

MPP 101

Communication protocol

1. Command Summary

1.1. Command list

The following section lists commands by their function.
For detailed command description, see the next section.

Code	Command
LF	Line Feed
CR	Carriage Return
ESC !	Master Select
ESC “	Set Contrast and Speed
ESC #	Set Off Time
ESC @	Initialize printer
ESC C	Bar Code Printing
ESC J	Advance print position vertically
ESC V	Raw graphics
ESC v	Compressed graphics
ESC 0F1	Print preloaded image 1
ESC 0F2	Print preloaded image 2
ESC 0FF	Readings

1.2. Individual command explanations

LF ***Line Feed***

Format

ASCII	LF
Hex	0A
Decimal	10

Function

- Advances the vertical print position one line
- Moves the horizontal print position to the left-margin position

CR ***Carriage Return***

Format

ASCII	CR
Hex	0D
Decimal	13

Function

Moves the print position to the left-margin position

Notes

- Always send a CR command at the end of each line of text

ESC ! ***Master Select***

Format

ASCII	ESC	!	n
Hex	1B	21	n
Decimal	27	33	n

Parameter range

0 <= n <= 255

Function

Selects any combination of several font attributes by setting or clearing the appropriate bit in the n parameter, as shown below:

Bit	On/Off	Hex	Dec	Function
0	Off	0	0	Selects 12 cpi
	On	1	1	Selects 10 cpi
1	Off	0	0	Reserved
2	Off	0	0	Reserved
3	Off	0	0	Reserved
4	Off	0	0	Reserved
5	Off	0	0	Cancels Double-width
	On	20	32	Selects Double-width
6	Off	0	0	Cancels Double-height
	On	40	64	Selects Double-height
7	Off	0	0	Reserved

Add the numbers of the features to be selected and send the total as the parameter n.

Notes

Characters per line depend on selected font.

font attributes			CPL
12 cpi	Double-width	Double-height	
Off	Off	X	(default) 32
Off	On	X	16
On	Off	X	48
On	On	X	24

ESC “ Set Contrast and Speed

Format

ASCII	ESC	”	n	m
Hex	1B	22	n	m
Decimal	27	34	n	m

Parameter range

0 <= n <= 200 , default n = 100
 0 <= m <= 200, default m = 100

Function

Sets contrast and speed as a percent from nominal values.

Notes

- After reset or power on default values are restored.

ESC # Set Off Time

Format

ASCII	ESC	#	n
Hex	1B	23	n
Decimal	27	35	n

Parameter range

1 <= n <= 60 , default n = 1

Function

Sets automatic turn off timer in minutes. Any activity will initialize the timer with the specified value. When the timer runs out the printer automatically turns off.

Notes

- After reset or power on default value is restored.

ESC @ Initialize printer

Format

ASCII	ESC	@
Hex	1B	40
Decimal	27	64

Function

Resets the printer to its default settings

ESC C Bar Code Printing

Format

ASCII	ESC	C	n	h	m	bar_code_data
Hex	1B	43	n	h	m	bar_code_data
Decimal	27	74	n	h	m	bar_code_data

Parameter range

49 <= n <= 53
0 <= h <= 255
0 <= m <= 15, 128 <= m <= 141

Function

Prints specified barcode.
n : bar code type selector.

n	Bar Code Type
49	Code 39
50	Code 128
51	Interleaved 2/5
52	EAN
53	Codabar

h - Height in 1/8 mm units.
m - HRI and Number of data bytes

m	Bar Code Type
bit 7	if set, prints Human Readable Characters
bits 6,5,4	Should be cleared.
bits 3,2,1,0	Specify number of bar_code data bytes

bar_code_data - Defines bar code characters.

ESC J Advance print position vertically

Format

ASCII	ESC	J	n
Hex	1B	4A	n
Decimal	27	67	n

Parameter range

0 <= n <= 255

Function

Advances the vertical print position n/180 inch

ESC V Raw graphics

Format

ASCII	ESC	V	1	0	b0	...	b47
Hex	1B	56	01	00	b0	...	b47
Decimal	27	86	1	0	b0	...	b47

Parameter range

$0 \leq b_k \leq 255$

Function

Prints one dot line of graphics defined by the graphical data.

