

MINI
CUSTOMER
DISPLAY **XD**

USER MANUAL

POS



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CUSTOM ENGINEERING S.p.A.

Str. Berettine 2 - 43010 Fontevivo (PARMA) - Italy

Tel.: +39 0521-680111 - Fax: +39 0521-610701

[http: www.custom.it](http://www.custom.it)

Customer Service Department:

Tel.: +39 059 88 69 587

Email: support@custom.it

GENERAL FEATURES

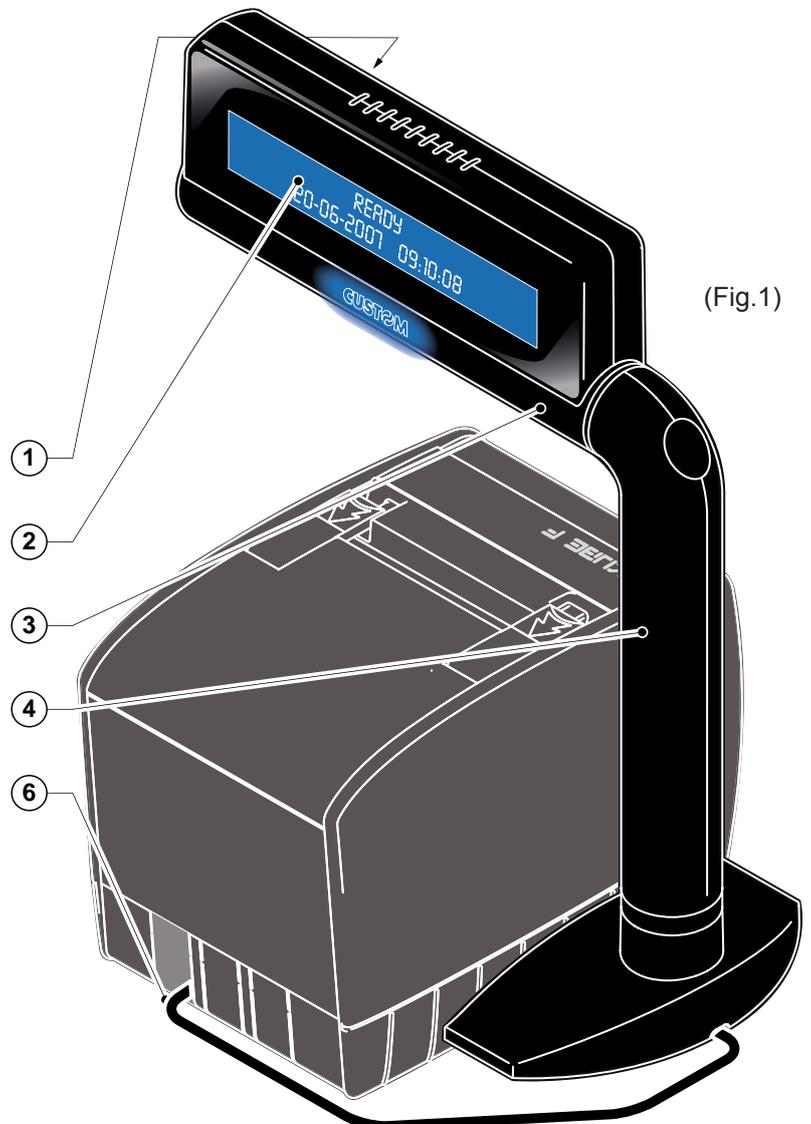
A new family of customer displays with a clear-cut, modern and elegant design enhanced by the blue back-lighting of the 2-line x 20-character display. The new support system makes the display easy to position and offers two different display heights. The XD is available in single- and double-sided versions and can be incorporated in the body of Custom printers.

- Nice and modern design customer display
- Single or double side
- Blue colour backlighting display
- Easy view angle adjustment
- Low and high version available

DISPLAY+ PRINTER COMPONENTS

- 1 Display 2*
- 2 Display 1
- 3 Horizontal adjustment
- 4 Inclination angle adjustment
- 5 Base
- 6 Communication cable

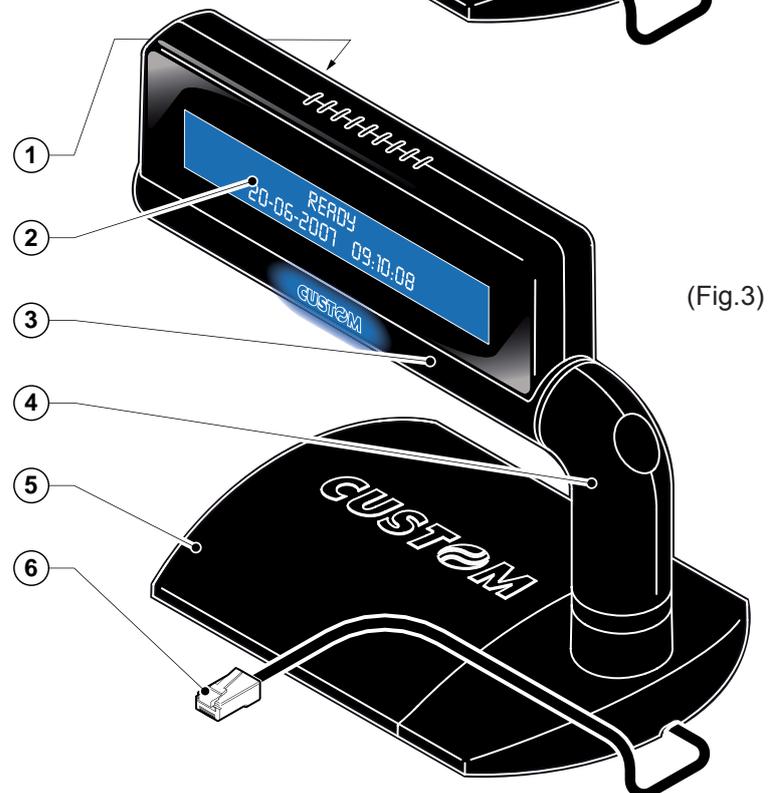
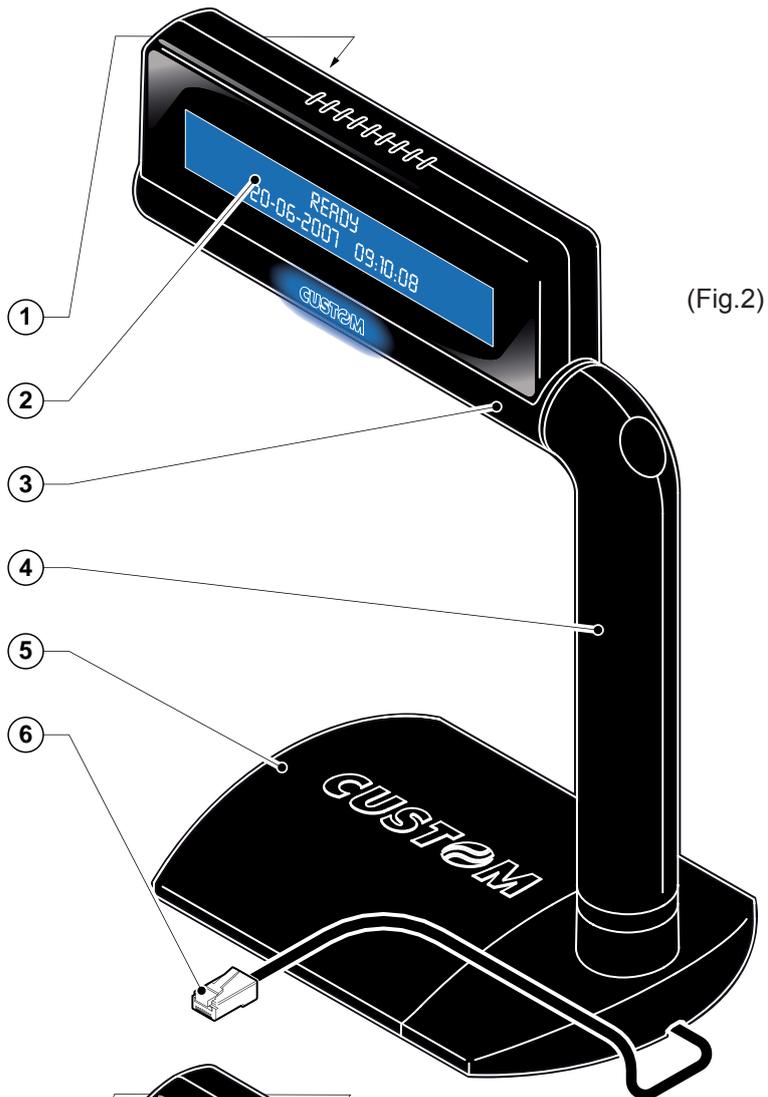
* Only double-side display.



DISPLAY COMPONENTS

- 1 Display 2*
- 2 Display 1
- 3 Horizontal adjustment
- 4 Inclination angle adjustment
- 5 Base
- 6 Communication cable

* Only double-side display.



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MANUAL CONTENTS

In addition to the Introduction which includes a description of the explanatory notes used in the manual, general safety information, how to unpack the display and a brief description of the display including its basic features, this manual is organized as follows:

- Chapter 1: Contains the information required for correct display installation and its proper use
- Chapter 2: Contains a description of the display command set
- Chapter 3: Contains Technical Specifications of the display
- Chapter 4: Contains the character sets (fonts) used by the display

EXPLANATORY NOTES USED IN THIS MANUAL



N.B.

Gives important information or suggestions relative to the use of the display.



WARNING

Information marked with this symbol must be carefully followed to guard against damaging the display.



DANGER

Information marked with this symbol must be carefully followed to guard against operator injury or damage.

GENERAL SAFETY INFORMATION

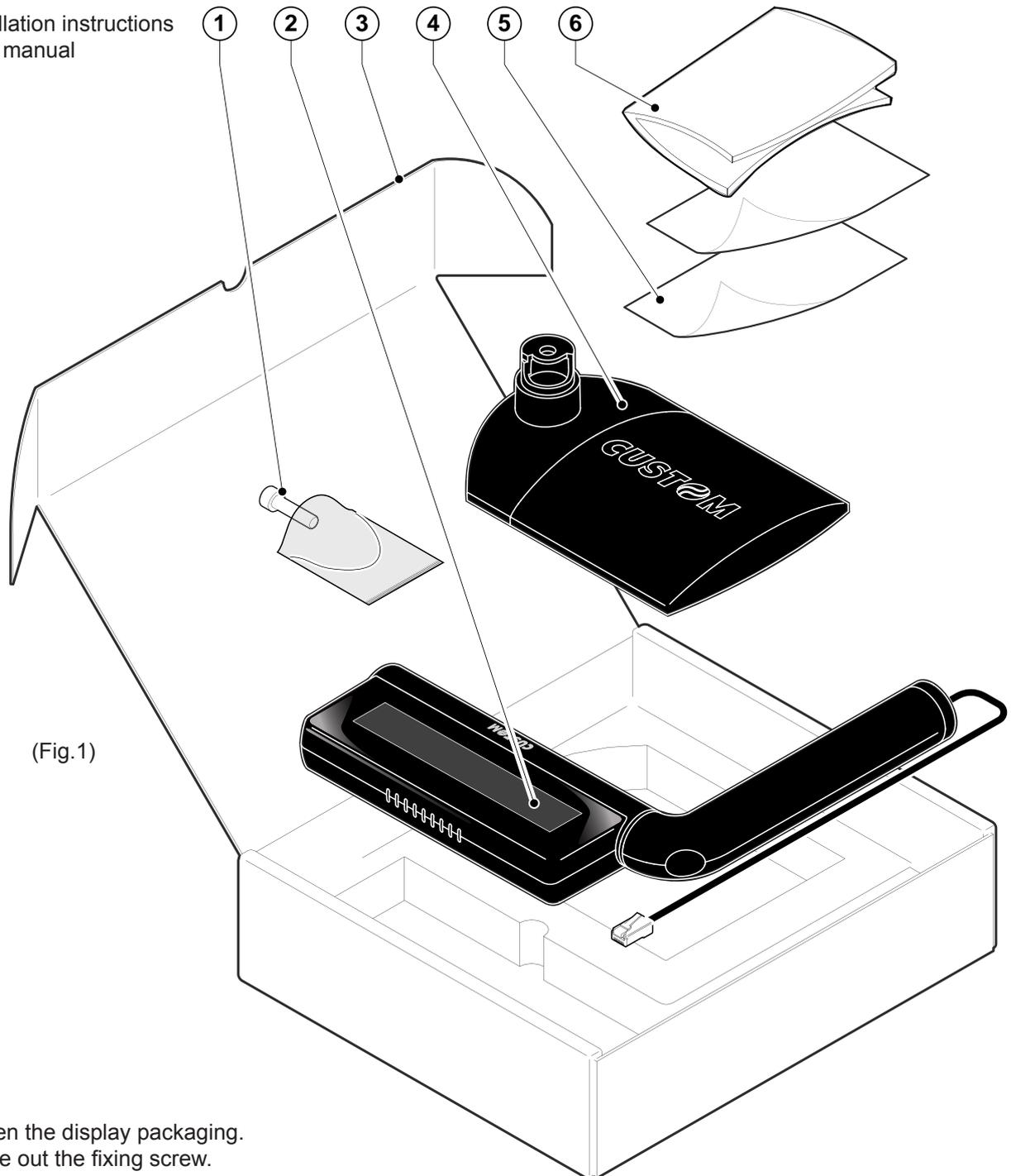
- Read and keep the instructions which follow.
- Follow all warnings and instructions indicated on the display.
- Before cleaning the display, disconnect the power supply.
- Clean the display with a damp cloth. Do not use liquid or spray products.
- Do not operate the display near water.
- Do not use the display on unstable surfaces that might cause it to fall and be seriously damaged.
- Only use the display on hard surfaces and in environments that guarantee proper ventilation.
- Make sure the display is placed in such a way as to avoid damage to its wiring.
- Use the type of electrical power supply indicated on the display label. If in doubt, contact your retailer.
- Do not introduce foreign objects of any kind into the display as this could cause a short circuit or damage parts that could jeopardize display functioning.
- Do not spill liquids onto the display.
- Do not carry out technical operations on the display, with the exception of the scheduled maintenance procedures specifically indicated in the user manual.
- Disconnect the display from the electricity supply and have it repaired by a specialized technician when:
 - A. The feed connector has been damaged.
 - B. Liquid has seeped inside the display.
 - C. The display has been exposed to rain or water.
 - D. The display is not functioning normally despite the fact that all instructions in the users manual have been followed.
 - E. The display has been dropped and its outer casing damaged.
 - F. Display performance is poor.
 - G. The display is not functioning.

