CP 290 MRS CP 324 MRS CP 424 MRS

1. TABLE OF CONTENTS

http://www.a-p-s.net/

This manual provides complete information about APS CP290MRS, CP324MRS, CP424MRS printer.

2. GENERAL FEATURES

The CP290MRS, CP324MRS and CP424MRS are the world's first 2 inch, 3 inch and 4 inch, 24 Volt thermal printer mechanisms with an integrated control board using serial and parallel communications. The height of the mechanisms plus board is less than 27 mm, which makes them the most compact 2 inch, 3 inch and 4 inch, 24Volts thermal line printing solution available today.

- **Ultra-compact printers**
  - ***CP290MRS*** Total size W91 x H20 x D55
  - ***CP324MRS*** Total size W121 x H20 x D55
  - ***CP424MRS*** Total size W156 x H27 x D55
  - No wire or connector exiting this volume
- **Software programmable consumption**
  - Dynamic division, and high speed (up to 90mm/s)
- **External pluggable switches and LED for easy integration**
- **Fully hot plug printers**
- **2 Communication ports**
  - RS232 (speed up to 115 200 Bds)
  - Centronics
- **Two internal fonts**
  - Easy font update
- **Powerful Text Printing Modes**
  - Horizontal
  - 180 degree
  - Double and Quadruple width and height printing
- **Powerful Graphic Modes**
- **Hole / Mark Detection**
- **Cutter driving**
  - Guillotine cutter type
  - Rotative cutter type
- **10 Barcodes**

3. REVISION HISTORY

REV.	DATE	PAGE	REVISION ITEM
A	08/Jul/99	-	First issue
B	20/Jan/01	-	1.35, 1.36 firmware revision : No black mark detection, No rotative cutter

4. GENERAL SPECIFICATIONS

ITEM	SPECIFICATION
Print method	Thermal dot-line printing
Dimension WxDxH (mm)	***CP290MRS*** 91 x 55 x 20 ***CP324MRS*** 121 x 55 x 20 ***CP424MRS*** 156 x 55 x 27
Total dots	***CP290MRS*** 432 ***CP324MRS*** 576 ***CP424MRS*** 864
Dot density	8 dots/mm
Paper width	***CP290MRS*** 60 mm or 66 mm +0/-0.5 ***CP324MRS*** 80 mm +/-1 ***CP424MRS*** 114 mm
Print width (centered on paper)	***CP290MRS*** 54 mm ***CP324MRS*** 72 mm ***CP424MRS*** 104 mm
Heat element pitch	0.125 mm
Paper feed pitch	0.125 mm
Paper feed tension	50g or more
Paper hold tension	80g or more
Recommended Paper	KF50-HDA or equivalent
Voltage range	***Logic*** 5Volts +/- 5% ***Power*** From 18Volts to 27Volts
Current consumption	From 1 to 9 Amps (@24V)
Operating temperature	From -10°C to +60°C
Operating humidity (RH%)	20-85 (no condensation)
Storage temperature (°C)	From -40°C to +90°C
Storage humidity (RH%)	10-90 (no condensation)
EMC standard	Designed to comply with Level B – FCC - CE

5. PRINTER DEVICE INTERCONNECTION

Please refer to the drawing attached to back of this specification for connect or positions.
These printers are fully hot plug : any connector hereafter can be connected or disconnected without damaging the printer.

5.1 Power supply connector

Connector J1: MOLEX, 53048 Series 9 contacts. Female 51021 Series contacts 50079/50058.
Power supply (V bat) is from 18V to 27V DC. No power up sequence is required between the 5Volts and the 24 Volts.

PIN NUMBER	SIGNAL NAME
1	GND
2	GND
3	GND
4	GND
5	GND
6	V bat
7	V bat
8	V bat
9	5 VL

IMPORTANT NOTE:
Wires AWG28 must be used in order to avoid current losses

5.2 Serial communication connector

Connector J2: MOLEX, 53048 Series 5 contacts. Female 51021 Series contacts 50079/50058.

PIN NUMBER	SIGNAL NAME
1	Gnd
2	Transmit data (Txd, output)
3	Receive data (Rxd, input)
4	CTS/DSR (input)
5	RTS/DTR (output)

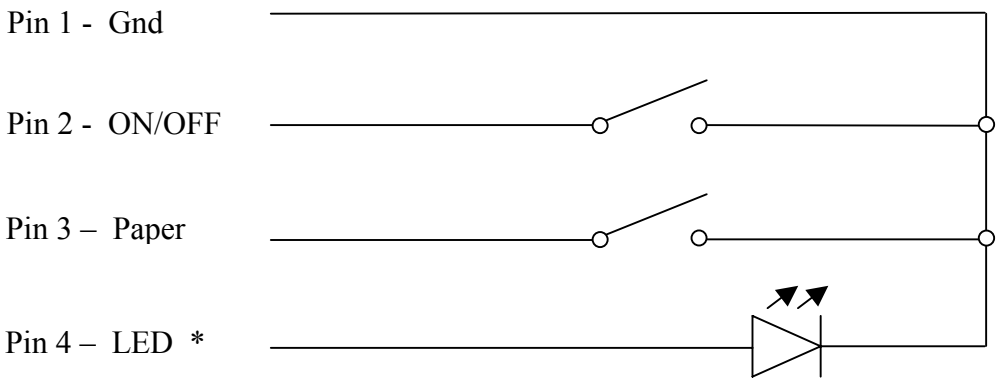
5.3 Switch/Led connector

Connector J3: MOLEX, 53048 Series 4 contacts. Female 51021 Series contacts 50079/50058.

PIN NUMBER	SIGNAL NAME
1	Gnd
2	ON/OFF line
3	Paper FEED
4	LED (cathode)

This connector allow you to design an external paper feed button, on-line off-line button, and status LED.

External circuitry is as follows:



(*) A serial resistor (390 Ohms) is on the printer, setting the LED current at about 7 mA.

The Switches and LED functions are defined in the following table:

Printer Status	**OFF**	**OFF Line**	**On Line**	**Head-up**	**End of Paper**	**Over/Under Voltage or Temperature**
On/Off Line SW	Execute **self-test** if pressed during Power-On	On Line	Off Line	Don't Care		
Paper Feed Switch	Don't Care	Feeds Paper	Feeds Paper if not already printing	Don't Care		
LED	OFF	1 Flash “ON”	Always "ON"	2 Flash “ON”	3 Flash “ON”	4 Flash “ON”

5.4 Parallel communication connector

Connector J4: MOLEX, 53048 Series 15 contacts. Female 51021 Series contacts 50079/50058.

