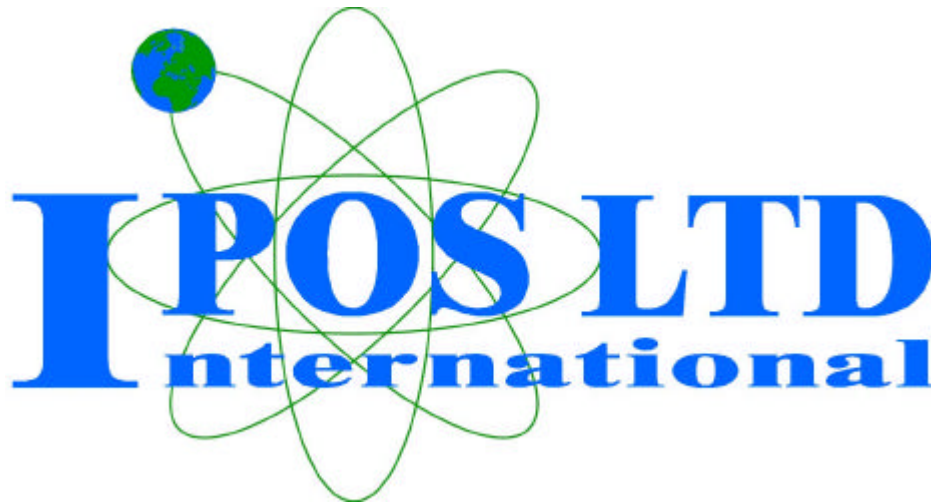


Siemens / Riva Customer Display Operations Guide

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Siemens / Riva Customer Display – Operations Guide

General notes

The BA63 customer display is mainly used in POS installations which are designed in modular form.

The display is a vacuum florescent display (VFD) with two lines, each with 20 alphanumeric characters. The standard character set and corresponding country code are implemented. Implementation of VFD technology ensures that the customer display is ergonomically designed to achieve a high degree of readability, irrespective of the cashier's angle of vision.

The display is connection to the point of sale system via a RS232C interface. The voltage (12 V DC) is also supplied via this interface.

The BA63 customer display is available either with a small base in order to mount on a counter or with an adapter for pole based mounting.

Customer display control

The customer display is controlled via software. The commands are entered with the appropriate ESC sequences. The following functions are available:

- The cursor can be moved to the desired position;
- The customer display can be deleted;
- The characters from the cursor to the end of the line can be deleted;
- An identification code can be requested;
- Country-specific character sets can be selected;
- A self-test can be performed.

Control sequences

The customer display operates in VT100 mode, i.e. it emulates a subset of the VT100 ESC sequences and control bytes. These are illustrated in the following table:

Command	Code	Hexadecimal
Backspace (without deleting)	BS	08
Line feed	LF	0A
Carriage return	CR	0D
Delete display	ESC [2J	1B 5B 32 4A
Position cursor	ESC [Py;PxH	1B 5B Py 3B Px 48
Delete to end of line	ESC [0K	1B 5B 30 4B
Set country code	ESC Rn	1B 52 n
Call display identification	ESC [0c	1B 5B 30 63



Backspace (without deleting)

The backspace command moves the cursor one space to the left. If there is a character in the position to which the cursor moves, it is not deleted. This command is ignored if the cursor is already at the very start of the line.

Code	Hexadecimal
BS	08

Line feed

The LF command (hexadecimal 0A) moves the invisible cursor down a line if it is positioned in one of the first three lines of the display. The column position remains unchanged.

The position of the cursor remains unchanged if it is already in the last line. The contents of the last line are copied to the first line and the last line is deleted.

Code	Hexadecimal
LF	0A

Carriage return

The cursor is moved to the start of the line in which it is currently positioned when the Carriage return command is entered. The command is ignored if the cursor is already at the start of the line.

Code	Hexadecimal
CR	0D

Delete display

The display can be deleted with this ESC sequence. The cursor position remains unchanged.

Code	Hexadecimal
ESC [2 J	1B 5B 32 4A



Position cursor

The cursor position can be defined with this ESC sequence. The cursor is not visible on the display whilst this is being carried out.