INTRODUCTION

UNPACKING THE DISPLAY

Remove the display from its carton being careful not to damage the packing material so that it may be re-used if the display is to be transported in the future. Make sure that all the components illustrated below are present and that there are no signs of damage. If there are, contact Customer Service.

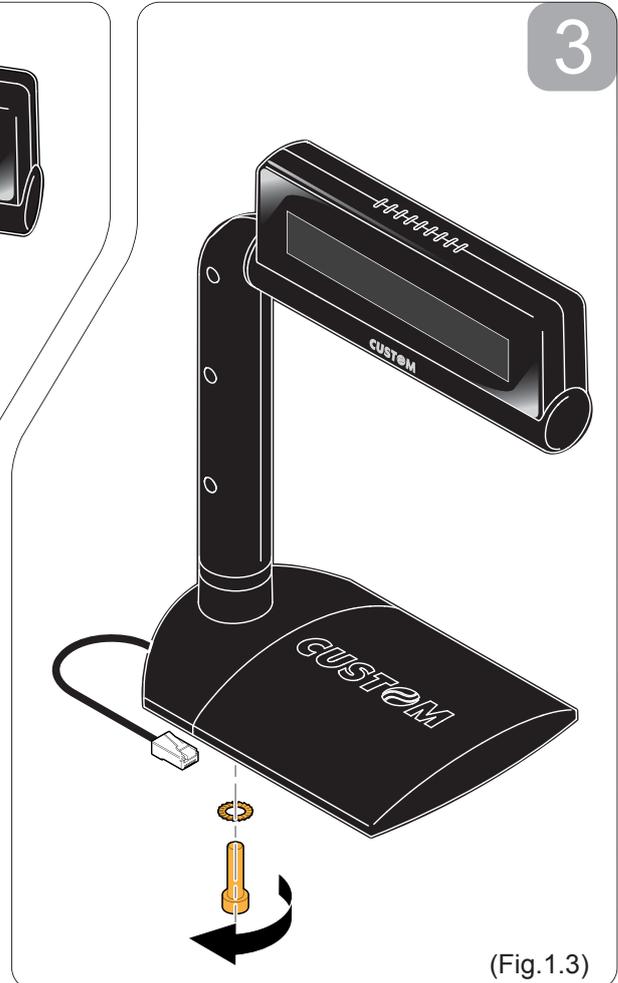
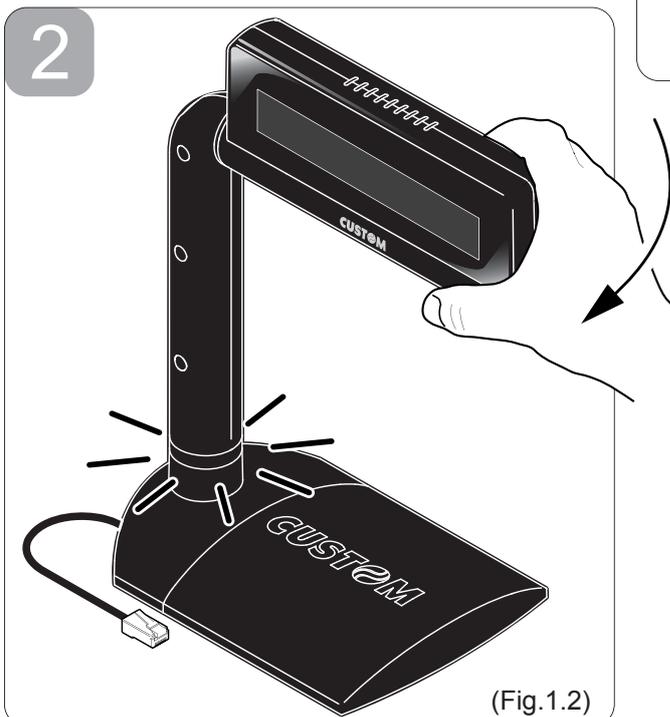
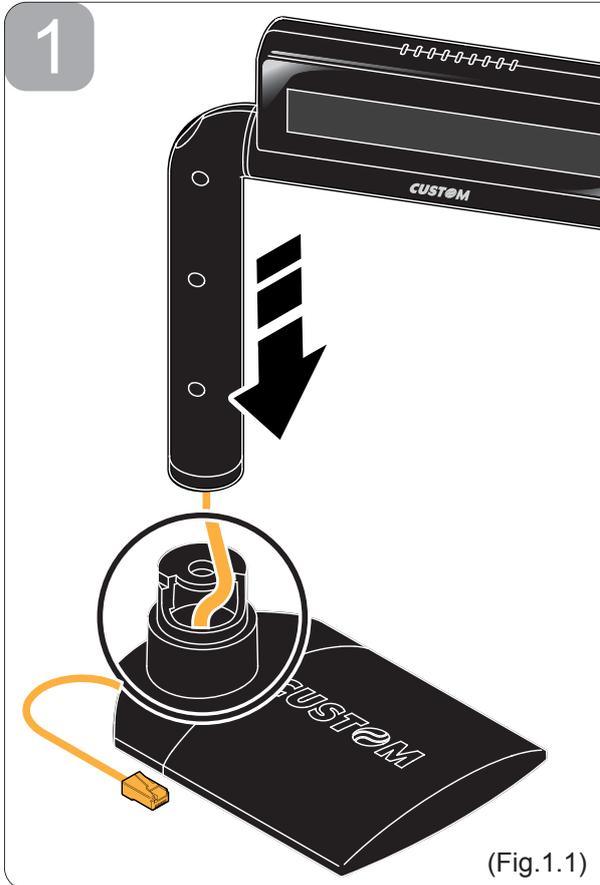
1. Fixing screw + washer User manual
2. Display group
3. Box
4. Base
5. Installation instructions
6. User manual



- Open the display packaging.
- Take out the fixing screw.
- Take out the user manual and the installation instructions.
- Take out the base and the display group.
- Keep the box packing materials in the event the display must be transported/shipped in the future

1.1 DISPLAY MOUNTING

- Insert the display group in the hinge pin of the base. Insert the communication cable inside the hinge pin (see Fig. 1.1).
- Rotate the display group until it stops (see Fig.1.2).
- Lock the display group using the fixing screw included in the package (see Fig.1.3).



WARNING

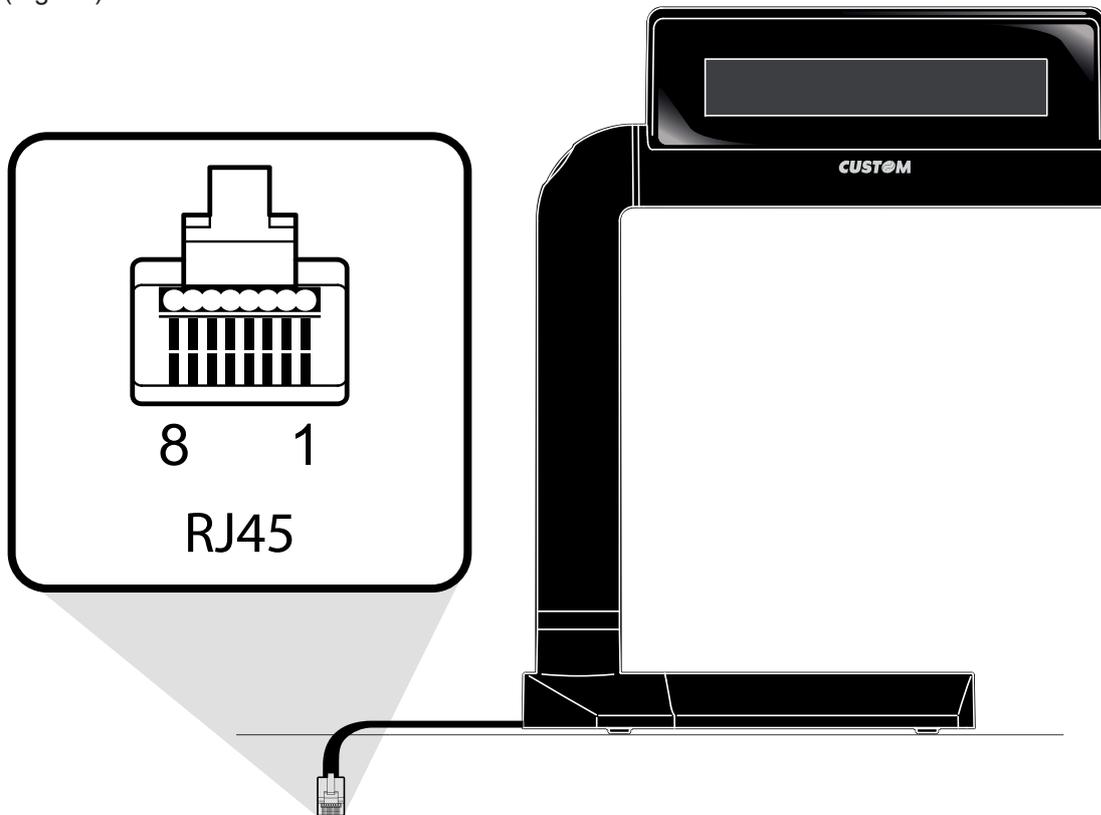
Before fastening the communication cable check the cable path is correct. Incorrect positions of the cable could cause damage on it.

1. INSTALLATION AND USE

1.2 CONNECTIONS

1.2.1 RS232 Serial Interface and power supply

(Fig.1.4)



The display with a serial RS232 interface has a female RJ45 connector. Refer to the table below for the connector pin signals:

PIN	SIGNAL	DESCRIPTION
1	TXD - OUT	Data transmission
2	RXD - IN	Data reception
3	RTS - OUT	Ready to receive data
4	CTS - IN	Ready to receive data
5	GND	Ground signal
6	GND	Ground signal
7	+VI	Power supply
8	+VI	Power supply



NOTE

The information in this page are valid for all the models.



WARNING

For the display version without printer use the power voltage indicated on the product label.

1.3 SELF-TEST

At the power ON on the display panel is indicated the current configuration (see Fig 1.5 and 1.6), the following information is given:

(Fig.1.5)

1th Screenshot

- Firmware version.
- Baud rate.



2nd Screen

- Command's set.
- Character's set and Pass Trough function.