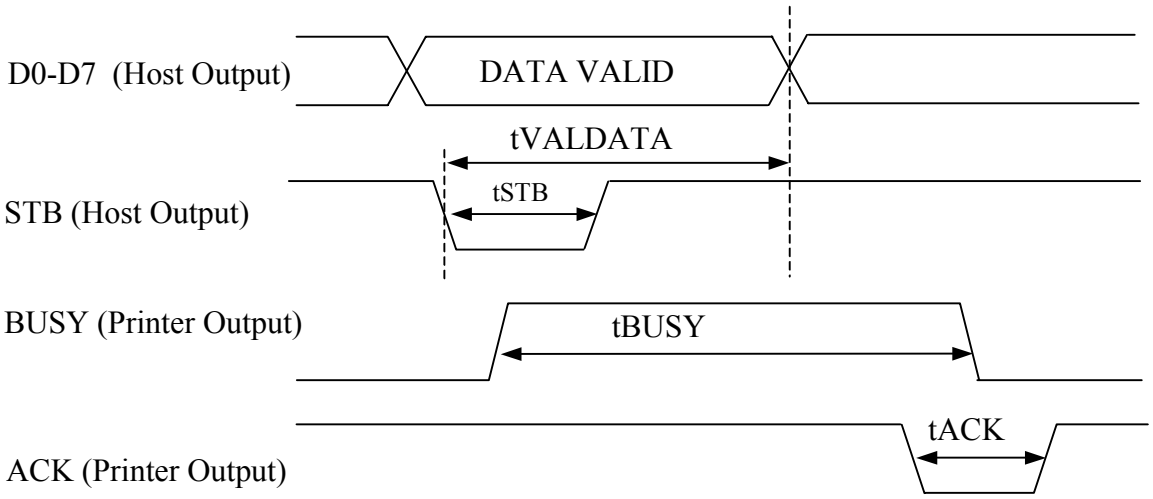
PIN NUMBER	SIGNAL NAME
1	\AUTOFEED
2	BUSY
3	D7
4	D6
5	D5
6	D4
7	D3
8	D2
9	D1
10	D0
11	PE
12	\INIT
13	GND
14	\STB
15	\ACK

Note: When the printer is not powered, all lines of the parallel port are driven to ground through 220 Ohms except \INIT. In order to keep the power consumption on these lines as low as possible, it is recommended to keep all these lines to a logic 0, and keep \INIT to a logic one. In any case, when the printer is not powered and the parallel port is connected, \INIT must be left to one, to ensure a proper printer initialization at power up.

5.5 Timing for parallel communication

The communication protocol is Centronics compatible, and has the ability to handle the "Compatibility Mode" (Write from the Host to the Printer), and also the "byte Mode", for the host to read internal data from the printer. The Byte mode is used to receive printer status back from the printer.

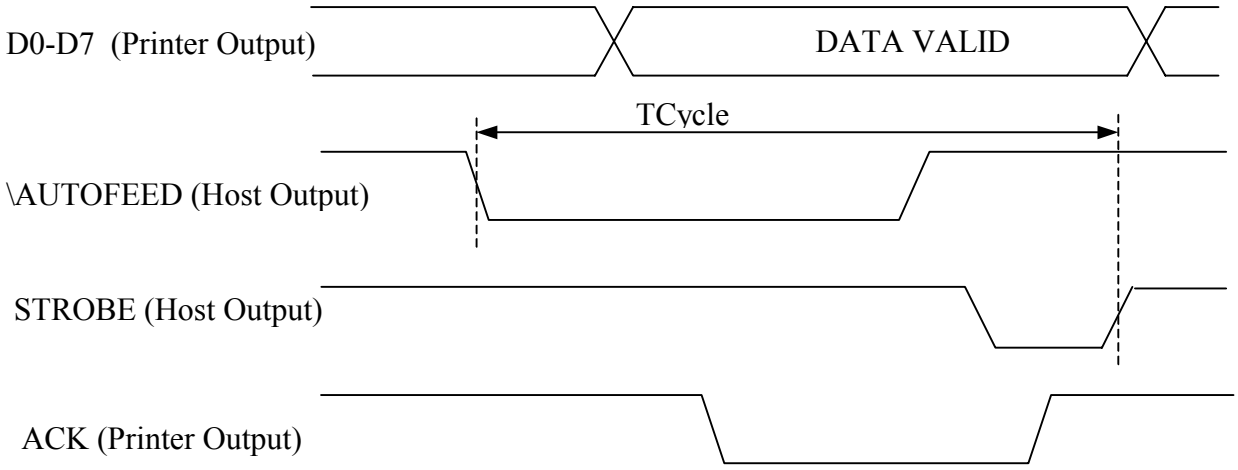
5.5.1 Compatibility mode timing (host writes to the printer)



PARAMETER	MIN	TYP	MAX	COMMENTS
Time STB (tSTB)	5 µs	-	-	This time is given by the host
Time BUSY (tBUSY)	25 µs	90 µs	250 µs	This hold time is controlled by GS b control code
Time tVALDATA	25 µs	-	-	Time in while the data must be stable. This time is fixed by the host.
Time ACK (tACK)	-	3µs	-	

IMPORTANT NOTE:
The data (D0-D7) must be stable for tVALDATA. If not, please contact APS for additional cabling.

5.5.2 Byte Mode timing (host reads data from printer)



In this mode, the data transfer controlled is given by the host, but tCycle must not exceed 0.5 seconds

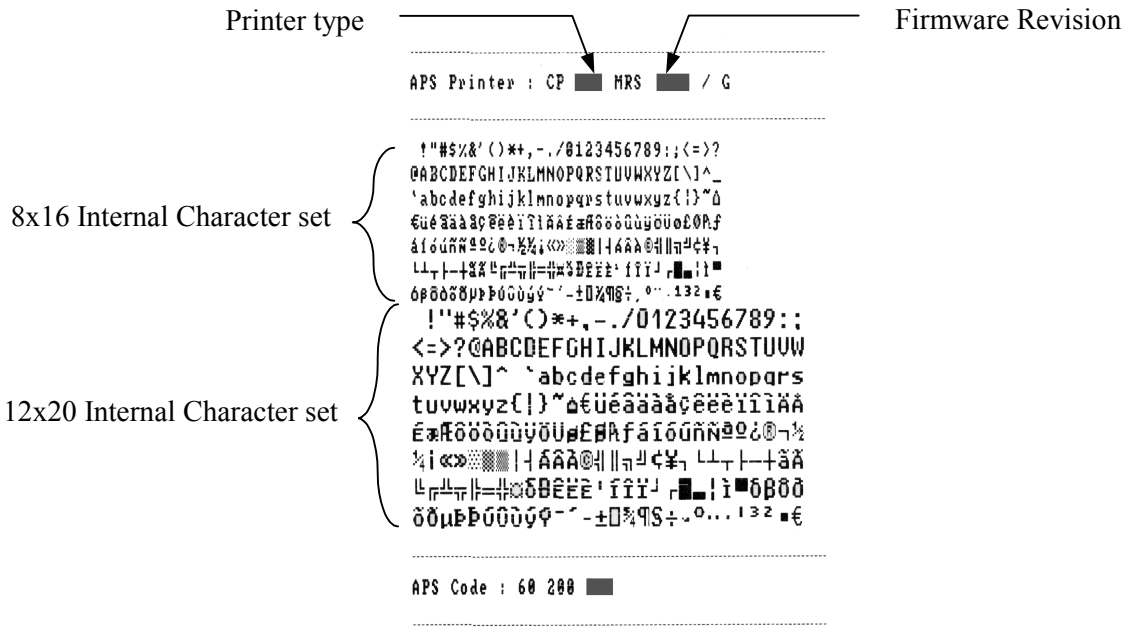
5.6 Serial / Parallel mode selection

Serial or Parallel mode may be chosen via software automatically after the first character is received. At power-up, both serial and parallel communications are active. If the first character is received on the serial port, the communication will be serial, and vice versa for parallel. This first character will be interpreted like any other incoming byte into the printer.

6. PRINTER DEVICE OPERATIONS

6.1 Self test Mode

This mode is done by the combination of the 2 external switches (see section 3.3). It prints the printer type, the revision of the printer firmware and the both internal character sets.



