12[U:GS]N[U:
GS]123 MAIN ST B3 F4[U:GS]SALT LAKE CITY[U:GS]UT[U:RS]
A 1
```

Please note that there is only a carriage return at the end of the barcode contents and not in the barcode expression.
Based on the length of the encoded information it was not possible to display this in another way.





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **Maxicode**

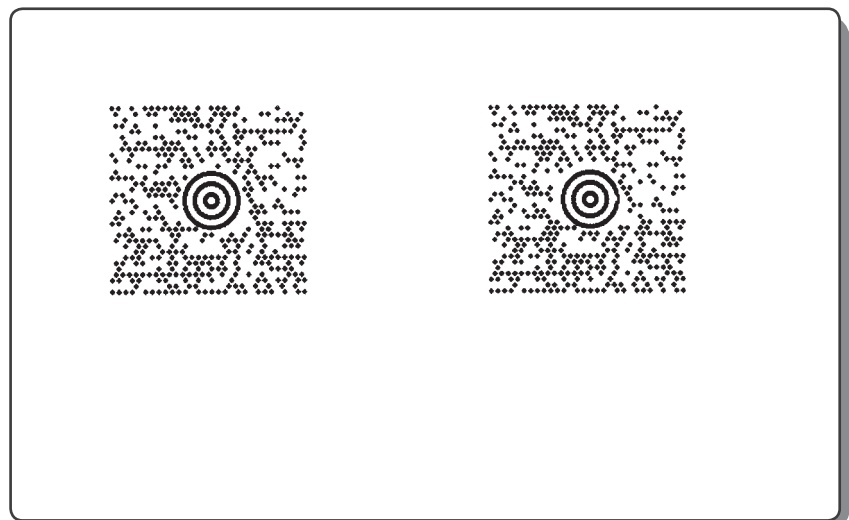
Example:

```

m m
J sample message 3
OR
H 20
S 11;0,0,68,70,100
B 15,14,0,maxicode+mode3;[U:ANSI_TM]96123ABC,222,024,1Z12345
677[U:GS]UPSN[U:GS]12345E[U:GS]100[U:GS][U:GS]1/2[U:GS]12[U:
GS]N[U:GS]123 MAIN ST B3 F4[U:GS]SALT LAKE CITY[U:GS]UT[U:RS]
;sample message 4
B 65,14,0,maxicode+mode3;[U:ANSI_TM]9612AB,222,024,1Z12345677[U
:GS]UPSN[U:GS]12345E[U:GS]100[U:GS][U:GS]1/2[U:GS]12[U:GS]N[U:
GS]123 MAIN ST B3 F4[U:GS]SALT LAKE CITY[U:GS]UT[U:RS]
A 1

```

Please note that there is only a carriage return at the end of the barcode contents and not in the barcode expression.
Based on the length of the encoded information it was not possible to display this in another way.





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **Maxicode**

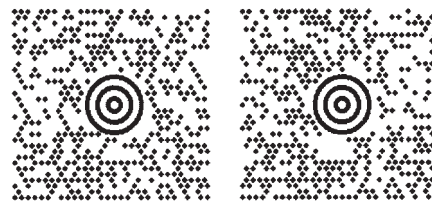
Example:

```

m m
J sample message 5
OR
H 20
S 11;0,0,68,70,100
B 20,14,0,maxicode+mode3;[U:ANSI_TM]96123ABCD,222,024,Z12345
677[U:GS]UPSN[U:GS]12345E[U:GS]100[U:GS][U:GS]1/2[U:GS]12[U:
GS]N[U:GS]123 MAIN ST B3F4[U:GS]SALT LAKE CITY[U:GS]UT[U:RS]
;sample message 6
B 50,14,0,maxicode+mode2;[U:ANSI_TM]9612345678,840,024,1Z1234
5677[U:GS]UPSN[U:GS]12345E[U:GS]100[U:GS][U:GS]1/2[U:GS]12[U:
GS]N[U:GS]123 MAIN ST B3 F4[U:GS]SALT LAKE CITY[U:GS]UT[U:RS]
A 1

```

Please note that there is only a carriage return at the end of the barcode contents and not in the barcode expression.
Based on the length of the encoded information it was not possible to display this in another way.





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **Micro PDF 417**

Barcode type: Micro PDF 417

Length:	2D - Code
Valid characters:	ASCII characters (more than 1000 bytes)

Micro PDF 417 is a multi-row symbology based on PDF 417 and designed for applications requiring a greater area efficiency but lower data capacity than PDF417. Micro PDF 417 has a fixed level of error correction.

MicroPDF417 provides for three encoding modes: Text Byte and Numeric compaction. Text is for general text Numeric for encoding data consisting only of digits and Byte to allow for the first 127 ASCII characters but with a reduced level of efficiency. Four symbol widths are permitted each specifying the number of data columns (1 – 4). Within each symbol width a variable number of rows provide for a maximum data capacity of:

Text compaction mode 0: 250 characters (2 data characters per codeword)

Byte compaction mode 1: 150 characters (1.2 data characters per codeword)

Numeric compaction mode 2: 366 characters (2.93 data characters per codeword)

The Level parameter for MicroPDF barcodes set the number of data columns within the barcode which may be 1 – 4.

Syntax:

```
B[:name;]x,y,r,Micro+COLSx],height,ne,ratio;text CR
```



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **Micro PDF 417**

Barcode type: Micro PDF-417

Example:

```
J
S 0,0,68,71,100
B 10,10,0,Micro+COLS2,3,.5;cab Produkttechnik
A 1
```





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **MSI (MSI Plessey)**

Barcode type: MSI (MSI Plessey)

Length:	variable
Valid characters:	numeric,
check digits:	yes (Mod 10)
ratio oriented:	yes

The MSI Plessey code is a numeric barcode with variable length and a modulo 10 check digit which is automatically added by the printer. Additional modulo check digits can be added to this code.

Syntax:

```
B[:name;]x,y,r,MSI[+options],height,ne,ratio;text CR
```

[+options] = +WSarea,

White Space area prints quiet zone markers around the barcode, to make sure that the barcode can be read after printing. This option is for design purposes only and should be removed after the label is programmed.

+MODxx,

offers the possibility to add a modulo check digit to the barcode.

+BARS,

Prints boundary lines above and below the barcode. Can be used for a better readability. Helps to avoid erroneous readings of this barcode.



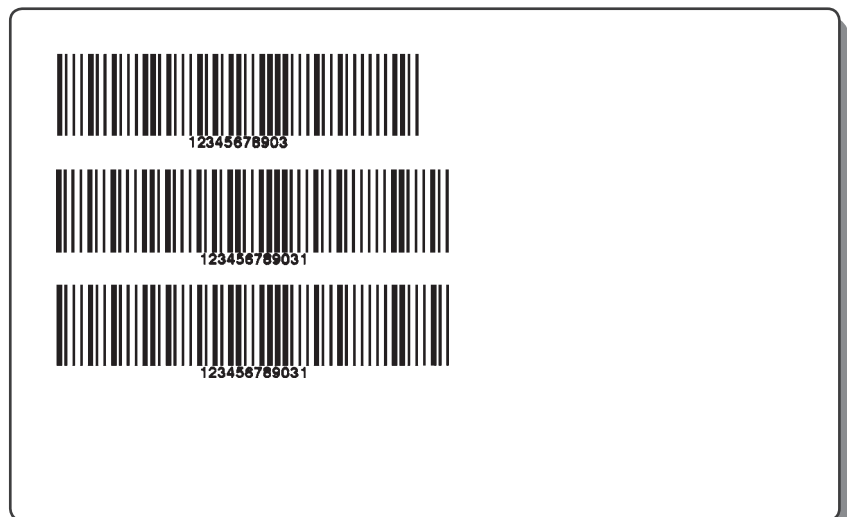
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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **MSI (MSI Plessey)**

Example:

```
J
S 11;0,0,68,71,100
B 5, 5,0,MSI,12, .3,2;1234567890
B 5,20,0,MSI+MOD10,12,.3,2;1234567890
B 5,35,0,MSI+MOD11,12,.3,2;1234567890
A 1
```





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode PDF 417

Barcode type: PDF-417

Length: 2D - Barcode
Valid characters: alphanumeric

PDF417 is a high-capacity two dimensional bar code. A PDF417 symbol can hold approximately 2000 characters of information.

The key characteristic of PDF417 is its large information capacity. This also explains its name. "PDF" stands for Portable Data File. PDF417 is designed with enough capacity to contain an entire data file of information.

PDF417 is used today in a wide variety of applications, including logistics & transportation, retailing, healthcare, government, identification, and manufacturing

PDF417 uses error levels to ensure a good reading quality.

Syntax:

B[:name;]x,y,r,PDF417[+WSarea,][+ELxx,]height,ne,ratio;text CR

+WSarea,

White **S**pace **a**rea prints quiet zone markers around the bar code, to make sure that the barcode can be read after printing. This option is for design purposes only and should be removed after the label is programmed.

+ELxx

Error levels are set by this value. Possible error levels: 1-8.

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode PDF 417

Example:

```
J
S 11;0,0,68,71,100
B 2, 5,0,PDF417+EL0,.1,.38,1;cab Produkttechnik
GmbH[U:13][U:10]Wilhelm Schickard Strasse[U:13][U:10]D-76131
Karlsruhe
B 2,35,0,PDF417+EL3,.1,.38,1;cab Produkttechnik
GmbH[U:13][U:10]Wilhelm Schickard Strasse [U:13][U:10]D-76131
Karlsruhe
A 1
```





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode Plessey

Barcode type: Plessey

Length:	variable
Valid characters:	A-F and 0-9
check digits:	no
ratio oriented:	no

Plessey Barcode is a seldom used barcode which encoding possibilities are limited, as only numbers and 6 characters are encoded

Syntax:

```
B[:name;]x,y,r,PLESSEY,[+options],height,ne,ratio;text CR
```

[+options] = +WSarea,

White **S**pace **a**rea prints quiet zone markers around the barcode, to make sure that the barcode can be read after printing. This option is for design purposes only and should be removed after the label is programmed.

+BARS,

Prints boundary lines above and below the barcode. Can be used for a better readability. Helps to avoid erroneous readings of this barcode.

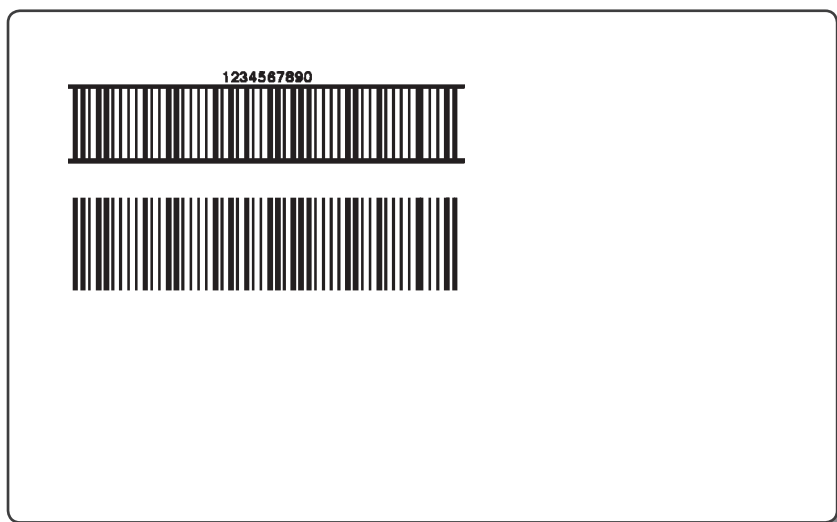
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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **Plessey**

Example:

```
J
S 11;0,0,68,71,100
B 5,20,0,PLESSEY+BARS,12,.3,2;1234567890
B 5,35,0,plessey,12,.3,2;1234567890
A 1
```





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode Postnet

Barcode type: Postnet

Length:	variable - normally 9 characters
Valid characters:	numeric,
check digits:	no
ratio oriented:	no

Postnet is a barcode which is exclusively used in USA by the US Post Service. It contains data to route letters to the correct location.

Syntax:

```
B[:name;]x,y,r,POSTNET,[+options];text CR
```

[+options] = +WSarea,

White Space area prints quiet zone markers around the bar code, to make sure that the barcode can be read after printing. This option is for design purposes only and should be removed after the label is programmed.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode Postnet

Example:

```
J
S 11;0,0,68,71,100
B 10, 5,0,postnet,20,.35;442120798
B 10,20,0,POSTNET,      20,.35;441361234
A 1
```



command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **PZN-Barcode ***

Barcode type: PZN-Code (Special version of Code 39 (Code 3 of 9))

Length:	7 Digits
Valid characters:	numerical digits: 0-9,
check digits:	no
ratio oriented:	yes

PZN (Pharma-Zentral-Nummer) is a code for medicine identification in Germany. In Germany it's issued by the " Informationsstelle für Arzneispezialitäten GmbH", Frankfurt , Germany.

The PZN is based on Code39 and has a fixed length of 7 digits. The last digit is a check digit. It uses the Code39-start sign „*“ in combination with „-“ as the start sign. The stop sign is the standard code39 stop sign „*“. These start and stop signs and the characters „PZN „ do not need to be entered in order to produce a PZN because they are a fixed part of the PZN. The characters „PZN“ are not coded in the barcode.

Syntax:

```
B[:name;]x,y,r, CODE39 [+options],height,width,ratio;text CR
```

[+options] = +WSarea,

White Space area prints quiet zone markers around the bar code, to make sure that the barcode can be read after printing. This option is for design purposes only and should be removed after the label is programmed.

+XHRI,

+XHRI (Extended Human Readable Interpretation) adds start and stop characters.



* PZN-Code is a special version of Code 39

* It is highly recommended to contact the responsible organisation to get the complete description for this barcode. The responsible organisation may charge licenses for the usage of this code



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **PZN-Barcode ***

Example:

```
J
H 100,8
S 11;0,0,68,71,100
B 5,17,0,code39,10,0.2,3;-1578675
T 9,30,0,3,3;PZN-1578675
A 1
```

This example was printed without human readable characters. The human readable characters have been added in a separate text line to setup the text in a specific size.



PZN-1578675

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode QR-Code

Barcode type: QR-Code

Length: 2DCode
 Valid characters: alpha numeric
 Omni-directional ultra-fast reading
 error correction capability

QR (Quick Response) Code, is a matrix symbology consisting of an array of nominally square cells, allows omni-directional, high-speed reading of large amounts of data. Widely implemented in Japan, used in the automotive industry.

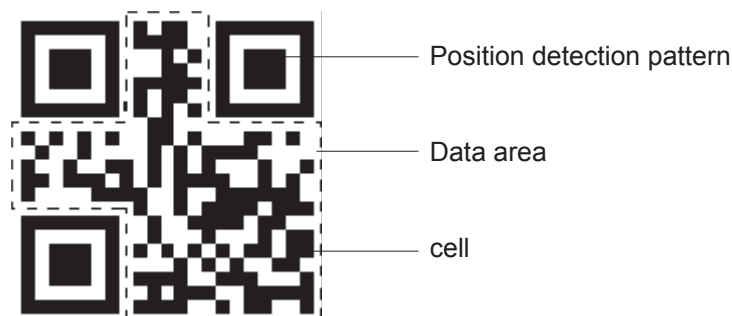
Three Position Detection Patterns in the symbol make omni-directional ultra fast reading possible.

Dirty or damaged symbols can be read

QR Code has error correction capability. Data can be restored even if a part of the symbol has become dirty or been damaged.

The QR Code is capable of handling numeric, alphanumeric, byte data as well as Japanese kanji and kana characters. Some thousand characters can be encoded using this symbol. Therefore, less space is required. The maximum characters depend on the character type (numeric, alphanumeric, kanji ..)

Please refer to the original specification of this barcode before using it.



Syntax:

B[:name;]x,y,r,QRCODE[+ELx][+MODELx],size;text CR

EL = Error Level - valid values: 1-4,L,M,Q,H Default =1
Model = valid input 1 and 2, Default value is 1

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode QR-Code

Example:

```
J
S 11;0,0,68,71,104
B 52,32,0,QRCODE+ELL+MODEL2+WS2,1;Hello world!
B 52,28,90,QRCODE+ELL+MODEL2+WS2,1;Hello world!
B 48,28,180,QRCODE+ELL+MODEL2+WS2,1;Hello world!
B 48,32,270,QRCODE+ELL+MODEL2+WS2,1;Hello world!
G 0,0,0;L:104,3
G 0,65,0;L:104,3
H 150,-5,T
A 5
```



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **RSS-14**

Barcode type: RSS-Code (RSS= Reduced Space Symbology)

Length:	14 digits
Valid characters:	numeric, digits: 0-9,
check digits:	yes
ratio oriented:	no

This compact linear symbol encodes a full 14-digit Global Trade Item Number and, optionally, a code indicating a link with a two-dimensional symbol carrying supplementary information.

It has the ability to encode up to 20 trillion values. There are actually 15 characters that make up the barcode, but only 14 characters are encoded.

The first character is a linkage flag which determines if there is a Composite 2D barcode (see later on the next pages) associated with the bar code. This is the first character encoded and it should not be included in the DataToEncode property.

The control encodes either a "1" (true) or "0" (false) value as the first character in the barcode based on the property of the barcode control.

The next 14 characters in RSS14 are the 13 data characters plus an implied check digit. The check digit is not actually encoded in the barcode (as per the RSS standards), but should be included as part of the DataToEncode property.

If less than 14 characters are entered in the DataToEncode property, zeroes are padded to the front after the linkage flag. Non-numeric characters are stripped from the DataToEncode property.

There is an implied AI for standard for RSS-14 of 01 that should not be part of the DataToEncode.

Syntax:

```
B[:name;]x,y,r,RSS14,height,ne;text CR
```



We highly recommend to read the original specifications of this barcode, before it is used !

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **RSS-14**

Example:

```
J
S 11;0,0,68,71,104
T 5,10,0,5,5;RSS-14
B 10,15,0,RSS14,10,.3;0441234567890
A 1
```

RSS-14





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **RSS-14 composite (CC-A)**

Barcode type: RSS-Code (RSS= Reduced Space Symbology)

Length:	1D Code + 2D Code (Composite code)
Valid characters:	

RSS-14 composite (CC-A) uses a 1D component and a 2D component. For a detailed description please refer to the original description of this code - available at your local UCC / EAN organisation.

Syntax:

```
B[:name;]x,y,r,RSS14,height,ne;text CR
```



We highly recommend to read the original specifications of this barcode, before it is used !

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **RSS-14 composite (CC-A)**

Example:

```
J
S 11;0,0,68,71,104
T 5,10,0,5,5;RSS-14 composite (CC-A)
B 10,15,0,RSS14,16.5,.5;0361234567890[U:2D] (11)990102
A 1
```

RSS-14 composite (CC-A)





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **RSS-14 composite (CC-B)**

Barcode type: RSS-Code (RSS= Reduced Space Symbology)

Length: 1DCode
Valid characters: alpha numeric

RSS-14 composite (CC-B) uses a 1D component and a 2D component. For a detailed description please refer to the original description of this code - available at your local UCC / EAN organisation.

Syntax:

B[:name;]x,y,r,**RSS14**,height,ne;text CR

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **RSS-14 composite (CC-B)**

Example:

```
J
S 11;0,0,68,71,104
T 5,10,0,5,5;RSS-14 composite CC-B
B 10,15,0,RSS14,16.5,.5;0361234567890[U:2D] (21) abcdefghijklmnopqrst
A 1
```

RSS-14 composite CC-B





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **RSS-14 truncated**

Barcode type: RSS-Code (RSS= Reduced Space Symbology)

Length:	14 digits
Valid characters:	numeric, digits: 0-9,
check digits:	yes
ratio oriented:	no
Fixed height - 13 times the size of the	module width

RSS-14 Truncated has the exact same data characteristics as the Standard RSS-14 barcode, except the bar height is set to the RSS standard of 13 times of the X dimension. It is possible to scan this symbology omni-directional.

Syntax:

```
B[:name;]x,y,r,RSS14+TRUNCATED,height,ne;text CR
```



We highly recommend to read in the specifications of this barcode first before it is used.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **RSS-14 truncated**

Example:

```
J
S 11;0,0,68,71,104
T 5,10,0,5,5;RSS-14 truncated
B 10,15,0,RSS14+TRUNCATED,4,.3;0441234567890
A 1
```

RSS-14 truncated





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **RSS-14 truncated composite (CC-A)**

Barcode type: RSS-Code (RSS= Reduced Space Symbology)

Length:	1D Code + 2D Code (composite code) (The 2D component is based on Mirco PDF 417)
check digits:	yes
ratio oriented:	no
Fixed height of the 1D code-	13 times the size of the module width

RSS-14 Truncated has the exact same data characteristics as the Standard RSS-14 barcode, except the bar height is set to the RSS standard of 13 times of the X dimension. Additionally it is printed with a 2D component for additional information.

Syntax:

```
B[:name;]x,y,r,RSS14+TRUNCATED,height,ne;text CR
```



We highly recommend to read in the specifications of this barcode first before it is used.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **RSS-14 truncated composite (CC-A)**

Example:

```
J
S 11;0,0,68,71,104
T 5,10,0,5,5;RSS-14 truncated composite CC-A
B 10,15,0,RSS14+TRUNCATED+CC3,4,.3;0361234567890[U:2D] (11)99010
2
```

RSS-14 truncated composite CC-A





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **RSS-14 truncated composite (CC-B)**

Barcode type: RSS-Code (RSS= Reduced Space Symbology)

Length:	1D Code + 2D Code (composite code) (The 2D component is based on Mirco PDF 417)
check digits:	yes
ratio oriented:	no
Fixed height of the 1D code-	13 times the size of the module width

RSS-14 Truncated has the exact same data characteristics as the Standard RSS-14 barcode, except the bar height is set to the RSS standard of 13 times of the X dimension. Additionally it is printed with a 2D component for additional information.

Syntax:

```
B[:name;]x,y,r,RSS14+TRUNCATED,height,ne;text CR
```



We highly recommend to read in the specifications of this barcode first before it is used.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **RSS-14 truncated composite (CC-B)**

Example:

```
J
S 11;0,0,68,71,104
T 5,10,0,5,5;RSS-14 truncated composite CC-B
B 10,15,0,RSS14+TRUNCATED+CC3,4,.3;0361234567890[U:2D] (21) abcdefg
hijklmnopqrst
A 1
```

RSS-14 truncated composite CC-B





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **RSS-14 stacked**

Barcode type: RSS-Code (RSS= Reduced Space Symbology)

Length:	fixed - 14 digits
Valid characters:	numeric, digits: 0-9,
check digits:	yes
ratio oriented:	no
Fixed height -	13 times the size of the modulewidth

This version of the RSS symbology also encodes a 14-digit Global Trade Item Number. It is presented in two stacked segments. This feature enables making optimal use of space available. RSS-14 Stacked has two versions, a truncated version used for small item marking applications and a taller one which is designed to be read by omnidirectional scanners.

Syntax:

```
B[:name;]x,y,r,RSS14+STACKED,height,ne;text CR
```



We highly recommend to read in the specifications of this barcode first before it is used.

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **RSS-14 stacked**

Example:

```
J
S 11;0,0,68,71,104
T 5,10,0,5,5;RSS-14 stacked
B 10,15,0,RSS14+STACKED,12,.5;0001234567890
A 1
```

RSS-14 stacked





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **RSS-14 stacked composite (CC-A)**

Barcode type: RSS-Code (RSS= Reduced Space Symbology)

Length:	Composite Code
Valid characters:	

The RSS Stacked composite Barcode utilises an RSS Expanded stacked bar code symbol a linear component. For a detailed description please refer to the original description of this code - available at your local UCC / EAN organisation.

Syntax:

```
B[:name;]x,y,r,RSS14+STACKED,height,ne;text [U:2D] textCR
```

[U:2D] starts the description of the 2D component



We highly recommend to read in the specifications of this barcode first before it is used.



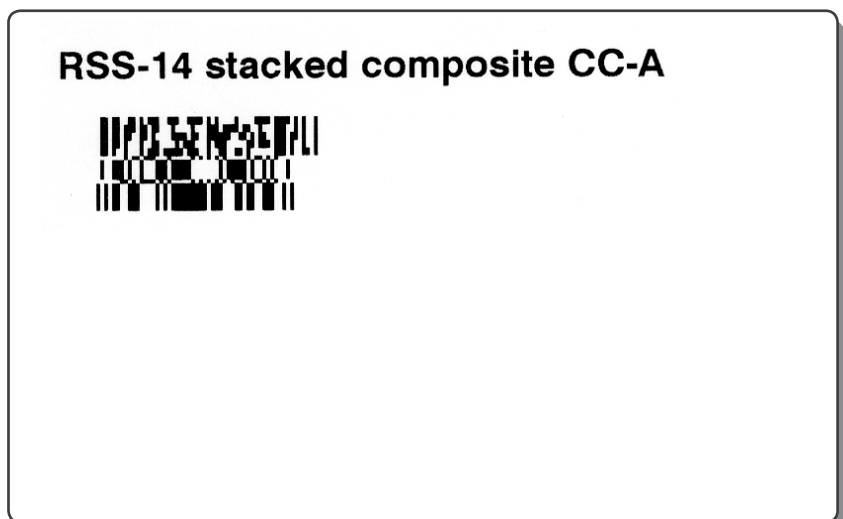
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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **RSS-14 stacked composite (CC-A)**

Example:

```
J
S 11;0,0,68,71,104
T 5,10,0,5,5;RSS-14 stacked composite CC-A
B 10,15,0,RSS14+STACKED,12,.5;0341234567890[U:2D] (17) 010200
A 1
```





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **RSS-14 stacked composite (CC-B)**

Barcode type: RSS-Code (RSS= Reduced Space Symbology)

Length: Composite Code
Valid characters: alpha numeric

For a detailed description of the RSS-14 stacked composite code please refer to the original description of this code - available at your local UCC / EAN organisation.

Syntax:

B[:name;]x,y,r,**RSS14+STACKED**,height,ne;text **[U:2D]** textCR



We highly recommend to read in the specifications of this barcode first before it is used.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **RSS-14 stacked composite (CC-B)**

Example:

```
J
S 11;0,0,68,71,104
T 5,10,0,5,5;RSS-14 stacked composite CC-B
B 10,15,0,RSS14+STACKED,12,.5;0341234567890[U:2D] (21) abcdefghij
klmnopqrst
A 1
```

RSS-14 stacked composite CC-B





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **RSS-14 stacked omnidirectional**

Barcode type: RSS-Code (RSS= Reduced Space Symbology)

Length: Composite code
Valid characters:

Omni-directional reading

RSS-14 is a composite barcode which has a omnidirectional readability. For a detailed description please refer to the original description of this code - available at your local UCC / EAN organisation.

Syntax:

B[:name;]x,y,r,**RSS14+STACKEDOMNI**,height,ne;textCR



We highly recommend to read in the specifications of this barcode first before it is used.

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **RSS-14 stacked omnidirectional**

Example:

```
J
S 11;0,0,68,71,104
T 5,10,0,5,5;RSS-14 stacked omni
B 10,15,0,RSS14+STACKEDOMNI,16.5,.5;0003456789012
A 1
```

RSS-14 stacked omni





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **RSS-14 stacked omnidirectional composite (CC-A)**

Barcode type: RSS-Code (RSS= Reduced Space Symbology)

Length: Composite Code
Valid characters: alpha numeric

Omnidirectional readability

For a detailed description of the RSS-14 stacked omnidirectional composite code please refer to the original description of this code - available at your local UCC / EAN organisation.

Syntax:

B[:name;]x,y,r,RSS14+STACKEDOMNI,height,ne;text [U:2D] textCR



We highly recommend to read in the specifications of this barcode first before it is used.

Helping companies to improve productivity, performance, safety and security

command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **RSS-14 stacked omnidirectional composite (CC-A)**

Example:

```
J
S 11;0,0,68,71,104
T 5,10,0,5,5;RSS-14 stacked omni CC-A
B 10,15,0,RSS14+STACKEDOMNI,16.5,.5;0003456789012[U:2D] (17) 010200
A 1
```

RSS-14 stacked omni CC-A





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **RSS-14 stacked omnidirectional composite (CC-B)**

Barcode type: RSS-Code (RSS= Reduced Space Symbology)

Length: Composite Code
 Valid characters: alpha numeric

 Omni-directional ultra-fast reading
 error correction capability

The RSS-14 stacked omnidirectional composite barcode has a omnidirectional readability. For a detailed description please refer to the original description of this code - available at your local UCC / EAN organisation.

Syntax:

B[:name;]x,y,r,RSS14+STACKEDOMNI,height,ne;text [U:2D] textCR



We highly recommend to read in the specifications of this barcode first before it is used.

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **RSS-14 stacked omnidirectional composite (CC-B)**

Example:

```
J
S 11;0,0,68,71,104
T 5,10,0,5,5;RSS-14 stacked omni CC-B
B 10,15,0,RSS14+STACKEDOMNI,16.5,.5;0003456789012[U:2D] (21)abcd
efghijklmnopqrst
A 1
```

RSS-14 stacked omni CC-





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **RSS limited**

Barcode type: RSS-Code (RSS= Reduced Space Symbology)

Length: 1DCode -14 digits max.
 Valid characters: alpha numeric

Note: No Omni-directional readability , no application identifier

For a detailed description please refer to the original description of this code - available at your local UCC / EAN organisation.

Syntax:

B[:name;]x,y,r,**RSS14LIMITED**,height,ne;text CR



We highly recommend to read in the specifications of this barcode first before it is used.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **RSS limited**

Example:

```
J
S 11;0,0,68,71,104
T 5,10,0,5,5;RSS limited
B 10,15,0,RSSLIMITED,5,.5;1501234567890
A 1
```

RSS limited





Helping companies to improve productivity, performance, safety and security

command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **RSS limited composite (CC-A)**

Barcode type: RSS-Code (RSS= Reduced Space Symbology)

Length: Composite code
Valid characters: numeric

For a detailed description please refer to the original description of this code - available at your local UCC / EAN organisation.

Syntax:

B[:name;]x,y,r,**RSSLIMITED**,height,ne;text **[U:2D]** text**CR**



We highly recommend to read in the specifications of this barcode first before it is used.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **RSS limited composite (CC-A)**

Example:

```
J
S 11;0,0,68,71,104
T 5,10,0,5,5;RSS limited composite CC-A
B 10,15,0,RSSLIMITED,5,.5;0351234567890[U:2D] (11)990102
A 1
```

RSS limited composite CC-A





Helping companies to improve productivity, performance, safety and security

command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **RSS limited composite (CC-B)**

Barcode type: RSS-Code (RSS= Reduced Space Symbology)

Length: Composite
Valid characters: alpha numeric

For a detailed description please refer to the original description of this code - available at your local UCC / EAN organisation.

Syntax:

```
B[:name;]x,y,r,RSS14LIMITED,height,ne;text [U:2D] textCR
```



We highly recommend to read in the specifications of this barcode first before it is used.



Helping companies to improve productivity, performance, safety and security

command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **RSS limited composite (CC-B)**

Example:

```
J
S 11;0,0,68,71,104
T 5,10,0,5,5;RSS limited composite CC-B
B 10,15,0,RSSLIMITED,5,.5;0351234567890[U:2D] (21) abcdefghijklmn
opqrst
A 1
```

RSS limited composite CC-B





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **RSS expanded**

Barcode type: RSS-Code (RSS= Reduced Space Symbology)

Length: 1DCode
Valid characters: alpha numeric

For a detailed description please refer to the original description of this code - available at your local UCC / EAN organisation.

Syntax:

`B[:name;]x,y,r,RSSEXPANDED,height,ne;text CR`



We highly recommend to read in the specifications of this barcode first before it is used.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **RSS expanded**

Example:

```
J
S 11;0,0,68,71,104
T 5,10,0,5,5;RSS expanded
B10,15,0,RSSEXPANDED,10,.3;(01)98898765432106(3202)012345(15)99
1231
A 1
```

RSS expanded





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **RSS expanded composite (CC-A)**

Barcode type: RSS-Code (RSS= Reduced Space Symbology)

Length: Composite Code
Valid characters: alpha numeric

For a detailed description please refer to the original description of this code - available at your local UCC / EAN organisation.

Syntax:

B[:name;]x,y,r, **RSSEXPANDED**, height, ne; text CR



We highly recommend to read in the specifications of this barcode first before it is used.

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **RSS expanded composite (CC-A)**

Example:

```
J
S 11;0,0,68,71,104
T 5,10,0,5,5;RSS expanded composite CC-A
B 10,15,0,RSSEXPANDED,16.5,.5;(01)93712345678904(3103)001234[U:
2D](91)1A2B3C4D5E
A 1
```

RSS expanded composite CC-A



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **RSS expanded composite CC-B**

Barcode type: RSS-Code (RSS= Reduced Space Symbology)

Length: Composite Code
Valid characters: alpha numeric

For a detailed description please refer to the original description of this code - available at your local UCC / EAN organisation.

Syntax:

B[:name;]x,y,r,**RSSEXPANDED**,height,ne;text **[U:2D]** textCR



We highly recommend to read in the specifications of this barcode first before it is used.

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **RSS expanded composite CC-B**

Example:

```
J
S 11;0,0,68,71,104
T 5,10,0,5,5;RSS expanded composite CC-B
B 10,15,0,RSSEXPANDED,16.5,.5;(01)93712345678904(3103)001234[U:
2D] (21)abcdefghijklmnopqrst
A 1
```

RSS expanded composite CC-B



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **RSS expanded stacked**

Barcode type: RSS-Code (RSS= Reduced Space Symbology)

Length: Composite Code
Valid characters: numeric

For a detailed description please refer to the original description of this code - available at your local UCC / EAN organisation.

Syntax:

`B[:name;]x,y,r,RSSEXPANDED+STACKED4,height,ne;text CR`



We highly recommend to read in the specifications of this barcode first before it is used.

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **RSS expanded stacked**

Example:

```
J
S 11;0,0,68,71,104
T 5,10,0,5,5;RSS expanded stacked
B 10,15,0,RSSEXPANDED+STACKED4,16.5,.5;(01)98898765432106(3202)012345(15)991231
A 1
```

RSS expanded stacked





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **RSS expanded stacked half line**

Barcode type: RSS-Code (RSS= Reduced Space Symbology)

Length: Composite Code
Valid characters: numeric

RSS expandedn stacked half line is anothercode combination which used 1D and 2D components. For a detailed description please refer to the original description of this code - available at your local UCC / EAN organisation.

Syntax:

```
B[:name;]x,y,r,RSSEXPANDED+STACKED4,height,ne;text CR
```



We highly recommend to read in the specifications of this barcode first before it is used.

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **RSS expanded stacked half line**

Example:

```

J
S 11;0,0,68,71,104
T 5,10,0,5,5;RSS expanded stacked
B 10,15,0,RSSEXPANDED+STACKED4,16.5,.5;(01)95012345678903(3103)000123
A 1

```

RSS expanded stacked





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **RSS expanded stacked composite (CC-A)**

Barcode type: RSS-Code (RSS= Reduced Space Symbology)

Length: Composite Code
Valid characters: alphanumeric

The RSS expanded stacked composite code is a mixture of 1D and 2D barcodes which can contain numeric and alphanumeric components. For a detailed description please refer to the original description of this code - available at your local UCC / EAN organisation.

Syntax:

B[:name;]x,y,r,RSSEXPANDED+STACKED4,height,ne;text[U:2D] textCR



We highly recommend to read in the specifications of this barcode first before it is used.

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **RSS expanded stacked composite (CC-A)**

Example:

```
J
S 11;0,0,68,71,104
T 5,10,0,5,5;RSS expanded stacked CC-A
B 10,15,0,RSSEXPANDED+STACKED4,10,.4;(01)00012345678905(10)ABCD
EF[U:2D](21)12345678
A 1
```

RSS expanded stacked CC-A





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **RSS expanded stacked composite (CC-B)**

Barcode type: RSS-Code (RSS= Reduced Space Symbology)

Length: Composite Code
Valid characters: alpha numeric

The RSS expanded stacked composite code is a mixture of 1D and 2D barcodes which can contain numeric and alphanumeric components. For a detailed description please refer to the original description of this code - available at your local UCC / EAN organisation.

Syntax:

B[:name;]x,y,r,RSSEXPANDED+STACKED4,height,ne;text[U:2D] textCR



We highly recommend to read in the specifications of this barcode first before it is used.

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **RSS expanded stacked composite (CC-B)**

Example:

```

J
S 11;0,0,68,71,104
T 5,10,0,5,5;RSS expanded stacked CC-B
B 10,15,0,RSSEXPANDED+STACKED4,10,.4;(01)00012345678905(10)ABCD
EF[U:2D](21)abcdefghijklmnopqrst
A 1

```

RSS expanded stacked CC-B





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **UPC-A**

Barcode type: UPC-A

Length:	fixed - 12 digits
Valid characters:	numeric only digits: 0-9,
check digits:	yes (Mod 10)
ratio oriented:	no

UPC-A is a retail barcode with a fixed length of 12 digits. The 12th digit is a modulo 10 check digit. cab printers require only 11 digits. The 12th digit is calculated by the printer.

Syntax:

```
B[:name;]x,y,r,UPCA[+options],height;ne,text CR
```

[+options] = +WSarea,

White Space area prints quiet zone markers around the bar code, to make sure that the barcode can be read after printing. This option is for design purposes only and should be removed after the label is programmed.

+XHRI,

+XHRI (Extended Human Readable Interpretation) Reduces the size of the barcode (see the example)

+NOCHECK

suppresses the check digit calculation for variable weight (UPC-A with specific start numbers :21, 24...29)

Height and narrow element (ne) can be replaced by an SC value(see example on the next page)

SCx,

sets the size of the barcode to a defined standard code size. x is a numeric value (0-9) and the possible barcode size depends on the printer's resolution. Used instead of height and ne (narrow element)

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **UPC-A**

Example:

```

m m
J
O R
S 11;0,0,68,71,100
B 10,5,0,UPC-A,20,.35;01234554321
B 10,30,0,UPCA+XHRI,SC1;01234554321
A 1

```





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **UPC-E**

Barcode type: UPC-E

Length:	fixed - 8 digits
Valid characters:	numeric, digits: 0-9,
check digits:	yes (Mod 10)
ratio oriented:	no

UPC-E is a retail barcode with a fixed length of 8 digits. The 8th digit is a modulo 10 check digit. cab printers require only 7 digits. The 8th digit is calculated by the printer.

Syntax:

```
B[:name;]x,y,r,UPCE[+options],height;ne,text CR
```

[+options] = +WSarea,

White Space area prints quiet zone markers around the bar code, to make sure that the barcode can be read after printing. This option is for design purposes only and should be removed after the label is programmed.

+XHRI,

+XHRI (Extended Human Readable Interpretation) Reduces the size of the barcode (see the example)

Height and narrow element (ne) can be replaced by an SC value(see example on the next page)

SCx,

sets the size of the barcode to a defined standard code size. x is a numeric value (0-9) and the possible barcode size depends on the printer's resolution. Used instead of height and ne (narrow element)

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **UPC-E**

Example:

```
J
S 11;0,0,68,71,100
B 10, 5,0,UPC-E,20,.35;0123456
B 10,30,0,UPCE+XHRI,SC1;0123456
A 1
```





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

B - Barcode **UPC-E0**

Barcode type: UPC-E0

Length:	fixed - 8 characters *
Valid characters:	numeric
check digits:	yes (Mod 16)
ratio oriented:	yes

UPC-E0 is a numerical barcode with 8 characters. The 8th character is the check digit. The check digit is calculated automatically by the printer.

Invalid characters are converted into zeroes.

* A zero suppression converts the barcode into a more compact version. This offers the possibility to key in up to 12 characters which are compressed into 6 characters by the printer. In this case the first character must be zero !!

Detailed information is available by the UCC, Inc (Uniform Code Council, Inc.)

Syntax:

```
B[:Name;]x,y,r,UPCE0,height,ne;text CR
```

[+options] = +WSarea,

White Space area prints quiet zone markers around the barcode, to make sure that the barcode can be read after printing. This option is for design purposes only and should be removed after the label is programmed.

+BARS,

Prints boundary lines above and below the barcode.

Height and narrow element (ne) can be replaced by an SC value(see example on the next page)

SCx,

sets the size of the barcode to a defined standard code size. x is a numeric value (0-9) and the possible barcode size depends on the printer's resolution. Used instead of height and ne (narrow element)

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

B - Barcode **UPC-E0**

Example:

```
J
S 11;0,0,68,71,100
B 10, 5,0,UPCEO,20,.35;03210000678
B 10,30,0,UPCEO,          SC1;01230000088
A 1
```



command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	-	x	x

C - Cutter Parameters

The C command is used to set the parameters for the cutter. The cutting command uses the label counter to cut after a specified amount of printed labels or can be set to cut at the job end.

Syntax:

```
C amount[,disp1[,disp2]] CR
```

C = cutting command
amount = amount of labels after which a cut is processed
 possible values 1-9999
disp1 = offset to the end of the defined label
disp2 = offset to the first cutting position.
 (always positive value !) This double cut option offers the possibility to cut off portions of a label.

All measurements in millimeters or in inches (see the "m" command)

Syntax:

```
C e CR
```

C = cutting command
e = cutting at the job end

Cuts once at the job end which is defined by the A (amount) command
 To use this cut command after an "A" command, it has to be used before



Important ! This command must be placed after the label size is defined !! (S - command) The availability of this command depends on the availability of the optional cutter.

Example:

```
J
S 11;0,0,68,71,100
T 12,25,0,3,9;cut after 2 labels
C2
A10
```

Prints 10 labels and cuts always after the second label

Example:

```
J
S 11;0,0,68,71,100
T 12,25,0,3,9;cut after 2 labels
C5,0,2
A10
```



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	-	X	X

C - Cutter Parameters

Using the Cutter command "C" together with Replace commands "R" (See also "Replace Field Command" offers additional possibilities.

The next sample shows the usage of the cutter

Example:

```
J
S 11;0,0,68,71,100
T 12,25,0,3,9;cut after 5 labels
C 5
A 100
R cut after 2 labels
C 2
A 60
```

cuts the first print job of 100 labels after each 5th and in the second job with a total amount of 60 labels every 2. label will be cut.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

D - Global Object Offset

The D command is used to move the complete label content to the specified location. All objects positions are influenced by this command. The starting point for the label contents is shifted by this values.

The usage of this command is normally if new label stock is used which is not identical to the label stock which was used up to now. this might be that the side margin of the liner is wider or smaller than before. The minimum and maximum values depend on the printer type (printhead width and label length). All measurements in millimeters or in inches (see the "m" command)

Syntax:

```
D x,y CR
```

x = offset value in horizontal direction

y = offset value in vertical direction

All measurements in millimeters or in inches (see the "m" command)

Example:

```
D 4,3
```

Moves all objects on a label 4 mm horizontal and 3 mm vertical (when metric settings are used)



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

E - Define Files (Extension)

Databases, serial files, SQL files and log files are defined with this command for the use together with the printer's memory card.

Syntax:

```
E EXT;name_type CR
```

E = Define Extension
EXT = Extension type (file type)

Valid filetypes:

DBF = Database File
 used together with the [DBF] text option

TMP = Temporary file (Serial numbering file)

LOG = Defines the name of a external protocol file (LOG file)
 Used together with the text option[WLOG]
 (A-series printers only)

SQL = Defines the adress of a database server (A-series only)
 Used together with database connector features.

name_type = Filename when used together with DBF, TMP or LOG
 =IP-adress:port (when used with SQLfeatures)

Example: E DBF;article

Uses ARTICLE.DBF as external file on memory card. ARTICLE.DBF must be present on the printer's memory card to get access.

Filenames have to be in the 8.3 format (8 characters name and 3 characters extension)

Example: E TMP;SERNUM

Uses SERNUM.TMP as file for serial numbering from memorycard. Used together with the [RLOG] and [WLOG] text options.

Filenames have to be in the 8.3 format (8 characters name and 3 characters extension)

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

E - Define Files (Extension)

Example: E LOG;PROTOCOL

Defines the log file PROTOCOL.LOG for use on printer's optional memory card. Used together with the [RLOG] und [WLOG] text options.

Filenames have to be in the 8.3 format (8 characters name and 3 characters extension)

Example: E SQL;192.168.0.56:1001

Defines the IP - adress of an external database server. (Specific network card or legitimation required). Details are described in the "cab database connector" section later in this manual.



Important note: The usage of this commands requires optional components. The DBF, TMP and LOG functions require an optional Compact Flash memory card .

The usage of the SQL function requires optional a specified network card.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

F - Font Number

The F command assigns an alternate number to a font name. The reason for this command is to simplify the font handling, keeping a better overview on the used fonts in a label and enables the programmer to exchange a font in a label very easy.

The resident fonts in the cab printers have fixed names, but they can be redefined with this command. Once the font number is defined it is valid for the complete label.

Syntax: F number;name CR

Assigns the number to a name

F = Font command
 number = New font number.
 name = Fontname which will be replaced by "number".

On TrueType fonts, the number found in the typeface file is used as the default.

Example: F 4;Times New Roman

Uses TrueType™ names

Example: F 40; Swiss 721 Bold Italic

Assigns the alternate number 40 to the printer's resident Swiss™ 721 Bold Italic font.

Example:

```

m m
JSAMPLE
H 66
S 11;0,0,68,71,100
F 10;Comix
T 0,15,0,10,pt20;SampleJ:c108]
T 10,25,0,3,pt12;label,
B 5,40,0,EAN-8,SC2;4376131
A 20

```

The example above assigns font number 10 to the previously downloaded font Comix. It prints 2 lines of text (first line with the font comix) and an additional barcode.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

G - Graphic Field Definition

cab printers are able to print graphic elements, such as lines, rectangles, circles and ellipses. These graphic elements are defined by the G command.

Syntax:

```
G[:name;]x,y,r;ge:settings[,options] CR
```

- G** = Graphic field definition command.
- [:name;]** = Optional field name. Maximum length 10 characters, no special characters allowed, fieldname must be unique. The field name can be used for further operations, such as Replace field name (See the "R" command for details) or just as a comment.
- x** = Horizontal coordinate of the start position in millimeters or inches from the left edge of the printable area to the start position of the graphic field.
- y** = Vertical coordinate of the start position in millimeters or inches from the top edge of the printable area to the start position of the graphic field.
- Starting points of the graphic elements are:*
- | | |
|--------------------|--|
| <i>Lines:</i> | <i>Center of the starting point of the line</i> |
| <i>Rectangles:</i> | <i>upper left corner, outside of the rectangle</i> |
| <i>Circles:</i> | <i>Center</i> |
| <i>Ellipses:</i> | <i>Center</i> |
- r** = Rotation. Graphic elements can be rotated in steps of 1degrees from 0 to 359 degrees
- ge** = graphic element:
- L** = Line
 - R** = Rectangle
 - C** = Circle
 - (Ellipse is defined with the circle command)
- settings** = specific graphic element settings, depending on the selected graphic element.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

G - Graphic Field Definition

- [,options]=**
- ,fill** = filling of the graphic object with a specified pattern or with dot density. (see graphic option "fill")
 - ,shade** = shading option (gradient filling - see graphic option "shade")
 - ,outline** = outline option - prints an outline around the filled graphic object with the thickness of 1 dot. (see graphic option "outline")

command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

G - Graphic Definition - Circle

Graphic Type: C - Circle, Ellipse

Syntax:

```
G[:name;]x,y,r;C:radius1[,radius2[,width]][,options] CR
```

- G** = Graphic field definition command.
- [:name;]** = Optional field name. Maximum length 10 characters, no special characters allowed, field name must be unique. The field name can be used for further operations, such as Replace field name (See the "R" command for details) or just as a comment.
- x** = Horizontal coordinate of the start position in millimeters or inches from the left edge of the printable area to the center of the circle.
- y** = Vertical coordinate of the start position in millimeters or inches from the left edge of the printable area to the center of the circle.
- Starting point of Circles and Ellipses is in the center*
- r** = Rotation - Circles and ellipses can be rotated in steps of 1 degrees from 0 to 359 degrees. This makes for sure no sense to change that value for circles. Visible effects will be seen on Ellipses...
- C** = Circle
- radius1** = Horizontal radius
- radius2** = Vertical radius
- width** = Width of the circle line in millimeters or inches.



Filled circles or ellipses are produced if width is not set

- [,options]=**
- ,fill** = filling of the graphic object with a specified pattern or with dot density. (see graphic option "fill")
 - ,shade** = shading option (gradient filling - see graphic option "shade")
 - ,outline** = outline option - prints an outline around the filled graphic object with the thickness of 1 dot. (see graphic option "outline")

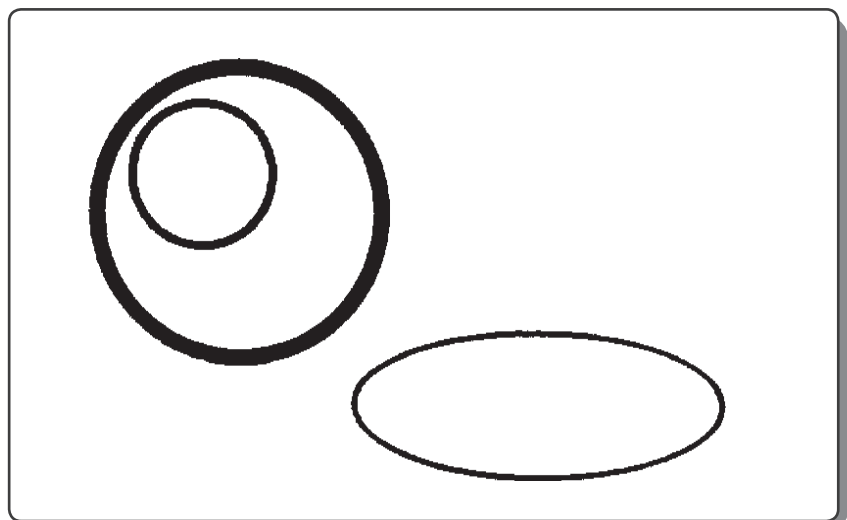
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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

G - Graphic Definition - Circle

Example:

```
J
S 11;0,0,68,71,100
G 65,50,0;C:25,10,.7
G 25,25,0;C:20,20,2
G 20,20,35;C:10,10,1
A 1
```



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

G - Graphic Definition - Line

Graphic Type: L - Line

Syntax:

```
G[:name;]x,y,r,L:length,width[,start[,end]][,options] CR
```

- G** = Graphic field definition command.
- [:name;]** = Optional field name. Maximum length 10 characters, no special characters allowed, field name must be unique. The field name can be used for further operations, such as Replace field name (See the "R" command for details) or just as a comment.
- x** = Horizontal coordinate of the start position in millimeters or inches from the left edge of the printable area to the start point of the line
- y** = Vertical coordinate of the start position in millimeters or inches from the left edge of the printable area to the start point of the line
- Starting point of Lines is the center of the starting point of the line*
- r** = Rotation. Lines can be rotated in steps of 1degrees from 0 to 359 degrees.
- L** = Line
- length** = length of the line in millimeters or inches
- width** = width of the line in millimeters or inches
- start** = line start type.
s= squared
r=rounded
a=arrowed
- end** = line end type
s= squared
r=rounded
a=arrowed



Lines will print squared without the start / end parameters

- [:,options]=**
- ,fill** = filling of the graphic object with a specified pattern or with dot density. (see graphic option "fill")
 - ,shade** = shading option (gradient filling - see graphic option "shade")
 - ,outline** = outline option - prints an outline around the filled graphic object with the thickness of 1 dot. (see graphic option "outline")

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

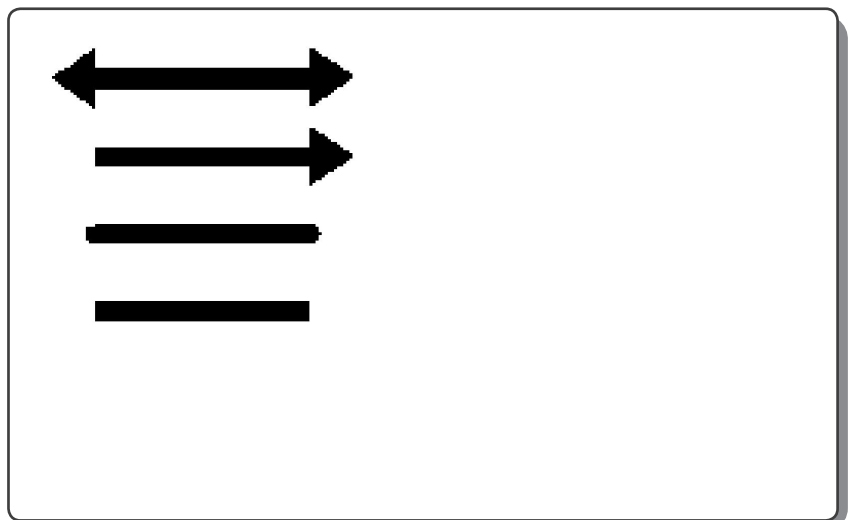
G - Graphic Definition - L - Line

Graphic Type: L - Line

Example:

```
J
S 11;0,0,68,71,100
G 5,5,0;L:24.5,2.5,a,a
G 5,15,0;L:24.5,2.5,s,a
G 5,25,0;L:24.5,2.5,r,r
G 5,35,0;L:24.5,2.5
A 1
```

This example demonstrates how the different line start / end parameters are printing





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

G - Graphic Definition - Rectangle

Graphic Type: R - Rectangle

Syntax:

```
G[:name;]x,y,r,R:width,height[,hlt [,vlt]][,options] CR
```

G = Graphic field definition command.

[:name;] = Optional field name. Maximum length 10 characters, no special characters allowed, field name must be unique. The field name can be used for further operations, such as Replace field name (See the "R" command for details) or just as a comment.

x = Horizontal coordinate of the start position in millimeters or inches from the left edge of the printable area to the start point of the line

y = Vertical coordinate of the start position in millimeters or inches from the left edge of the printable area to the start point of the line

Starting point of rectangles is the upper left corner, outside of the rectangle

r = Rotation. Rectangles can be rotated in steps of 1degrees from 0 to 359 degrees.

R = Rectangle

width = width (horizontal) of the rectangle in millimeters or inches

height = height (vertical) of the rectangle in millimeters or inches

hlt = horizontal line thickness in millimeters or inches

vlt = vertical line thickness in millimeters or inches

Filled rectangles or ellipses are produced if width is not set

[,options]= ,fill = filling of the graphic object with a specified pattern or with dot density. (see graphic option "fill")

,shade = shading option (gradient filling - see graphic option "shade")

,outline = outline option - prints an outline around the filled graphic object with the thickness of 1 dot. (see graphic option "outline")

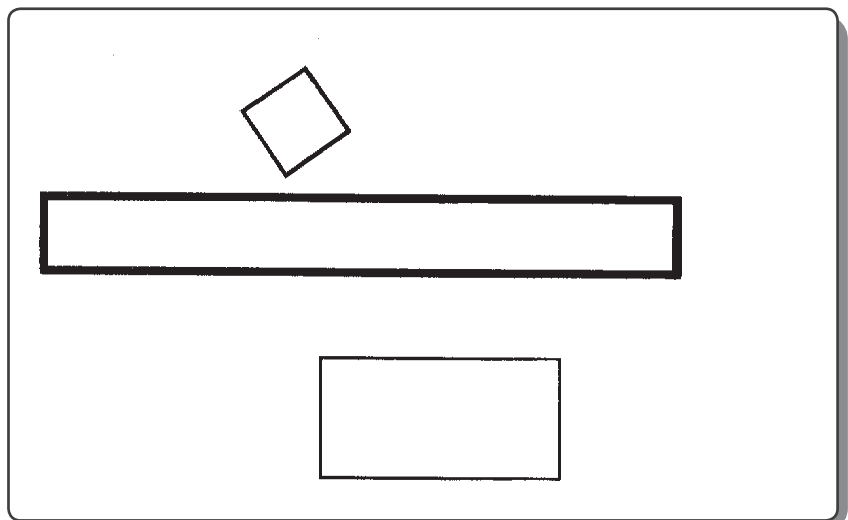
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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

G - Graphic Definition - **R**ectangle

Example:

```
J
S 11;0,0,68,71,100
G 35,45,0;R:30,15,.3,.3
G 0,25,0;R:80,10,1,1
G 25,15,35;R:10,10,.5,.5
A 1
```



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

G - Graphic Definition - Option: Fill

Graphic Option: Fill

Fills a graphic object with redefined patterns

Syntax:

```
G[:name;]x,y,r,ge:settings[F:options] CR
```

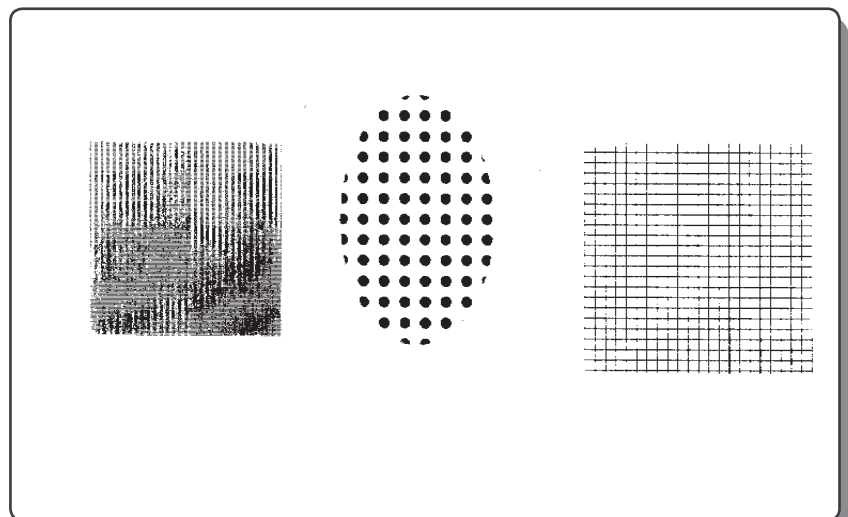
F: = Fill parameter.

options = Fill pattern option, with following valid inputs:

0%, 6%, 12%, 25%, 38%, 50%, 100% (for dot density)
 predefined patterns: left, right, dots, grid, and diamond
 user1, user2, user3, user4 (downloaded images 32 by 32 dots)

Example:

```
J
S 11;0,0,68,71,100
G 70,20,0;R:30,30, 1,20[F:grid]
G 48,30,0;C:10,16,10,10[F:dots]
G 5,20,0;R:25,25, 1,20[F:25%]
A 1
```



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

G - Graphic Definition - Option **Shade**

Graphic Option: Shade

Produces a shading effect (gradient filling) of a graphic object.

Syntax:

```
G[:name;]x,y,r,ge:settings[S:%1[,%2[,direction]] CR
```

S = Shade option

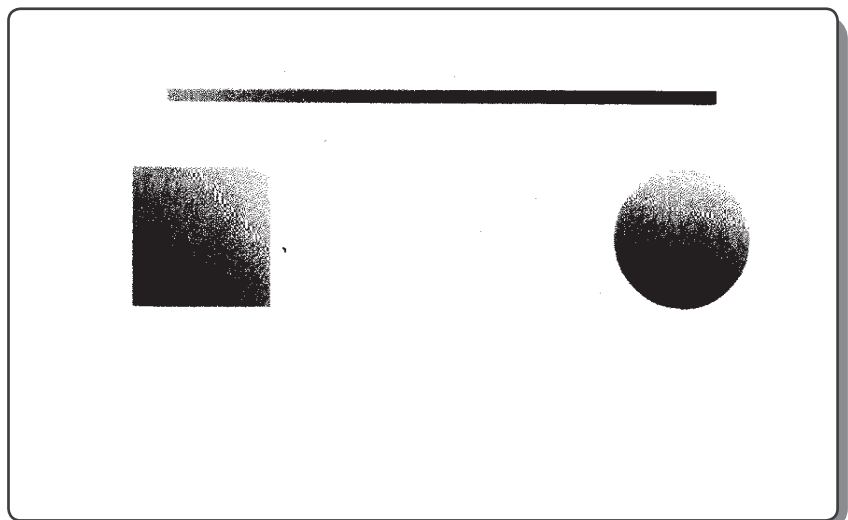
%1 = Darkness value at the beginning, as a percent of black.

%2 = Darknessvalue at the end, as a percent of black.

direction = Shading angle

Example:

```
J
S 11;0,0,68,71,100
G 5,20,0;R:20,20, 1,20[S:60,10,45]
G 85,30,0;C:10,10,10,10[S:60,10,75]
G 10,10,0;L:80,2[S:30,90,0]
A 1
```



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

G - Graphic Definition - Option: Outline

Graphic Option: Outline

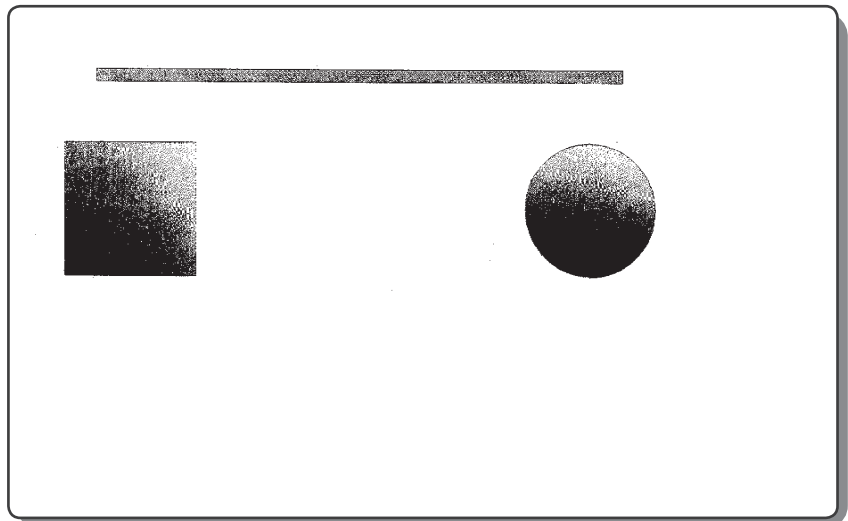
Prints an outline around the filled graphic object with the thickness of 1 dot.

Syntax: `G[:name;]x,y,r,type:type options [shade options] [O] CR`

The outline option outlines filled objects. The outline option prints black objects, if outline [O] is used for objects which are not filled. (see 2nd example on this page)

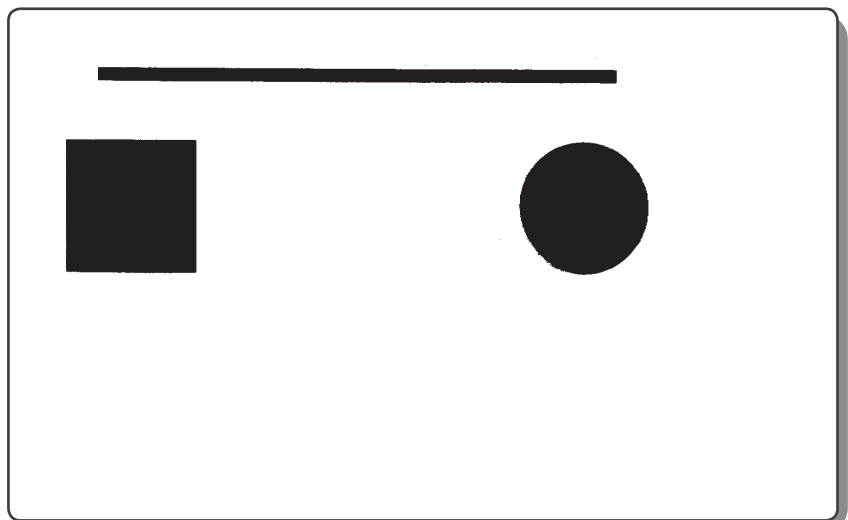
Example:

```
J
S 11;0,0,68,71,100
G 5,20,0;R:20,20,1,20[S:60,10,45] [O]
G 85,30,0;C:10,10,10,10[S:60,10,75] [O]
G 10,10,0;L:80,2[S:30] [O]
A 1
```



Example:

```
J
S 11;0,0,68,71,100
G 5,20,0;R:20,20,1,20[O]
G 85,30,0;C:10,10,10,10[O]
G 10,10,0;L:80,2[O]
A 1
```



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	See the details below				

H - Heat, Speed, Method of Printing, Ribbon

This command sets printing heat, speed and the method of printing for the current label. Print quality is influenced by the used material and by the print heat and print speed.

H speed[,h][,t][,r][,Bb] CR

H = Heat / speed set parameter

- speed** = Print speed in millimeters or inches
 These values depend on the printer type, please see the operator's manual for details. A "wrong" value will automatically rounded by the printer to the next possible value.
- h** = Heat setting (-10 up to +10)
- t** = Type: T=Transfer, D= Direct thermal (Default: T)
- r** = Ribbon saver on/off R0=off, R1=on *
- b** = Back feed speed in millimeters or inches

Example: H 150,0,D,R1

Sets print speed to 150mm/s , Heat setting zero, Direct thermal mode and switches the ribbon saver on. (The printer must be equipped with a ribbon saver to use this option)



The maximum print speed depends on the used printer model. The print speed is automatically set to the maximum if accidentally a higher printspeed is transmitted.

** The functionality of the ribbon saver command depends on the used printer model.*



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

I - Image Field Definition

The I command is used for image printing. (Image stands for pictures, pictograms, logos etc.). It defines the position and the size of an image on the label. The image has to be downloaded first, before it can be placed on the label. (See "d" - download command for more details)

Syntax:

```
I[:name;]x,y,r[,mx,my];name CR
```

I = Image field definition

[:name;] = describes the field name and is optional. The maximum length of this name is 10 characters, no special characters allowed. A field name can be used for further operations, such as replacements etc.
(See "R" command for details).

x = The x - coordinate is the horizontal start position of an image (in millimeters or inches), the distance between the left margin of a label and the upper left corner of the image.

y = The y - coordinate is the vertical start position of an image, the distance between the top margin of a label and the upper left corner of the image.
The maximum coordinate depends on the printer type. Please refer to the operator's manual.

r = Rotation -rotates an image in 4 directions. Valid values are 0, 90, 180 and 270. Measurement in degrees.

mx = Horizontal magnification factor. Values 1-10. This parameter is optional. Enlarges the image horizontally multiplied by this factor.

my = Vertical magnification factor. Values 1-10. This parameter is optional. Enlarges the image vertically multiplied by this factor.

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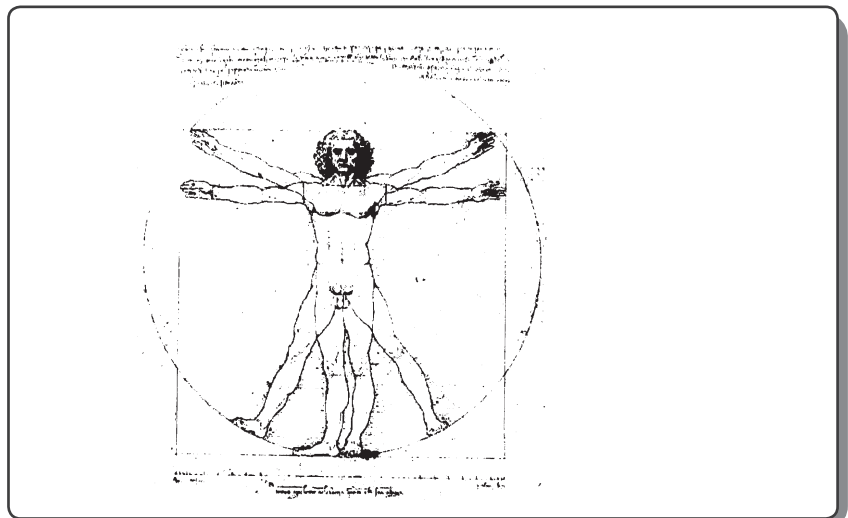
command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

I - Image Field Definition

Example:

```
J
S 11;0,0,68,71,100
I:IMAGE1;20,5,0,0,0;HUMAN
T 12,25,0,3,6;Todays date is: [DATE:+03,+02,+10]
A1
```

Prints the picture "HUMAN" which had previously downloaded to the printer.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	restricted	x	x	x

J - Job Start

The J command "tells " the printer, that the following data contains label specific data. It starts a new print job.

Syntax:

```
J [comment] CR
```

J = Job start command.

comment = Optional text which may describe the label.

This optional text will be displayed on the printers LC Display when it is recalled from the optional memory card. Maximum length is 16 characters.

Example:

```
J Adress label
```

Defines the job start and names the label " Adress Label".

Adress Label will be displayed in the printer's LC Display when the label is recalled from the optional memory card. The printer "looks" into each label on the memory card and controls if an alternative Label description is available. This description is shown instead of the original label name which is limited to 8 characters.



Restrictions for M4 printers: [comment] will be ignored as it cannot be shown in the (not existing) display.

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	restricted	x	x	x

M - Memory Card Access

The M commands defines the possibilities of memory card access. (The memory card is an optional equipment).

This commands are used to save and recall data on memory card, they are also used to format the memory card and erase data on the memory card.

A memory card is normally used, if a printer runs in "Stand Alone Mode" or together with the cab database connector (described later in this manual).

Furthermore some applications use the memory card to recall labels for printing and send the variable field contents from an other application.

This is one of the methods which is often used to connect cab printers to SAP or to IBM mainframe computers.

The following pages will mention the word "IFFS". This is a special memory area on board where data can be saved reserved flash area. It was developed for some very special applications with limited possibilities. IFFS stands for: "Internal Flash File System."

IFFS is not required for regular applications and has also some restrictions. We recommend to use Compact flash memory cards for the following operations

Syntax:

M variations...

The "M" command is available in some variations which are described on the next pages.



Restrictions: M4 cannot run in stand alone mode, as no Display is available and as there is no possibility to attach a keyboard. Therefor it is also not possible to use the cab database connector as this requires keyboard input. Nevertheless, labels can be saved on the memorycard and they can be recalled and printed by an attached computing device.

IMPORTANT ! We highly recommend to use Compact Flash cards which are manufactured by SANDISK who is the original developer of Compact Flash cards. Other CF cards may cause problems , such as data loss, incompatibility or read and write errors.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	restricted			x	x

M - Memory Card Access

Depending on the printer type you may recognize different file structures (which has a historical background)

Printing systems which are equipped with a ethernet interface can be accessed by FTP. To get full access to the printer requires that user name and password are transmitted by FTP.

The user name is „root“ and the password is the 4 digit PIN of the printer (PIN settings can be done In the setup menu of the printer)

Following memory card folders may appear if the printer is accessed by FTP:

card - default card
 pccard - PCMCIA memory card
 cf - CompactFlash card
 cfext- External Compact Flash card - if an additional external operation panel is used and a CF card is plugged in.

The selected default card in the printer setup will dissappear in the display and will be shown as „card“

Following folders may appear if the printer is accessed by FTP:

card - Default memory card (This might be either the compact flash card or the pccard , whatever is selected in the setup of the printer)

cf - Compact Flash card (appears if a cf card is inserted,but the pccard is selected as default card)

pccard - PCMCIA memory card (appears if the cf card is selected as default card and the pccard is additionally plugged in)

execute - is a folder which executes immediately the label which is transmitted by FTP to that folder.
 (a label will be executeed (printing) as soon as it is copied into that folder)

iffs - „Internal Flash File System“ - a reserved area

cfext - appears if an external operation panel is equipped with a CF card

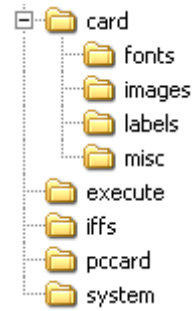
system - contains the firmware of the printer which also can be simply updated,just by copying the new firmware version with FTP to the printer.

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
		restricted		x	x

M - Memory Card Access

In this case the compact flash card is selected as default



In this case the pccard is selected as default device



We highly recommend to use CF cards for future developments.

Pccards will not show the subdirectory structure where the files are sorted into the folders: fonts, images, labels and misc.

Please note, that the CF connection in the printer is much faster than the external cf card. (Time critical applications may require the built in card slot)

A-series, M4 and Hermes A printers do not support pccard or cfext folders.

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

M - Memory Card Access

Memory card: **c**ontent request

Requests the content of a directory path on the memory card (analog to the DOS command "DIR")

Syntax:

```
Mc [pathname] CR
```

[pathname] is only supported on A-series and M-series printers

[pathname]= /card/-recalls the card content of the optional compact flash card
Leaving this option blank recalls automatically the content of the Compact Flash Card.

/iffs/ -recalls the content of the internal flash file system *



* The internal flash file system can be setup through our resellers and it is made for special applications.

Example:

```
Mc
```

Response from the printer:

```
Directory of 'A3/300' :
ARIAL          TTF  79804    20.05.05 14:37
COMIX          TTF  66080    20.05.05 14:38
MINSTREL      TTF  65692    20.05.05 14:39
NORM101       LBL   1420    20.05.05 14:51
COMPANY       IMG   1012    20.05.05 14:41
BEDANO        TTF  83260    20.05.05 14:43
NORM44        LBL   1530    20.05.05 14:43
EXPLOSIV      IMG   2098    20.05.05 14:49
NORM42        LBL   2104    20.05.05 14:49
102           LBL   1420    20.05.05 14:52
CDPLAYER      DBF   2858    08.06.05 13:03
15807062 bytes free
```

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

M - Memory Card Access

Syntax:

```
Md type; [pathname] name CR
```

Memory card: **d**delete file from card

Deletes (erases) data on memory card

type = LBL (label),
 FNT (font),
 IMG (image),
 FMT (label format)
 TMP (temporary file i.e. file which contains a serial number)

"type": FNT erases all TTF fonts,
 "type": IMG erases all graphic types with the same name.

name = Name of the file on memory card

"type": FNT erases all TTF fonts,
 "type": IMG erases all graphic types with the same name.

Example:

```
M d IMG;logo
```

Deletes all graphic files on memory card with the name "logo". e.g. this might be logo.bmp, logo.pcx etc.



IMPORTANT: Some labelling programs use also the extension .LBL or .FMT. These file types are totally different and do not contain J-Script commands !



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

M - Memory Card Access - format card

Syntax:

```
M f;name CR
```

Memory card: **f** format card

Formats the memory card (creates a DOS file system) A-series printers create automatically a folder structure to separate the data to the specified locations.

Example:

```
M f;MYDATA
```

formats the memory card and writes the volume name "MYDATA"
"MYDATA" is usually the name of the used printer.

Following folders will be available on the memory card:

- Fonts
- Labels
- Graphics
- Misc

The Fonts folder is used to save all true type fonts.

(Extension .TTF)

The Labels folder is used to save labels in JScript Format

(Extension .LBL)

The Graphics folder contains all possible graphic formats.

(Extensions: .IMG, .PCX, .BMP, .GIF, .MAC, .TIF, .PNG)

The Misc Folder is used to save DBase IV databases, serial numbers and temporary files

(Extensions: .DBF, .SER, .TMP)

The Misc folder can also contain one or more firmware files, which are displayed in the "SERVICE" menu of the printer to update the firmware from memory card.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

M - Memory Card Access - load label from card

Syntax:

```
M l type;[pathname]name CR
```

Memory card: load file from card

Load data from memory card

type = LBL (label), FNT (font), IMG (image), FMT (label format)
 name = Name of the file file



[pathname] is only supported on A-series and M-series printers

[pathname] = /card/ -recalls the card content of the optional compact flash card
 Leaving this option blank recalls automatically the content of the Compact Flash Card.
 /iffs/ -recalls the content of the internal flash file system

* The iffs can be setup through authorized resellers and it is made for special applications.

Example:

```
M1 LBL;TESTLBL  
A2
```

Loads the label with the name TESTLBL from memory card and prints 2 labels

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	-	X	X	X

M - Memory Card Access - repeat last file content

Syntax:

```
M r CR
```

Memory card: repeat last file content

Jump to start of file. This command can be used to implement simple loops.

Example:

```
Ms LBL;LOOP
J
S 11;0,0,68,70,100
T:Text1;20,10,0,3,7;[?:SerialNo:]
A3
Mr
Ms LBL
```

Saves the label "LOOP" on the printer's memory card. This label will show the word "SerialNo:" in the display and waits for data input. After data is keyed in it will print 3 labels and repeats the question for the "SerialNo" in the display.



This command makes less sense on M4 as no display is available.

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

M - Memory Card Access - store data

Syntax:

```
M s type;[pathname]name CR
```

Memory card: store data on card

Stores data on memory card

```

type      =   LBL (label), FNT (font), IMG (image), FMT (label format)
name      =   Name of the file file /card
pathname  =   /iffs/ or /card/, - automatically "card" if left empty

```

```

Ms LBL;ASERIES
J
S 11;0,0,36,38,89
T:Text1;20,10,0,3,pt25;cab printers
A5
Ms LBL

```

Saves the label "ASERIES" on the printer's memory card. This label will automatically print 5 labels when it is recalled



A label will immediately start printing when the printer is switched on, if the label has been saved with the reserved name "DEFAULT.LBL" !

Files are saved on the memory card in UNICODE format ! An editor which can handle Unicode files is required to edit these files. Wordpad can be used as editor for Unicode files. Notepad is not able to handle that file format.



IMPORTANT NOTE: The „Ms“ command causes the printer to save a label to the memory card, which is plugged into a printer.

Do NOT use this command, if the data is saved by FTP directly to the memory card or if the data is saved directly on a memory card which is plugged in a PC.

*This would cause an infinite loop and the printer, as the printer tries to recall the label where the first command tells to save the label on card and so on - and the display would show „**Memory overflow**“.*

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

M - Memory Card Access - upload data

Syntax:

```
M u type; [pathname] name
```

Memory card: upload data

Uploads file contents from memory card as binary data.

Example:

```
M u LBL;TESTLBL
```

Uploads a label named TESTLBL from the memory card. If Hyperterminal is used to receive the data it is possible to copy the file to the clipboard and paste it into a text editor such as Wordpad.



Note: When uploading other types of files, such as IMG, the data is sent as raw binary data.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x *	-	x *	x *	-

O - Set Print Options

The O command is used to set a wide range of options which influences the complete label

Syntax:

```
O[M,][R,][N,][T,][S,][U,][p,][Ax=y] CR
```

O = Print Options command.

M= Mirrored label printing

R = Rotate the label contents 180 degrees

N = Negative (inverted) printout of the complete label

S = Single label buffer. The following label will be processed when the actual one has finished printing.

T = Enables the "Tear off mode" which feeds the label more forward after printing, so that it could be taken easier away.

U = Unique label - suppresses the Pause / Reprint possibility to avoid that a label will be printed twice.

p = Printmode - backfeed option always / smart
backfeed "always" feeds the label back and starts printing at the label margin, while "smart" suppresses the feedback.
"P" activates the smart option while "D" activates the "always" option. This option overwrites temporarily the settings in the printer's setup. Using the "smart" mode has the benefit that the printer processes the labels faster as the time is saved for pulling the labels back. Nevertheless a negative effect may appear in the area where the label is stopped under the printhead. This may cause a small horizontal white line in the area. If this happens within an object, then you must select the "D" option to avoid this effect.

Applicator parameters *

Ax=y Set parameter x to y (in ms, 0-2500).

x=0: Start delay supporting air

x=1: Stop delay supporting air

x=2: Start delay print

x=3: Lock time

x=4: Blow time

x * The applicator parameters are only available for printers with (optional) applicator
The applicator parameters options are not available for M4.
Hermes A does not support that command with the existing appliators.

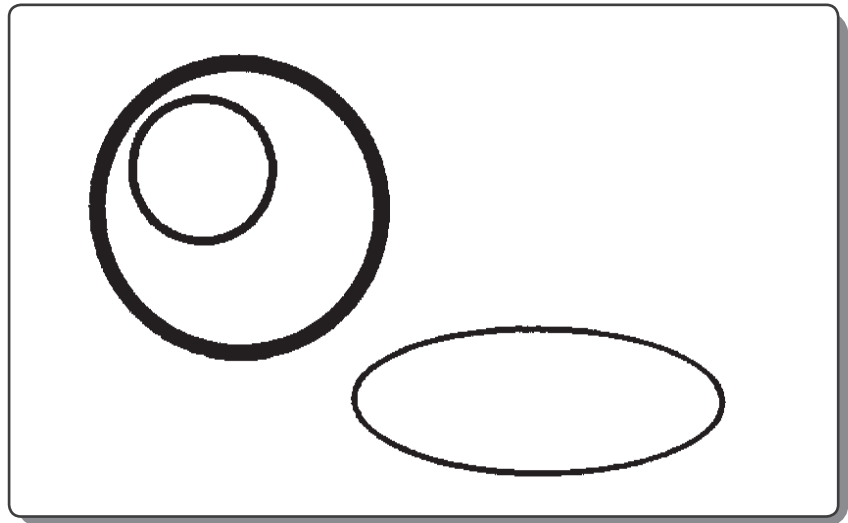
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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

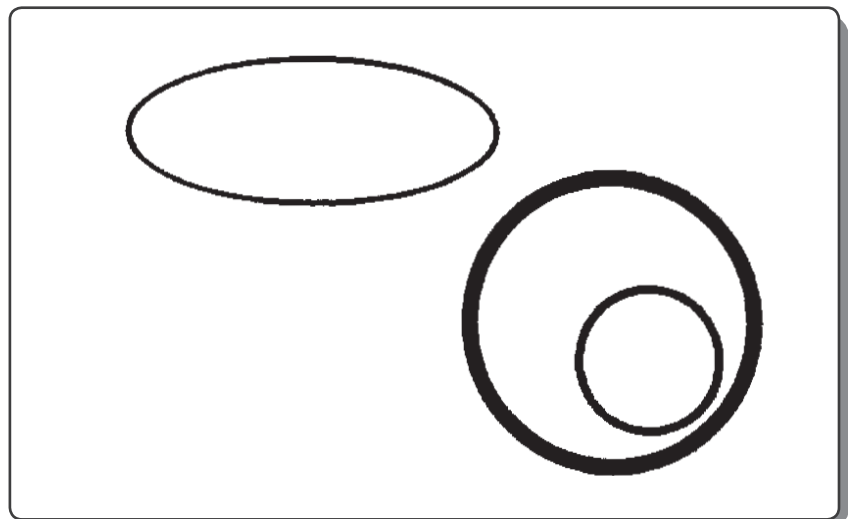
O - Set Print Options

Example:

```
J
S 11;0,0,68,71,100
G 65,50,0;C:25,10,.7
G 25,25,0;C:20,20,2
G 20,20,35;C:10,10,1
A 1
```



```
J
O R
S 11;0,0,68,71,100
G 65,50,0;C:25,10,.7
G 25,25,0;C:20,20,2
G 20,20,35;C:10,10,1
A 1
```



The **O R** command rotates the complete printout of a label. The first example does not use the "O" command.

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

P - Set Peel-Off Mode

This command needs an optional peel off sensor, which varies from printer type to printer type. This command pauses the printer after each label. The next label prints, when the actual label is removed.

Syntax:

```
P[disp] CR
```

P = Peel-Off Mode command.

disp = displacement in millimeters or inches (optional parameter)
positive and negative values can be used, depending in which direction the displacement should work.



The "P" command needs to be placed after the definition of the page size ! ("S"- command)



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

R - Replace Field Contents

The usage of the "R" command is to replace data contents of previously downloaded label. Normally this is a label which is recalled from memory card into the printer's internal memory. The R command offers a easy way to print multiple labels with a minimum on data transmission.

The R command identifies the data by its field name and inserts a new value.

Syntax:

```
R name;data CR
```

R = Replace command.

name = The name of the text data field or barcode data field.

data = The new value of the field, which will replace the data of the former label.

Example:

```
m m
J
O R
S 11;0,0,68,71,100
T:REP; 12,25,0,3,6;Good Morning
A1
```

```
R REP;cab printers
A2
R REP; Hello together
A1
R REP; Last label
A1
```

This example transmits a label and replaces the single variable in this label with other data.



Additional information about using cut commands together with Replace fields can be found at "C - Cutter Parameters".

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

S - Set Label Size

This command defines the width and length of a label and has some additional options.

Syntax: `S [ptype;] xo, yo, ho, dy, wd [, dx, col] [; name] CR`

S = Set label size

- ptype;** = photocell type. Sets the type of label sensing. Optional parameter.
It is recommended to set it in the label definition.
- e** = endless (continuous) label material without die cuts. Labels sensor is switched off and the height is measured by the amount of micro steps of the printer's transport motor.



Important: the following character is a lower case L followed either by 0, 1 or 2 !!

- I0** = senses the reflective marker on the upper side of the label material (only if the printer is equipped with this sensor!!!)
- I1** = sets the printer's sensors for die cut labels with gap
- I2** = senses the reflective marker on the lower side of the label material.
- xo**= horizontal displacement, shifts the starting point (zero point) of all horizontal measurements to the left margin of the label.
- yo** = vertical displacement, shifts the starting point (zero point) of all vertical measurements to the top margin of the label.
- ho** = height of the label in transportation direction.
- dy** = height of the label plus height of the gap. (Distance from the starting point of the label to the starting point of the next label)
- wd** = label width measured from the right margin to the left margin.

Optional parameters when multiple labels are placed horizontally

- dx** = defines the distance from the margin of the first label to the second label in horizontal direction
- col** = number of labels horizontally (default value =1)

name = optional text which is shown in the printer's display. Can be used i.e. to display the required label material which has to be inserted.

Example: `S 11;0,0,50,52,100`

Defines a label size of 50 mm height, distance from one label to the next label (label height + gap) is 52 mm and the width of the label is 100 mm. Displacement horizontal and vertical is zero.



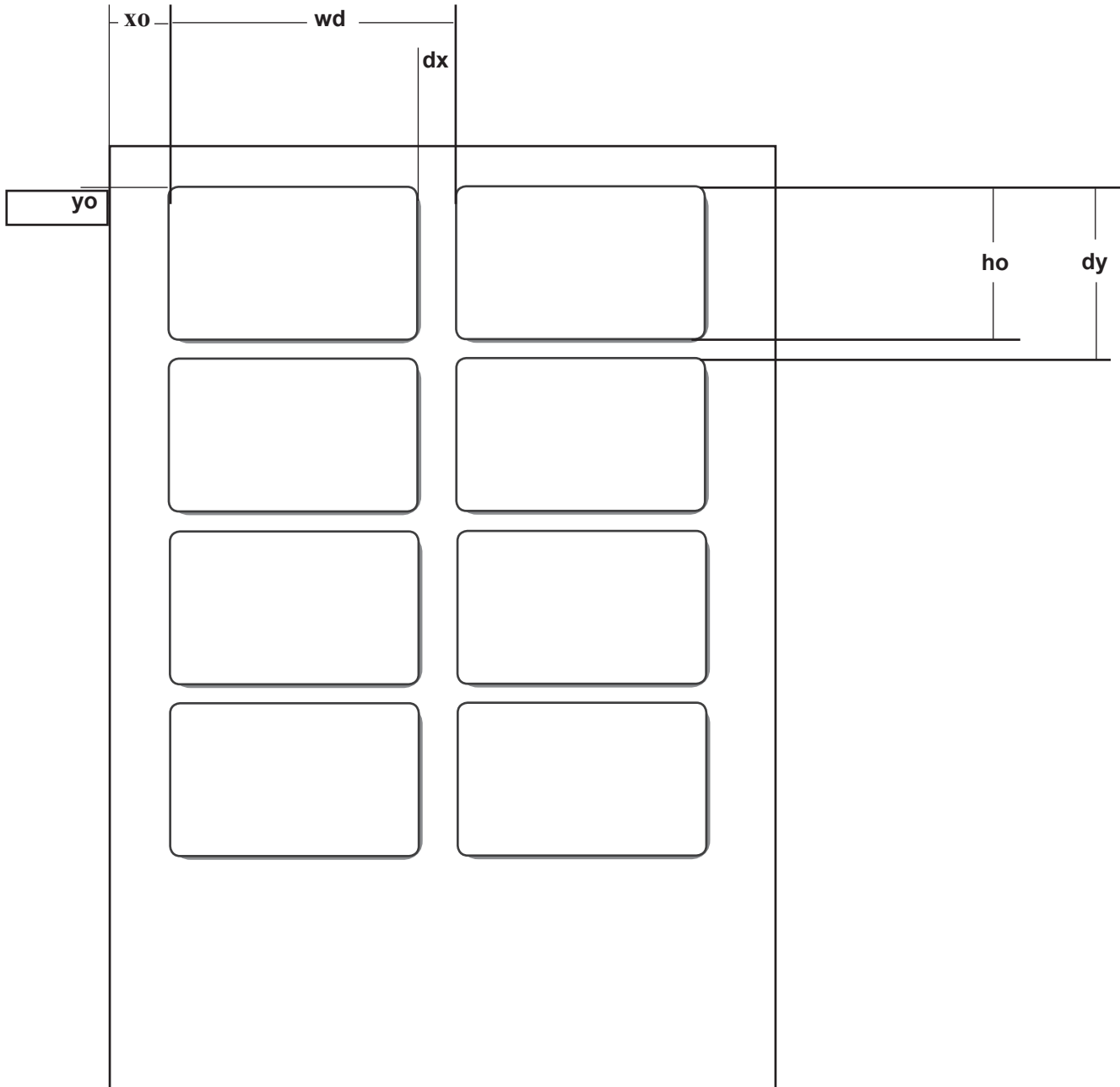
All numeric values are either in millimeters or in inches, depend on the selected country setting of the printer or depending on the "m" command.

Maximum values depend on the width of the printhead and on the amount of memory which is responsible for the maximum height of the label. Both parameters depend on the used printer type. Please refer to the operator's manual for more information.

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

S - Set Label Size





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

T - Text Field Definition

The most used command to program a label is the "T" command which is used for text field definitions. This command influences the size, shape, rotation etc. of any shown textlines on a label.

Syntax:

```
T[:name;]x,y,r,font,size[,effects];text CR
```

T = Text field definition command.

:name; = A field name can be set for further operations such as replacing text contents in a predefined text field or for calculations or for the concatenation of multiple fields. The field name is an optional parameter. Maximum length 10 digits, ALPHA signs and digits only. Text field names are case sensitive.

x = horizontal start position - distance from the left starting point of the label in millimeters or inches.

y = vertical start position - distance from the top margin starting point of the label in millimeters or inches.

r = Text field rotation. Vector fonts and downloadable true type fonts can be rotated 360 degrees in steps of 1 degree. Bitmap fonts can be rotated in 4 directions (0, 90, 180 and 270 degrees)

font = specifies a font type, set by a number which might be an internal printer font (vector or bitmap) or a downloaded true type™ font. Vector fonts are scalable fonts which appear in a smooth shape when magnified. Following font types are available:

font nr.	Name	Type	Description
-1	_DEF1	Bitmap	Default-size 12x12 dots
-2	_DEF2	Bitmap	Default-size 16x16 dots
-3	_DEF3	Bitmap	Default-size 16x32 dots
-4	OCR_A_I	Bitmap	OCR-A Size I
-5	OCR_B	Bitmap	OCR-B
3	BX000003	Vector	Swiss 721™
5	BX000005	Vector	Swiss 721 Bold™
596	BX000596	Vector	Monospace 821™



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

T - Text Field Definition

size = sets the the character size
 The size of scaleable (vector) fonts can be set in millimeters or inches, or by point size "pt x".
 The size of bitmap fonts is predefined an can be enlarged by the usage of magnification factors in horizontal and vertical direction. xn,yn where xn is the horizontal magnification (1-10 times) and yn stands for the vertical expansion (1-10 times)

effects = Defining effects is optional. Special effects can be applied to the used fonts. Which effects are available depends on the used font. Following can be applied:

b = bold
s = slanted
i = italic
n = negative (reverse print)
u = underlined
l = light
z = slanted left
k = kerning
v = print text in vertical alignment.
qn = squeeze characters, default value is 100. Possible values: 10-1000
hn = width of upper case "H" , with n millimeters or in inches.
mn = horizontal text spacing , with n millimeters or in inches.

The following effects are only available together with internal bitmap fonts:

o = outlined (not available for OCR font)
g = gray (not available for OCR font)
xn = horizontal expansion factor (n = 1-10)
yn = vertical expansion factor, (n = 1-10)

text = data string in a selected codepage. The amount of available codepages depends on the printer type and on the used firmware. Please have a look to the setup menu of your printer. The text area allows also the usage of special functions and options. Please see the special functions area later in this manual.

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

T - Text Field Definition

Example:

```
J
S 11;0,0,68,71,100
T 16,20,0,3,12;Ethanol
T 16,40,0,3,12,b;Ethanol
T 16,60,0,5,12;Ethanol
A2
```

In this example we want to explain, that the same effect can be shown when a text is bold from the original structure or when the option „b“ is used to print a bold font.

Ethanol

Ethanol

Ethanol



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

T - Text Field Definition

Example:

```
J
S 11;0,0,68,71,100
T 2,15,0,596,8;SATOR 1263768376688
T 2,23,0,596,8;AREPO 8736876136237
T 2,31,0,596,8;TENET 7686876868688
T 2,39,0,596,8;OPERA 1111111111111
T 2,47,0,596,8;ROTAS 2222444422244
A2
```

The internal Monotype font can be used to define tables. The characters of that font have always the same width. This font can be used for tables where all characters or numbers need to be placed in the same column.

SATOR	1263768376688
AREPO	8736876136237
TENET	7686876868688
OPERA	1111111111111
ROTAS	2222444422244



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

T - Text Field Definition

This example shows some special effects of the cab printers "Swiss" font.

Example:

```
J
S 0,0,68,71,100
T 10,10,0,3,5;Font 3: Swiss
T 10,20,0,3,5;Font 3: S Bold
T 10,30,0,3,5,u;Font 3: Swiss Underline
T 10,40,0,3,5,s;Font 3: Swiss Slanted
T 10,50,0,3,5,n;Font 3: Swiss Reverse
T 10,60,0,5,5,s,u,n;Font 3: Swiss combined effects
A 1
```

Font 3: Swiss

Font 3: SBold

Font 3: Swiss Underline

Font 3: Swiss Slanted

Font 3: Swiss Reverse

Font 3: Swiss combined effects

command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

X - Synchronous Peripheral Signal Settings

The **X** command can be used to control external devices through the interface in the front of the printer.

Syntax:

```
X y[;ao] CR
```

X = Synchronous Peripheral Signal Setting Command

y = Printing coordinate when a signal should be set. Distance from print start to start of the signal in millimeters or inches. (See the m command for the measurement settings.)

ao= hex nibbles to set or to reset the signal
 The a -value is an AND-mask - while the o-value is an OR-mask. Both values are hex nibbles, written together as a hex byte.
 These values can be used to set or to reset the peripheral signal. If the ao operand is omitted entirely, the item is cleared from the internal list.

Function and settings depend on the used printer type and the peripheral connector. Please refer to the operator's manual and to the documentation for the optional devices for each printer model.
 Note: The list of positions (all signal settings) is cleared when starting a new job.



The "X" command needs to be placed after the definition of the page size ! ("S"- command)

Example:

```
X 14;E0
```

Clears bit 0 when the printhead reaches the defined position 14 mm from beginning of the label.

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CHAPTER 5 - Special Content fields

Special Content fields

Special content fields are defined in squared brackets []. This brackets can be used in regular text field, as long as they do not include a special content field command.

Special content fields consist of reserved words, special phrases or special parameters. cab printers will interpret this fields as a special command instead of printing these as text values.

Special content fields offer the most powerful functions in JScript.

In the following description optional parameters are shown in these brackets { }.

The following examples will help you to understand the functions of special content fields.

It is possible to link values, but it is not allowed to insert an option into another option:

Possible:

```
J
S 11;0,0,68,71,100
T 12,25,0,3,9;It is [H12] [MIN] [SEC]
A1
```



Not possible !!!

```
J
S 11;0,0,68,71,100
T 12,25,0,3,9;It is [H12: [MIN] [SEC]]
A1
```



Values must be clearly defined to avoid that the JScript interpreter gets into "trouble"

Possible:

```
J
S 11;0,0,68,71,100
T 12,30,0,3,7; [ISODATE]
T 13,55,0,3,7; [ISODATE:5,2,11]
A1
```



Not possible !!!

```
J
S 11;0,0,68,71,100
T:VALUE1; 12,30,0,3,7;15[I]
T 12,55,0,3,7; [ISODATE:+VALUE1] *
A1
```



* This expression would work properly when the plus sign is not used:

```
T 12,55,0,3,7; [ISODATE:VALUE1]
```



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

[H12] Print Hour in 12-hour form (1-12)

This option is used to recall the time from the printer's internal clock. The result will be the actual hour on the label in the 12 hour format. Usually this option is used together with the options [MIN] and [SEC] . The single digits (1 to 9) are printed without leading zeroes.

Syntax:

[H12]

Example:

```
J
S 11;0,0,68,71,100
T 12,25,0,3,9;It is [H12] o'clock
A1
```

Here we do not know if it is 9 o'clock in the morning or in the evening. This option should be used with the [XM] option (please see there for more details).

It is 9 o'clock



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[H24] Print Hour in 24-hour form (0-23)

This option is used to recall the time from the printer's internal clock. The result will be the actual hour on the label in the 24 hour format. Usually this option is used together with the options [MIN] and [SEC]. The single digits (1..9) are printed without leading zeroes.

Syntax:

[H24]

Example:

```
J
S 11;0,0,68,71,100
T 12,25,0,3,9;The hour is [H24]
A1
```

The hour is 22



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

[H012] Print Hour in 12-hour form (01-12) -always 2 digits

This option is used to recall the time from the printer's internal clock. The result will be the actual hour on the label in the 12 hour format. Usually this option is used together with the options [MIN] and [SEC]. The "single" digits (1 to 9) will always print with leading zeroes (01 to 09).

Syntax:

[H012]

Example:

```
J
S 11;0,0,68,71,100
T 12,25,0,3,9;It is [H012] o'clock
A1
```

It is 07 o'clock

Print **H0**ur in **24**-hour form (01-24) -always 2 digits



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[H024] Print **H0**ur in **24**-hour form (01-24) -always 2 digits

This option is used to recall the time from the printer's internal clock. The result will be the actual hour on the label in the 24 hour format. Usually this option is used together with the options [MIN] and [SEC]. The "single" digits (1 to 9) will always print with leading zeroes (01 to 09).

Syntax:

[H024]

Example:

```
J
S 11;0,0,68,71,100
T 12,25,0,3,9;The actual hour is [H024]
A1
```

The actual hour is 07



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

[ISOTIME] Prints the Time in ISO standard format

[ISOTIME] prints the time in ISO format.

Syntax:

[ISOTIME]

Example:

```
J
S 11;0,0,68,71,100
T 12,25,0,3,9; [ISOTIME]
A1
```

130345



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[MIN] Print MINutes (00-59)

This option is used to recall the actual minutes from the printer's internal clock. Usually this option is used together with the options [H...] and [SEC] .

Syntax:

[MIN]

Example:

```
J
S 11;0,0,68,71,100
T 12,25,0,3,4;Actual time is [H024] hour and [MIN] Minutes
A1
```

Actual time is 07 hour and 12 Minutes



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[SEC] Print SECONDS (00-59)

This option is used to recall the actual seconds from the printer's internal clock. Usually this option is used together with the options [H...] and [MIN].

Syntax:

[SEC]

Example:

```
J
S 11;0,0,68,71,100
T 12,25,0,3,6;Actual time is [H024]:[MIN]:[SEC]
A1
```

In this example the result is identical to the TIME option. The difference is that the seconds can be printed separately.

Actual time is 07:13:32



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[TIME] Print actual **TIME**

The time option prints the actual time in the format of the preset country.
Format: HH:MM:SS

Syntax:

[TIME]

Example:

```
J
S 11;0,0,68,71,100
T 12,25,0,3,8;The time is [TIME]
A1
```

This example prints one label with the timestamp. The printer has been set to "country= United kingdom". The same result will be printed if the parameters would be sent in this way, separated by colons.

[HH] : [MM] : [SS]

The time is 23:08:57



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[XM] am/pm indicator

This option was implemented for the usage in countries, where the time is displayed as "am" (morning) and "pm" (afternoon), when 12 hour time format is selected.

Syntax:

[XM] am/pm

Example:

```
J
S 11;0,0,68,71,100
T 12,25,0,3,8;The time is [H12]:[MIN] [XM]
A1
```

The time is 7:16 am

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[DATE...] Print actual DATE

Recalls the date from the printer and prints it in the defined size and in the format of the selected country.

Syntax:

```
[DATE{ :+DD{ ,+MM{ ,+YY} } } ]
```

+DD = amount of days as numerical value
 +MM = amount of months as numerical value
 +YY = amount of years as numerical value

Alternative it is possible to use a variable to add additional days, months or years

Syntax:

```
[DATE{ :VARIABLE } ]
```



IMPORTANT NOTE: In the case when variables are used, it is not allowed to use the "+" sign !!

```
This example simply recalls the date from the printer
J
S 11;0,0,68,71,100
T 12,25,0,3,5;Todays date is: [DATE]
A1
```

Todays date is: 10/11/2003



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[DATE...] Print actual DATE

Example:

```
J
S 11;0,0,68,71,100
T 12,25,0,3,6;Todays date is: [DATE:03,02,10]
A1
```

This example adds 3 days, 2 months and 10 years

Todays date is: 27/08/2016



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[DAY...] Print numeric **DAY** of the month (1-31)

The numeric day of the actual month is recalled from the printer's clock

Syntax:

```
[DAY{ :+DD{ ,+MM{ ,+YY} } } ]
```

Example:

```
J
S 11;0,0,68,71,100
T 12,25,0,3,5;Day only: [DAY]
T 12,45,0,3,5;Added days: [DAY:03,02,10]
A1
```

Day only: 10

Added days: 13



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[DAY02...] Print numeric **2-digit DAY** of the month (01-31)

Recalls the date from the printer and prints it in the defined size and in the format of the selected country. (see also the "I" command).

Syntax:

```
[DAY02{ :+DD{ ,+MM{ ,+YY} } } ]
```

Example:

```
s 031105091500
J
S 11;0,0,68,71,100
T 12,30,0,3,7;Date: [DAY02]-[MONTH02]-[YYYY]
A1
```

Prints a label where the day is displayed with 2 digits

Date: 05-11-2003



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[DOFY...] Print numeric Day OF Year(001-366)

Prints the Day of Year. Possible values: 001-366.

Syntax:

```
[DOFY{:+DD{,+MM{,+YY}}}]
```

Example:

```
s 040205091500
J
S 11;0,0,68,71,100
T 12,20,0,3,7;February 5 is the
T 12,30,0,3,7;[DOFY] th day of the year
A1
```

The preset date in this example is February 5 2004. The result appears in 3 digits.

February 5 is the
036 th day of the year



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[ISODATE:...]

 Prints date following the **ISO** specs

Prints the date in ISO Format, following the rules of the ISO 8601-2000 standard.

Days, months and years can be added.

The ISO date specifies the representation of dates in the Gregorian calendar. Identification of a particular calendar day by its calendar year, its calendar month and its ordinal number within the calendar month.

Syntax:

```
[ ISODATE{ :+DD{ ,+MM{ ,+YY } } } ]
```

Example:

```
J
S 11;0,0,68,71,100
T 12,30,0,3,7; [ISODATE]
T 12,55,0,3,7; [ISODATE:5,2,11]
A1
```

For detailed description, please refer to ISO standard 8601-2000.

20050808

20161013



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[ISOORDINAL: ...] Prints date following the ISO specs

Prints the particular calendar day and its ordinal number within its calendar year.

Syntax:

```
[ISOORDINAL{ :+DD{ ,+MM{ ,+YY} } } ]
```

Example:

```
J
S 11;0,0,68,71,100
T 12,30,0,3,7; [ISOORDINAL]
T 12,55,0,3,7; [ISOORDINAL:3,2,1]
A1
```

For detailed description, please refer to ISO standard 8601-2000.

2005220

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[ODATE...] Print DATE with Offset (discontinued)

Print date with offset (in the format of the preset country).



This function was developed for printers which had been produced years ago and we keep it just to be compatible with older printers.

For new developments we highly recommend to use the [DATE...] command. The ODATE function should not be used for future developments. Please see the [DATE] command for further information.

Syntax:

```
[ODATE:+DD{,+MM{,+YY}}]
```

Example:

```
J
S 11;0,0,68,71,100
; We use the DATE command here instead of the ODATE command !!!
T 12,25,0,3,6;Best before: [DATE:03,02,10]
A1
```

Best before: 13/01/2014



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[wday...] Print complete **w**eek**d**ay name

Print the complete weekday name. The name of the day depends on the selected language of the printer or on the previously sent "I" (language) command.

Syntax:

```
[wday{:+DD{,+MM{,+YY}}}]
```

Example:

```
J
S 11;0,0,68,71,100
T 12,25,0,3,5;The name of today is [wday]
T 12,35,0,3,5;In 2 days we have [wday:02,00,00]
A1
```

The name of today is Thursday
In 2 days we have Saturday

command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[WDAY...] Print numeric **WeekDAY(0-6)**

This function prints the numeric week day - starting on sunday with 0 and ends at saturday with 6. Please see also the [ISOWDAY] command which numbers each weekday from 1-7, starting on monday.

Syntax:

```
[WDAY{ :+DD{ ,+MM{ ,+YY} } } ]
```

Example:

```
J
S 11;0,0,68,71,100
T 12,25,0,3,5;The name of today is [WDAY]
T 12,35,0,3,5;In 2 days we have [WDAY:02,00,00]
A1
```



This is the same sample as on the previous page with the difference that we wrote "WDAY" in capital letters.

- 0 = sunday
- 1 = monday
- 2 = tuesday
- 3 = wednesday
- 4 = thursday
- 5 = friday
- 6 = saturday

So we have Thursday today and in two days we have saturday

The name of today is 4

In 2 days we have 6



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[wday2...] Print **w**eek**d**ay name, **2** - digits shortened

Print 2 characters of the weekday name. The name of the day depends on the selected language of the printer or on the previously sent "I" (language) command.

Syntax:

```
[wday2{ :+DD{ ,+MM{ ,+YY} } } ]
```

Example:

```
J
S 11;0,0,68,71,100
T 12,25,0,3,5;The name of today is [wday2]
T 12,35,0,3,5;In 2 days we have [wday2:02,00,00]
A1
```

The name of today is Th
In 2 days we have Sa



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[wday3...] Print **weekday** name, **3** - digits shortened

Print 3 characters of the weekday name. The name of the day depends on the preset language of the printer or on the previously sent "l = language" command.

Syntax:

```
[wday3{ :+DD{ ,+MM{ ,+YY } } }]
```

Example:

```
J
S 11;0,0,68,71,100
T 12,25,0,3,5;The name of today is [wday3]
T 12,35,0,3,5;In 2 days we have [wday3:02,00,00]
A1
```

The name of today is Thu
In 2 days we have Sat

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[ISOWDAY: ...] Prints date following the ISO specs

This function prints the numeric week day - starting on monday with 1 and it ends at sunday with 7. Please see also the [WDAY] command which numbers each weekday from 0-6, starting on sunday.

Syntax:

```
[ISOWDAY{: +DD{, +MM{, +YY}}}]
```

Example:

```
l UK
s 060326184500
J
S 11;0,0,68,71,100
T 8,30,0,3,5;[wday]: = [ISOWDAY]
T 8,55,0,3,4;and in 3 days we have day no: [ISOWDAY:3,0,0]
A1
```

Following are the results:

```
1 = monday
2 = tuesday
3 = wednesday
4 = thursday
5 = friday
6 = saturday
7 = sunday
```



For detailed description, please refer to ISO standard 8601-2000.

Sunday: = 7

and in 3 days we have day no: 3



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

[WEEK...] Print numeric **WEEK** (1-53)

Prints the week number (1 -53)The week will print without leading zeroes if a week has only one digit. WEEK02 needs to be used, if leading zeroes are required

Syntax:

```
[WEEK{ :+DD{ ,+MM{ ,+YY} } } ]
```

Example:

```
J
S 11;0,0,68,71,100
T 12,25,0,3,5;Date: [DATE]
A1
```

5/02/2004

Week number: 6



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[WEEK02...] Print numeric **WEEK** with **2** -digits (01-53)

Print the week number with 2 digits. The week will print with leading zeroes.

Syntax:

```
[WEEK02{:+DD{,+MM{,+YY}}}]
```

Example:

```
J
S 11;0,0,68,71,100
T 12,25,0,3,5;This week is week number: [WEEK02]
A1
```

This week is week number:06



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

[OWEEK...] Print **WEEK** with **Offset(1-53)**

Print week with offset (1-53)

Syntax:

```
[OWEEK:+WW]
```

The offset is in weeks.

Example:

```
J
S 11;0,0,68,71,100
T 12,25,0,3,6;Todays date is: [DATE]
T 12,40,0,3,6;The week in 3 weeks is[OWEEK:3]
A1
```

Todays date is: 5/02/2004

The week in 3 weeks is9



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[mon...] Print 3-character month name

Print 2 characters of the month name. The name of the month depends on the selected language of the printer or on the previously sent "l = language" command.

Syntax:

```
[mon{ :+DD{ ,+MM{ ,+YY} } } ]
```

Example:

```
J
S 11;0,0,68,71,100
T 10,30,0,3,10;[mon]
A1
```

Feb



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

[month...] Print complete month name

Prints the complete month name. The name of the month depends on the selected language of the printer or on the previously sent "l = language" command.

Syntax:

```
[month{:+DD{,+MM{,+YY}}}]
```

Example:

```
J
S 11;0,0,68,71,100
T 10,30,0,3,10;[month]
A1
```

February



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[MONTH...] Print 2-digit MONTH (1-12)

Print digits of month. (1-12) (no leading zeroes)

Syntax:

```
[MONTH{ :+DD{ ,+MM{ ,+YY} } } ]
```

Example:

```
J
S 11;0,0,68,71,100
T 10,30,0,3,8;[month] is Month [MONTH]
A1
```

February is Month 2



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

[MONTH02...] Print 02-digit MONTH (01-12)

Print 2 digits month. (01-12) (leading zeroes, always 2 digits)

Syntax:

```
[MONTH02{:+DD{,+MM{,+YY}}}]
```

Example:

```
J
S 11;0,0,68,71,100
T 10,30,0,3,8;[month] is Month [MONTH02]
A1
```

June is Month 06



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[MONTH02...] Print 02-digit MONTH (01-12)

Print a ONE DIGIT MONTHCODE

The following example creates a label with a one digit Month code 1...9 and O...D
The months are encoded as follows:

1...9 => January ... September
O...D => October ... December

Example:

```
J
S 11;0,0,68,71,100
T:MON;5,10,0,3,4;[MONTH02][I]
T:CHAIN; 5,15,0,3,4;123456789OND[I]
T 0,30,0,5,5;The code for the month: [month] is [CHAIN,MON,1]
A 1
```

Please note, that the printed month name in this example depends on the language settings of the printer.

The code for the month: December is D



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

[YY...] Print 2-digit Year (00-99)

Print 2 digits year. (0-99) (leading zeroes, always 2 digits)

Syntax:

```
[YY{:+DD{,+MM{,+YY}}}]
```

Example:

```
J
S 11;0,0,68,71,100
T 10,30,0,3,8;[month]-[YY]
A1
```

February-04



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[YYYY...] Print 4-digit Year (1970-2069)

Print 4 digits year. (1970-2069)

Syntax:

```
[YYYY{:+DD{,+MM{,+YY}}}]
```

Example:

```
J
S 11;0,0,68,71,100
T 10,30,0,3,8;[month]-[YYYY]
A1
```

February-2004

command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

Jalali Date functions

The Jalali Calendar is used in Arab countries. The date calculation is similar to the other date commands, with the difference that the Jalali calendar is used for the date calculation which delivers other results. The handling of these functions is identical.

[JYEAR{: +DD{, +MM{, +YY}}}]	Print Jalali-YEAR , 4 digits
[JDAY{: +DD{, +MM{, +YY}}}]	Print Jalali-DAY
[JDAY02{: +DD{, +MM{, +YY}}}]	Print Jalali-DAY , 02 digits
[JMONTH{: +DD{, +MM{, +YY}}}]	Print Jalali-Month
[JMONTH02{: +DD{, +MM{, +YY}}}]	Print Jalali-Month , 02 digits
[jmonth{: +DD{, +MM{, +YY}}}]	Print Jalali-Month , complete name
[JDOFY{: +DD{, +MM{, +YY}}}]	Print Jalali-Day OF Year
[JWDAY{: +DD{, +MM{, +YY}}}]	Print Jalali-DAY of the Week (1=saturday)



The printers need to be set up for an arabic (Farsi) language to get the expected result.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

[+:op1,op2. . ,] Addition

Addition options can be used to add several values of text - or barcode fields to print the result on the label.

Syntax: [+:op1,op2. . ,]

2 digits behind the comma are preset as default value, multiple values are allowed. The values might be existing informations of other fields and numbers. Field operators might also be marked "invisible" - see option [I] to show only the result.

Example:

```
J
S 11;0,0,68,71,100
T:var1;25,10,0,3,5;44,80
T:var2;20,20,0,3,5;+
T:var3;25,20,0,3,5;26,70
G 20,25,0;L:20,0.3
T:res;25,35.0,.0,3,5.0;[+:var1,var2]
A1
```

This simple example adds var1 (44,80) and var2 (26,70) which are defined as fixed values in the label. The addition sign and the line shall help to have a better overview. The result (res) uses the calculation options.

$$\begin{array}{r}
 44,80 \\
 + 26,70 \\
 \hline
 71.50
 \end{array}$$



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

[-:op1,op2] Subtraction

Subtraction options can be used to add several values of text - or barcode fields to print the result on the label.

Syntax:

`[-:op1,op2]`

2 digits behind the comma are preset as default value, multiple values are allowed. The values might be existing informations of other fields and numbers. Field operators might also be marked "invisible" - see option **[I]** to show only the result.

Example:

```
J
S 11;0,0,68,71,100
T:var1;25,10,0,3,5;44,80
T:var2;20,20,0,3,5;-
T:var2;25,20,0,3,5;26,70
G 20,25,0;L:20,0.3
T:res;25,35.0,.0,3,5.0;[-:var1,var2]
A1
```

$$\begin{array}{r}
 44,80 \\
 - 26,70 \\
 \hline
 18.09
 \end{array}$$

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[*:op1,op2, . .] Multiplication

Multiplication of several operands of text or barcode fields and prints the result in the defined field on the label.

Syntax:

```
[*:op1,op2, . .]
```

2 digits behind the comma are preset as default value, multiple values are allowed. The values might be existing informations of other fields and numbers. Field operators might also be marked "invisible" - see option [I] to print only the result.

Example:

```
J
S 11;0,0,68,71,100
T:var1;25,10,0,3,5;44,80
T:var2;20,20,0,3,5;*
T:var2;25,20,0,3,5;26,70
G 20,25,0;L:20,0.3
T:res;25,35.0,.0,3,5.0;[*:var1,var2]
A1
```

This example multiplies var1 (44,80) and var2 (26,70) which are defined as fixed values in the label. The field with the multiply sign and the line are only added to get a better overview. The text field (res) uses the calculation options.

This option is useful to calculate the total price of a weighted product, where the data of var1 might be the weight of the product and var2 might be a fixed value which is the price per unit.

44,80	
* 26,70	

1196.15	

command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

[/ :op1,op2] Division

Divides operand1 (op1) by operand2 (op2) and prints the result in the defined field on the label.

Syntax: [/ :op1,op2]

2 digits behind the comma are preset as default value. The values might be existing informations of other fields and numbers. Field operators might also be marked "invisible" - see option [I] to print only the result.

Example:

```
J
S 11;0,0,68,71,100
T:var1;25,10,0,3,5;72
T:var2;20,20,0,3,5;/
T:var2;25,20,0,3,5;6
G 20,25,0;L:20,0.3
T:res;25,35.0,.0,3,5.0;[/:var1,var2]
A1
```

This example divides var1 (72) by var2 (6) which are defined as fixed values in the label. The addition sign and the line shall help to have a better overview. The result (res) uses the calculation options. This option is for example useful to calculate the total price of a weighted product, where the data of var1 might be the weight of the product and var2 might be a fixed value which could be the price per unit.

$$\begin{array}{r}
 72 \\
 / 6 \\
 \hline
 12.00
 \end{array}$$



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[%: op1,op2] Modulo

The remainder of the two operands is the modulo.

Syntax:

```
[%: op1,op2]
```

2 digits behind the comma are preset as default value. The values might be existing informations of other fields and numbers. Field operators might also be marked "invisible" - [see option \[I\]](#) to print only the result.

Example:

```
J
S 11;0,0,68,71,100
T:var1;25,10,0,3,5;84
T:var2;25,20,0,3,5;8
G 20,25,0;L:20,0.3
T:res;25,35.0,.0,3,5.0;[%:var1,var2]
A1
```

The remainder of 84, divided by 8 is 4.

$$\begin{array}{r}
 84 \\
 8 \\
 \hline
 4.00
 \end{array}$$



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

[%: op1,op2] Modulo

Example:

```
J
S 11;0,0,68,71,100
T:COUNT;5,10,,3,4;[SER:000000][I]
T:MODCALC;5,10,,3,4;[%:COUNT,15][I]
T:SHIFT; 5,10,,3,4;[+:MODCALC,1][D:2,0]
A 20
```

The sample above produces a counter from 1 to 15 and sets it back to 1, to start from the beginning

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[|:op1,op2] Logical Or

Logical **Or** (Result will be "1", if minimum one operator is not equal to 0, Result will be "0" on all other conditons.

Syntax:

```
[ |:op1,op2]
```

Example:

```
J
S 11;0,0,68,71,100
T:var1;25,10,0,3,5;1
T:var2;25,20,0,3,5;0
G 20,25,0;L:20,0.3
T:res;25,35.0,.0,3,5.0;[ |:var1,var2]
A1
```

Result 1, because the first variable (var1) is not 0.

$$\begin{array}{r} 1 \\ 0 \\ \hline 1 \end{array}$$

Example:

```
J
S 11;0,0,68,71,100
T:var1;25,10,0,3,5;0
T:var2;25,20,0,3,5;0
G 20,25,0;L:20,0.3
T:res;25,35.0,.0,3,5.0;[ |:var1,var2]
A1
```

Result 0, because both variables are 0.

$$\begin{array}{r} 0 \\ 0 \\ \hline 0 \end{array}$$

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

[&:op1,op2] Logical And

Compares 2 values and prints the result which is defined in that field. Result is "1" if both values for the comparison are identical" - otherwise the result is 0.

Syntax:

```
[&:op1,op2]
```

Example:

```
J
S 11;0,0,68,71,100
T:var1;25,10,0,3,5;1
T:var2;25,20,0,3,5;1
G 20,25,0;L:20,0.3
T:res;25,35.0,.0,3,5.0; [&:var1,var2]
A1
```

1

1

1



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[<: op1,op2] Comparision < Less than

Compares 2 values and has the result "1" if the expression is true, otherwise 0

Syntax:

```
[<: op1,op2]
```

The result is true (1), when operand1 (op1) is less than operand2 (op2)

Example:

```
J
S 11;0,0,68,71,100
T:var1;25,10,0,3,5;63
T:var2;25,20,0,3,5;41
G 20,25,0;L:20,0.3
T:res;25,35.0,.0,3,5.0; [<:var1,var2]
A1
```

In our example: Operand1 (var1 =63) is not less than operand2 (var2 =41) - the result is false (0)

63

41

0

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

[=: op1,op2] Comparison = Equal

Compares 2 values and has the result true (1), when the values are equal or false. (0) when these two values are not equal.

Syntax:

```
[=: op1,op2]
```

Example:

```
J
S 11;0,0,68,71,100
T:var1;25,10,0,3,5;6
T:var2;20,20,0,3,5;=      ?
T:var3;25,20,0,3,5;6
G 20,25,0;L:20,0.3
T:res;25,35.0,.0,3,5.0;[=:var1,var2]
A1
```

Compares 12 and 6 and has the result "false" (0)

```

  12
= 6 ?
-----
  0

```

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[==: text1,text2] String Comparision == Equal

Compares 2 text strings and has the result true (1), when the text strings are equal or false. (0) when these two strings are not equal.

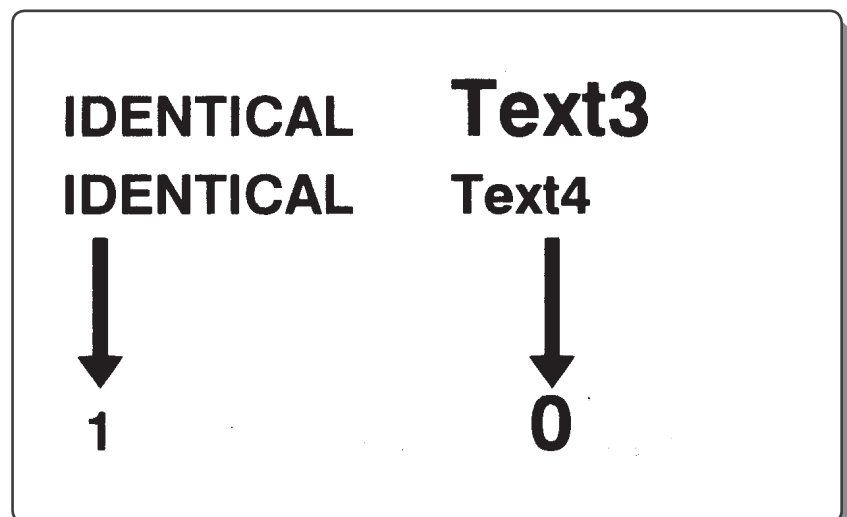
Syntax:

```
[==:text1,text2]
```

Example:

```
J
O R
S 11;0,0,68,70,100
T:VAR1;5,20,0,5,pt20;IDENTICAL
T:VAR2;5,30,0,5,pt20;IDENTICAL
G 10,33,270;L:15,2,s,a
T:VAR3;8,60,0,5,pt20;[==:VAR1,VAR2]
T:VAR4;55,20,0,5,10;Text3
T:VAR5;55,30,0,5,pt20;Text4
G 68,33,270;L:15,2,s,a
T:VAR6;65,60,0,5,10;[==:VAR4,VAR5]
A 1
```

Compares identical text strings with the result true (1) and compares 2 other text strings and has the result "false" (0)



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

[>: op1,op2] Comparison > Greater than

This option compares 2 values and has the result = true (1) or false (0)

Syntax:

```
[>: op1, op2]
```

The result is true (1), when operand1 (op1) is greater than operand2 (op2)

Example:

```
J
S 11;0,0,68,71,100
T:var1;25,10,0,3,5;63
T:var2;25,20,0,3,5;41
G 20,25,0;L:20,0.3
T:res;25,35.0,.0,3,5.0; [>:var1,var2]
A1
```

63

41

1



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[MOD10:x] Calculates the Modulo 10 Check digit

Calculates and prints the Modulo 10 Check digit for numerical barcodes

Syntax:

[MOD10:x]

x = value which is used to calculate the check digit

This function can be used to visualize check digits of barcodes, which are sometimes invisible. Some barcodes use a check digit for the scanner only which is not displayed in the human readable line. Some applications require this check digit for internal usage. This can be done with the "Mod10" function.

Example:

```
J
S 11;0,0,68,71,100
T:input;10,10,0,3,5;123456789
B 10,20,0,2OF5+MOD10,10,.3;[input]
T 10,40,0,3,5;[input] [MOD10:input]
A 1
```

This example uses the input variable for a interleaved 2 of 5 barcode, which has to contain a modulo 10 digit. Usually only the input data is copied to a second field. As the printer cannot know, that the - normally invisible check digit shall be shown on the label. Therefore [MOD10:input] is used.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

[MOD36:x] Calculates the Modulo 36 Check digit

Calculates and prints the Modulo 36 Check digit.

Syntax:

[MOD36:x]

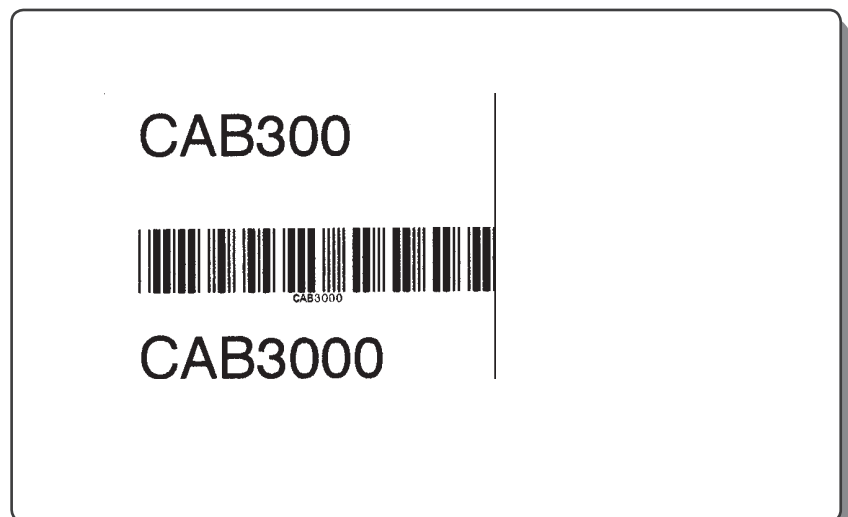
x = value which is used to calculate the check digit

This function can be used to visualize check digits of barcodes, which are sometimes invisible. Some barcodes use a check digit for the scanner only which is not displayed in the human readable line. Some applications require this check digit for internal usage. This can be done with the "Mod36" function. This function makes only sense together with Code39.

Example:

```
J
S 11;0,0,68,71,100
T:input;10,20,0,3,8;CAB300
B 10,30,0,CODE39+MOD36,10,.3;[input]
T 10,50,0,3,8;[input] [MOD36:input]
A 1
```

This example uses the input variable for a Code 39 barcode. Usually only the input data is copied to a second field, as the printer can not know, that the - normally invisible check digit shall be shown on the label. Therefore [MOD36:input] is used.





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[MOD43:x] Calculates the Modulo 43 Check digit

Calculates and prints the Modulo 43 Check digit.

Syntax:

[MOD43:x]

x = value which is used to calculate the check digit

This function can be used to visualize check digits of barcodes, which are sometimes invisible. Some barcodes use a check digit for the scanner only which is not displayed in the human readable line. Some applications require this check digit for internal usage. This can be done with the "Mod43" function. This function makes only sense together with CODE128 and Code39.

Example:

```
J
S 11;0,0,68,71,100
T:input;10,20,0,3,8;CAB767
B 10,30,0,CODE39+MOD43,10,.3;[input]
T 10,50,0,3,8;[input] [MOD43:input]
A 1
```

This example uses the input variable for a Code 39 barcode. Usually only the input data is copied to a second field, as the printer can not know, that the - normally invisible check digit shall be shown on the label. Therefore [MOD43:input] is used.





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

[P: ...] Print result in Price format

Prints result in price format

Syntax:

[P: name, td{o}]

- P** = price format option
- name** = field name
- t** = thousands separator
- d** = decimal point character
- o** = optional addendum characters

Example:

```
J
S 11;0,0,68,71,100
T:Price1;10,20,0,3,8; [P:5432,.,-] [U:$20A]
T:Price;10,50,0,3,8;$ [P:1000000,.,-]
A 1
```

5.432,- €

\$ 1.000.000,-



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

[R:x] Rounding method

cab printers "know" several rounding methods. To select a specified rounding method use the **[R:x]** option.

Syntax:

[R:x]

- x** = n = no rounding (default)
- x** = u = rounding up
- x** = d = rounding down
- x** = m = round mathematically

The following example shows the functionality:

Example:

```
J
S 11;0,0,68,71,100
T 10,10,0,3,6;[*:5.191,5] [R:u]
T 10,20,0,3,6;[*:5.1898,5] [R:d]
T 10,30,0,3,6;[*:5.1898,5] [R:m]
A 1
```

25.96

25.94

25.95



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Special functions (Miscellaneous)

command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	-	x	x	x

[?: ...] LCD prompt

cab printers offer the feature that a standard PC keyboard with USB connector can be connected the printers. It requires A-series printers have this possibility as standard feature. This feature is not available on M4.

Labels, graphics, databases and fonts can be saved on the printer's optional memory card. Recalling labels can easily be done through the attached keyboard (or in the worst case through the printer's control panel buttons - which is useful only for easy applications)

The printers allow also for variable input, the prompt on the LC display is defined with this command.

Syntax:

```
[?:x,y,z{,D}{,Lx}{,Mx}{,R}{,J}]
```

? = command for the LCD prompt

x = Text line which appears on the printers LCD (16 characters max.)

y = optional default value which is displayed on the LCD for the first input otherwise the previous input appears.

z = defines how often the input has to be entered

Optional parameters:

D = deletes the previous input

Lx = length of the input line (x=1-200) - which means 1-200 characters

Mx = Masks the input with following parameters:

- | | | |
|------------|---|--|
| x = | 0 | numeric, decimal separators and sign |
| | 1 | numeric values |
| | 2 | lower case letters |
| | 3 | alphanumeric lower case characters |
| | 4 | upper case letters |
| | 5 | alphanumeric upper case characters |
| | 6 | upper and lower case characters |
| | 7 | alphanumeric upper and lower case characters |
| | 8 | all characters |
| | 0 | sign and decimal point |

No space character is allowed if the exclamation mark "!" is placed directly after the **M** option

R = Repeats the input prompt if a record could not be found in a database

J = repeats the prompt when the printer asks for the input of the amount of labels. (A [?,R]) processes a simple loop for the amount of labels.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	-	x	x	x

[?: ...] LCD prompt

Example: [?:article number]

Requests in the display for **article number**.

Example: [?:article number,7733214]

Requests in the display for **article number** and the preset value 7733214

Example: [?:article,screw,3]

Requests in the display for **screw** each three labels.

Example: [?:article no: ,7733214,3,D]

Prompts with the headline **article no:** and the preset value **7733214** each three labels and erases the last input, which is only shown for the first time when the label is recalled.

Example: [?:article,screw,,L8]

Prompts with the headline **article no:** and the preset value **7733214**. The maximum length of input data is limited to 8 digits.

Example: [?:number,7733214,,M1111111]

Prompts for number with the preset value of **7733214** and masks the input for numeric values only.

Example: [?:artno?,,1,M1114444]

Prompts for artno, has no preset value and expects 3 numeric and 4 upper case characters



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	-	X	X	

[?: ...] LCD prompt

Example: [?:article?, , 1, M1111111, R, D]

Prompts for article number without a preset value, limited to 7 digits and repeated prompt if database content was not found.

Example: [?:article, 2200333, , , L6, M111111]

Prompts for article with preset value 2200333 and masks the input for 6 digits without space character.

Example for a simple loop:

Example:

```
J simple loop
S 11;0,0,68,71,100
T 10,15,0,3,10; [SER:1]           (This request prompts only once)
T 10,30,0,3,10; [?:INPUT?]       (This request repeats prompting)
T 10,45,0,3,10; [?:Second INPUT?, , , J]
A [?,R]
```

Repeats the prompt until the cancel button is pressed



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[C: ...] Leading zero replacement

Leading zeroes can be replaced with this function. The default counting system for serialized fields (base) is 10 and can be replaced with values from 2...36. This command with some date or time functions to suppress leading zeroes for single digit month or time.

Syntax:

```
[C:fill{,base}]
```

C = Leading zero replacement
fill = fill characters
base = optional parameter to set the counting system

Example:

```
J
S 11;0,0,68,71,100
T:CNT; 10,15,0,3,10;[SER:1][I]
T:FIELD1;10,10,0,3,10;[+1,CNT][C:0][D:4,0]
T:FIELD2;10,20,0,3,10;[+1,CNT][C: ][D:4,0]
A 5
```

Prints 5 labels with 2 counters- one counter with leading zero and the other counter without leading zeroes. The counter starts with the number 2.

Please see option "[Ser ...]for more details about serial numbering.

0002
2

0003
3

0003
3

0004
4

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

[D:...] Set number of Digits

This option allows for special formatting on a calculated field.

Syntax:

[D:m,n]

- D** = Set number of Digits
- m** = amount of digits
- n** = digits after the comma (2 is default value)

Example:

```
J
S 11;0,0,68,71,100
T:input;10,30,0,3,14;[*:10.79,4.16] [D:4,2]
A 1
```

44.88



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[DBF:...] Database file access

Syntax:

```
[DBF:key, keyvalue, entryfield]
```

Command to access data from a DBase IV™ compatible database on the optional memory card.

- key** = Search value of the database
- keyvalue** = is defined by the alphanumeric value in the actual record
- entryfield** = transmits the value of the actual record

Example:

```
[DBF:NUMBER, NUMBERTA, ARTICLE]
```

Searches in the database for the keyvalue NUMBER, in the field NUMBERTA and transmits the value of ARTICLE.

The " E "command must be defined, before this command can be used.

Only one database can be used at the same time in a label.

This function makes only sense if small databases are used. More database possibilities are available with the cab database connector (A-series printers only) , later described in this manual.

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

[I: ...] Invisible fields

This function defines a field as invisible (it will not appear on the printout). The invisible function is very helpful when some items shall not shown on the label, but they might be required for other operations, such as calculations or for substring operations etc.

Syntax:

```
[I:!!{Condition}]
```

Condition = Field will print if Condition is not "0"

!Condition = inverted function of "Condition"

Example:

```
J
S 11;0,0,68,71,100
T:WEIGHT;10,20,0,3,5;[?:Weight?][I]
T:PRICEUNIT;10,20,0,3,5;[I] 2.65
T:RESULT;10,40,0,3,4;The Fish price is: [*:WEIGHT,PRICEUNIT]
A 1
```

This example requests for input on the LC Display of the printer and multiplies this value with the priceunit which is defined as fixed value. Both fields are invisible. Only the result of the price calculation will print.

In our example the fish weight was 12 Kilos.



Invisible fields must be defined such as regular or visible fields and the syntax must be correct. They may be located on the same position. That doesn't matter as they do not appear on the label.

The Fish price is: 31.79

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[I: ...] Invisible fields

Example:

```
J
S 11;0,0,68,71,100
T:VISIBLE;10,20,0,3,5;[?:Show Weight? (Y/N),,,,M4][I]
T:VISIBLE1;50,20,0,3,5;[==:VISIBLE,N][I]
T:WEIGHT;10,20,0,3,5;[?:Weight?:]g [I:VISIBLE1]
T:PRICEUNIT;10,20,0,3,5;[I] 0.05
T:RESULT;10,40,0,3,6;The price for [WEIGHT] is: $ [*:WEIGHT,PRICEUNIT]
A 1
```

This example requests for input on the LC Display of the printer and waits for the upper case character "N" to suppress the printout of the keyed in value "WEIGHT". (Anything else than "N" will cause the WEIGHT field to print.) In the example below we did not key in "N", so the value prints in the upper left corner.



Invisible fields must be defined such as regular or visible fields and the syntax must be correct. They may be located on the same position. That doesn't matter as they do not appear on the label.

33g

The price for 33g is: \$ 1.65

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

[J: ...] Justification

The J command can be used to set the orientation of a text string in a specified area.

Syntax:

[J:mI]

J = Justification

m = l - left
 = c -centered
 = r - right

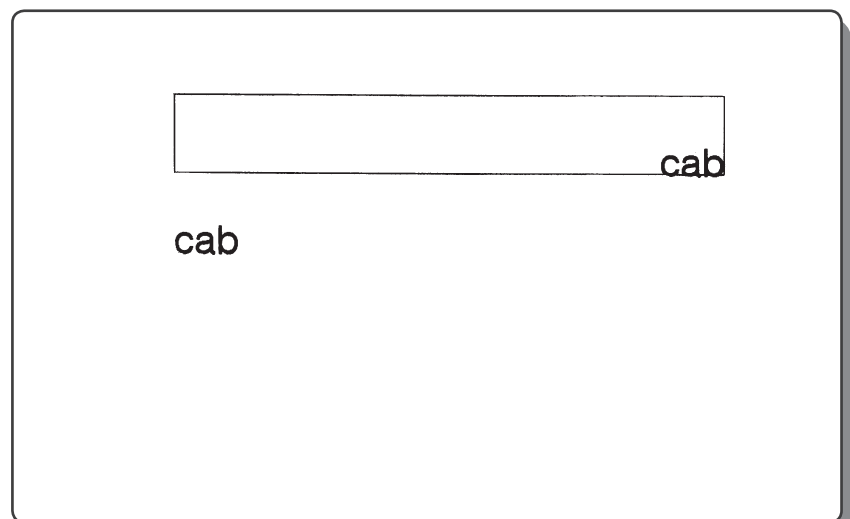
I = length of the specified area where the text string will be justified

Positions are measured in millimeters or in inches, whatever is set by the "m" command.

Example:

```
J
S 11;0,0,68,71,100
G:AREA;10,10,0;R:70,10,.2,.2
T:NOADJUST;10,300,0,3,5;cab
T:ADJUST;10,20,0,3,5;cab[J:r70]
A 1
```

The Field "NOADJUST" is transmitted as is and the Field "ADJUST" adjusts the textline to the right side of the defined area. (Shown with added rectangle.)





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[LOWER:...] Converts to **lower** case characters

The "LOWER" function converts text contents into lower case characters

Syntax:

[LOWER:Name]

Example:

```
J
S 11;0,0,68,71,100
T:Input;10,20,0,3,8;cab GERMANY
T:LOWERCASE;10,40,0,3,8; [LOWER:Input]
A 1
```

Prints the field "Input" as it is keyed in, and prints the same data in field "LOWERCASE" as lowercase characters.

cab GERMANY

cab germany

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

[name] Access a field with a name

Uses previously defined field contents of text or barcode fields for further operations. This might be to concatenate the values of different fields, to use the values for mathematical operations etc. requires that the predefined field names are unique.

The name option can use a predefined field content multiple times within a label.

Syntax:

[name]

name = previously defined fieldname

Example:

```
J
S 11;0,0,68,71,100
T:FIELD1;10,20,0,3,5;cab
T:FIELD2;10,30,0,3,5;label printers
T:FIELD3;10,40,0,3,4;we like [FIELD1] [FIELD2] !!
A 1
```

FIELD1 and FIELD2 are linked with additional standard text in FIELD3



Note: Field names are case sensitive !!

A fieldname must be defined unique. Using the same name twice or more often is not allowed.

cab

label printers

we like cab label printers !!



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[name,m{n}] insert substring

Extracts data from an existing data string of an other previously defined field. Parts of field contents can be used for further operations in another field.

Syntax:

[name,m{n}]

name = previously defined field name
m = position of the first character to be copied
n = amount of characters to copy

Example:

```
J
S 11;0,0,68,71,100
T:ORIGINAL;10,20,0,3,8;cab GERMANY
T:CUTOFF;10,40,0,3,8;[ORIGINAL,8,4]
A 1
```

This example uses the previously defined field with the field name "ORIGINAL" and cuts from the content "cab GERMANY" 4 characters, starting at character number 8. The result is shown below.

cab GERMANY

MANY



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

[RTMP...] **Read value from serial (TMP) file**

Reads the value from a serial file of the optional memory card

Syntax:

[RTMP]

Syntax:

[RTMP : x]

- RTMP** = Read TMP (Serial) file
- x** = defines how many time the value will repeated

See also the command [WTMP] Read value from serial temp file



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

[S:...] Script style for numeric values

Influences the script style for numeric values. LATIN or ARABIC are valid values. Selecting ARABIC is only possible with font type -3 or special arabic truetype fonts. This command has no influence on barcodes.

Syntax:

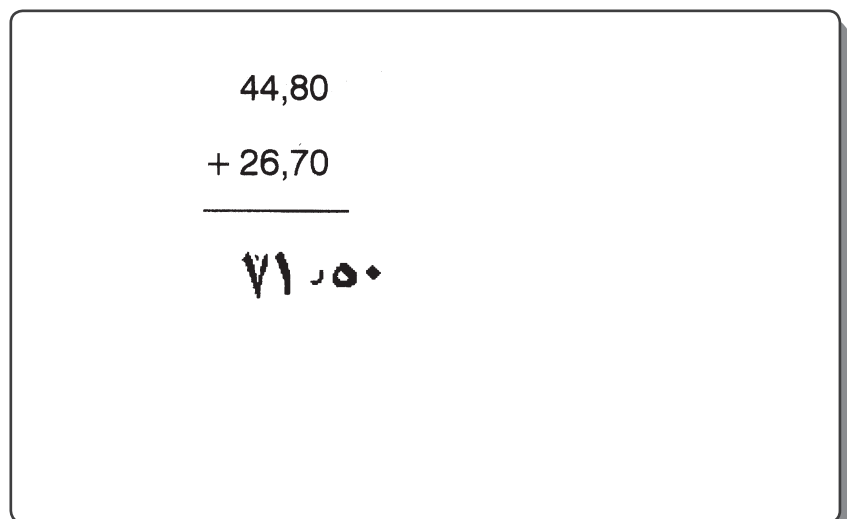
[S:name]

name = Arabic
Latin

Example:

```
J
S 11;0,0,68,71,100
T:var1;25,10,0,3,5;44,80
T:var2;20,20,0,3,5;+
T:var2;25,20,0,3,5;26,70
G 20,25,0;L:20,0.3
T:res;25,35,0,-3,x3,y3;[+:var1,var2] [S:ARABIC]
A1
```

Prints the result of this calculation in arabic script style.





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[SER:...] - Serial numbering

Causes the printer to print serial numbers.

Syntax:

```
[SER:start{,incr,{freq}}]
```

- start** = Initialisation value
- sets the start number
- incr** = increment value
- presets the number which is added to the start number
- freq** = frequency - defines the number of identical values on the labels before the serial number increments.

cab printers will use automatically "1" if incr and freq are not set.

Example:

```
J
S 11;0,0,68,71,100
T:CNT; 10,15,0,3,10;[SER:1][I]
T:FIELD1;10,10,0,3,10;[+1,CNT][C:0][D:4,0]
T:FIELD2;10,20,0,3,10;[+1,CNT][C: ][D:4,0]
A 5
```

The same example as for the "C:Fill.." command has been used (leading zero replacement)

Please see there to get more information about these functions. More examples for the explanation of serial numbering

0002
2

0003
3

0003
3

0004
4



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[SER:...] - Serial numbering

Example: Counter with variable start value

The following example shows a counter which uses a variable start value. We define 2 invisible (non printable) fields which contain the start value and the counting part. The mathematical sum of both fields will be printed as result of both fields. The result is defined without digits behind the comma.

The start value is defined for the keyboard input and will be requested in the printer's display. In the example below the start value of 99 was keyed in.

Example:

```
J
O R
S 11;0,0,68,71,100
T:start;0,0,0,5,5;[?:Counter-Start value?][I]
T:offset;0,0,0,5,5;[SER:0][I]
T 10,50,0,5,40;[+:start,offset][C:0][D:1,0]
A 4
```

102

101

100

99

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[SER:...] - Serial numbering

The following example shows a label which will be saved on the printers memory card and the variable start value is sent by the attached computer.

Please refer also to the "M s" command which explains how to save labels on a memory card.

Example:

```

Ms LBL;NUMBER
m m
J
H 100,0,D
S 11;.0,.0,50.0,53.5,70.0
T:YEAR;60.3,4.8,180.0,5,4.0;[YYYY]
T:NR;0,0,0,3,2;0000000[I]
T:OS;0,0,0,3,2;[SER:0000000][I]
T:SER;48.3,4.7,180.0,5,4.0;[+:NR,OS][C:0][D:7,0]
B:BAR2;66.7,43.9,180.0,2of5interleaved+MOD10,35.0,.34,3.0;[YEAR][SER]
B:BAR3;19.9,6.0,270.0,2of5interleaved+MOD10,18.0,.34,3.0;[BAR2]
Ms LBL
A 1[NOPRINT]

M1 LBL;NUMBER
R OS;[SER:0000025]
A 3
  
```

The M1 command recalls the label,the R command replaces the variable "OS" and "A3" prints 3 labels.





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[SER:...] - Serial numbering

Example: Counter with restart from the beginning

The following example shows a counter which restarts after a specific amount of labels. Here the counter starts at one, counts up until the value "3" is reached and restarts again counting from "1". Totally 10 labels will be printed

Example:

```
J
O R
S 11;0,0,68,71,100
T:COUNTER;0,0,0,5,5;[SER:0][I]
T:MAXLAB;0,0,0,5,5;[%:COUNTER,3][I]
T:RESULT; 30,30,0,5,12;[+:MAXLAB,1][D:2,0]
A 10
```

0002
2

0003
3

0003
3

0004
4

▪
▪
▪



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

[SQL:xx] SQL database access

Enables the printer to access a SQL database. This command is used together with the cab database-connector.

It requires that a file has been select first with command "E SQL, IP-Adress:Port "
See also the cab database connector section later in this manual.

Syntax:

[SQL:xx]

xx = any SQL query

i.e. **SELECT** DESCRIPTION **FROM** TABLE **WHERE** SEARCHVALUE='{Fieldname}'

This example below shows a typical request from the SQL database

Example:

T 10,15,0,3,5;[SQL:SELECT PRODNAME FROM TA WHERE ARTICLE= '{ARTNO}']

The command [SPLIT] can be used if multiple fields are requested. These fields will be delivered, separated by group separators (GS).

[SPLIT] helps to separate this content. Please see also the [SPLIT] command.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[SQLLOG:...] SQL logging into database

Same function as the [SQL:xx] command. SQLLOG will be processed when the label is printed. This enables data logging into a database.

Syntax:

[SQLLOG:xx]

xx = any SQL query

For further information please see the command [SQLLOG:xx] and have a view into the cab databaseConnector section later in this manual.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[Split:...] Split data

The Split command is mainly used together with the cab dataBase Connector (A-series printers only). Data strings can be transmitted as one string, which reduces the transmission time for database access.

The data strings need to be separated by group separators (GS)

Syntax:

```
[SPLIT:Result,index]
```

SPLIT = SPLIT command
Result = Field

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[U:x] Insert Unicode characters

This option inserts UNICODE characters in the data string of your text or barcode fields.

Syntax:

[U:x]

- U** = Select unicode character
x = Hexadecimal value, indicated by a dollar sign (\$) or ASCII control code name, such as:
 NUL, SOH, STX, ETX, EOT, ENQ, ACK, BEL, BS, HT, LF, VT, FF, CR, SO, SI, DLE, DC1, DC2, DC3, DC4, NAK, SYN, ETB, CAN, EM, SU, ESC, FS, GS, RS and US.
 or
 Control codes for Code 128 such as FNC1, CODEA, CODEB, CODEC.

Example:

[U:\$20AC] creates the Euro currency symbol
 [U:FNC1] creates a function code 1 character (Used for barcode typeCode 128)
 [U:\$D] or [U:13] creates a Carriage return
 [U:\$A] or [U:10] creates a line feed

Example:

```
J
S 11;0,0,68,71,100
T 20,15,0,3,20; [U:$20AC]
T 20,40,0,596,10; [U:$20AC]
A1
```





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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

[UPPER:...] Convert to upper case characters

The "upper" function converts text contents into upper case characters

Syntax:

[UPPER:Name]

Example:

```
J
S 11;0,0,68,71,100
T:Input;10,20,0,3,8;cab Germany
T:UPPERCASE;10,40,0,3,8;[UPPER:Input]
A 1
```

Prints the field "INPUT" as it is keyed in, and prints the same data in field "UPPERCASE" as uppercase characters.

cab Germany

CAB GERMANY



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[WINF] Mark a line for writing into the info buffer

[WINF] marks a line to be written in the info buffer. This can be recalled with the "ESC i" command. This value will be set if the label is completely processed.

Syntax:

[WINF]

Example:

```
J
S 11;0,0,68,71,100
T 5,6,0,3,3;[SER:1000,4] [WINF]
A500
```

This example prints a label with a counter - starting at 1000 and incrementing by 4. When the label is completely processed, the value of the counter will be written into the WINF buffer.

Completely processed means, that a label in demand mode will write the value into the WINF buffer if it is printed **and** removed from the demand photo cell.

The selected value for the WINF buffer can also be marked as invisible (non-printing) using the [I] command.

Requesting this value can be done with the "ESC i" command. In our example we would receive the values 1000, 1004, 1008 , 1012 etc.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

[WLOG] Write LOG file

Writes data to a log file on the memory card. The log file can be used to keep track of printed labels and can be used to create a report of this data.

Syntax:

[WLOG]

Example:

```
J
S 11;0,0,68,71,100
E LOG;INFO
T:VAL; 5,6,0,3,3;[SER:0001][I]
T:PRINT;5,15,0,3,3;Label [VAL] printed at [DATE] at [TIME].[WLOG]
A3
```

This example keeps track of the labels, based on the counter value VAL which will be written to the LOG file "INFO".

```
Label 0001 printed at 3/07/2006 at 12:35:24.
```



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

[WTMP] Write value to serial (TMP)file

Writes a value to a previously defined temporary file on the printer's memory card.

Syntax:

[WTMP]

Example:

```
J
S 11;0,0,68,71,100
E TMP;EXAMPLE
T:XVAL;10,10,0,3,3;[RTMP,1][I]
T:SERNO;10,10,0,3,3;[+:XVAL,1][D:0,0][I] [WTMP]
T:TESTFELD;10,20,0,3,8;Serial number is: [SERNO]
A4
```

The value of the file EXAMPLE will be saved in the value XVAL.

The value increases in our example in steps of 1 whereby the result is saved on the memory card in the file EXAMPLE.TMP.

EXAMPLE.TMP is located in the "MISC" folder on the memory card.

[See also the command \[RTMP\] Read value from serial \(TMP\) file.](#)

Serial number is: 25

CHAPTER 6 - cab DataBase Connector

cab DataBase Connector commands

Note: OPTIONAL HARDWARE REQUIRED on A-Series based printers or special license needs to be bought (depends on the printer model)

cab Database Connector

This software allows in connection with a printer of the cab A-series (not A2-Gemini) and the Ethernet network card via TCP/IP, to print a label which contains data from an SQL compatible data base. The data is recalled from the printer through it's attached keyboard.

With the methods up to now it was necessary to load data bases in a fixed format on a memory card into the printer.

This has the disadvantage that the data has to be converted, they never had been actual and the access time became slower the more the database was growing.

Changes in the central data base required an update on the printers memorycard to have access to the actual data.

cabDatabaseConnector works different. It can recall data from an existing database somewhere in the network. Changes, which are made in this data base, are immediately available, if a new label is printed out.

The care expenditure for the memory card is no longer needed. The printers of the A-series can be somewhere in the network. - Theoretically they might be anywhere in the world.

The following components are necessary:

- printer of the A-series (e.g. A3 / A4 / A6 / A8 / HERMES A.. etc...)
- A - series Ethernet network card with A-series cab Database Connector license
- Compact Flash memory card
- an input device (USB scanner hl30 or USB keyboard)
- cab DataBase Connector software

With the cab SQLClient -implemented in the A-series - printers can have access the database server directly on-line through the cab Database Connector and Ethernet TCP/IP.

All data bases with ODBC or a Microsoft OLEDB interface can be accessed.

With cabData Base Connector Server several tables and fields can be queried at the same time.

Multiple pre defined labels can be selected through the table of contents of the memory card.

How it works:

The cab SQLClient contacts the cabDataBasConnector via Ethernet TCP and sends a SQL Query. Cab Database Connector receives the SQL inquiry and sends it via ADO (ActiveX DATA Object) to the database server.

cab Database Connector receives a data record from the database server and sends it via TCP to the cab SQLClient. The cab SQLClient receives the requested data record as a character field.

Supported Databases:

MS ACCESS, Ms SQLServer, Oracle, Dbase and ODBC connections.



Important: Jet40Sp3_Comp.exe and mdac_typ.exe must be installed.

Usually these files are present, if Office 2000 or Windows 2000 is installed.

These files can also be downloaded from www.microsoft.com/data.

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	-	X	X	X

cab Database Connector and SQLClient

With the cab Database Connector and the builtin SQL client , printers can retrieve data online via Ethernet TCP/IP directly from a Database.

When the printer works as a stand alone print station, you do not need to store and maintain the data base files on the compact flash cards anymore.

You can access all types of databases with an ODBC driver or a Microsoft ADO-Interface.

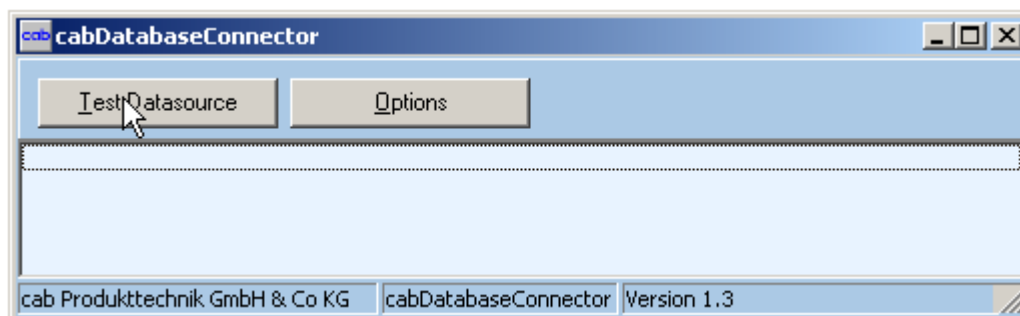
It is now possible to access more than one table and it is much faster than accessing data on the flash card.

Installation

Step 1

Simply copy the program cabDatabaseConnector.exe on any PC in your network and start it.

The program appears on screen as shown on the picture below.



Step 2

Click on [Server Settings] and type in the complete database connection string. Database connector has an implemented wizard, to help you to find the correct settings. This requires your knowledge about your database !

Sample connectionstrings

MSAccess: Provider=Microsoft.Jet.OLEDB.4.0;Data-Source=<DatabasePath+MDB-Filename>

ODBC: in most cases simply type in the ODBC-Datasourcename

MSSQLServer: Provider=SQLOLEDB.1;Integrated Security=SSPI; Persist SecurityInfo=False;Initial

Catalog=cab; Data Source=hostname

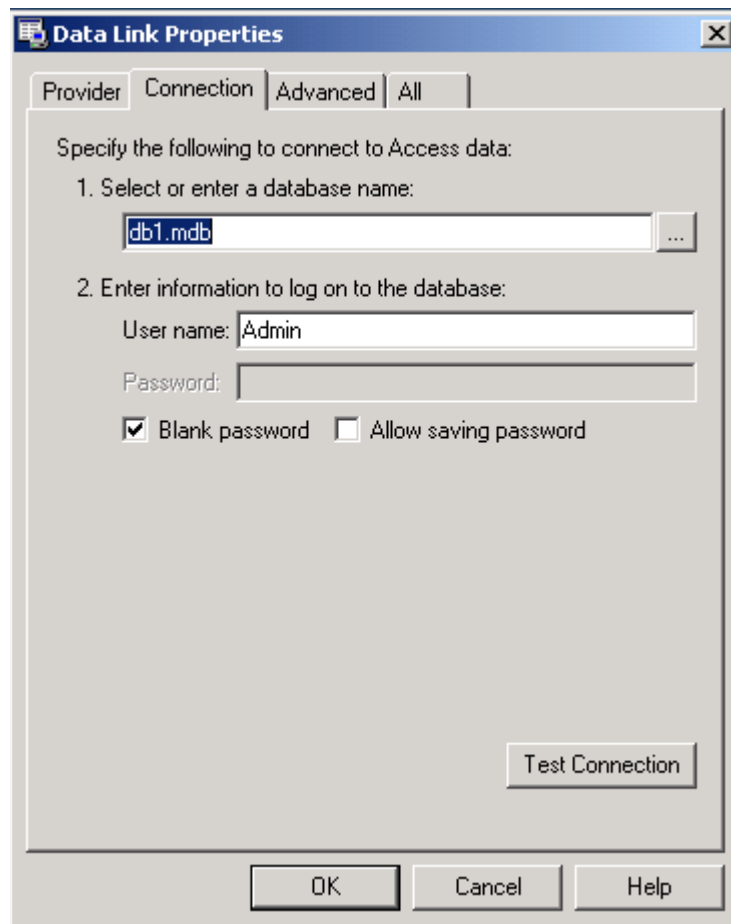
ORACLE: Provider=MSDAORA.1;User ID=User; Data Source=Prod;Persist Security Info=False

Dbase: DSN=ExampleDatasource;DBQ=<DatabasePath>; DefaultDir=<DatabasePath>;FIL=dBase IV

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	-	X	X	X

The connection can be keyed in manually if it is known for the database connection or the built in wizard may be called up which appears in on screen as shown below.



Details about the wizard are described in the built in help file. You need good knowledge about your data base do a proper setup !

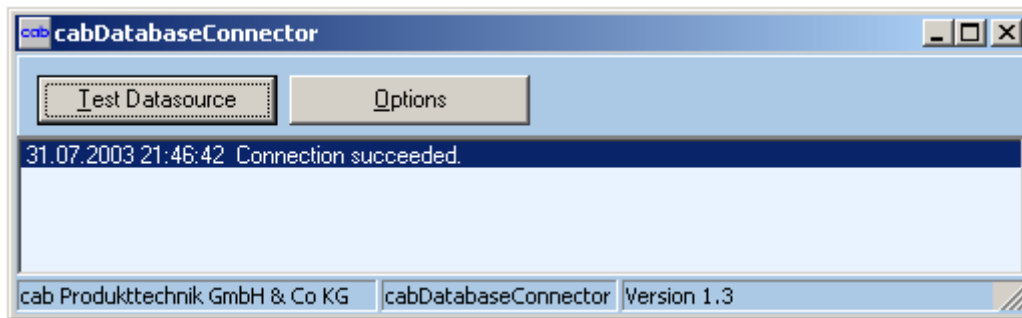


cab Database connector can be started multiple times in a network or multiple times on one PC.

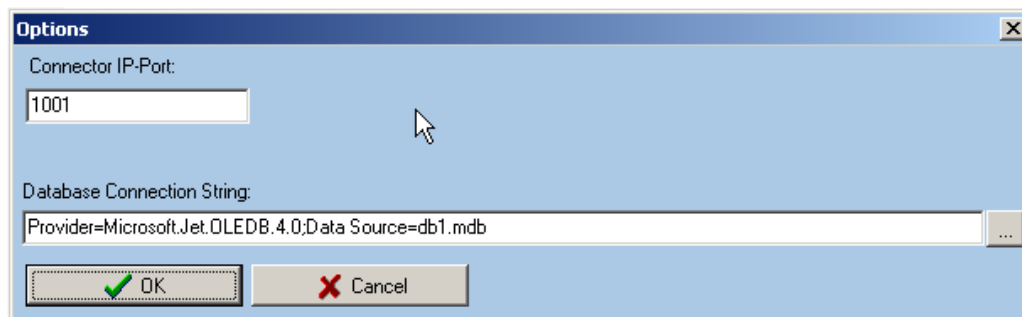
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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	-	X	X	X

The picture below shows a test of the connection settings, where a Microsoft Access database is connected.



Click on **[Test Database Connection]** to test the datasource.
 If DatabaseConnector reports any errors in a popup, then install Jet40Sp3_Comp.exe and mdac_typ.exe. (This is usually only required together with windows 98)
 You can download this files at <http://www.microsoft.com/data>.
 If DatabaseConnector reports - Connection open failed- in the list box, then something is wrong with the connectionstring. Correct the connection string.
 A sample printout which connects to a MS Access database is shown on the picture below.



Step3

Save the prepared label on the memory card of your A-series printer. A sample label is shown on the next pages. Please note that this requires additional commands to get access to your database.

These additional commands are required:

The E-Command: (previously deccribed in this manual)

Syntax:

```
E SQL;<IP of cabDatabase connector>;Portnumber
```

Defines the IP adress of the computer where cab database Connector is installed. The portnumber can be set in the database connector program its self and must be identical to the port adress which is set with the " E " command.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	-	X	X	X

Example: `E SQL;192.168.0.80:1001`

The command sets the connection to the computer with the IP address: 192.168.0.80 where the port number was set to "1001" in cab database connector program

Required Query-Function:

Syntax: `[SQL:Select Field from Table where Searchvalue='{Fieldname}']`

SQL command language is used to access data from an existing SQL Database

Example: `T 10,15,0,3,5;[SQL:SELECT PRODNAME FROM TA WHERE ARTICLE= '{ARTNR}']`

The SPLIT - Command:

Syntax: `[SPLIT:Field,Index]`

Example: `T 10,5,0,3,5;[SPLIT:RESULT,1]`

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	-	X	X	X

Following is required to process the example successfully

- Your A-series printer is equipped with a USB keyboard
- An optional memory card must be installed
- The printer must be connected to your network with the special network card !!
- cab database connector has been started and set up correctly.
- The database must be available- we used the table name TA, the database search field name is ARTICLE which is compared with the search value "{ARTNR}" which is a field name of the label definition. The content of PRODNAME will be recalled from the database
- The following label example must be saved on the optional memory card.

The file below can be recalled from the printers memory card when F1 is pressed on the attached USB keyboard (this recalls the label) and has be followed by the label name

The content of the label is as follows:

Example:	
1.	m m
2.	J
3.	S 11;0,0,68,70,100
4.	H 200
5.	E SQL;192.168.0.128:1001
6.	T:ARTNR;10,5,0,3,5;[?:Artikelnummer,5560432,1,R,D]
7.	T 10,15,0,3,5;[SQL:SELECT PRODNAME FROM TA WHERE ARTICLE='{ARTNR}']
8.	A 1



Note: The line numbering is used for a better explanation, it does not belong to the program code.

Explanation:

- Line 1. Selects metric measurement (m m)
- Line 2. Job start (J)
- Line 3. select the label size (S 11;.....) - in our case: 68 mm high and 100 mm wide
- Line 4. print speed (H 200) - here 200 mm/s
- Line 5. Tells the printer IP and port adress of the device where the database connector is installed. (in our case: IP - adress: 192.168.0.128 and the port adress: 1001)
- Line 6. Defines a text field which defines the text which will be shown in the display (T:ARTNR.....) - here we ask for a articlenumber in the SQL database.
The printer expects here an input which contains a value from the SQL database.
- Line 7. Defines the SQL request and defines also the position and the font of the data field.
- Line 8. Sets the amount of labels which will be printed. (in our case 1 label)

CHAPTER 7 - a-Series basic compiler

abc - a-Series basic compiler



An internal basic compiler has been implemented since firmware version 2.80 Originally designed for A-series printers (where the name comes from..) -meanwhile also implemented for the M-series and Hermes A it will be used in future printers - but the name will not change...



We highly recommend to update the firmware first before abc is used. The following description is based on the actual firmware release. Please install the actual firmware before you use abc !!!!! The actual firmware release can be downloaded from <http://www.cabgmbh.com>. The short status or status printout - selectable through the printer's navigator pad in the test menu - shows which firmware version is installed. The usage of abc requires good programming knowledge of the programming language BASIC.

abc is a command subset from Yabasic (at the moment V2.722). Except from the restrictions listed below it is 100% compatible to it, so you can use the original binaries to test your programs under Windows or Linux (downloads and documentation from www.yabasic.de).

Requirements:

- Running abc needs at least 300 kByte of free memory to work smoothly. Parts of this memory are not being released after finishing the program, so restarting abc is faster.

Restrictions:

- No window and mouse functions
- No PRINT AT
- No COMPILE, no libraries
- No BEEP and BELL
- abc and JScript work with cooperative multitasking, i.e. a complex JScript command can delay abc commands and vice versa
- The content of a file has priority over abc output to JScript. This way abc can e.g. send „M I lbl;sample“ to JScript. However this means that when a file is executed from card abc output is delayed until the file has been completely read and closed by Jscript!

Import differences to Yabasic PC versions:

- To switch off the ESC command interpretation of JScript you can use POKE „transparent“,0 or 1. However all data which is already in the input buffer (64 kwords) has been filtered. So do not send data with ESC in it before the POKE command has been executed!
- abc works internally with Unicode, so multilingual data processing is no problem for abc programs. abc can also handle chr\$(0) within a string which is interpreted as string end in yabasic.
- Programs can be stopped by total CANCEL (pressing CAN more than three seconds on front panel), this can be disabled by ON INTERRUPT command.
- abc has a command to check for the existence of files or devices: EXISTS(„filename“) or EXISTS(„/dev/rawip“)
- No SYSTEM\$() function

Temporary restrictions/known bugs:

- Printing ESC sequences to JScript has no effect
- PAUSE doesn't work yet

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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

Window-Handling:

abc uses a hidden window which can be (partially) mapped to the front panel LCD. The printer handles the window as a bitmap with 8 bit indexed colours. So each dot can have a value of 0 (black) to 255 (white). During mapping to the LCD, each colour is mapped according to its brightness which is predefined as grayscales, i.e. 128 to 255 gives white pixels, 0 to 127 black pixels. The mapping can be changed with the POKE command to RGB colors which are useful if you want to write the graphic to the card.

- 'OPEN WINDOW width, height' opens the window. Only one is allowed. As this window is stored internally in standard memory, define it only the size you really need. (E.g. a window 100,100 takes 10kByte memory). For the front panel's LCD a window of 120 by 32 is sufficient. (depending on the display of the printer type)
- There's only one font (16 dots high), variable width with support of latin, greek, cyrillic, hebrew and arabic scripts. The origin is in the upper left corner of the first character's bounding box. For right-to-left writing countries, the origin is in the upper right corner.

New functions compared to Yabasic:

- POKE „color#“,rgb, #=1 to 254, 0 stays always black, 255 stays always white, e.g. POKE „color#15“,dec(„ff0000“) sets color no. 15 to red
- WINDOW TRANSFER TO „name“ transfers the window content to a JScript image „name“ which can be used e.g. with the I command.
- WINDOW TRANSFER FROM „name“ loads the window with a JScript image. If the windows and image size are not identical the result is clipped.
- WINDOW WRITE TO „name“ saves the actual window as PNG on the memory card.
- WINDOW READ FROM „name“ load a PNG into the actual window. Path names are allowed here. The window has to be big enough to hold the image, else loading will fail! Supported formats are:
 - grayscale 1 to 8 bits per pixel
 - paletted images 8 bits per pixel

Restrictions compared to Yabasic:

- No CIRCLE command.
- No BITBLT, GETBIT\$ and so on.
- WINDOW ORIGIN is not supported, i.e. the origin 0,0 is always in the upper left corner.

The modifiers CLEAR and FILL have the following results (shown for the RECT command):

RECT:	frame in foreground color
CLEAR RECT:	frame in background color
FILL RECT:	filled area in foreground color
CLEAR FILL RECT:	filled area in background color



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

PEEK Variables:

„os“	Delivers „cab A-Series“ - only for compatibility with Yabasic
„version“	Version of Yabasic
„resolution“	Resolution of printer in dpi
„width“	Maximum print width in mm
„transparent“	Value: 0 or 1. 1 switches off ESC-command interpretation
„mlength“	measured length of last label distance (mm), if not known it is 0
„direction“	direction of paper move - 1 if forward, -1 if backwards and 0 if standing
„slength“	stored label distance (mm), if not known or invalid it is 0 this is effectively the distance of the last defined label before being switched off
„imageheight:name“	gives the height of an image „name“ in dots, 0 if not known
„imagewidth:name“	gives the width of an image „name“ in dots, 0 if not known
„freememory“	gives the free main memory (available for abc or Jscript)
„status“	state of the printer (same as ESC s answer string)
„xinput“	status of the peripheral connector input pin (XSTART)
„xoutput“	reads actual peripheral control bits
„line“	number of the actually printed label
„jphase“	Phase of JScript-Interpreter: 0 waiting for label definition 1 in process of label definition 2 during printing 3 standby, waiting for new job or new data for old one
„source“	Name of last data source: „RS232“, „RS422“, „RS485“, „IEEE1284“, „RAWIP“, „USB“, „unknown“
„ticks“	timer tick since startup of printer in 1/128th seconds
„sec70“	time in unix format - i.e. seconds since Jan 1, 1970.
„peri“	Gives back name of peripheral (similar to JScript q p command)
„winf“	Gives back the contents of the WINF buffer (similar to the ESC i command)



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

POKE Variables:

„xoutput“	status of the peripheral connector control bits (output) Note: you have to set the peripheral mask to 0 (x m command) before!
„read_controls“	Value: 0 or 1. 1 allows control characters to pass thru INPUT or INKEY\$. All characters are passed to abc, including the character terminating the input line (e.g. CR). (This CR can be removed e.g. with TRIM\$.)
„bypass“	Value:0 or 1. 1 allows data from interfaces to go directly to JScript.
„httpswap“	Can be used to swap the normal root directory and the memory card on the webserver. E.g. POKE „httpswap“,“/secret“ moves the applet to /secret/index.htm and /card/index.htm to /index.htm.
„lcd“	Controls the source for the LCD. 0 is standard, JScript content. 1 is the abc window.
„lcdx“, „lcdy“	Offset for the LCD in the abc window.
„led“	Controls the state of the front panel LEDs (if „lcd“ is 1). Bit coded: 1 = Cancel 2 = Mode 4 = Feed 8 = Pause 16 = Arrows
„ledmask“	Masks the LEDs to be lit. Independent of „led“ -value. Same bit coding as „led“. A 0 masks the respective LED.
„backlight“	Controls the backlight of the LCD of „lcd“ is 1. 1 is on, 0 is off, 2 is controlled by JScript (Default).
„fcolor“, „bcolor“	Sets the fore- and background colors for abc window operations.
„color#x“	Sets the RGB value for color #x. x is valid from 1 to 254. Color 0 (black) and 255 (white) cannot be modified.
„nice“	Sets the multitasking priority of abc vs. JScript. Ranges from 1 (JScript fast) to 20 (abc fast). Default is 10.
„key“	Puts a character into the key buffer. E.g. POKE „key“,dec(„F001“) simulates pressing the MODE key.
„winf“	Writes a value into the "WINF" buffer.



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

Streams:

Filename	Direction/Bit	Description
„/dev/rs232:baud,handshake“	I/O,8	Baud: 1200-230400, handshake: -,RTS/CTS,XON/XOFF
„/dev/ieee1284“	I/O,8	bidirectional parallel interface
„/dev/rs422:baud,handshake“	I/O,8 ¹	RS-422 interface, baud: 1200-230400, handshake: -,XON/XOFF
„/dev/rs485:baud,address“	I/O,8 r	RS-485 interface, baud: 1200-230400, address: A-Z
„/dev/usb“	I/O,8°	USB-Client
„/dev/rawip“	I/O,8	raw-IP interface
„/dev/lpr“	I,8°	lpr server
„/dev/panel“	I,16	input from front panel keys, key values are \$F001 Mode \$F002 Formfeed \$F003 Cancel \$F004 Pause \$F090 Cancel longer than 3 seconds
„/dev/keyboard“	I,16	input from external keyboard <i>There are too many keycode to list them here - please use the program listed in the sample section of this document.</i>
„/dev/jscript“	I,16	JScript-Interpreter - needed for reading back answers
„/card/filename.ext“	I/O*,8/16	file from memory card
„/iffs/name.ext“	I,8/16	file from internal memory
„mailto:address“	O,8	Writes an email to the specified address. An SMTP-Server address and a return address has to be set in the setup! The subject is the first line printed into the stream.

* no random writing within a file, only append or overwriting, according to the filename extension the files are automatically sorted into the appropriate directories (i.e. /images, /labels, /fonts and /misc) on the card

° not yet implemented

¹ note: on A3 setting the baudrate on RS-422 sets the RS-232 baudrate too and vice versa!

Modes:

„r“, „W“, „a“	read, write and append (file reading and writing automatically transforms Unicode to ASCII and vice versa according to selected codepage, reading a Unicode or ASCII file is automatically detected)
„rb“, „wb“, „ab“	read, write and append without transforming (file reading and writing uses only low-byte of e.g. string)
„wu“, „au“	write and append using Unicode

Notes:

- Some streams like „/dev/panel“ are always Unicode-streams. Using ‘b’ or ‘u’ modifiers can have strange effects!
- Writing to an interface (e.g. /dev/rs232) will fail if the printer cannot send the data. There’s a time out of 10 seconds.
- Opening an interface as file stops ESC interpretation on this device.
- abc has an additional command called FLUSH which enables you to clear the input buffer of /dev-streams in read mode (e.g. FLUSH #1 when 1 ist /dev/rawip). FLUSH #0 clears standard input.
- abc has an additional command to erase files: ERASE "name".



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

Communication with Web Browsers:

cab printers have a web server which is usually used for administration, but can also be used to access data like images or HTML pages from the card. So it is only logical to seek a way to transmit data from the browser *to* the printer. This is normally done by CGI scripts using forms. We do it the same way :-) You can however not define CGI scripts your own, but we provide a way to get form data into your abc program:

HTML

You simply define a form in your HTML page which uses `get_form.cgi` as ACTION. Example:

```
<form action="/get_form.cgi" method="post">
<input type="hidden" name="nextpage" value="thanks.htm">
<input type="text" name="example">
<input type="submit" value="Send data">
</form>
```

This form lets the user enter some data in a text field called „example“. After clicking the „Send data“ button, the form content is sent from the browser to the web server and parsed there. Then the extracted data is put into the input buffer which can be read by abc or directly by JScript. There are two special field names available:

- `nextpage` this defines the name of the html page which is loaded after sending the form. Default is `index.htm`.
- `jscript` Can be used to send a JScript command before the data. So you can e.g. send a „M I lbl“ command before the data of the form.

A more complex example showing most of the possibilities of the CGI interface is the „cinema ticket“ program. This is available on request. In this case you can contact "support@cabgmbh.com"



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abc - examples:

command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

Small program to print a 100mm long ruler with 1mm markings:

```
; Test label for ruler
J
S 11;0,0,68,71,104
G 0,10,0;L:100,.1
<ABC>
FOR X=0 TO 100
  IF MOD(X,10) = 0 THEN
    PRINT "G ",X,",10,270;L:4,.1"
  ELSE
    PRINT "G ",X,",10,270;L:2,.1"
  END IF
NEXT X
END
END
</ABC>
A 1
```

Small program to print a text in a circle:

```
; Test label for rotated text
J
S 11;0,0,68,71,104
<ABC>
A$="Rotated text with Euro sign: "+CHR$(DEC("20AC"))+" "
N=LEN(A$)
D=360/N
FOR I=1 TO N
  W=((I-1)*D)/180*PI
  X=50-25*COS(W)
  Y=30-25*SIN(W)
  R=90-(I-1)*D
  IF R<0 THEN
    R = R + 360
  ENDIF
  PRINT "T ",X,",",Y,",",R,",3,6,b;",MID$(A$,I,1)
NEXT I
PRINT "T 0,30,0,3,5;[J:c100]",date$
PRINT "T 0,38,0,3,5;[J:c100]",time$
END
</ABC>
A 1
```

Small program to show usage of local and static variables. Uses ASCII dump mode to show what happens:

```
a
<ABC>
for a=1 to 4:stars():next a
sub stars()
  static a$
  local b$
  a$=a$+"*"
  b$=b$+"*"
  print "; ",a$," ",b$
end sub
</ABC>
```




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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

Small program to show ON GOSUB. Uses ASCII dump mode to show what happens:

```
a
<ABC>
for number=0 to 6
  on number+1 gosub sorry,one,two,three,four,five,sorry
next number
end
label sorry:print "; Sorry, can't convert ",number:return
label one:print "; 1=one":return
label two:print "; 2=two":return
label three:print "; 3=three":return
label four:print "; 4=four":return
label five:print "; 5=five":return
</ABC>
```

Small program to show READ,DATA and RESTORE. Uses ASCII dump mode to show what happens:

```
a
<ABC>
restore names

read maxnum
dim names$(maxnum)
for a=1 to maxnum:read names$(a):next a
for number=0 to 10
  if (number>=1 and number<=maxnum) then
    print "; ",number,"=",names$(number)
  else
    print "; Sorry, can't convert ",number
  endif
next number
error "Program finished"
label names
data 9,"one","two","three","four","five","six"
data "seven","eight","nine"
</ABC>
```

Small program for measuring the label distance:

```
<ABC>
DO
  REM read measured distance
  dy=PEEK("mlength")
  IF dy>0 BREAK
  PRINT "f"
  WAIT 0.25
  REM wait until standing again REPEAT
  REPEAT UNTIL (PEEK("direction")=0)
LOOP
PRINT "J"
PRINT "S 11;0,0,",dy-2,",",dy,",100"
PRINT "T 0,10,0,3,5;Measured label distance: ",dy,"mm"
PRINT "A 1"
</ABC>
```



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

This program demonstrates the differences for file handling (a compactflash drive and a hex editor are useful to see the difference):

```
<ABC>
a$="Hello "+CHR$(DEC("20AC"))
OPEN 1,"test.dat","w"
PRINT #1 a$
CLOSE 1
OPEN 1,"testu.dat","wu"
PRINT #1 a$
CLOSE 1
OPEN 1,"testb.dat","wb"
PRINT #1 a$
CLOSE 1
</ABC>
```

This program does also writing using files but on the RS-232:

```
<ABC>
a$="Hello "+CHR$(DEC("20AC"))
OPEN 1,"/DEV/RS232:57600,RTS/CTS","w"
PRINT #1 a$,chr$(13);
FOR i=1 TO 10
PRINT #1 i,chr$(13);
NEXT i
CLOSE 1
</ABC>
```

This demonstrates the file path and name handling of abc (it is necessary to have test.dat on the card, e.g. from the last demo program):

```
<ABC>
PRINT "a"
PRINT "; test.dat: ",exists("test.dat")
PRINT "; test.dat: ",exists("TEST.DAT")
PRINT "; test.dat: ",exists("/card/misc/test.dat")
PRINT "; test.dat: ",exists("/CARD/TEST.dat")
PRINT "; test2.dat: ",exists("test2.dat")
</ABC>
```

If you want to know the dimensions of an image try this:

```
a
<ABC>
print "M l img;sample"
wait 1
b=0
h=0
DO
b=PEEK("imagewidth:SAMPLE")
h=PEEK("imageheight:SAMPLE")
IF b>0 AND h>0 BREAK
LOOP
PRINT "; Width: ",b
PRINT "; Height: ",h
PRINT "; Free memory: ",PEEK("freememory")
</ABC>
```



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command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	x	x	x	x	x

Simple program to show the capture of interface data, parsing it, extracting the data and sending it forward to the JScript interpreter:

```
J
S 11;0,0,68,71,104
T:t1;20,10,0,3,8;
T:t2;20,20,0,3,8;
T:t3;40,40,0,3,8;
<ABC>
label start
line input a$
if left$(a$,15)="194300301480070" then
  print "R t2;",mid$(a$,16)
endif
if left$(a$,15)="194300300580172" then
  print "R t3;",mid$(a$,16)
endif
if left$(a$,15)="194300301970073" then
  print "R t1;",mid$(a$,16)
endif
if a$="Q0001" then
  print "A 1"
endif
goto start
</ABC>
```

This is the original data sent by a labelling software:

```
M3000
<STX>d
<STX>e
<STX>f260
<STX>00220
<STX>V0
<STX>L
D11
PA
SA
H10
z
194300301480070Rot
19430030058017248
194300301970073Bernd
W
Q0001
E
<STX>L
D11
PA
SA
H10
z
194300301480070gelb
19430030058017248
194300301970073Bertha
W
Q0001
E
```

command available ?	A-series	M4	Hermes A	A4+ Series	Mach4
	X	X	X	X	X

Program to read keyboard codes:

```

<ABC>
OPEN 1, "/dev/keyboard", "r"
OPEN WINDOW 120, 32
POKE "lcd", 1
DO
  DO
    x=PEEK(#1)
    IF x<>-1 BREAK
  LOOP
  CLEAR WINDOW
  TEXT 0,0, "Last character:"
  TEXT 0,16, "$"+hex$(x)+" = "+chr$(x)
LOOP
CLOSE WINDOW
</ABC>

```

Program to show readback of JScript-Commands and the FLUSH command:

```

<ABC>
OPEN 1, "/dev/jscript", "r"
OPEN 2, "/dev/rs232", "w"
PRINT "qm"
LINE INPUT #1 a$
PRINT #2 a$
CLOSE 2
CLOSE 1
rem FLUSH #0
PRINT „f“
</ABC>

```

Here is text which would normally trigger protocol error.
It is deleted by FLUSH #0, so the PRINT „f“ can work without problems.

Program to show how to „press“ a key using a program:

```

; Label does an endless loop which is terminated by pressing
"total Cancel"
<ABC>
x=0
DO
  IF x=0 THEN
    x=1
    POKE "key", dec("F090")
  ENDIF
LOOP
</ABC>

```

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APPENDIX

ASCII Table

Control characters		
Decimal	Hex	ASCII
0	0	NUL
1	1	SOH
2	2	STX
3	3	ETX
4	4	EOT
5	5	ENQ
6	6	ACK
7	7	BEL
8	8	BS
9	9	HT
10	A	LF
11	B	VT
12	C	FF
13	D	CR
14	E	SO
15	F	SI
16	10	DLE
17	11	DC1
18	12	DC2
19	13	DC3
20	14	DC4
21	15	NAK
22	16	SYN
23	17	ETB
24	18	CAN
25	19	EM
26	1A	SUB
27	1B	ESC
28	1C	FS
29	1D	GS
30	1E	RS
31	1F	US

Code 39 Full ASCII chart

ASCII	CODE 39	ASCII	CODE 39	ASCII	CODE 39	ASCII	CODE 39
NUL	%U	SP	SPACE	@	%V	`	%W
SOH	\$A	!	/A	A	A	a	+A
STX	\$B	"	/B	B	B	b	+B
ETX	\$C	#	/C	C	C	c	+C
EOT	\$D	\$	/D	D	D	d	+D
ENQ	\$E	%	/E	E	E	e	+E
ACK	\$F	&	/F	F	F	f	+F
BEL	\$G	'	/G	G	G	g	+G
BS	\$H	(	/H	H	H	h	+H
HT	\$I	)	/I	I	I	i	+I
LF	\$J	*	/J	J	J	j	+J
VT	\$K	+	/K	K	K	k	+K
FF	\$L	,	/L	L	L	l	+L
CR	\$M	-	-	M	M	m	+M
SO	\$N	.	.	N	N	n	+N
SI	\$O	/	/O	O	O	o	+O
DLE	\$P	0	0	P	P	p	+P
DC1	\$Q	1	1	Q	Q	q	+Q
DC2	\$R	2	2	R	R	r	+R
DC3	\$S	3	3	S	S	s	+S
DC4	\$T	4	4	T	T	t	+T
NAK	\$U	5	5	U	U	u	+U
SYN	\$V	6	6	V	V	v	+V
ETB	\$W	7	7	W	W	w	+W
CAN	\$X	8	8	X	X	x	+X
EM	\$Y	9	9	Y	Y	y	+Y
SUB	\$Z	:	/Z	Z	Z	z	+Z
ESC	%A	;	%F	[	%K	{	%P
FS	%B	<	%G	/	%L	:	%Q
GS	%C	=	%H	]	%M	}	%R
RS	%D	>	%I	^	%N	~	%S
US	%E	?	%J	_	%O	DEL	%T,%X,%Y,%Z

Index

The index offers multiple possibilities to find a specific command.

Example: The command :
ESC? Request for free memory
can be searched through:

ESC? Request for free memory
Request for free memory (ESC?)
Free memory request (ESC?)
Memory request (free memory (ESC?))

All expressions above will route you to the same result

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