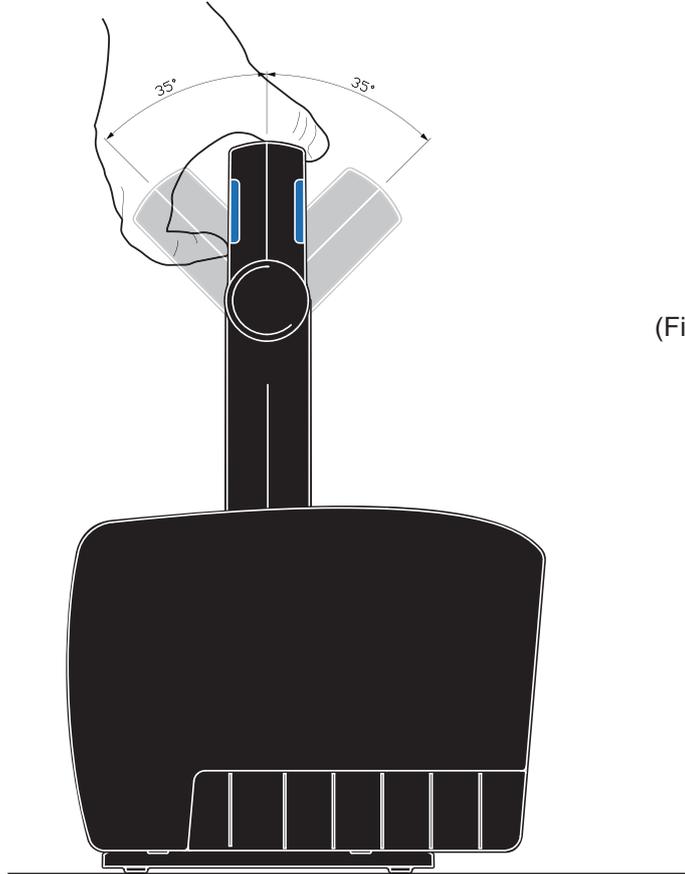
(Fig.1.6)

1. INSTALLATION AND USE

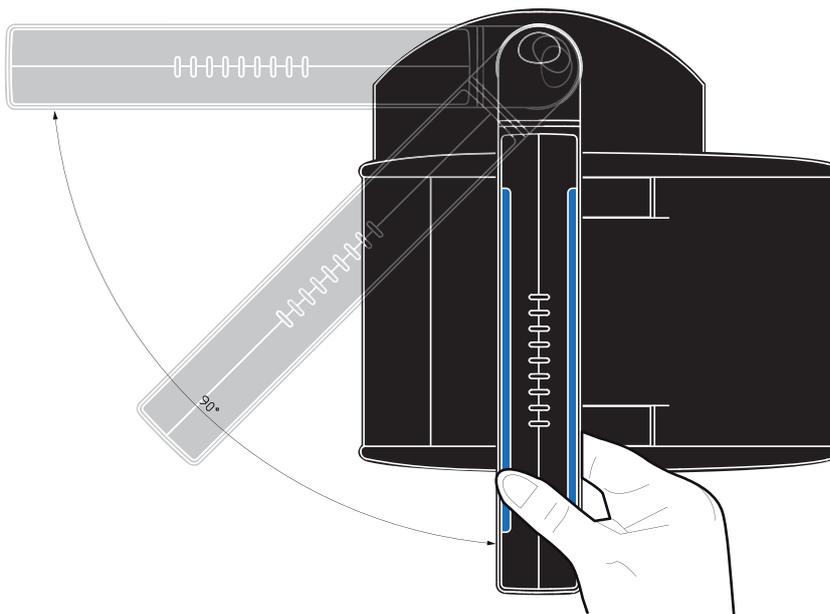
1.4 MAINTENANCE

1.4.1 Display adjustments

It's possible to regulate the horizontal position and the inclination angle by acting on the mobile parts as shown (see Fig.1.7 and Fig.1.8).



(Fig.1.7)



(Fig.1.8)

1.4.2 Cleaning the customer display



WARNING

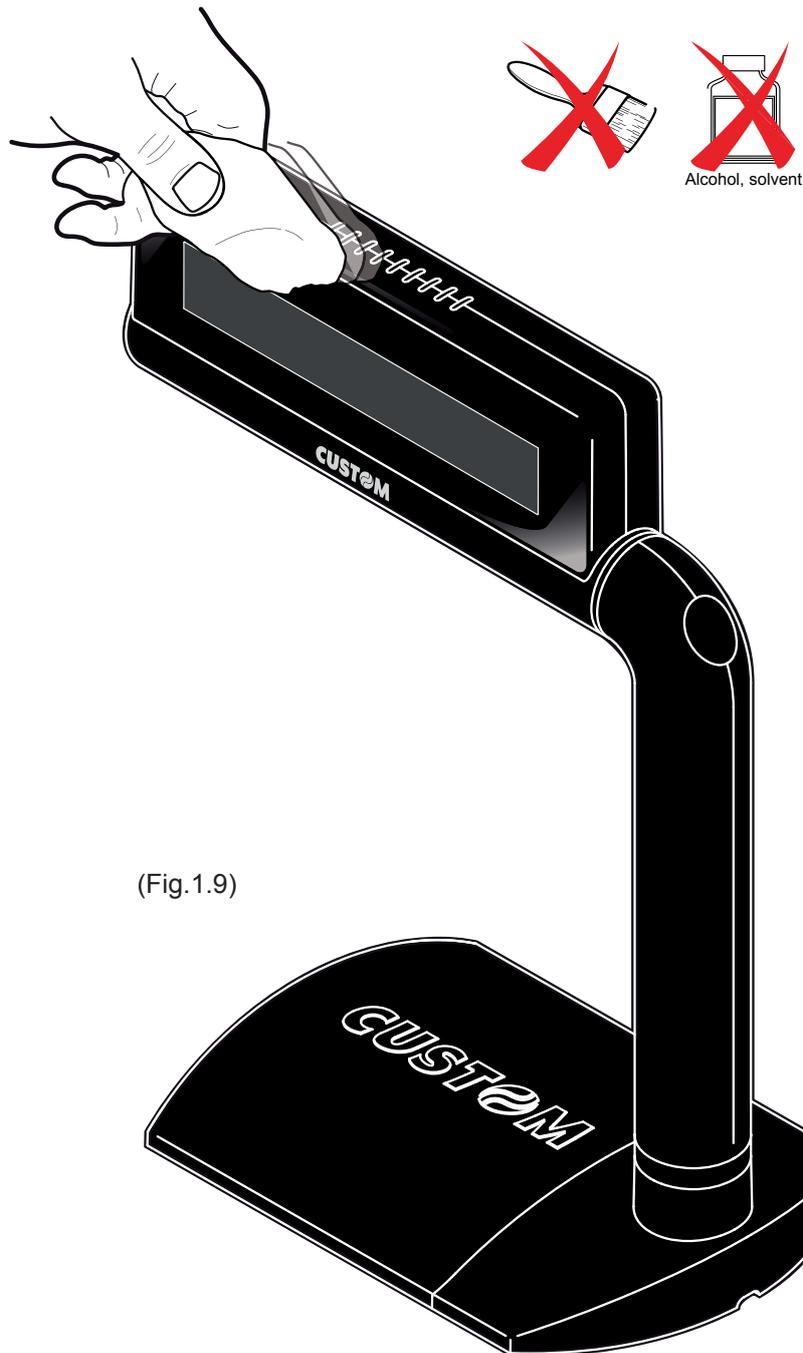
Make sure no water or other liquids seep inside the display.



BEWARE

Before any type of work is done on the machine, disconnect the power supply cord from the mains outlet.

The user is responsible for cleaning the display case. To clean the unit, use compressed air or a soft cloth. Do not use alcohol, solvents or stiff brushes.



(Fig.1.9)

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2.1 COMMAND DESCRIPTIONS

The table 2.1 shows the commands list, ordered by their hexadecimal value.

LEGEND :

Symbol	Function
\$	indicates the representation of the command hexadecimal value (for example \$40 means HEX 40).
{ }	indicates an ASCII character not performable.
n, m, t, x, y	are optional parameters that can have different values.

2.1.1 ESC/POS Emulation

The following table lists all the commands for function management in ESC/POS Emulation of the display. The commands can be transmitted to the display at any moment, but they will only be carried out when the commands ahead of them have been executed. The commands are carried out when the circular buffer is free to do so.

COMMAND DESCRIPTION TABLE

(Tab.2.1)

HEX Com.	ASCII Com.	DESCRIPTION
\$08	BS	Move cursor left
\$09	HT	Move cursor right
\$0A	LF	Move cursor down
\$0B	HOM	Move cursor to home position
\$0C	CLR	Clear display screen
\$0D	CR	Move cursor to left-most position
\$18	CAN	Clear cursor line
\$1B \$25 n	ESC % n	Select/cancel user character set
\$1B \$26 s n m [a[p]s x a] (m - n+1)	ESC & s n m [a[p]s x a] (m - n+1)	Define user programmables characters
\$1B \$3D n	ESC = n	Select peripheral device
\$1B \$3F n	ESC ? n	Delete user defined characters
\$1B \$40	ESC @	Initialize display
\$1B \$52 n	ESC R n	Select international characters set
\$1F \$01	US MD1	Specify overwrite mode
\$1F \$02	US MD2	Specify vertical scroll mode
\$1F \$03	US MD3	Specify horizontal scroll mode
\$1F \$0A	US LF	Move cursor up
\$1F \$0D	US CR	Move cursor to right-most position
\$1F \$24 n m	US \$ n m	Move cursor to specified position
\$1F \$3A	US :	Set start/ end macro definition
\$1F \$40	US @	Execute self-test
\$1F \$42	US B	Move cursor to bottom position
\$1F \$45 n	US E n	Select/cancel blink display screen
\$1F \$54 h m	US T h m	Set clock display
\$1F \$55	US U	Display clock
\$1F \$58 n	US X n	Brightness adjustment
\$1F \$5E n m	US ^ n m	Execute macro

2. DISPLAY FUNCTIONS

The following pages provide a more detailed description of each command.

\$08

[Name]	Move cursor left.
[Format]	ASCII BS Hex 08 Decimal 8
[Description]	Moves the cursor to the left.
[Notes]	When the current cursor is at the left-end position, this command operates differently depends on the display mode. <ol style="list-style-type: none">1. Overwrite mode: When the cursor reached the left-end of the lower line, it will continue to the right-end of the upper line, overwrite previous characters. When it reached the left end of the upper line, it will continue to the right-end of the lower line.2. Vertical scroll mode: When the cursor reached the left-end of the lower line, the lower line will scroll up and replace the previous upper line, the lower line will be cleared and the cursor will continue to the right end of the lower line.3. Horizontal scroll mode: All characters on the current line are scrolled one character to the right. The cursor is not moved, but the character area at the left end is cleared.
[Default]	
[Reference]	\$1F \$01, \$1F \$02, \$1F \$03
[Example]	

\$09

[Name]	Move cursor right.
[Format]	ASCII HT Hex 09 Decimal 9
[Description]	Move the cursor to the right.
[Notes]	When the cursor reached the right-end, this command operates differently depending on the display mode. <ol style="list-style-type: none">1. Overwrite mode: When the cursor reached the right-end of the lower line, it will continue to the left-end of the upper line, overwrite previous characters. When it reached the right-end of the upper line, it will continue to the right-end of the lower line.2. Vertical scroll mode: When the cursor reached the right-end of the lower line, the lower line will scroll up to replace the upper line, the lower line is cleared and ready to continue characters there after.3. Horizontal scroll mode: All characters on the current line are scrolled one character to the left. The cursor is not moved, but the character area at the right end is cleared.
[Default]	
[Reference]	\$1F \$01, \$1F \$02, \$1F \$03
[Example]	

\$0A

[Name]	Move cursor down.
[Format]	ASCII LF Hex 0A Decimal 10
[Description]	Move the cursor down one line.
[Notes]	When the cursor reached the lower line, this command operates differently depending on the display mode. <ol style="list-style-type: none">1. Overwrite mode: The cursor is moved to the same column on the upper line.2. Vertical scroll mode: The characters display on the lower line are scrolled to the upper line, and the lower line is cleared. The cursor will remain at the same position.3. Horizontal scroll mode: The cursor will remain stationary.
[Default]	
[Reference]	\$1F \$01, \$1F \$02, \$1F \$03
[Example]	

\$0B

[Name]	Move cursor to home position.
[Format]	ASCII HOM Hex 0B Decimal 11
[Description]	The cursor will move to the left-end position of the upper line.
[Notes]	The start position indicates the first column of the upper line.
[Default]	
[Reference]	
[Example]	

\$0C

[Name]	Clear display screen.
[Format]	ASCII CLR Hex 0C Decimal 12
[Description]	All the display characters will be cleared.
[Notes]	After execution this command the cursor moves to the home position.
[Default]	
[Reference]	
[Example]	

\$0D

[Name]	Move cursor to left-most position.
[Format]	ASCII CR Hex 0D Decimal 13
[Description]	The cursor moves to the left-end position of the current line.
[Notes]	
[Default]	
[Reference]	
[Example]	

2. DISPLAY FUNCTIONS

\$18

[Name]	Clear current line.	
[Format]	ASCII	CAN
	Hex	18
	Decimal	24
[Description]	The current line is cleared.	
[Notes]	After execution this command the cursor moves to the left-end position of the current line.	
[Default]		
[Reference]		
[Example]		