6.2 Paper loading

This can be achieved by two different methods:
Paper loading can be achieved by two different methods:

- **Automatic paper loading**: With the green head-up lever in the down position, insert the paper inside the printer, and then the roller will automatically feed the paper for about 2 seconds. If the printer has a cutter, the cutter will cut the paper after the loading. The printer is then ready to print. This function can be achieved only if power supply is more than 5 volts. In mark detection mode, the paper is fed forward to the TOF position.
- **Manual paper loading**: Put the green head-up lever in the up position. Manually feed the paper into the printer until it exits between the thermal head and the roller. Turn the green lever to the head-down position. Now the printer is ready to print.

6.3 Text Printing Format

The controller board is having two resident sets of 224 characters :

- **8x16 Character set**: Character size is 9 pixels (8 “active dots” plus one inter-character) x 20 pixels (16 “active” dots plus 4 interlines including underline), or 1.125mm x 2.5mm.
  With double and quadruple height and width, maximum character size can go up to 4.5mm width x 10mm height.
  Horizontal character spacing and line spacing may be adjusted via the software. Character per line is up 64 in standard text, 32 in double width, and 16 in quadruple width.

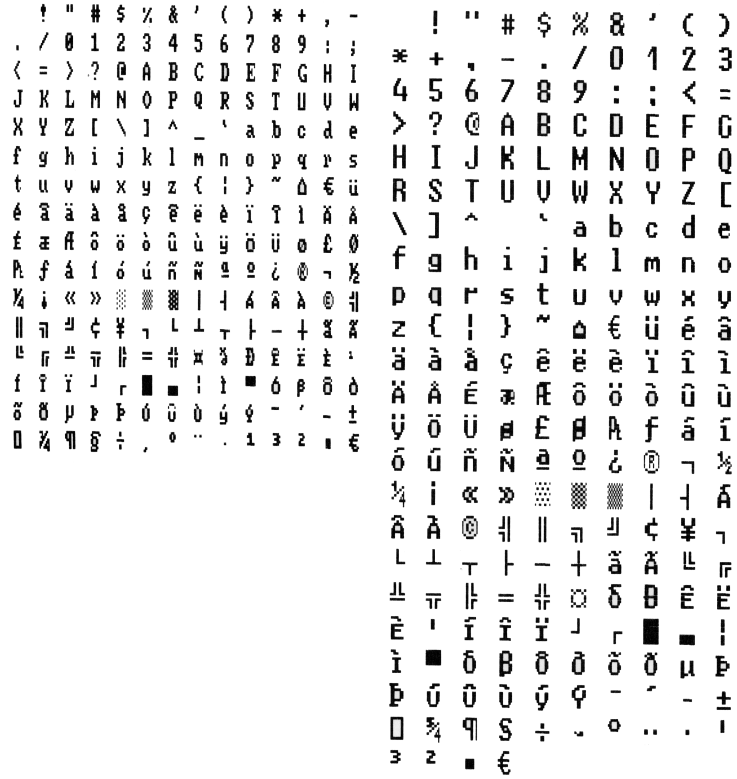
- **12x20 Character set**: Character size is 13 pixels (12 “active dots” plus one inter-character) x 24 pixels (20 “active” dots plus 4 interlines including underline), or 1.625 mm x 3 mm.
  With double and quadruple height and width, maximum character size can go up to 6.5mm width x 12mm height.
  Horizontal character spacing and line spacing may be adjusted via the software. Character per line is up 44 in standard text, 22 in double width, and 11 in quadruple width.

  12 characters are selectable from the international character set: refer to ESC “R” command for more information

  Both fonts include the *Euro currency symbol (Position 128, 80h)*.

8x16 Internal Font

12x20 Internal Font



6.4 Operating Control codes

Control codes are non-printable characters or sequences of characters that control the operation of the printer. Within the following description, a control code causes the printer to interpret the following byte as part of a command and not as a printable character.

6.4.1 Control codes cross reference

Setup and Hardware control

COMMAND	DESCRIPTION
GS / n	Set printing speed / Maximum peak current
GS D n	Set print Intensity
ESC v	Send printer status
ESC I	Send printer identity
ESC @	Resets printer
GS B n	Serial Communication setting
GS b n	Set parallel port Busy line hold time

Text and General commands

COMMAND	DESCRIPTION
ESC % n	Select internal Character Set
ESC R n	Select international character Set
ESC 3 n	Set line spacing
ESC SP n	Set character spacing
ESC ! n	Set print mode
ESC { n	Set/reset Rotated character
LF	Line feed
CR	Carriage return
ESC J n	Feed paper (n dot lines) forward
ESC j n	Feed paper (n dot lines) backward
CAN	Cancel print data buffer (text mode)

Graphics commands

COMMAND	DESCRIPTION
ESC * n1 n2 n3 n4 n5 n6, data	Print graphics
ESC $ n1,n2	Horizontal dot positioning
ESC V n1,n2,n3 data	Horizontal bit image

Cutter commands

COMMAND	DESCRIPTION
ESC m	Partial cut
ESC i	Full cut

Bar code commands

COMMAND	DESCRIPTION
GS k n [Start] <data> NUL	Print bar code
GS h n	Barcode Height
GS w n	Barcode magnification
GS H n	Text position in Barcode

Hole and black mark detection commands

COMMAND	DESCRIPTION
GS L n	Set Mark length
GS T n	Set TOF position
GS E	TOF feed paper
GS X n1 n2	Set Mark to Cut Position
GS x n1 n2	Set Cut Line to Head Dot line Length

6.4.2 Setup and Hardware control

GS / n

Description: Set printing speed / Maximum peak current/ Dynamic division
Format: <1Dh> <2Fh> <n>
Comments: n=0 : (Default) Set at maximum printing speed (maximum peak current on power supply, and maximum speed)
n=1 to 32 : Software programmable consumption (Dynamic division). The maximum number of black dots which are simultaneously heated is (n+1) x 8.
In default mode, n = 5.
Example : n=5 Maximum black dots heated : (5+1)*8=48.
Printer Peak consumption @24V :
(0.3A (Stepper Motor) + 24*48/1500) = 1.068A
1500 Ohms is the dot resistance.

GS D n

Description: Set print Intensity
Format: <1Dh> <44h> <n>
Comments: n=8Fh (127d) : (Default). Nominal print intensity
n>8Fh (127d) : Printout becomes darker
n<8Fh (127d) : Printout becomes lighter
(n from 0 to 255 (FFh)).