Bytes b0 through b47 forms a bit stream. Each bit in the stream represents a dot.

When a bit is equal to 1 the dot is printed. Otherwise the dot is left blank.

ESC v Compressed graphics

Format

ASCII	ESC	v	1	n	list_of_atoms
Hex	1B	76	01	n	list_of_atoms
Decimal	27	118	1	n	list_of_atoms

Parameter range

$1 \leq n \leq 48$

Function

Prints one dot line of graphics defined by the graphical data.

n Specifies the maximum number of bytes

The command initializes a buffer of 48 bytes that will represent the printed line with "0" bits and sets current position in buff to "0". Then process the atoms from the list, one by one, relative to current position until reaching maximum number of bytes. On exit the buffer is printed.

Atoms exist in two variants:

Variant 1: Not encoded graphic bytes

p b0 ... bp

Parameter range

$0 \leq p \leq 47, 0 \leq b_x \leq 255$

Function

p+1 Specifies number of bytes with graphical data

Variant 2: Repeat same byte

p b

Parameter range

$-47 \leq p \leq -1, 0 \leq b \leq 255$

Function

-p+1 Specifies how many times b will be repeated

b Graphical data to repeat

Examples:

<hr/>	Hex	1B 76 01 30	D1 FF
	Decimal	27 118 1 48	-47 255
	Hex	1B 76 01 30	01 0F F0 D5 00 01 0F F0
-	Decimal	27 118 1 48	1 15 240 -43 0 1 15 240

ESC 0F1 Print preloaded image 1

Format

ASCII	ESC	0F1
Hex	1B	F1
Decimal	27	241

Function

Prints preloaded graphical image 1.

Notes

- Image dimensions are 384x240 dots.
- Image is stored in NON Volatile memory.

ESC 0F2 Print preloaded image 2

Format

ASCII	ESC	0F2
Hex	1B	F2
Decimal	27	242

Function

Prints preloaded graphical image 2.

Notes

- Image dimensions are 384x240 dots.
- Image is stored in NON Volatile memory.

ESC 0FF Readings

Format

ASCII	ESC	0FF
Hex	1B	FF
Decimal	27	255

Function

Returns readings from internal sensors as follows:

1. Head Temperature in °C ;
2. Battery Temperature in °C ;
3. Battery Voltage in 100mV.

Notes

- Battery Voltage over 6.5V reflects fully charged battery.
- Battery Voltage under 6.0V reflects exhausted battery.

2. Character Tables

MPP 101 supports one character table at a time. Nevertheless you can download different character table. Character table is stored in Non Volatile memory.

You can choose from list of available character tables or define your own character table. Contact your dealer for details.

Default character table:

	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
0	0	@	P	'	p	Ç	É	á		⌘	⌘	⌘	α	≡
1	!	1	A	Q	a	q	ü	æ	í		⌘	⌘	β	±
2	"	2	B	R	b	r	é	Æ	ó		⌘	⌘	Γ	≥
3	#	3	C	S	c	s	â	ô	ú		⌘	⌘	π	≤
4	\$	4	D	T	d	t	ä	ö	ñ		⌘	⌘	Σ	∫
5	%	5	E	U	e	u	à	ò	Ñ		⌘	⌘	σ	∫
6	&	6	F	V	f	v	â	û	ä		⌘	⌘	μ	÷
7	'	7	G	W	g	w	ç	ù	ø		⌘	⌘	τ	≈
8	(	8	H	X	h	x	ê	ÿ	ç		⌘	⌘	ϕ	°
9	)	9	I	Y	i	y	ë	Ö	ç		⌘	⌘	θ	·
A	*	:	J	Z	j	z	è	Ü	ç		⌘	⌘	Ω	·
B	+	;	K	[	k	{	ï	ç	½		⌘	⌘	ø	√
C	,	<	L	\	l	}	î	£	¼		⌘	⌘	∞	n
D	-	=	M	]	m	}	ì	¥	¼		⌘	⌘	φ	z
E	.	>	N	^	n	~	Ä	Pt	«		⌘	⌘	ε	■
F	/	?	O	_	o	Δ	Å	f	»		⌘	⌘	∩	■

3. Preloaded Images

MPP 101 supports preloading of two images.

Images are stored in Non Volatile memory. Images are customer defined. Contact your dealer for details.