

## EAN 10 mil

Escape sequence: <27>(8Y<27>){s1p12v0s0b0T

### Valid marks:

Start-mark '(', Central-mark '-', Stop-mark '(', 0..9, A..J, a..j

How with EAN 13 scalable described the figures are coded but in different mark supplies.

The mark supply 0 is the figures 0 till 9 itself; Dez 48 till 57

The mark supply 1 is the figures a till j; Dez 97 till 107

The mark supply 2 is the figures A till J; Dez 65 till 75

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
32																
48																
64																
80																
96																
112																

Example: 001234567890  
<14> <27>){8Y<27>){s1p12v0s0b0T(012345-GHIJAF(<15>

## EAN 13 mil

Escape sequence:: <27>(8Y<27>){s1p12v0s3b0T

Valid marks and manipulation like EAN 10 mil

## Other products

- S8026** This product is compatible to the module S2053-6, however, disposes of a bigger choice in barcodes. Also with this module, the calculation of the checksum and the interleaving must take place by the application. The module S8026 is available as a font cassette, SIMM, DIMM or MFC for various printers (see page 4).
- FlashSIMM** The HP FlashSIMM makes possible the permanent storage of forms, company logos, signatures, letterheads and fonts directly in the printer.
- JC-BarSIMM** The JetCaps BarSIMM is a proficient Firmware-extension for HP LaserJet's from the series 4 (not L- and ML types). It contains 40 in X- and Y direction freely scalable barcodes. Possibly, required checksums and the "Interleaving" are produced by the printer independently. Some software packages like KHK or SAP need to the representation of barcodes compellingly this product.

You get further information about the products described in the following among other things on the Internet homepage [WWW.NOWCON.COM](http://WWW.NOWCON.COM).



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# HP Barcode & More

## Module S2053-6

# Installation and Programmer's Guide

- Font-Cartridge S2053-6:** For all Printer with HP-Font-Cartridge, e.g. HP-LJ II, IID, IIP, III, IIID, IIIP, IIISi, 4, 4Plus, 4P, 4V, 4Si...
- Font-SIMM S2053-6S:** For all Printer with HP-Font-SIMM, e.g. HP-LJ 4, 4Plus, 4P, 4V, 4Si, 5, 5P, 5Si, 6P, CLJ 5, DJ 1200, DJ 1600...
- Font-DIMM S2053-6D:** For all Printer with HP-Font-DIMM, e.g. HP-LJ 4xxx/5xxx/8xxx/9xxx und MFP...
- Font-DIMM S2053-6Dx2:** For all Printer with HP-Font-DIMM, e.g. HP-LJ 12x0, 1300, 2200, 2250, 2300, 2605, 3200, 3300 und 3380...
- Font-MFC S2053-6F:** For all Printer with HP-Font-MFC, e.g. HP-LJ 24x0, 4250, 4345mfp, 4350, 5200, 5550, 4650, 4700, CM4730, 9040, 9050 and 9500 incl. MFP...
- Font-USB S2053-6U:** For all Printer with HP-Font-USB, e.g. HP-LJ CLJ3000, CLJ3800, P3005, M3035mpf, M5035mpf, M4345mfp, CM80X0, CP3505, CM6040, CP6015, M9050, P401X, P4515
- Font-DDR S2053-6P:** For all Printer with HP-Font-DDR-ROM, e.g. HP-LJ P2015 and M2727mfp.

The above list from the printers is not complete. Please check the extension in your Printer-User-Guide.

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## Checksum (Optional)

The mark coding enables for the Barcode reader to verify the read result. Nevertheless, can be inserted optional a checksum directly before the stop mark, also of the benefit information in the following.  
 To the formation of the checksum a reference number is assigned to every benefit figure: 0-9 agrees 0-9, A-Z gets 10-35, minus 36, point 37, blanks 38, dollar symbol 39, diagonal stroke 40, plus 41 and per cent 42. The starting signal and stop mark is not valued. The checksum calculates itself by Modulo 43 from the addition of the reference numbers.

Calculation test figure:           CODE39 proves \*CODE39W\*  
 $12+24+13+14+3+9 = 75 / 43 = 1 \text{ Rest } 32 = W$

Example:                               66789 ER  
 <14> <27>(0Y<27>(s0p8.1h12v0s0b0T\*66789,ER\*<15>

## USPS ZIP

This Barcode finds exclusively in the postal system of the USA application. The FIM mark and below in the envelope border the Barcode UPSZIP is printed near the postage stamp on letters and postcards.