The parameters are transferred as ASCII characters and have the following meaning:

Py	Defines the line
Px	Defines the column

Example:

If you wish to position the cursor at the very start of the first line the sequence below should be used:

ESC [1 ; 1 H

If you select 0 for the parameter value, this is interpreted as 1 by the display. If, on the other hand, you select a value which is greater than the maximum line and column value, the display will interpret this value as the maximum value permissible.

The cursor is positioned in the first column of the first line if no parameter values are entered.

Code	Hexadecimal
ESC [Py ; Px H	1B 5B Py 3B Px 48

Delete to end of line

This command deletes the characters from the cursor, cursor position included, to the end of the line. The position of the cursor remains unchanged.

Code	Hexadecimal
ESC [0 K	1B 5B 30 4B



Set country code

The following ESC sequence is implemented in order to select a country-specific character set.

Code	Hexadecimal
ESC R n	1B 52 n

The hexadecimal value n corresponds to the country code and defines the country-specific character set. The German character set is the default setting.

Country Code	Character Set
00	USA
01	France
02	Germany
03	Great Britain
04	Denmark 1
05	Sweden
06	Italy
07	Spain
08	Japan
09	Norway
0A	Denmark 2
0B	Spain 2
0C	Latin-America

Call display identification

The identification is called with the following ESC sequence

Code	Hexadecimal
ESC [0 c	1B 5B 30 63

The following is displayed on the screen when the sequence is entered:

ESC[?Pn1;Pn2;Pn3;Pn4;Pn5c

where

Pn1	Type of display	2 = VFD
Pn2	PROM version	00 (depends on approved prom version)
Pn3	Character set	2 = modified IBM character set
Pn4	Number of lines	4
Pn5	Columns / line	20



Character sets

Output of all characters from the defined character set

The characters are output at the current cursor position. The cursor is moved one column to the right. The characters are displayed but the cursor position remains unchanged if it is already positioned at the last column of this line when the characters are output.

Undefined characters and ESC sequences

All characters which are not included in the defined character set and all ESC sequences which have not been defined for the device are ignored by the system. A blank is displayed when data corruption occurs.

System connection

The system is connected via the RS232C (V.24) interface with a voltage supply of +12V DC.

The following parameters are set as standard:

Transmission rate	9600 bit/s
Parity (on/none)	on
Parity (odd/even)	odd

Parameters other than these standard values can also be selected. Wire jumpers must be soldered onto the display circuitry in order to do so.

The wire jumpers are located at the front of the display on the right hand side. The front plate can be removed by pressing both of the exterior housing clips underneath the plate. The wire jumpers are then accessible.

Wire jumper	IN/OUT	Parameter
JP1	OUT	9600 bps
JP2	OUT	
JP1	IN	4800 bps
JP2	OUT	
JP1	OUT	2400 bps
JP2	IN	
JP1	IN	1200 bps
JP2	IN	
JP3	OUT	Parity on
	IN	
JP4	OUT	Parity odd
	IN	
JP5	IN	Self test
	OUT	Normal operation



Connection system

The customer display cable features a mini DIN connector at one end (which is connected to the customer display) and a 9-pin D sub connector at the other (which is connected to the COM interface of the point of sale system). Similarly, the voltage (12V) is also supplied to the display via supported COM interfaces.

Pin out at customer display - The customer display has a 6-pin mini DIN socket that is wired as follows. The 9-pin D-sub socket / 6-pin mini for connection to Point-Of-Sale equipment will depend on the equipment to be connected.

6-pin mini DIN socket	Signal
1	RTS
2	CTS
3	GND
4	RXD
5	TXD
6	+12V

Test functions

The internal RAM of the processor and the EPROM are tested during the start-up phase. All display elements light up for approx. 0.5 seconds if no errors are detected during the test. The display remains blank if an error is isolated.

The identification is called with the following ESC sequence

Code	Hexadecimal
ESC [0 c	1B 5B 30 63

The display runs through the self-test program once when the code is transmitted to the display.

The test software performs the following functions:

- The microprocessor and the RAM within the processor are tested. Errors detected are displayed.
- Formation and comparison of the PROM checksum. Errors detected are displayed.
- The display type and version number of the microprogram are displayed.
- The parameters of the serial interface are displayed. The baud rate and the parity parameters are output.
- The display is tested by generating a rough chess board pattern.
- The display is tested by generating a detailed chess board pattern.