ESC v

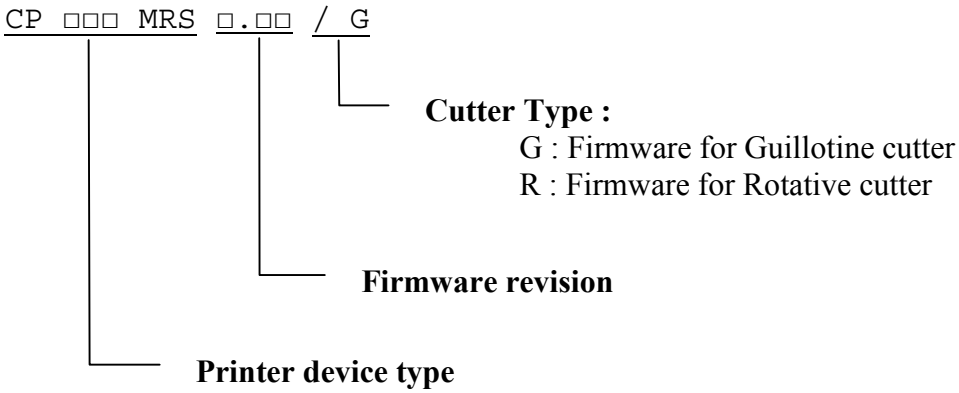
Description: Send printer status
Format: <1Bh> <76h>
Comments: The printer returns a single byte that reflects the status of the printer in accordance with the following table:

BIT	FUNCTION	BIT = 0	BIT = 1
0	Head temperature	OK	Too high or too low
1	Head-up	No	Yes
2	Paper out	No	Yes
3	Power supply	OK	Too high or too low
4	Printer in use	Ready	Action in progress
5	On/Off line	Off	On
6	Hole/Mark detection Error	No	Too short, too long or not found
7	Cutter failure	Yes	No

This command is executed immediately after being received, even in case of a full buffer (DTR/RTS, Xoff or Busy active). Host must disable the handshaking controls to send the ESC v command.
When using the parallel port, PE signal is continuously updated by the software. To read the status byte, use the Byte Mode (Parallel communication) as described in section 5.5.2, after having sent the ESC v command.

ESC I

Description: Send printer identity
Format: <1Bh> <49h>
Comments: The printer returns a string ended by zero (00h) that reflects the printer identity.
The string is formed by the combination of the following:



ESC @

Description: Resets printer
Format: <1Bh> <40h>
Comments: Resets the printer device. This command is executed immediately after being received, even in case of a full buffer (DTR/RTS or Xoff active). Host must disable the handshaking controls to send the ESC @ command.

GS B,n

Description: Serial communication and mode settings
Format: <1Dh> <42h> <n>
Comments: Sets serial communication speed and mode
Bit 7: B7=0: Xon-Xoff mode (software control), B7=1: DSR/DTR mode (hardware control)
Bit 6: Not used
Bit 5: Stopbit; B5=0, 1 stopbit; B5=1, 2 stopbits.
Bit 4: Not used
Bit 3: Not used
Bit 2, 1, 0: Speed:

n	COMMUNICATION SPEED
0	1 200
1	2 400
2	4 800
3	9 600
4	19 200
5	38 400
6	57 200
7	115 200

(Default n=83h: DSR/DTR; Normal mode, 1 Stopbit, 9600 Bds, No Parity)

GS b,n

Description: Parallel port busy line hold time setting
Format: <1Dh> <62h> <n>
Comments: Sets the minimum tBUSY hold time on the parallel busy line. See "Compatibility mode timing" (refer to section 5.6.1) for an example of the waveform.

The 'n' value may be changed to avoid erratic character reception from the host's automatic character repeat feature. This command repeats sending the latest byte sent when the printer hold time tBUSY is too short (from 20µs to 100µs depending on the host's parallel port firmware). To avoid the repeating, the minimum time of tBUSY must be increased. Please note that increasing the tBUSY hold time will reduce the communication speed.

If the host firmware correctly controls the timing per the waveforms given in "Compatibility mode timing" (see section 5.6.1) and has no automatic repeat feature, n can equal 0, thereby minimizing time of tBUSY (around 25µs) and maximizing communication speed.

By default n = 50 which gives 80µs for the minimum duration of tBUSY.
The time is given by the formula: (n * 1µs) + 30µs. (n from 00h to FFh).

6.4.3 Text and General commands

ESC %,n

Description: Switch the set of printable characters
Format: <1Bh> <25h> <n>
Comments: n = 0 : **8x16** Font Bank is selected.
n = 1 : **12x20** Font Bank is selected.
The international character set selection (ESC R) is disabled.

ESC R,n

Description: Select international character set
Format: <1Bh> <52h> <n>
Comments: Modify the set of printable characters in accordance with the table below:

n	COUNTRY	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
0	USA	#	$	@	[	\	]	^	‘	{	|	}	~
1	France	#	$	à	°	ç	§	^	‘	é	ù	è	“
2	Germany	#	$	§	Ä	Ö	Ü	^	‘	å	ö	ü	ß
3	UK	£	$	@	[	\	]	^	‘	{	|	}	~
4	Denmark 1	#	$	@	Æ	φ	Å	^	‘	æ	Φ	å	~
5	Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
6	Italy	#	$	@	°	\	é	^	ù	à	ò	è	ì
7	Spain 1	Pt	$	@	¡	Ñ	¿	^	'	"	ñ	}	~
8	Japan	#	$	@	[	¥	]	^	‘	{	|	}	~
9	Norway	#	¤	É	Æ	φ	Å	Ü	é	æ	Φ	å	ü
10	Denmark 2	#	$	É	Æ	φ	Å	Ü	é	æ	Φ	å	ü
11	Spain 2	#	$	à	¡	Ñ	¿	é	'	í	ñ	ó	ú
12	Latin Amer.	#	$	à	¡	Ñ	¿	é	û	í	ñ	ó	ú

ESC 3 n

Description: Set line spacing
Format: <1Bh> <33h> <n>
Comments: Sets the character line spacing. (Default n=3). n may vary from 3 to 15. The character line spacing pitch is n/16mm.

ESC SP n

Description: Set character spacing
Format: <1Bh> <20h> <n>
Comments: Sets the right character spacing. (Default n=2). n may vary from 1 to 16. The right character spacing pitch is n/8mm. This spacing is proportional to double width (nx2) and quadruple width (nx4) commands.

ESC ! n

Description: Set print mode
Format: <1Bh> <21h> <n>
Comments: The value of n (default 0) selects the various modes of printing as described in the table on the next page:

Bit	Function	Bit = 0	Bit = 1
0	Not used	-	-
1	Quadruple Height	Cancelled	Set
2	Quadruple Width	Cancelled	Set
3	Not used	-	-
4	Double Height	Cancelled	Set
5	Double Width	Cancelled	Set
6	Not used	-	-
7	Underlined	Cancelled	Set

ESC { n

Description: Set/Cancel Rotated characters
Format: <1Bh> <7Bh> <n>
Comments: This command rotates text by 180°
n= 0 (default). Printout is normal
n=1 : Printout is rotated 180°

LF

Description: Line feed
Format: <0Ah>
Comments: Move the print position to the beginning of the next line

CR

Description: Carriage return
Format: <0Dh>
Comments: Move the print position to the beginning of the next line. Note: if CR is followed by LF, the printer will ignore the LF after CR. So, CR = LF = CR+LF

ESC J,n

Description: Feed paper (n dot lines) forward
Format: <1Bh> <4Ah> <n>
Comments: Paper is fed for n (n<256) dot lines (n times 0.125 mm). The print position is at the beginning of the next line

ESC j,n

Description: Feed paper (n dot lines) backward
Format: <1Bh> <6Ah> <n>
Comments: Paper is fed for n (n<256) dot lines (n times 0.125 mm) backward. The print position is at the beginning of the next line

CAN

Description: Cancel print data buffer (text mode)
Format: <18h>
Comments: The print buffer is cancelled and print position is set to the beginning of the next line.