\$1B \$25 n

[Name]	Select/cancel user-defined characters.			
[Format]	ASCII	ESC	%	n
	Hex	1B	25	n
	Decimal	27	37	n
[Range]	$0 \leq n \leq 1$			
[Description]	Selects or cancels the user-defined character set.			
[Notes]	<ul style="list-style-type: none"> • When $n = 1$, the user-defined character set is selected. When the user-defined character set is not defined using the \$1B \$26 command, the internal character set is displayed. • When $n = 0$, the user-defined character set is canceled (the internal character set is selected). In this case, this command has no effect on the user-defined characters that have already been defined using the \$1B \$26 command. • This command has no effect on the characters already displayed. 			
[Default]	n=0			
[Reference]	\$1B \$26			
[Example]				

\$1B \$26 s n m [a[p]s x a] (m - n+1)

[Name]	Defines user-defined characters.				
[Format]	ASCII	ESC	&	s n m	[a [p] s x a] m - n + 1
	Hex	1B	26	s n m	[a [p1 p2 ...ps] x a] m - n + 1
	Decimal	27	37	s n m	[a [p] s x a] m - n + 1
[Range]	$s = 1$ $32 \leq n \leq m \leq 126$ $0 \leq a \leq 5$ $0 \leq p1 \dots ps \times a \leq 255$				
[Description]	Defines user-defined characters. <ul style="list-style-type: none"> • s specifies the number of bytes in the vertical direction. • n specifies the beginning character code for the definition, and m specifies the final code. When a single character is defined $n = m$. • The allowable character code range is from ASCII \$20 (32) to \$7E (126). • a specifies the number of dots in the horizontal direction. When $a < 5$ any remaining dots on the right side of the user-defined characters are padded with spaces. • p1...pk is the dot data to be defined for the characters. This indicates the dot pattern for a dots in the horizontal direction from the left side. • The number of data items to be defined is $s \times a$. When 8 bits are specified for the communication word length, the most significant bit is ignored. 				
[Notes]	<ul style="list-style-type: none"> • Once the user-defined characters are defined, they remain effective until they are re-defined, \$1B \$40 is executed, or the power is turned off. 				

- When only the user-defined characters are defined and the user-defined character set is not selected using the \$1B \$25 command, the user-defined characters are not displayed.

[Default]
 [Reference] \$1B \$25, \$1B 3F
 [Example]

\$1B \$3D n

[Name] **Select peripheral device.**
 [Format] ASCII ESC = n
 Hex 1B 3D n
 Decimal 27 61 n
 [Range] 1 ≤ n ≤ 2, 31 ≤ n ≤ 32
 [Description] Select the device to which the host computer sends data, using n as follows:

n	FUNCTION
1, 31	Select printer
2, 32	Select display

[Notes] • When n = 1 the printer is selected and all the data from the host computer is transmitted to the printer via the display.
 • When n = 2 the customer display is selected and all the data from the host computer is processed internally in the display, and no data is transmitted to the printer.
 n = 2

[Default]
 [Reference]
 [Example]

\$1B \$3F n

[Name] **Cancel user-defined characters.**
 [Format] ASCII ESC ? n
 Hex 1B 3F n
 Decimal 27 63 n
 [Range] 32 ≤ n ≤ 126
 [Description] Cancels user-defined characters.
 [Notes]

- This command cancels the pattern defined for the character code specified by n. After the user-defined character is cancelled, the corresponding pattern for the internal character is printed.
- If the specified code is transmitted after, the pattern is cancelled by this command, the internal character is displayed.
- If the specified code is not defined, this command is ignored.
- This command has no effect on character already displayed.
- If the user-defined character has not been defined for the specified character code, the printer ignores this command.

[Default]
 [Reference] \$1B \$26
 [Example]

2. DISPLAY FUNCTIONS

\$1B \$40

[Name]	Initialize display.
[Format]	ASCII ESC @ Hex 1B 40 Decimal 27 64
[Description]	Resets the various display settings to their initial values.
[Notes]	<ul style="list-style-type: none"> • The software settings are reset to their power-on values. • This command resets the software setting to that in effect when power was turned on. • The data in the buffer is not cleared. • After initialize display, the display screen is cleared and move the cursor to home position.
[Default]	
[Reference]	
[Example]	

\$1B \$52 n

[Name]	Select an international character set.
[Format]	ASCII ESC R n Hex 1B 52 n Decimal 27 82 n
[Range]	$0 \leq n \leq 10$
[Description]	Selects the international character set n according to the table below:

n	CHARACTER SET
0	U.S.A.
1	France
2	Germany
3	United Kingdom
4	Denmark I
5	Sweden
6	Italy
7	Spain I
8	Japan
9	Norway
10	Denmark II

[Default]	n = 0
[Reference]	
[Example]	

\$1F \$01

[Name]	Select overwrite mode.
[Format]	ASCII US MD1 Hex 1F 01 Decimal 31 1
[Description]	Change the display mode to the overwrite mode.
[Notes]	<ul style="list-style-type: none"> • In this mode, entering a character code moves the cursor to the left end of the lower line when the cursor is at the right end of the upper line, and to the left end of the upper line when the cursor is at the right end of the lower line.

- This mode is selected when the power is turned on.
- Selecting overwrite mode cancels horizontal or vertical scroll mode.
- Except when the cursor is at the right end, entering a character code moves the cursor one character to the right after displaying the character.

[Default]

[Reference]

\$1F \$02, \$1F \$03

[Example]

\$1F \$02

[Name]

Select vertical scroll mode.

[Format]

ASCII	US	MD2
Hex	1F	02
Decimal	31	2

[Description]

Change the display mode to the vertical scroll mode.

[Notes]

- In vertical scroll mode, entering a character code moves the cursor to the left end of the lower line when the cursor is at the right end of the upper line, scrolls the characters displayed on the lower line to the upper line, and clears the lower line when the cursor is at the right end of the lower line.
- At this time, the cursor is moved to the left end of the lower line.
- Selecting vertical scroll mode cancels overwrite or horizontal scroll mode.
- Except when the cursor is at the right end, entering a character code moves the cursor one character to the right after displaying the character.

[Default]

[Reference]

\$1F \$01, \$1F \$03

[Example]

\$1F \$03

[Name]

Select horizontal scroll mode.

[Format]

ASCII	US	MD3
Hex	1F	03
Decimal	31	3

[Description]

Change the display mode to the horizontal scroll mode.

[Notes]

- In horizontal scroll mode, entering a character code scrolls all displayed characters (including commas and periods) one character to the left, then displays the new character at the right end (when the cursor is at the right end of either line.)
- Selecting horizontal scroll mode cancels overwrite or vertical scroll mode.
- Except when the cursor is at the right end, entering a character code moves the cursor one character to the right after displaying the character.

[Default]

[Reference]

\$1F \$01, \$1F \$02

[Example]

\$1F \$0A

[Name]

Move cursor up.

[Format]

ASCII	US	LF
Hex	1F	0A
Decimal	31	10

[Description]

Move the cursor up one line.

[Notes]

When the cursor is on the upper line, this command operates differently depending on

2. DISPLAY FUNCTIONS

the display mode:

1. Overwrite mode: The cursor is moved to the same column on the lower line.
2. Vertical scroll mode: The characters display on the upper line are scrolled to the lower line, and the upper line is cleared. The cursor will remain at the same position.
3. Horizontal scroll mode: The cursor is not moved.

[Default]

[Reference]

\$1F \$01, \$1F \$02, \$1F \$03

[Example]

\$1F \$0D

[Name]

Move cursor to right-most position.

[Format]

ASCII	US	CR
Hex	1F	0D
Decimal	31	13

[Description]

The cursor will be moved to the right-end position of the current line.

[Notes]

The cursor is moved only within the current window.

[Default]

[Reference]

[Example]

\$1F \$24 n m

[Name]

Move cursor to specified position.

[Format]

ASCII	US	\$	n	m
Hex	1F	24	n	m
Decimal	31	36	n	m

[Range]

$1 \leq n \leq 20$
 $m = 1, 2$

[Description]

Moves the cursor to the n^{th} column on the m^{th} line.

[Notes]

If the movement value of the cursor is out of the range specified by n or m, this command is ignored and the cursor will remain at the same position.

[Default]

[Reference]

[Example]

\$1F \$3A

[Name]

Start/end macro definition.

[Format]

ASCII	US	:
Hex	1F	3A
Decimal	31	58

[Description]

Starts or ends macro definition.

[Notes]

- Up to 80 bytes can be defined for macro processing (one byte per character).
- Macro definition processing starts with the first \$1F \$3A command and ends with the second \$1F \$3A command.
- Receipt of either of the two types of data shown below is regarded as a macro definition error. Macro definition processing is stopped, and any following data is processed as normal data. At this time, the macro remains undefined.
 - 1) The \$1F \$5E command is received during a macro processing definition.
 - 2) A macro processing definition exceeds 80 bytes (except for the \$1F \$3A command).
- To delete a macro definition, send a \$1F \$3A command just after \$1F \$3A.

[Default] \$1F \$5E

[Reference]

[Example]

Example Macro Definition Processing Program:

```
PRINT#1, CHR$( &H1F) ; CHR$( &H3A) ; ----- (1)
PRINT#1, CHR$( &HC) ; ----- (2)
PRINT#1, CHR$( &H1F) ; CHR$( &H45) ; CHR$( 0) ; --- (3)
PRINT#1, "Execution MACRO !!" ; ----- (4)
PRINT#1, CHR$( &H1F) ; CHR$( &H45) ; CHR$( 10) ; --- (5)
PRINT#1, CHR$( &H1F) ; CHR$( &H3A) ; ----- (6)
```

- (1) is the starting command and (6) is the ending command of a macro definition.
- The 26-byte data from (2) to (5) is stored in the macro definition range. When the display receives the macro execution command, the defined data is in processed order. (Refer to \$1F \$5E)
- (2) is a screen clear command. (Refer to \$0C)
- (3) and (5) are blinking commands. (Refer to \$1F \$45)

\$1F \$40

[Name] **Execute self-test.**
 [Format] ASCII US @
 Hex 1F 40
 Decimal 31 64

[Description] Executes the self-test.
 [Notes] • A series of self-tests is displayed. All set values except those listed below are initialized:
 1. User-defined character definitions
 2. Macro definitions
 3. Time counter value
 • After completion of the self-tests, the screen is cleared and the display position is moved to the home position.

[Default]
 [Reference]
 [Example]

\$1F \$42

[Name] **Move cursor to bottom position.**
 [Format] ASCII US B
 Hex 1F 42
 Decimal 31 66

[Description] Moves the cursor to the bottom position.
 [Notes] • The bottom position indicates the 20th column of the lower line.

[Default]
 [Reference]
 [Example]

2. DISPLAY FUNCTIONS

\$1F \$45 n

[Name]	Set display screen blink interval.			
[Format]	ASCII	US	E	n
	Hex	1F	45	n
	Decimal	31	69	n
[Range]	0 ≤ n ≤ 255			
[Description]	Sets or cancels the blink interval of the display screen. <ul style="list-style-type: none">• n specifies the blink interval. [(n 50 msec.) ON / (n 50 msec.) OFF] is repeated.• When n = 0, the display is kept on (cancels blinking).• When n = 255, the display is turned off but the contents of the display are maintained.			
[Notes]	• This command does not affect the brightness of the vacuum fluorescent display.			
[Default]	n=0			
[Reference]				
[Example]				

\$1F \$54 h m

[Name]	Set and display time counter				
[Format]	ASCII	US	T	h	m
	Hex	1F	54	h	m
	Decimal	31	84	h	m
[Range]	0 ≤ h ≤ 23 0 ≤ m ≤ 59				
[Description]	The counter time is set and displayed at the right side of the bottom line. <ul style="list-style-type: none">• h is hours, and m is minutes.				
[Notes]	<ul style="list-style-type: none">• When this command is entered, the screen is cleared and the time is displayed in 24-mode at the right side of the bottom line.• The time counter starts from the transmitted code h:m:00.• After the time is displayed, the cursor moves to the home position.• The counter display disappears when any of the following occurs:<ol style="list-style-type: none">1. The cursor moves to the bottom line.2. Display characters move to the bottom line.3. The \$0C command is received.• Even if the time counter is cleared, it continues to be updated in the display.				
[Default]	h = 0, m = 0				
[Reference]	\$1F \$55				
[Example]					

\$1F \$55

[Name]	Display time counter.		
[Format]	ASCII	US	U
	Hex	1F	55
	Decimal	31	85
[Description]	Displays the time counter at the right side of the bottom line.		
[Notes]	<ul style="list-style-type: none">• If the time has already been set using the \$1F \$54 (h) (m) command, the elapsed time is displayed in real time in the format "hours : minutes : seconds".• If the time has not yet been set, the elapsed time (from when the counter was initialized by turning on the power or from the \$1B \$40 command) is displayed in real time in the format "hours : minutes :seconds".• After the counter is displayed, the cursor moves to the home position.• The counter display is cleared when any of the following occurs:		

- 1. The cursor moves to the bottom line.
- 2. Display characters move to the bottom line.
- 3. The \$0C command is received.
- Even if the time counter is cleared, it continues to be updated in the display.