## Handling

The use is explained in detail in the publication " A Guide to Business mail Preparation". It is available in every American post office.

USPS ZIP Fonts:

	0	1	2	3	4	5	6	7	8	9	10	11	12
32				██████████									
48													
64													
80													
96													
112													
128													

Escape sequence:               <27>(15Y<27>(s1p12v0s0b0T

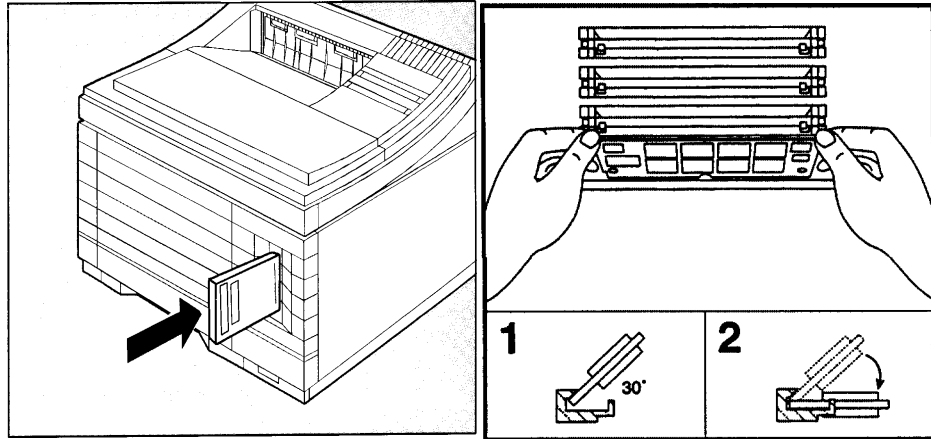
Valid marks:                   # - 0..9 <124> FIM-marks: A..D Start-Stop: \*

Example:                         8370799340  
 <27>(15Y<27>(s1p12v0s0b0T\*8370799340\*



## Installation

**WARNING:** Please, pay attention by the installation particularly to the indications in the printer manual with regard to the manipulation of written cassettes, SIMM-and DIMM cards to the avoidance of static loadings.



### Installation in the printer

The S2053-6 written modules are compatible to the following printer models:

- S2053-6 LaserJet's II, IID, IIP, III, IIID, IIIP, IIISi, 4, 4M, 4P, 4Plus, 4M Plus 4Si, 4Si MX as well as printers compatible with HP of various manufacturers.
- S2053-6S LaserJet's 4, 4M, 4P, 4MP, 4Plus, 4M Plus, 4Si, 4Si MX, 5, 5N, 5M, 5P, 5MP, 5Si, 5Si Mopier, 6P, 6MP, CJ 5/5M, DJ 1200C, 1200CM, 1600C, 1600CN and 1600CM
- S2053-6D LaserJet's 4xxx, 5xxx, 8xxx, 9xxx, Mopier 240/320 & MFP
- S2053-6Dx2 LaserJet's 12x0,1300,2200,2250,2300,2605,3200,3300,3380 and 3390 &MFP
- S2053-6F LaserJet's 24x0, 4250, 4345, 4350, 4650, 4700, CM4730,5200, 5550, 9040, 9050 and 9500 incl. MFP's
- S2053-6U LaserJet's CLJ 3000, 3800, P3005, M3035mfp, M5035mfp, M4345mfp, CM80X0, CP3050, CM6040, CP6015, M9050, P4014, P4015, P4515
- S2053-6P LaserJet's P2015 and M2727mfp

### Examine of the written module

The production of the expression of the PCL font list in the printer confirms the correct installation of the module. The printer manual describes the steps necessary for this in detail.

**INDICATION:** The PCL font list produces no readable Barcodes, but lists only every font and their ESC-code.

PCL stands for Printer Command Language and is the name of the printer control language developed by HP. You find a detailed description of the PCL language in the manuals published by HP "PCL5 printer Language Technical Reference manual" .

Product number HP: 5961-0509.