6.4.4 Graphic commands

ESC * n1 n2 n3 n4 n5 n6 <data>

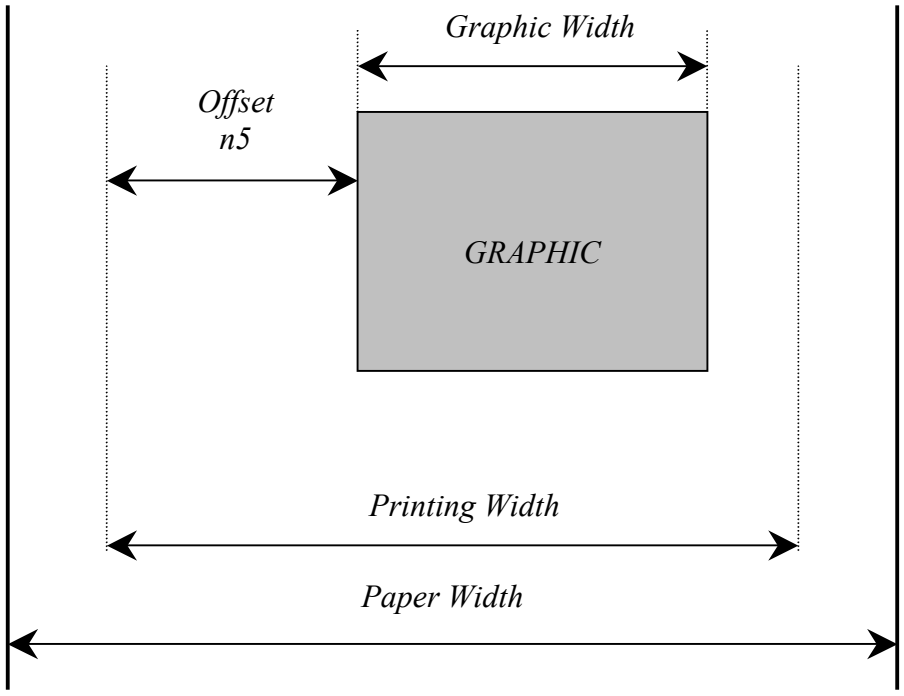
Description: Print graphics
Format: <1Bh><2Ah><n1><n2><n3><n4><n5><n6><data>
Comments: Bytes n1, n2 and n3 sets the number of byte N to be printed out:

N = (65536*n3) + (256*n2) + n1

Byte n4 sets graphic operators on data byte and has the following meaning:
- n4=0 : print normal size data byte (full printer resolution)
- n4=1 : double width
- n4=2 : double height
- n4=3 : expanded (double width, double height)

Byte n5 sets the number of byte to be skipped before printing out the first graphic bit:
- 00 H : first graphic bit to be printed out is dot one on the head
- 01 to FF H : 1 to 255 bytes skipped (to be less than total number of head's bytes)

Byte n6 sets the width of the graphic to be printed out:
- 01 to FF H : width is 1 to 255 bytes (to be less than total number of head's bytes)



ESC $ n1 n2

Description: Horizontal dot positioning
Format: <1Bh><24h><n1><n2>
Comments: Dot positioning command in bytes (to be used with ESC V). Dot position equals (n1 + 256*n2). n1 must be less than the total number of the head bytes, given by the total number of dots divided by 8 (CP324MRS is 576/8 = 72), and n2 is always 0.

ESC V n1 n2 n3 <data>

Description: Horizontal bit image
Format: <1Bh><56h><n1><n2><n3><datas>
Comments: The number of bytes to be printed is equal to (n2+256*n3). n2 must be less than the total number of the head bytes, given by the total number of dots divided by 8 (CP324MRS is 576/8 = 72), and n3 is always 0. n1 is the resolution: 0 is standard size,1 is double width, 2 double height, 3 is expanded.

IMPORTANT NOTES FOR GRAPHICS:

- Please note that n4 (offset) + n5 (graphic width) needs to be less than the number of head's bytes (printing width). If it is greater, control code will be ignored.
- One dot line must be performed in less than 2s. If not, the current into stepper will be removed resulting in poor print quality.
- It is recommended for all graphics sequences to set up the communication speed at the maximum value.

6.4.5 Cutter commands

ESC i

Description: Full cut
Format: <1Bh> <69h>
Comments: In continuous paper feed mode, this command performs a full cut (if cutter is present) at the current paper position.
In hole/mark detection mode, the paper is fed forward to the Cut position (GS X) and then cut.

ESC m

Description: Partial cut
Format: <1Bh> <6Dh>
Comments: In continuous paper feed mode, this command performs a partial cut (if cutter is present) at the current paper position.
In hole/mark detection mode, the paper is fed forward to the Cut position (GS X) and then cut.

6.4.6 Bar code commands

GS k n [Start] <data> NUL

Description: Print bar code
Format: <1Dh> <6Bh> <n> [Start] <data> <00h>
Comments: n is barcode standard selection, as described in the following table. [Start] is an optional byte used only by Code 128.

n	START BYTE	BAR CODE TYPE
0	No Start	UPC-A
1	No Start	UPC-E
2	No Start	EAN 13
3	No Start	EAN 8
4	No Start	Code 39
5	No Start	Interleaved 2/5 (ITF)
6	No Start	Codabar
7	135	Code 128A
	136	Code 128B
	137	Code 128C

GS h n

Description: Select vertical height of bar code
Format: <1Dh> <68h> <n>
Comments: n, from 1 to 255 in multiple of 1/8 mm (default is 128)

GS w n

Description: Select horizontal magnification of bar code
Format: <1Dh> <77h> <n>
Comments: n, defines the number of 0.125mm units are used to define the module of each barcode symbol. The thick lines are set to twice n value. (n from 2 to 6, default is 3)

GS H n

Description: Select printing position of bar code text
Format: <1Dh> <48h> <n>
Comments: n is used to define the position of the characters which are printed with the bar code:

n	PRINTING POSITION
0	Not printed
1	Above bar code
2	Under bar code
3	Above and under bar code

NOTE : If the barcode width exceeds the printing width, it will be ignored.
The barcode text is printed out with the latest selected font (ESC %)

6.4.7 Hole / Black mark detection commands

The length between two successive black marks must be 35 mm or more.

GS L n

Description: Set Mark length
Format: <1Dh> <4Ch> <n>
Comments: Set Mark length and switch from continuous paper feed to mark detection.
n specifies the length of the mark in dot lines at 0.125mm. If n = 0 (Default) then the printer switches into continuous paper feed mode.
Example : If n = 24 the length of the mark is equal to 3mm, and the printer enters the mark detection mode.
The minimum mark length is 2mm and the maximum is 7 mm.

GS T n

Description: Sets top of form (TOF) position
Format: <1Dh> <54h> <n>
Comments: Defines the number of dot lines X between the end of the mark and the first printable line (TOF).
X = n dot lines (Default: X = 0).
The maximum value of X is 75 dot lines or 9.3 mm.

GS E

Description: TOF feed paper
Format: <1Dh> <45h>
Comments: Makes paper feed to the next TOF position.

6.4.8 Cutter settings Commands

When executing partial or full cut, the paper or label is fed to the next cut position and then cut.

To avoid advancing and losing a label during power Off/On sequence, please do following:

- Turn the printer off in cut position (after a cut command), or if no cutter is present, switch it off in the TOF position.
- Turn the printer on and reconfigure the label detection by sending all parameters (GS L, GS T, GS X and if necessary GS x).