[Default]
 [Reference]
 [Example]

\$1F \$54

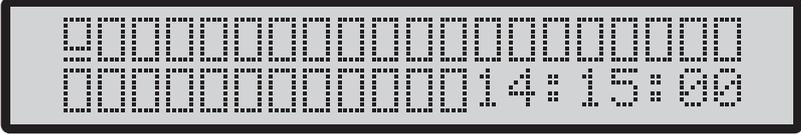
- 1. Counter display just before receiving \$1F \$54 (h) (m):



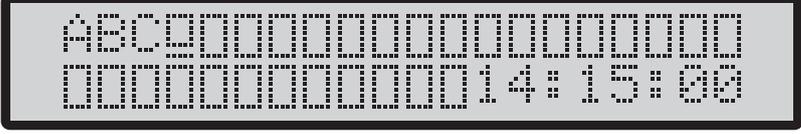
- 2. Example Display Before Setting the Counter

\$1F \$54 h m \$1F \$54 \$0E \$0F (31) (84) (14) (15)

The screen is cleared, and the input time is displayed at the right side of the lower line; counting begins from 14:15:00 seconds. At this time, the cursor moves to the home position indicated by “_”.

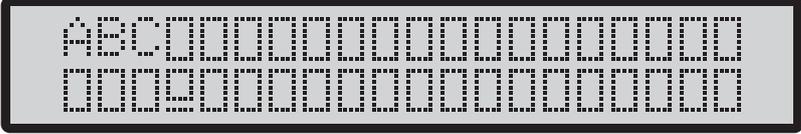


- 3. Display data (“ABC”) is received:



Example Indication When the Cursor Does Not Move counter display in the bottom line has no effect on data displayed in the top line.

- 4. \$0A \$10 (16) if received:



Moving the cursor to the bottom line clears the time display, but counting continues internally.

Note: In this example the cursor is represented on its position for a more clear explanation but is not enabled with \$1F\$54 command.

2. DISPLAY FUNCTIONS

\$1F \$58 n

[Name] **Brightness adjustment.**
 [Format] ASCII US X n
 Hex 1F 58 n
 Decimal 31 88 n
 [Range] $1 \leq n \leq 6$
 [Description] Sets the brightness of the fluorescent character display tube. n selects the percentage of brightness as follows:

n	BRIGHTNESS
1	20%
2	40%
3	60%
4	100%
5	Negative fading
6	Positive fading

[Notes]
 [Default] n = 4
 [Reference]
 [Example]

\$1F \$5E n m

[Name] **Execute macro.**
 [Format] ASCII US ^ n m
 Hex 1F 5E n m
 Decimal 31 94 n m
 [Range] $0 \leq n \leq 255$
 $0 \leq m \leq 255$
 [Description] Executes the process defined as a macro.

- n specifies the time interval for displaying characters in units of [n x 20 msec] when a macro is executed. This specifies the time interval before displaying each successive character but does not affect the processing speed of command codes.
- m specifies the interval of execution. Where macro processing is repeated, it starts over from the beginning after the completion state of the previous macro processing is held for [m x 50 msec].

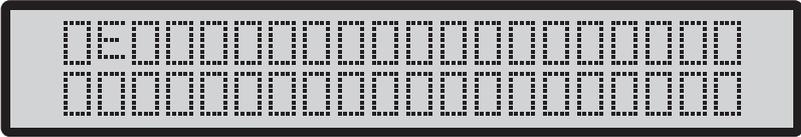
[Notes]

- If data is received from the host during macro processing, the macro processing is terminated.
- After macro processing is finished, the current window is cleared and the cursor is moved to the home position in the current window. Display settings at the completion of macro processing remain valid.
- If a macro is undefined, this command is invalid and the display content is not affected.
- If \$1B \$40, and \$1F \$40 are defined in the macro, these commands are ignored when executing the macro commands.

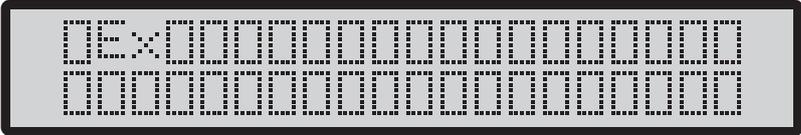
[Default]
 [Reference] \$1F \$3A
 [Example] Example Macro Definition Processing and Macro Execution Program:

```
PRINT #1, CHR$ (&H1F) ; CHR$ (&H3A) ; ----- (1)
PRINT #1, CHR$ (&HC) ; ----- (1)
PRINT #1, CHR$ (&H1F) ; CHR$ (&H45) ; CHR$ (0) ; ----- (1)
PRINT #1, " Execution MACRO !!" ; ----- (1)
PRINT #1, CHR$ (&H1F) ; CHR$ (&H45) ; CHR$ (10) ; ----- (1)
PRINT #1, CHR$ (&H1F) ; CHR$ (&H3A) ; ----- (1)
PRINT #1, CHR$ (&H1F) ; CHR$ (&H5E) ; CHR$ (5) ; CHR$ (100) ; -- (2)
```

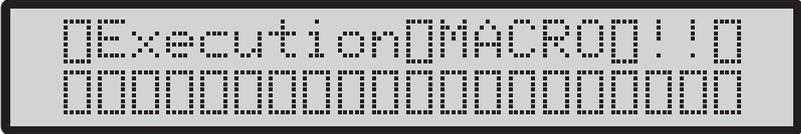
- (1) Macro definition
- (2) Macro execution is started. In this case, the time interval for displaying the characters is (5 x 20 msec). When 100 msec has passed after the character “E” has been displayed, the next character, “x”, is displayed.



after 100 msec



The macro execution interval is (100 x 50 msec). After the blinking display shown in the figure below is held for 5 seconds, macro processing is repeated from a clear screen.



2. DISPLAY FUNCTIONS

2.1.2 CD5220 Emulation

The following table lists all the commands for function management in CD5220 display Emulation. The commands can be transmitted any moment, but they will only be carried out when the commands ahead of them have been executed. The commands are carried out when the circular buffer is free to do so.

COMMAND DESCRIPTION TABLE

(Tab.2.2)

HEX Com.	ASCII Com.	DESCRIPTION
\$08	BS	Move cursor left
\$09	HT	Move cursor right
\$0A	LF	Move cursor down
\$0B	HOM	Move cursor to home position
\$0C	CLR	Clear display screen
\$0D	CR	Move cursor to left-most position
\$18	CAN	Clear cursor line
\$1B \$11	ESC DC1	Specify overwrite mode
\$1B \$12	ESC DC2	Specify vertical scroll mode
\$1B \$13	ESC DC3	Specify horizontal scroll mode
\$1B \$25 n	ESC % n	Select/cancel user character set
\$1B \$26 s n m [a[p]s x a] (m - n+1)	ESC & s n m [a[p]s x a] (m - n+1)	Define user programmables characters
\$1B \$2A n	ESC * n	Brightness adjustment
\$1B \$3D n	ESC = n	Select peripheral device
\$1B \$3F n	ESC ? n	Delete user defined characters
\$1B \$40	ESC @	Initialize display
\$1B \$51 \$41 n x 20 \$0D	ESC Q A ....CR	Set the string display mode, write string to upper line
\$1B \$51 \$42 n x 20 \$0D	ESC Q B ....CR	Set the string display mode, write string to lower line
\$1B \$51 \$44 n x m \$0D	ESC Q D ....CR	Upper line message scroll continuously
\$1B \$5B 41	ESC [A	Move cursor up
\$1B \$5B 42	ESC [B	Move cursor down
\$1B \$5B 43	ESC [C	Move cursor right
\$1B \$5B 44	ESC [D	Move cursor left
\$1B \$5B 48	ESC [H	Move cursor to home position
\$1B \$5B 4B	ESC [K	Move cursor to bottom position
\$1B \$5B 4C	ESC [L	Move cursor to left-most position
\$1B \$5B 52	ESC [R	Move cursor to right-most position
\$1B \$66 n	ESC f n	Select international characters set
\$1B \$6C x y	US I x y	Move cursor to specified position.
\$1F \$42	US B	Move cursor to bottom position.

Given below are more detailed descriptions of each command.

\$08

[Name]	Move cursor left.
[Format]	ASCII BS Hex 08 Decimal 8
[Description]	Moves the cursor to the left.
[Notes]	When the current cursor is at the left-end position, this command operates differently depends on the display mode. <ol style="list-style-type: none"> 1. Overwrite mode: When the cursor reached the left-end of the lower line, it will continue to the right-end of the upper line, overwrite previous characters. When it reached the left end of the upper line, it will continue to the right-end of the lower line. 2. Vertical scroll mode: When the cursor reached the left-end of the lower line, the lower line will scroll up and replace the previous upper line, the lower line will be cleared and the cursor will continue to the right end of the lower line. 3. Horizontal scroll mode: All characters on the current line are scrolled one character to the right. The cursor is not moved, but the character area at the left end is cleared.
[Default]	
[Reference]	\$1B \$11, \$1B \$12, \$1B \$13
[Example]	

\$09

[Name]	Move cursor right.
[Format]	ASCII HT Hex 09 Decimal 9
[Description]	Move the cursor to the right.
[Notes]	When the cursor reached the right-end, this command operates differently depending on the display mode. <ol style="list-style-type: none"> 1. Overwrite mode: When the cursor reached the right-end of the lower line, it will continue to the left-end of the upper line, overwrite previous characters. When it reached the right-end of the upper line, it will continue to the right-end of the lower line. 2. Vertical scroll mode: When the cursor reached the right-end of the lower line, the lower line will scroll up to replace the upper line, the lower line is cleared and ready to continue characters there after. 3. Horizontal scroll mode: All characters on the current line are scrolled one character to the left. The cursor is not moved, but the character area at the right end is cleared.
[Default]	
[Reference]	\$1B \$11, \$1B \$12, \$1B \$13
[Example]	

2. DISPLAY FUNCTIONS

\$0A

[Name]	Move cursor down.
[Format]	ASCII LF Hex 0A Decimal 10
[Description]	Move the cursor down one line.
[Notes]	When the cursor reached the lower line, this command operates differently depending on the display mode. <ol style="list-style-type: none">1. Overwrite mode: The cursor is moved to the same column on the upper line.2. Vertical scroll mode: The characters display on the lower line are scrolled to the upper line, and the lower line is cleared. The cursor will remain at the same position.3. Horizontal scroll mode: The cursor will remain stationary.
[Default]	
[Reference]	\$1B \$11, \$1B \$12, \$1B \$13
[Example]	

\$0B

[Name]	Move cursor to home position.
[Format]	ASCII HOM Hex 0B Decimal 11
[Description]	The cursor will move to the left-end position of the upper line.
[Notes]	The start position indicates the first column of the upper line.
[Default]	
[Reference]	
[Example]	

\$0C

[Name]	Clear display screen.
[Format]	ASCII CLR Hex 0C Decimal 12
[Description]	All the display characters will be cleared.
[Notes]	After execution this command the cursor moves to the home position.
[Default]	
[Reference]	
[Example]	

\$0D

[Name]	Move cursor to left-most position.
[Format]	ASCII CR Hex 0D Decimal 13
[Description]	The cursor moves to the left-end position of the current line.
[Notes]	
[Default]	
[Reference]	
[Example]	

\$18

[Name]	Clear current line.	
[Format]	ASCII	CAN
	Hex	18
	Decimal	24
[Description]	The current line is cleared.	
[Notes]	After execution this command the cursor moves to the left-end position of the current line.	
[Default]		
[Reference]		
[Example]		

\$1B \$11

[Name]	Select overwrite mode.		
[Format]	ASCII	ESC	DC1
	Hex	1B	11
	Decimal	27	17
[Description]	Change the display mode to the overwrite mode.		
[Notes]	<ul style="list-style-type: none"> • In this mode, entering a character code moves the cursor to the left end of the lower line when the cursor is at the right end of the upper line, and to the left end of the upper line when the cursor is at the right end of the lower line. • This mode is selected when the power is turned on. • Selecting overwrite mode cancels horizontal or vertical scroll mode. • Except when the cursor is at the right end, entering a character code moves the cursor one character to the right after displaying the character. 		
[Default]			
[Reference]	\$1B \$12, \$1B \$13		
[Example]			