## Line Draw

Escape sequence

<27>(0B<27>(s0p10h12v0s0b0T

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
32		†		⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥
48	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†
64	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†
80	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†
96	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†
112	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†

## Letter Gothic

Escape sequence

<27>(8U<27>(s0p16.67h9.5v0s0b6T

<27>(8U<27>(s0p12.00h12.0v0s0b6T

<27>(8U<27>(s0p10.00h14.0v0s0b6T

<27>(8U<27>(s0p12.00h12.0v0s0b6T

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
32		!	⌘	#	\$	%	&	'	(	)	*	+	,	-	.	/
48	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
64	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
80	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	
96	'	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
112	p	q	r	s	t	u	v	w	x	y	z	{		}	~	⌘
160	À	Á	Â	Ã	Ä	Å	Î	Ï	Ï	Ï	Ï	Ï	Ï	Ï	Ï	Ï
176	–	ÿ	ý	°	Ç	ç	Ñ	ñ	ı	ı	ı	ı	ı	ı	ı	ı
192	â	ê	ô	û	á	é	ó	ú	à	è	ò	ù	ä	ë	ö	ü
208	Ä	İ	Ø	Æ	à	í	ø	æ	À	ı	Ö	Ü	É	ı	ß	Ô
224	Á	Ä	ā	Đ	đ	Í	Ì	Ó	Ò	Õ	ö	Š	š	Ú	ÿ	ý
240	þ	þ	·	μ	¶	½	–	½	½	ª	º	«	■	»	±	

**Complete example**

...normal print data	
<27>&f0S	Current print position protection
<27>&a###h###V	Puttings of the print position of the Barcode
<27>)0Y<27>)s0p4.69h12v0s0b0T	Barcode 39
<14>	Secondary font activate
*CODE39*	Benefit text incl. starting signal and stop mark
<15>	Back to the primary font
<27>&f1S	Back to the last text position
more print forms...	
<12>	Side encourage.

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INDICATION: The separate ESC sequences are to be given one after another and not line by line. CR-LF at the end makes every positioning instruction void!

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By means of a small trick special characters as for example <27>, <14 and 15> are also giveable in the DOS editor. Press start with the order keys combination Strg-P and afterwards give with pressed old key the wished ASCII number on the numeric keyboard.

**Rotation about 90 degrees**

To the rotation of fonts about 90 or 240 degrees the sequences<27>&a90P and <27>&a240P are available in PCL. After the getting of the sequence <27>&a0P the printer goes on working in the normal print direction.

**Continuation of the Barcode**

A continuation of the Barcode by its height is by the overlaid print, but vertically shifted, as follows practicable:

<27>)0Y<27>)s0p4.69h12v0s0b0T	Initialization of the Barcode in the secondary font
...normal print data	
<27>&f0S	Store the current print position
<27>&a###h###V	Puttings of the print position of the Barcode
<14>	Switch over to the Barcode
<27>&f0S	Store the Barcode-printposition
<27>&a-##V	Print position shift upwards
*CODE39*	Print Barcode
<27>&f1S	Back to the initial print position of the Barcode

To extend the Barcode next time, can at this point - possibly, again with to the last <27>&f0S - are set up a new

*CODE39*	new Barcode print
<15>	Font shift back
<27>&f1S	Back to the last text position
...other print data...	

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INDICATION: To print the clear text with, should be switched before the last Barcode print to the appropriate font.

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**Software-Support**

All Fonts and Barcodes can be headed by every arbitrary operating system / program with the necessary ESC sequence. The necessary driver update files (PCM are on the enclosed diskette: printer Cartridge Metrics) with which the Windows-printer drivers can be informed of the new printer writings (OCR-B, Barcodes ...).

Because this installation kind contains only the printer's formation and no screen writings, one sees on the screen no lines for Barcodes.

Windows 3.x      Open the system control and choose " printer install " and "printer set-up". Choose "fonts", " new adds ", "floppy disk drive" and copy the definition file in the left window. After the closing of the font installation window the new module appears at the end of the list of candidates: "Cassettes/SIMM/DIMM/MFC". Activate the wished module.

95/98/NT/2K/XP      The installation takes place according to Windows 3. x. Should the description file (on the driver's diskette with the ending .PCM) not be recognized, please, install Windows 3.1 printer drivers.

SAP R/3      All Fonts and Barcodes become from the provided SAP printer drivers normally supports (see OSS-Notes).

**Barcode Introduction****General remarks**

Barcodes are not to be imagined from the daily life any more. By the food purchase the Barcode EAN is illustrated practically on every packaging. This unambiguous marking facilitates the existence monitoring. Also the cash accounting to the customer is formable faithful to detail. The Barcode of the post office helps to reduce the package terms, and makes possible faster finding of a lost shipment.