GS X n1 n2

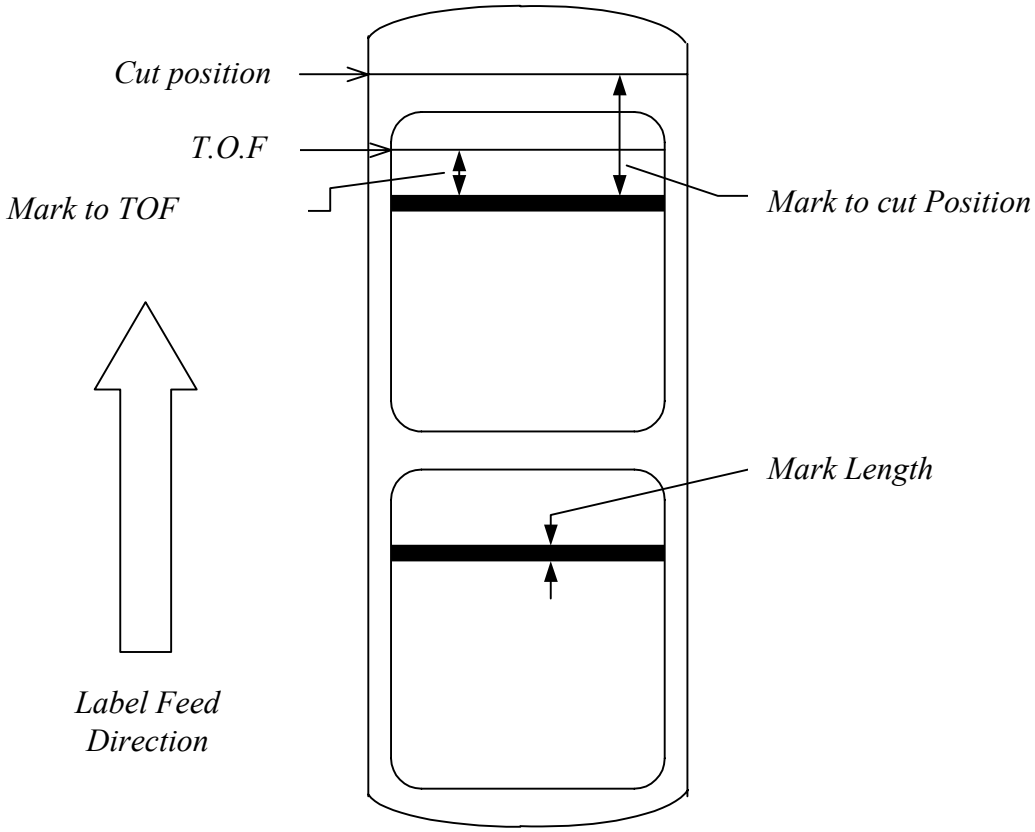
Description: Set mark to cut position length
Format: <1Dh> <58h> <n1> <n2>
Comments: Defines the number of dot lines N between the end of the mark and the Cut position. Y = (n1*256) + n2 (Default: Y = 0).
The maximum value of Y is 160 dot lines or 20.3 mm. (Y must be greater than X)

GS x n1 n2

Description: Set cut line to head dot line length
This code is to be used only if the cutter's blade position is different from that set on the printer by default.

Format: <1Dh> <78h> <n1> <n2>

Comments: Defines the number of dot lines N between the cut position and the head dot line.
N =(256*n1) + n2. By default, N = 88 dot lines.

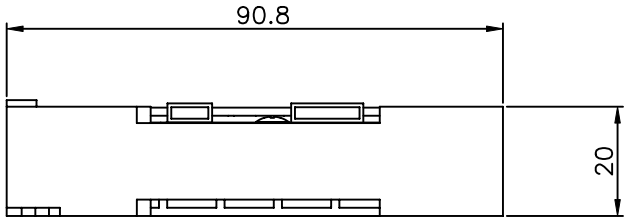


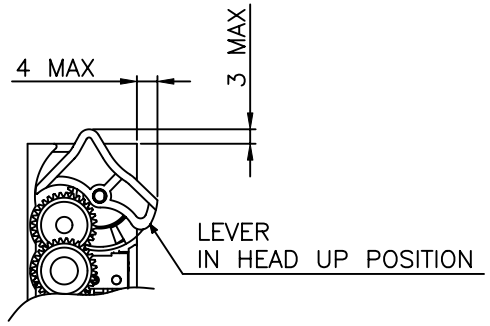
NOTE : Make sure that Hole/Black mark fully covers the opto sensor window, according to the paper path chosen (front or bottom).

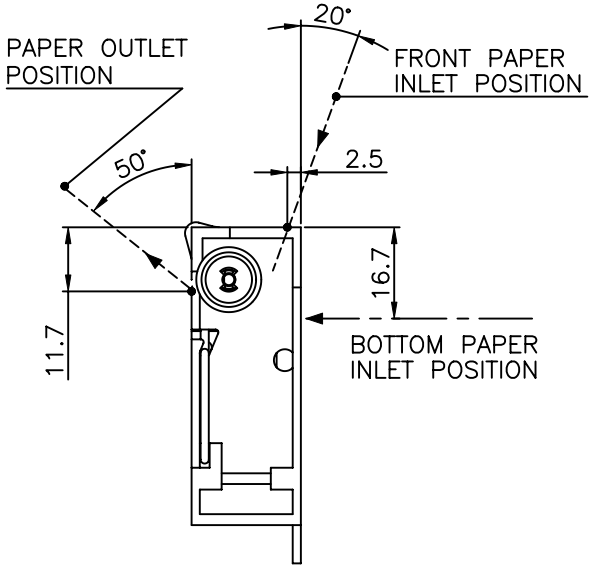
7. ORDERING CODE

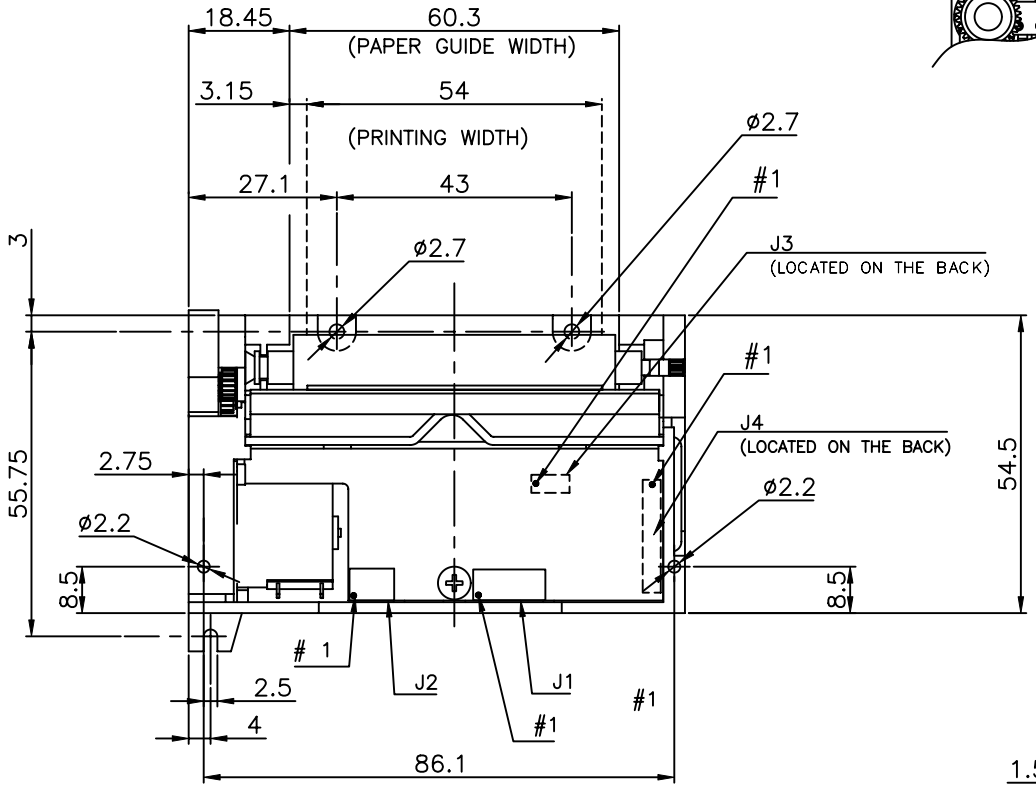
CP290MRS without cutter and bracket :	CP 290-MRS
CP290MRS with Guillotine cutter and bracket :	CP 290-MRS - C
CP290MRS with Rotative cutter and bracket :	CP 290-MRS - RC
CP324MRS without cutter and bracket :	CP 324-MRS
CP324MRS with Guillotine cutter and bracket :	CP 324-MRS - C
CP324MRS with Rotative cutter and bracket :	CP 324-MRS - RC
CP424MRS without cutter and bracket :	CP 424-MRS
CP424MRS with Guillotine cutter and bracket :	CP 424-MRS - C
CP424MRS with Rotative cutter and bracket :	CP 424-MRS - RC