\$1B \$12

[Name]	Select vertical scroll mode.		
[Format]	ASCII	ESC	DC2
	Hex	1B	12
	Decimal	27	18
[Description]	Change the display mode to the vertical scroll mode.		
[Notes]	<ul style="list-style-type: none"> • In vertical scroll mode, entering a character code moves the cursor to the left end of the lower line when the cursor is at the right end of the upper line, scrolls the characters displayed on the lower line to the upper line, and clears the lower line when the cursor is at the right end of the lower line. At this time, the cursor is moved to the left end of the lower line. • Selecting vertical scroll mode cancels overwrite or horizontal scroll mode. • Except when the cursor is at the right end, entering a character code moves the cursor one character to the right after displaying the character. 		
[Default]			
[Reference]	\$1B \$11, \$1B \$13		
[Example]			

2. DISPLAY FUNCTIONS

\$1B \$13

[Name]	Select horizontal scroll mode.									
[Format]	<table border="0"> <tr> <td>ASCII</td> <td>ESC</td> <td>DC3</td> </tr> <tr> <td>Hex</td> <td>1B</td> <td>13</td> </tr> <tr> <td>Decimal</td> <td>27</td> <td>19</td> </tr> </table>	ASCII	ESC	DC3	Hex	1B	13	Decimal	27	19
ASCII	ESC	DC3								
Hex	1B	13								
Decimal	27	19								
[Description]	Change the display mode to the horizontal scroll mode.									
[Notes]	<ul style="list-style-type: none"> • In horizontal scroll mode, entering a character code scrolls all displayed characters (including commas and periods) one character to the left, then displays the new character at the right end (when the cursor is at the right end of either line.) • Selecting horizontal scroll mode cancels overwrite or vertical scroll mode. • Except when the cursor is at the right end, entering a character code moves the cursor one character to the right after displaying the character. 									
[Default]										
[Reference]	\$1B \$11, \$1B \$12									
[Example]										

\$1B \$25 n

[Name]	Select/cancel user-defined characters.												
[Format]	<table border="0"> <tr> <td>ASCII</td> <td>ESC</td> <td>%</td> <td>n</td> </tr> <tr> <td>Hex</td> <td>1B</td> <td>25</td> <td>n</td> </tr> <tr> <td>Decimal</td> <td>27</td> <td>37</td> <td>n</td> </tr> </table>	ASCII	ESC	%	n	Hex	1B	25	n	Decimal	27	37	n
ASCII	ESC	%	n										
Hex	1B	25	n										
Decimal	27	37	n										
[Range]	$0 \leq n \leq 1$												
[Description]	Selects or cancels the user-defined character set.												
[Notes]	<ul style="list-style-type: none"> • When $n = 1$, the user-defined character set is selected. When the user-defined character set is not defined using the \$1B \$26 command, the internal character set is displayed. • When $n = 0$, the user-defined character set is canceled (the internal character set is selected). In this case, this command has no effect on the user-defined characters that have already been defined using the \$1B \$26 command. • This command has no effect on the characters already displayed. 												
[Default]	$n=0$												
[Reference]	\$1B \$26												
[Example]													

\$1B \$26 s n m [a [p] s x a]

[Name]	Defines user-defined characters.												
[Format]	<table border="0"> <tr> <td>ASCII</td> <td>ESC</td> <td>&</td> <td>s n m [a [p] s x a] m - n + 1</td> </tr> <tr> <td>Hex</td> <td>1B</td> <td>26</td> <td>n m [a [p1 p2 ...ps] x a] m - n + 1</td> </tr> <tr> <td>Decimal</td> <td>27</td> <td>37</td> <td>s n m [a [p] s x a] m - n + 1</td> </tr> </table>	ASCII	ESC	&	s n m [a [p] s x a] m - n + 1	Hex	1B	26	n m [a [p1 p2 ...ps] x a] m - n + 1	Decimal	27	37	s n m [a [p] s x a] m - n + 1
ASCII	ESC	&	s n m [a [p] s x a] m - n + 1										
Hex	1B	26	n m [a [p1 p2 ...ps] x a] m - n + 1										
Decimal	27	37	s n m [a [p] s x a] m - n + 1										
[Range]	$s = 1$ $32 \leq n \leq m \leq 126$ $0 \leq a \leq 5$ $0 \leq p1 \dots ps \leq 255$												
[Description]	<p>Defines user-defined characters.</p> <p>s specifies the number of bytes in the vertical direction.</p> <p>n specifies the beginning character code for the definition, and m specifies the final code. When a single character is defined $n = m$.</p> <ul style="list-style-type: none"> • The allowable character code range is from ASCII \$20 (32) to \$7E (126). • a specifies the number of dots in the horizontal direction. When $a < 5$ any remaining dots on the right side of the user-defined characters are padded with spaces. • p1...pk is the dot data to be defined for the characters. This indicates the dot pattern for a dots in the horizontal direction from the left side. 												

- The number of data items to be defined is $s \times a$. When 8 bits are specified for the communication word length, the most significant bit is ignored.
 - Once the user-defined characters are defined, they remain effective until they are re-defined, \$1B \$40 is executed, or the power is turned off.
 - When only the user-defined characters are defined and the user-defined character set is not selected using the \$1B \$25 command, the user-defined characters are not displayed.
- [Notes]
- [Default]
- [Reference] \$1B \$25, \$1B \$3F
- [Example]

\$1B \$2A n

- [Name] **Brightness adjustment.**
- [Format] ASCII ESC * n
Hex 1B 2A n
Decimal 27 42 n
- [Range] $1 \leq n \leq 6$
- [Description] Sets the brightness of the fluorescent character display tube. n selects the percentage of brightness as follows:

n	BRIGHTNESS
1	20%
2	40%
3	60%
4	100%
5	Negative fading
6	Positive fading

- [Notes]
- [Default] n = 4
- [Reference]
- [Example]

\$1B \$3D n

- [Name] **Select peripheral device.**
- [Format] ASCII ESC = n
Hex 1B 3D n
Decimal 27 61 n
- [Range] $1 \leq n \leq 2, 31 \leq n \leq 32$
- [Description] Select the device to which the host computer sends data, using n as follows:

n	FUNCTION
1, 31	Select printer
2, 32	Select display

- [Notes]
- When n = 1 the printer is selected and all the data from the host computer is transmitted to the printer via the display.
 - When n = 2 the customer display is selected and all the data from the host computer is processed internally in the display, and no data is transmitted to the printer.

2. DISPLAY FUNCTIONS

[Default] n = 2
 [Reference]
 [Example]

\$1B \$3F n

[Name] **Cancel user-defined characters.**
 [Format] ASCII ESC ? n
 Hex 1B 3F n
 Decimal 27 63 n
 [Range] $32 \leq n \leq 126$
 [Description] Cancels user-defined characters.
 [Notes]

- This command cancels the pattern defined for the character code specified by n. After the user-defined character is cancelled, the corresponding pattern for the internal character is printed.
- If the specified code is transmitted after, the pattern is cancelled by this command, the internal character is displayed.
- If the specified code is not defined, this command is ignored.
- This command has no effect on character already displayed.
- If the user-defined character has not been defined for the specified character code, the printer ignores this command.

 [Default]
 [Reference] \$1B \$26
 [Example]

\$1B \$40

[Name] **Initialize display.**
 [Format] ASCII ESC @
 Hex 1B 40
 Decimal 27 64
 [Description] Resets the various display settings to their initial values.
 [Notes]

- The software settings are reset to their power-on values.

 [Default]
 [Reference]
 [Example]

\$1B \$51 \$41 n x 20 \$0D

[Name] Set the string display mode, and write string to display
 [Format] ASCII ESC Q A (n) x 20 CR
 Hex 1B 51 41 (n) x 20 0D
 Decimal 27 81 65 (n) x 20 13
 [Description] Set the string display mode, write to upper line.
 [Notes]
 [Default]
 [Reference]
 [Example]

\$1B \$51 \$42 n x 20 \$0D

[Name]	Set the string display mode, and write string to display.					
[Format]	ASCII	ESC	Q	B	(n) x 20	CR
	Hex	1B	51	42	(n) x 20	0D
	Decimal	27	81	66	(n) x 20	13
[Description]	Set the string display mode, write to lower line.					
[Notes]						
[Default]						
[Reference]						
[Example]						

\$1B \$51 \$44 n x 20 \$0D

[Name]	Upper line message scroll continuously					
[Format]	ASCII	ESC	Q	D	(n) x 20	CR
	Hex	1B	51	44	(n) x 20	0D
	Decimal	27	81	68	(n) x 20	13
[Description]	The message (previously defined) will scroll continuously in the horizontal direction until a new command is received.					
[Notes]						
[Default]						
[Reference]						
[Example]						

\$1B \$5B \$41

[Name]	Move cursor up.			
[Format]	ASCII	ESC	[	A
	Hex	1B	5B	41
	Decimal	27	91	65
[Description]	Move the cursor up one line.			
[Notes]	When the cursor is on the upper line, this command operates differently depending on the display mode :			
	<ol style="list-style-type: none"> 1. Overwrite mode: The cursor is moved to the same column on the lower line. 2. Vertical scroll mode: The characters display on the upper line are scrolled to the lower line, and the upper line is cleared. The cursor will remain at the same position. 3. Horizontal scroll mode: The cursor is not moved. 			
[Default]				
[Reference]				
[Example]				

\$1B \$5B \$42

[Name]	Move cursor down.			
[Format]	ASCII	ESC	[	B
	Hex	1B	5B	42
	Decimal	27	91	66
[Description]	Move the cursor down one line.			
[Notes]	When the cursor reached the lower line, this command operates differently depending on the display mode.			

2. DISPLAY FUNCTIONS

1. Overwrite mode: The cursor is moved to the same column on the upper line.
2. Vertical scroll mode: The characters display on the lower line are scrolled to the upper line, and the lower line is cleared. The cursor will remain at the same position.
3. Horizontal scroll mode: The cursor will remain stationary.

[Default]

[Reference]

[Example]

\$1B \$5B \$43

[Name]

Move cursor right.

[Format]

ASCII	ESC	[	C
Hex	1B	5B	43
Decimal	27	91	67

[Description]

Move the cursor to the right.

[Notes]

When the cursor reached the right-end, this command operates differently depending on the display mode.

1. Overwrite mode: When the cursor reached the right-end of the lower line, it will continue to the left-end of the upper line, overwrite previous characters. When it reached the right-end of the upper line, it will continue to the right-end of the lower line.
2. Vertical scroll mode: When the cursor reached the right-end of the lower line, the lower line will scroll up to replace the upper line, the lower line is cleared and ready to continue characters there after.
3. Horizontal scroll mode: All characters on the current line are scrolled one character to the left. The cursor is not moved, but the character area at the right end is cleared.

[Default]

[Reference]

[Example]

\$1B \$5B \$44

[Name]

Move cursor left.

[Format]

ASCII	ESC	[	D
Hex	1B	5B	44
Decimal	27	91	68

[Description]

Moves the cursor to the left.

[Notes]

When the current cursor is at the left-end position, this command operates differently depends on the display mode.

1. Overwrite mode: When the cursor reached the left-end of the lower line, it will continue to the right-end of the upper line, overwrite previous characters. When it reached the left end of the upper line, it will continue to the right-end of the lower line.
2. Vertical scroll mode: When the cursor reached the left-end of the lower line, the lower line will scroll up and replace the previous upper line, the lower line will be cleared and the cursor will continue to the right end of the lower line.
3. Horizontal scroll mode: All characters on the current line are scrolled one character to the right. The cursor is not moved, but the character area at the left end is cleared.

[Default]

[Reference]

[Example]

\$1B \$5B \$48

[Name]	Move cursor to home position.			
[Format]	ASCII	ESC	[	H
	Hex	1B	5B	48
	Decimal	27	91	72
[Description]	The cursor will move to the left-end position of the upper line.			
[Notes]	The start position indicates the first column of the upper line.			
[Default]				
[Reference]				
[Example]				

\$1B \$5B \$4C

[Name]	Move cursor to left-most position.			
[Format]	ASCII	ESC	[	L
	Hex	1B	5B	4C
	Decimal	27	91	76
[Description]	The cursor moves to the left-end position of the current line.			
[Notes]				
[Default]				
[Reference]				
[Example]				

\$1B \$5B \$52

[Name]	Move cursor to right-most position.			
[Format]	ASCII	ESC	[	R
	Hex	1B	5B	52
	Decimal	27	91	82
[Description]	The cursor will be moved to the right-end position of the current line.			
[Notes]	The cursor is moved only within the current window.			
[Default]				
[Reference]				
[Example]				

\$1B \$66 n

[Name]	Select an international character set.			
[Format]	ASCII	ESC	f	n
	Hex	1B	66	n
	Decimal	27	102	n
[Range]	0 ≤ n ≤ 10			
[Description]	Selects the international character set n according to the table below:			

n	CHARACTER SET
0	U.S.A.
1	France
2	Germany
3	United Kingdom
4	Denmark I
5	Sweden

2. DISPLAY FUNCTIONS

6	Italy
7	Spain I
8	Japan
9	Norway
10	Denmark II

[Default] n = 0
[Reference]
[Example]

\$1B \$6C x y

[Name] **Move cursor to specified position.**
[Format] ASCII ESC | x y
Hex 1B 6C x y
Decimal 27 108 x y
[Range] $1 \leq x \leq 20$
 $y = 1, 2$
[Description] Moves the cursor to the x^{th} column on the y^{th} line.
[Notes] • If the movement value of the cursor is out of the range specified by x or y, this command is ignored and the cursor will remain at the same position.
[Default]
[Reference]
[Example]

\$1F \$42

[Name] **Move cursor to bottom position.**
[Format] ASCII US B
Hex 1F 42
Decimal 31 66
[Description] Moves the cursor to the bottom position.
[Notes] The bottom position indicates the 20th column of the lower line.
[Default]
[Reference]
[Example]

3.1 TECHNICAL SPECIFICATIONS

Table 3.1 gives the main technical specifications for the display.