The following list explains the most important advantages and disadvantages of the separate Barcode types:

**Alphanumeric Barcodes**

Code 39 (auch 3 aus 9)	+ A simple construction, well readable + The most frequently used code + Also without checksum self checked + In addition, optionale checksum + US ASCII table codeable - Need a lot of place
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**Numeric Barcodes**

EAN	+ High information deseness + Till 45 degrees reading angel still decodable + By checksum character safe legibility
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- Only 8 or 13 places codeable
- Very much close tolerances

### Construction of the codes

Every Barcode begins with a starting signal, followed from the benefit information and the checksum character (if wished or inevitably) and ends with a stop mark. With some Barcode types the starting signals and stop marks are identical.

Around the printed Barcode a free space (unprinted surface) is to be kept usually. This zone is given either firmly or dependent by the specifications of the Barcode reader. Usually there are approx. 5 to 6 mm enough.

With some Barcodes a checksum optional is possible. This figure is always represented by a mark from the normal mark supply. For the Barcode reader the optionale checksum is first a quite normal benefit mark. Should the reader interpret this benefit mark correctly, it is to be put as a rule on the reading with checksum.

## Programming

### Conventions

In the following marks are specified isolated in the decimal representation. These values are always surrounded with brackets, for example:

- `<27>` symbolized the ESC-Font, resp. Hexadezimal 0x1b
- `<65>` is in the ASCII-table the letter A, resp. Hex. 0x41

### Tips and austerities

- The distinction of the letter "O" of the figure "0" is difficult with the control sequences (ESC sequence) sometimes a little bit to recognize. In the expression of the written list PCL all numeric information (0, 1, 2, 3, 4, 5, 6, 7, 8 and 9) is represented underlined>.
- The HP Barcode & More (S2053-6) Font-Module supports only the printer language PCL.
- Should you not be familiar with cash codes, the simple code 39 is recommended for the first time in the matter. Avoid first special characters and the blanks. Limit yourselves to capital letter and figures. Frame the benefit information with the multiplication symbol (asterisk).

### Positioning

Generally PCL places at disposal altogether three methods of the positioning of the printer cursor. Two these methods are dependent on the chosen fonts or the dissolution (300/600 dpi). Therefore, exclusively the application of the so-called absolute positioning sequences is recommended:

`<27>&a###H` (Horizontal) and `<27>&a###V` (Vertical)

INDICATION: If the first three marks of two directly successive ESC sequences are identical, the disconnect signal of the first sequence can be written in small letters and be renounced completely next three marks. This is also considered to the numerical value zero.

The value ### is to be given in 1/720 inch (= 2.54 cm) with decimal places in point manner of writing.

`<27>&a566.9h1133.86V` positions the cursor on 2 cm of left and 4 cm of the high pressure border.

INDICATION: The pressure border is dependent on not printable border of the printer. This point lies according to side orientation about 0.6 cm of the high and left margin.

A plus sign or minus sign before the positioning value means a relative cursor movement, beginning from the momentary print position

`<27>&a-720V` puts back the cursor - going out from the current pressure position - about 2.54 cm in print direction.

### Exit print position do not change

In PCL is it possible to store the current print position, to change arbitrarily and to return again to the original position:

`<27>&f0S` (Push Cursor; notice current cursor position)  
 ... arbitrary instructions also cursor positionings...  
`<27>&f1S` (Pop Cursor; go to the last noticed cursor position)

### Control of the Barcode and the fonts

The Barcode print, or generally the control for arbitrary new fonts is divided into three parts: control, benefit information and return to the standard font, so for example:

Control code 39 `<27>)0Y<27>)s0p4.69h12v0s0b0T`  
 Benefit information `*12345*`  
 Standardfont Courier 10pt `<27>(10U<27>(s0p10h12v0s0b4099T`

Take the ESC sequences for the Barcode as well as the (standard) fonts, from the expression of the PCL font list or the printer manual.

A simplification of the fonts choice is possible, while you print the Barcode not how in the above example in the primary, but in the secondary font.

In PCL the simultaneous definition of two fonts is possible. The definition of primary fonts takes place by means of open, secondary fonts with the closed bracket. The tax mark Shift out `<14>` activates the secondary font and Shift in `<15>` shifts back again on the primary font.

The advantage of this method lies in the preservation of the original font definition, so for example:

Initialization code 39 `<27>)0Y<27>)s0p4.69h12v0s0b0T`  
 Standard-font Courier 10pt `<27>(10U<27>(s0p10h12v0s0b4099T`  
 Print: Article-number. `<14>*12345*<15>` Stock location: `<14>*4711*<15>`