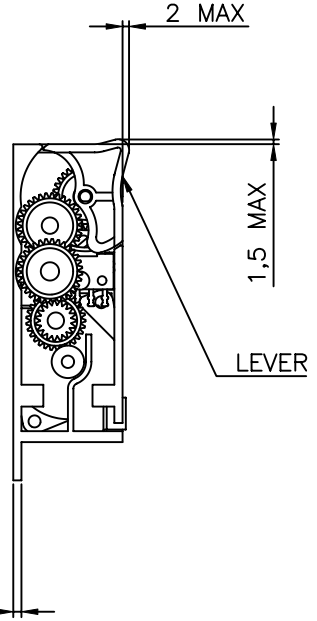
CONNECTOR	FUNCTION
J1	POWER SUPPLY
J2	SERIAL COMUNICATION (RS 232)
J3	SWITCH / LED CONNECTOR
J4	PARALLEL COMMUNICATION (CENTRONICS)

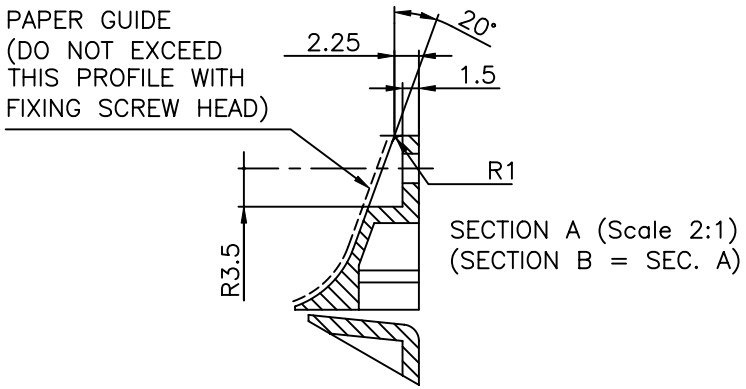






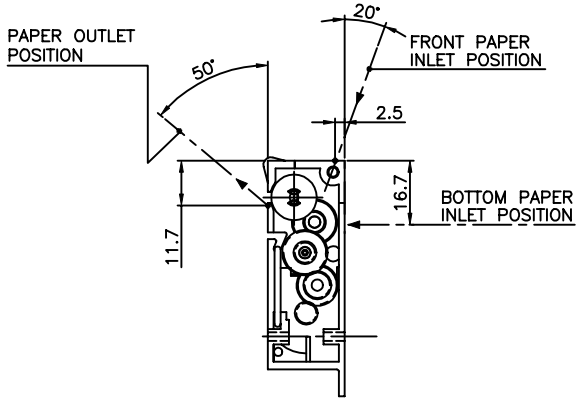


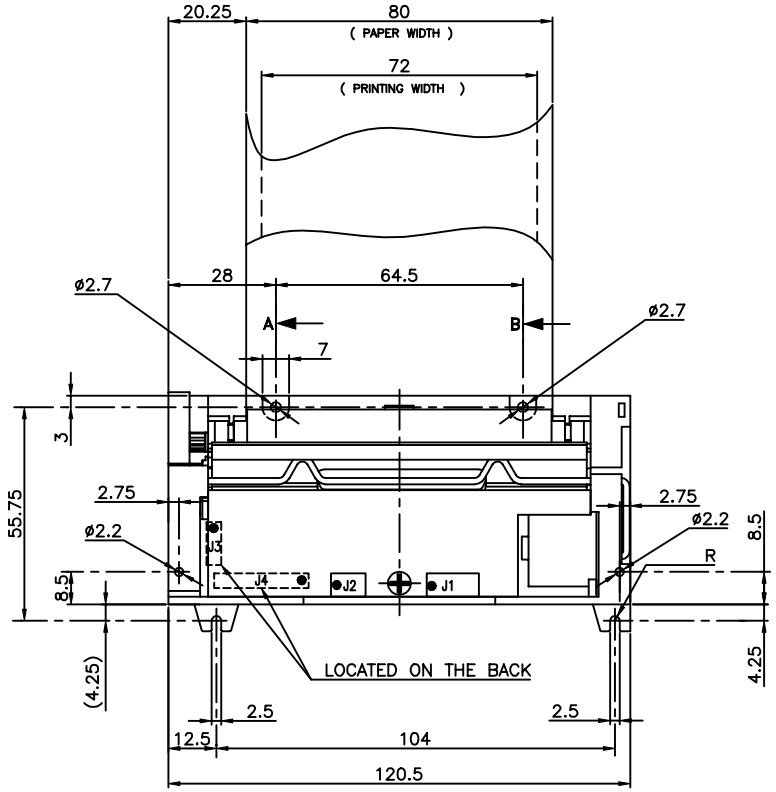


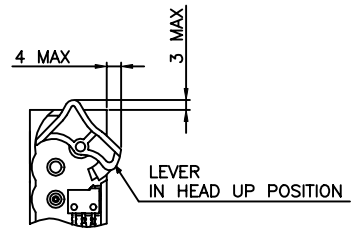


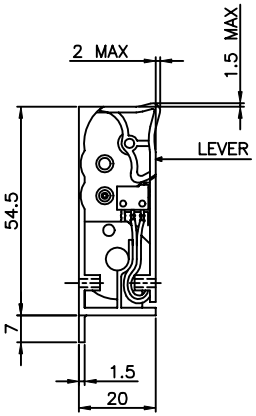
DENOMINAZIONE Denomination	I	STAMPANTE	MASSA–Mass	UNITA'–Unit mm
	GB	PRINTER	DISEGNATO DA drawn by FC	CONTROLLATO DA Checked by
	F	IMPRIMANTE		
	D	DRUCKER		
DISEGNO D'INGOMBRO OVERALL DIMENSIONS DRAWING			DATA–Date 15–DEC–00	SCALA–Scale 1:1
			FOGLIO–Sheet 1/1	FORMATO–Size A3
CATALOGO/Catalog CP 290 MRS			N° DIS.–Draw.No 90 290 MRS	REV. A