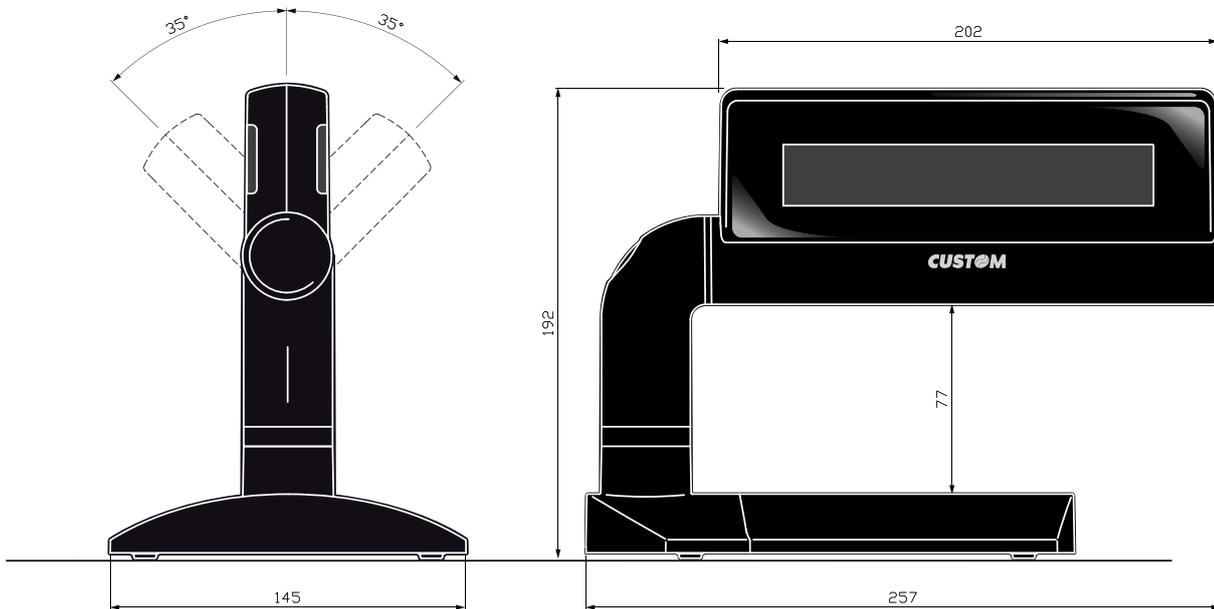
(Tab.3.1)

Available interface	Serial RS232
Baud rate	From 600 to 38400 bps
Emulations	ESC/POS, CD5220
MTBF	68509 hours
DISPLAY SPECIFICATIONS	
Display method	Liquid crystal display backlighted
Number of characters	40 (20 columns x 2 lines)
Backlighted colour	Blue
MECHANICAL SPECIFICATION	
View angle	8 ÷ 35 °
Rotation angle	90° (1 direction)
Inclination angle	-35° ÷ +35°
CHARACTER SPECIFICATIONS	
Character type	Alphanumeric = 96
	International characters set = 12
Character font	5 x 8 dot matrix
Character size (L x H)	6 mm x 9.66 mm
Character pitch	7.2 mm x 10.98 mm
Spacing between character	1.2 mm
Spacing between lines	1.32 mm
ELECTRICAL SPECIFICATIONS	
Power supply	12 ÷ 24 Vdc ± 10%
Peak current	2 A peak
Normal absorption	150 mA (single side) 200 mA (double side)
COMPLIANCE STANDARD	
Electric safety	2006/95/CE - Low voltage directive
	EN60950
Electromagnetic compatibility	2004/108/CE - EMC Compatibility directive
	EN55024
	EN55022 class B
Climatic test	IEC 68-2
EMVIROMENTAL CONDITIONS	
Operating temperature	0 ÷ 50°C
Relative humidity	10 ÷ 80% Rh
Storage temperature / Humidity	-20 ÷ 70 °C / 10% ÷ 90% Rh

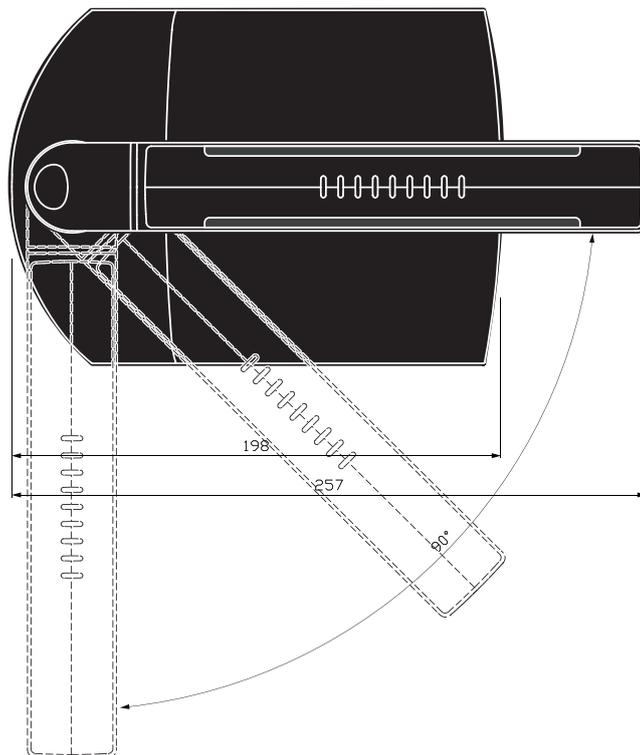
3. TECHNICAL SPECIFICATIONS

3.2 DIMENSIONS

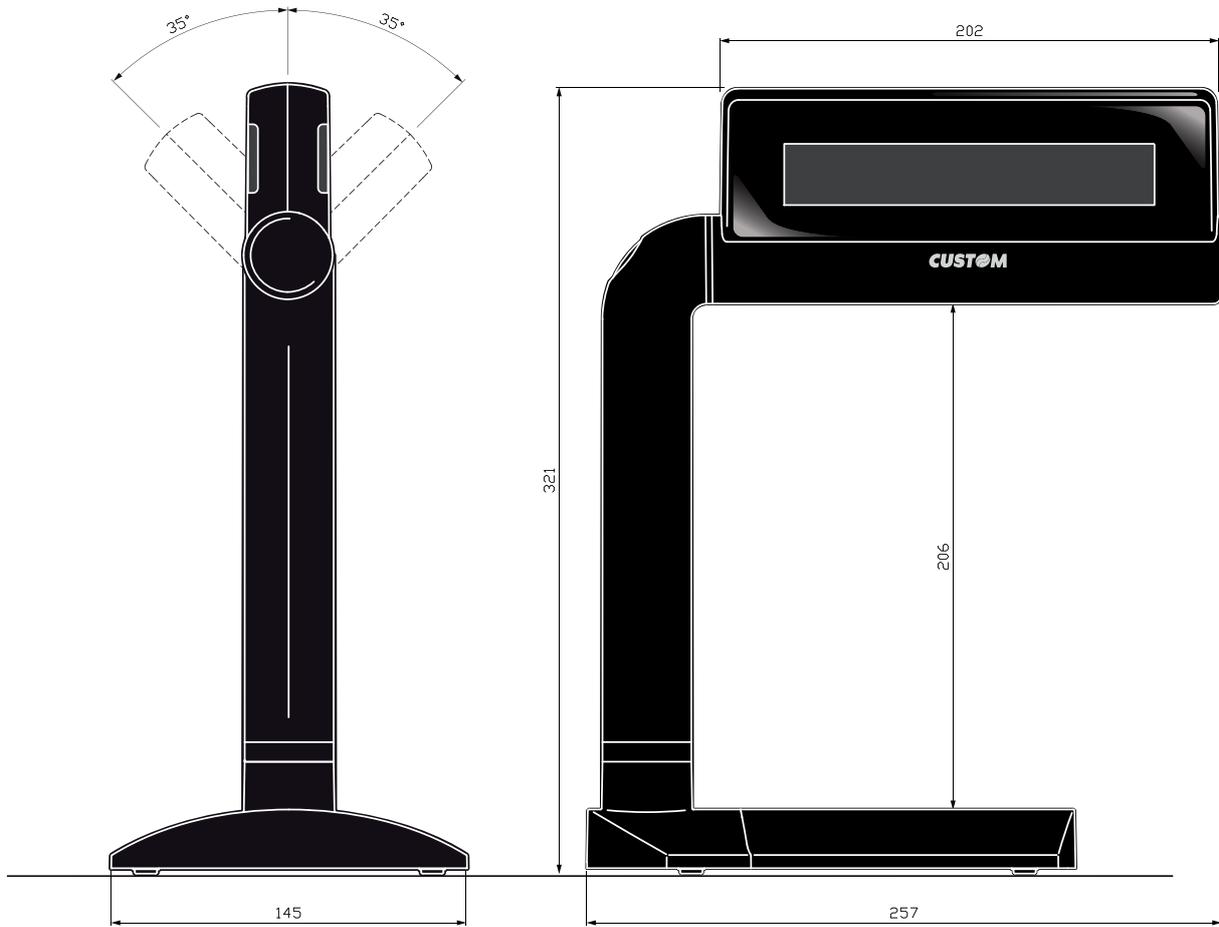
3.2.1 Low version display (single / double side)



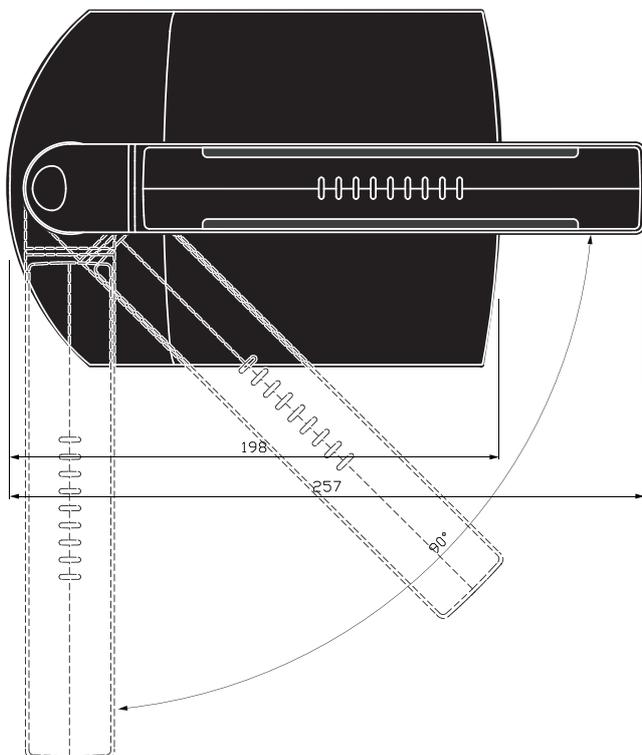
(Fig.3.1)