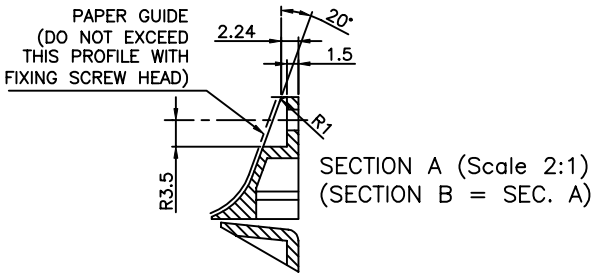
REVISIONI (Revisions) : A [TDP 2000–034] EMISSION.(15.DEC.00 FC)











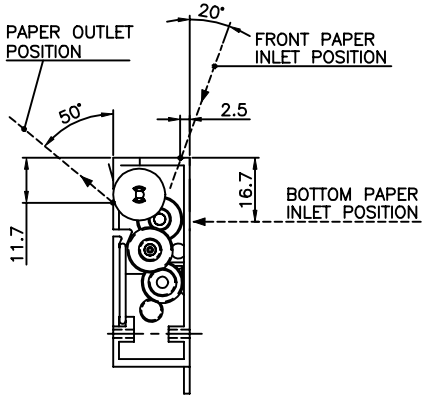
SECTION A (Scale 2:1)
(SECTION B = SEC. A)

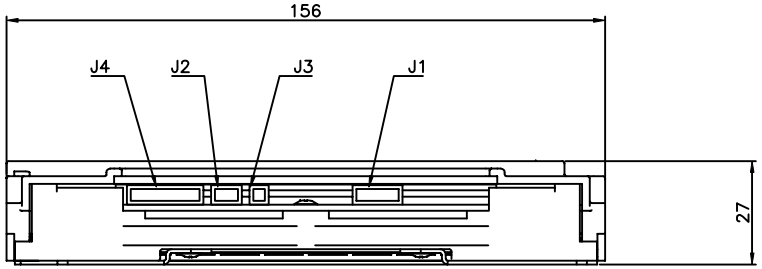
CONNECTOR	FUNCTION
J1	POWER SUPPLY
J2	SERIAL COMMUNICATION (RS232)
J3	SWITCH/LED CONNECTOR
J4	PARALLEL COMMUNICATION (CENTRONICS)

• PIN 1

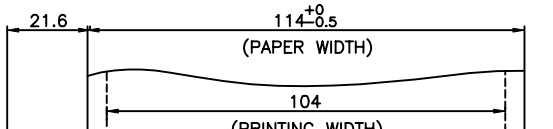
DENOMINAZIONE Denomination	I	STAMPANTE	MASSA–Mass	UNITA'–Unit: mm
	GB	PRINTER	DISEGNATO DA drawn by: FC	CONTROLLATO DA Checked by:
	F	IMPRIMANTE	DATA–Date: 21–DEC–00	SCALA–Scale: 1:1
	D	DRUCKER	FOGLIO–Sheet: 1/1	FORMATO–Size: A2
DISEGNO D'INGOMBRO OVERALL DIMENSIONS DRAWING				
CATALOGO/Catalog: CP324 MRS			N° DIS.–Draw.No: 90 324 MRS	REV.: A

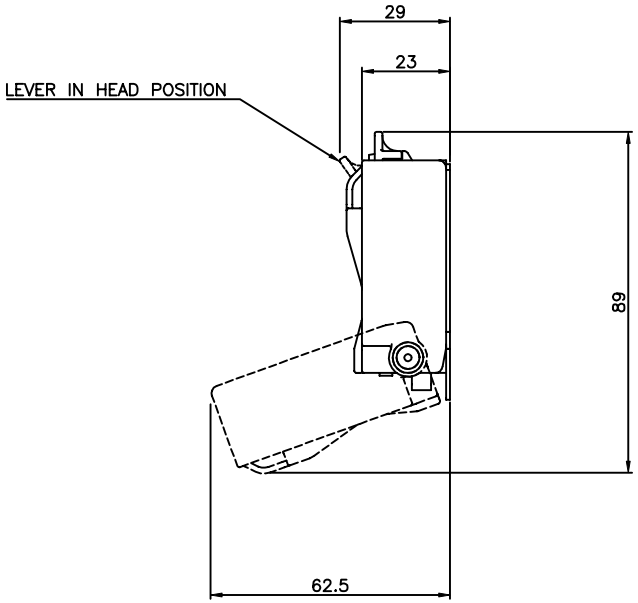
REVISIONI (Revisions) : A [TDP 2000-034] CREATION.(21.DEC.00 FC)

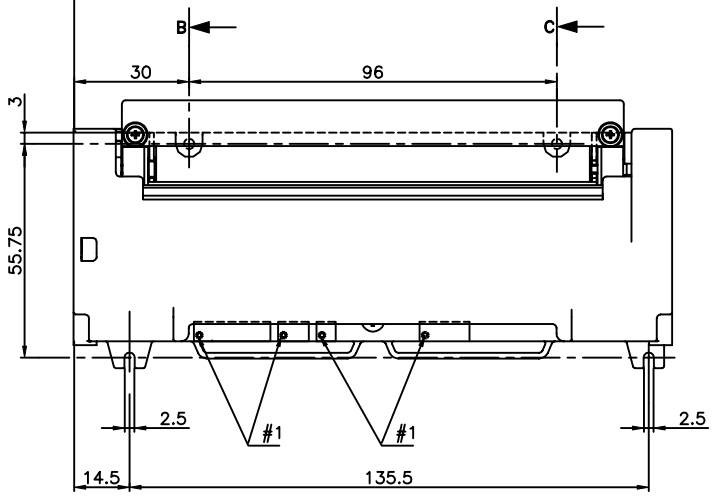


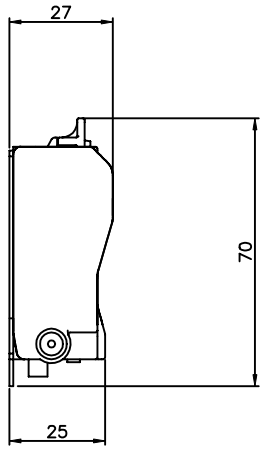


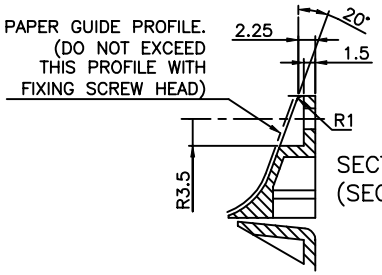
CONNECTOR	FUNCTION
J1	POWER SUPPLY
J2	SERIAL COMUNICATION (RS 232)
J3	SWITCH / LED CONNECTOR
J4	PARALLEL COMMUNICATION (CENTRONICS)











SECTION B (Scale 2:1)
(SECTION C = SEC. B)

REVISIONI (Revisions) : [A] [TDP 2000-034] CREATION.(11.DEC.00 FC)

DENOMINAZIONE Denomination	I	STAMPANTE	MASSA–Mass	UNITA'–Unit: mm
	GB	PRINTER	DISEGNATO DA drawn by: FC	CONTROLLATO DA Checked by:
	F	IMPRIMANTE	DATA–Date: 11–DEC–00	SCALA–Scale: 1:1
	D	DRUCKER	FOGLIO–Sheet: 1/1	FORMATO–Size: A2
DISEGNO D'INGOMBRO OVERALL DIMENSIONS DRAWING				
CATALOGO/Catalog: CP424 MRS			N° DIS.–Draw.No: 90 424 MRS	REV.: A