3.2.2 High version display (single / double side)

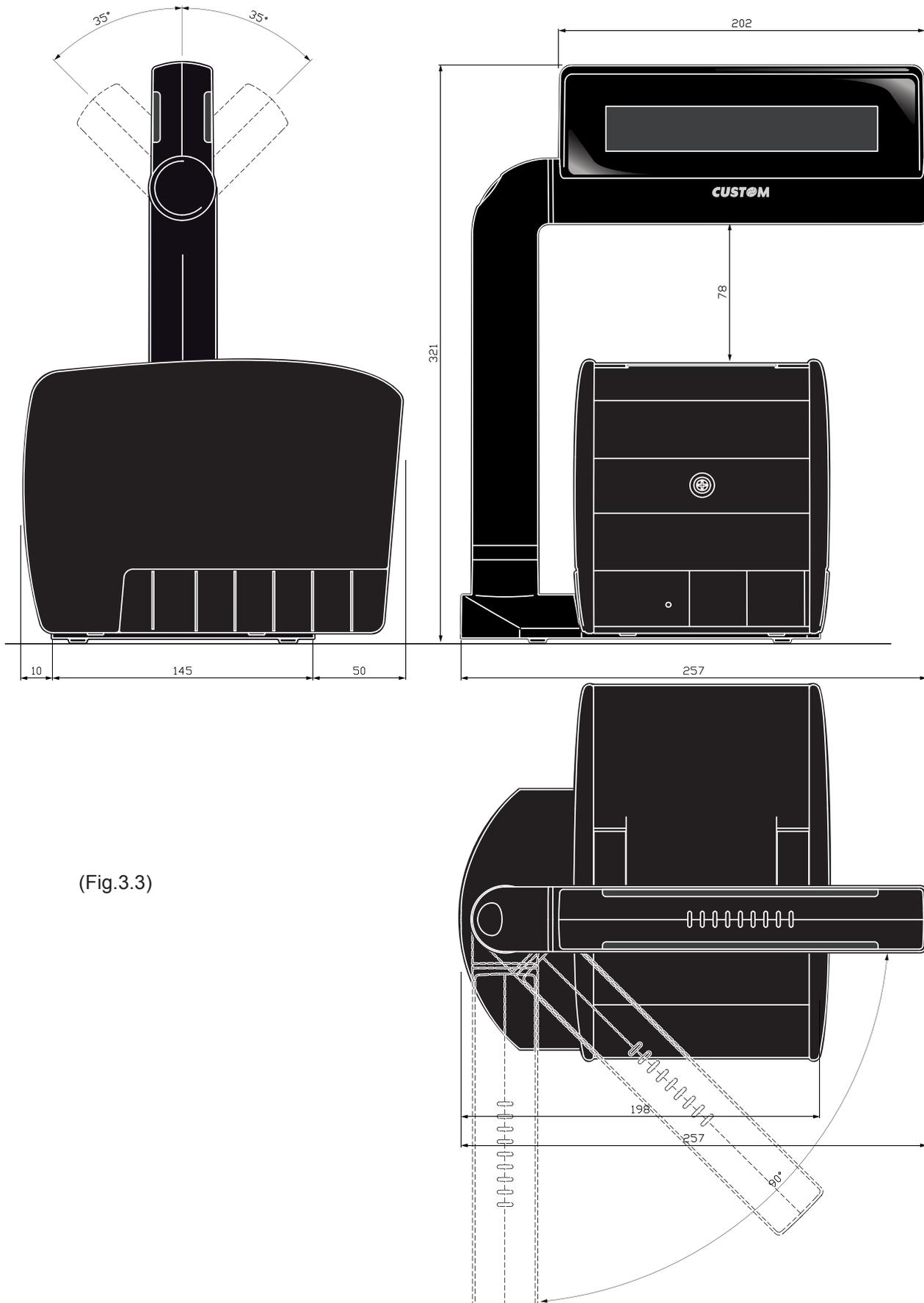


(Fig.3.2)



3. TECHNICAL SPECIFICATIONS

3.2.3 High version display + printer (single / double side)



(Fig.3.3)

4.1 CHARACTER SET

In Fig.4.1 is shown the characters set.

Fig.4.1

		UPPER 4 BIT															
		2	3	4	5	6	7	8	9	A	B	C	D	E	F		
LOWER 4 BIT	0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
	1	!	!	A	0	a	9	0	æ	í	"	J	†	y	0		
	2	"	2	B	R	b	r	é	É	ó	°	o	§	ð	λ		
	3	#	3	C	S	c	s	à	á	ú	'	ƒ	¶	ε	ψ		
	4	\$	4	D	T	d	t	ä	ö	ç	'	4	Γ	ζ	ω		
	5	%	5	E	U	e	u	à	ò	É	ˆ	†	€	η	¶		
	6	&	6	F	V	f	v	à	ó	¥	ˆ	↓	θ	θ	→		
	7	'	7	G	W	g	w	ç	ú	℞	×	→	Λ	ℓ	→		
	8	(	8	H	X	h	x	è	ó	÷	÷	←	Ξ	κ	⊞		
	9)	9	I	Y	i	y	ë	ö	ì	Σ	Γ	Π	λ	→		
	A	*	*	J	Z	j	z	è	ü	Ä	Σ	7	Σ	μ	¶		
	B	+	;	K	[k	[ì	Ä	Ä	×	L	Ÿ	v	→		
	C	,	<	L	\	l	l	ì	Ä	ö	×	J	§	ζ	□		
	D	-	=	M]	m]	ì	ä	ö	†	.	ψ	π	=		
	E	.	>	N	^	n	ˆ	Ä	ö	ö	†	θ	θ	ρ	□		
	F	/	?	O	_	o	Δ	Ä	ç	φ	ˉ	θ	α	σ	□		

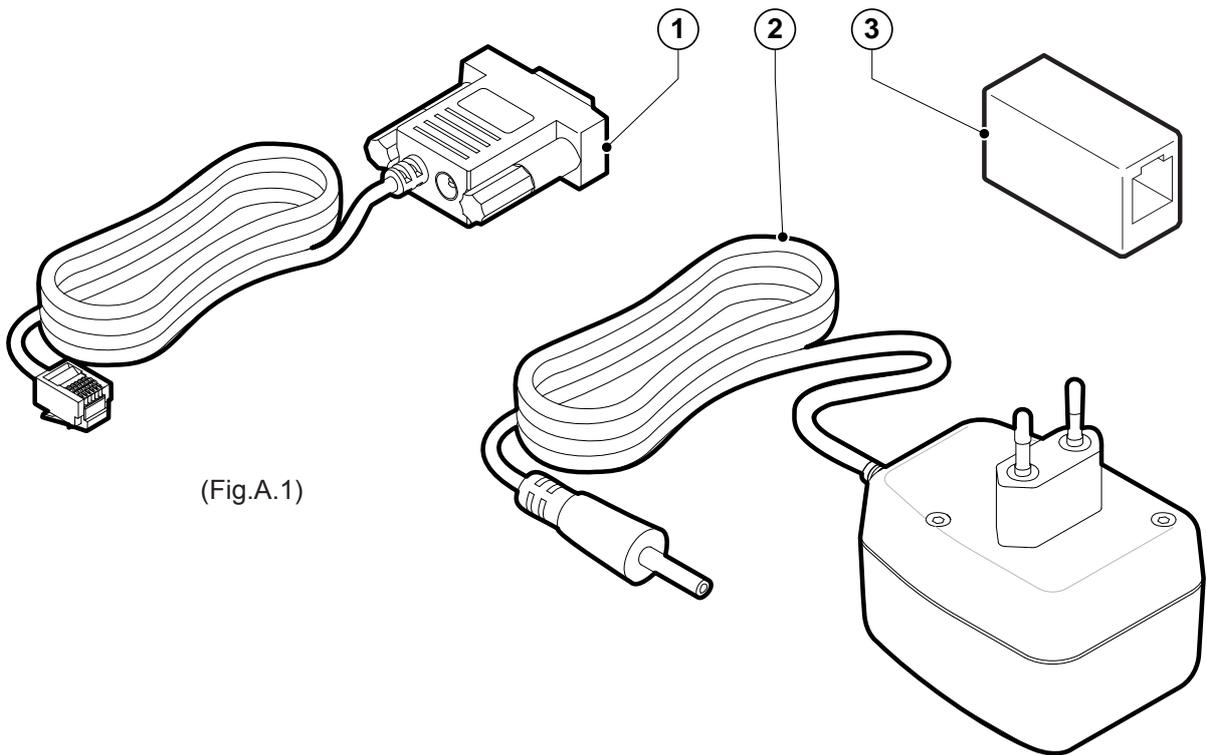
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A.1 ACCESSORIES

A.1.1 Stand Alone Kit for customer display

A kit is available for customer display stand alone model.

PCXSP-CDKUBE	Stand Alone Kit for customer display composed of (See Fig. A.1) : 1. Interface / power supply cable 2. Power supply 3. F/F RJ45 Ethernet adapter
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(Fig.A.1)

POWER SUPPLY 230Vac	
Input specifications	
Input voltage	230 Vac
Input frequency	50 Hz
Output specifications	
Output voltage	18 Vdc



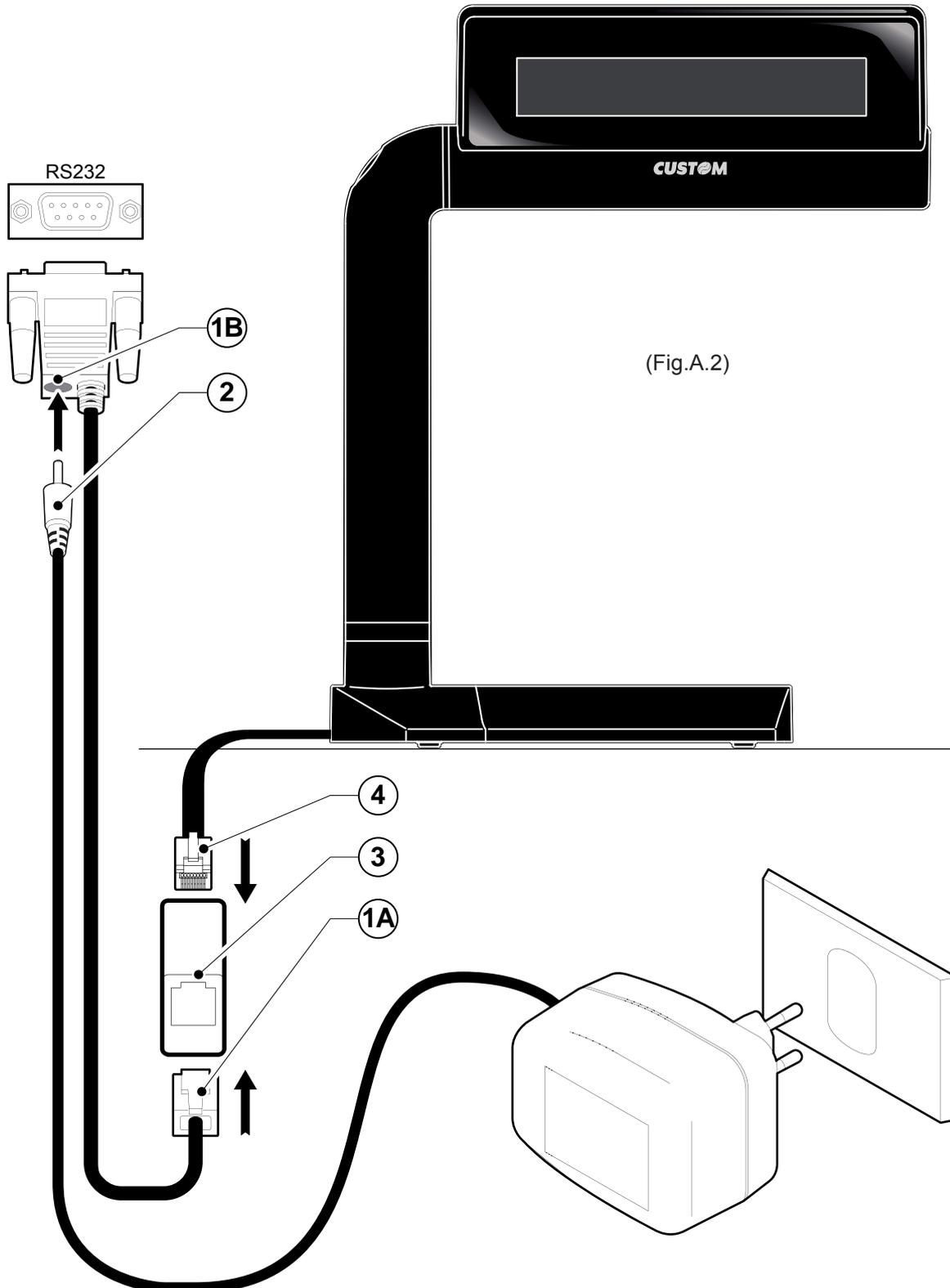
NOTE
This kit is usable with all models.

APPENDIX A - ACCESSORIES AND SPARE PARTS

Assembly instruction

To connect the kit refer to Fig.A.2 and proceeds as follow:

- Connect the RJ45 connector from the customer display (4) with the ethernet adapter (3).
- Connect the RJ45 connector from interface cable (1A) with the ethernet adapter (3).
- Connect the power supply jack (2) with the interface cable (1B).
- Insert the power supply plug in the wall socket.



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CUSTOM ENGINEERING SPA

World Headquarters

Via Berettine, 2 - 43100 Fontevivo

Tel. +39 0521 680111 - Fax +39 0521 610701

info@custom.biz - www.custom.biz

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