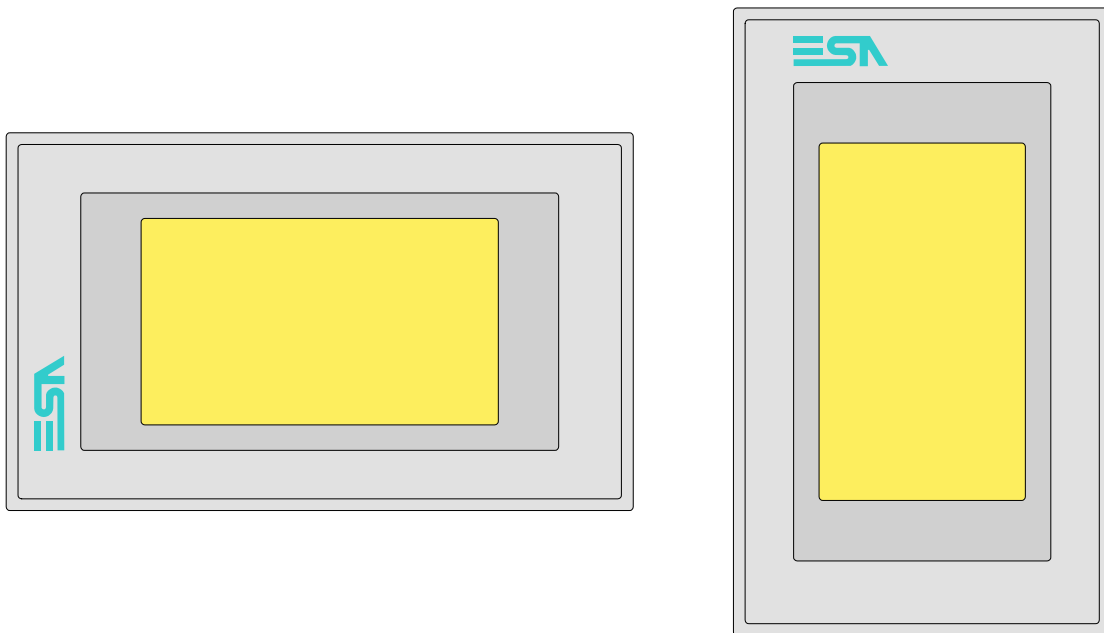

Chapter 12 Video terminal VT155W

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This chapter consists of 26 pages.



Technical characteristics The following table lists the principal technical characteristics of the product in question.

Code of terminal		Characteristics of the terminal			
VT155W 00000					
VT155W 000DP					
VT155W 000CN					
VT155W 000ET					
Display			▼	▼	▼
Type	LCD 4 tones of grey STN	●	●	●	●
	LCD 16 Colors STN				
	LCD 16 Colors TFT				
Touch screen	Matrix 20 x 8 (Cell:12x16 pixels)	●	●	●	●
Representational format	Graphic	●	●	●	●
Resolution [pixels]	240 x 128 (4")	●	●	●	●
Rows x characters	16 x 40 / 8 x 20 / 4 x 10 - 21 x 30* / 10 x 15* / 5 x 7*	●	●	●	●
Display area size [mm]	94,5 x 54,5	●	●	●	●
Character matrix in text mode [pixels]	6 x 8 / 12 x 16 / 24 x 32	●	●	●	●
Character size [mm] x 1 / x 2 / x 4	2,3 x 5,2 / 4,6 x 5,8 / 9,1 x 11,7	●	●	●	●
Contrast adjustment	Software	●	●	●	●
	Automatic compensation with temperature	●	●	●	●
Character sets	Programmable fonts/TTF Windows ®	●	●	●	●
Backlighting					
Type	LED	●	●	●	●
	CCFL lamp				
Minimum lamp-life at 25°C [hours]	--				

*) vertical mounting

Code of terminal	Characteristics of the terminal			
VT155W 0000				
VT155W 000DP				
VT155W 000CN				
VT155W 000ET				
User memory				
Project [Bytes]	640K (Text + Graphics)	●	●	●
Data memory [Bytes]	16K (Flash EPROM)	●	●	●
Memory for Windows ® -based fonts [Byte]	--			
Memory Card for backup	--			
Memory Card for expansion	--			
Interfaces				
MSP (Multi-serial port)	RS232/RS422/RS485/TTY-20mA			●
ASP (Auxiliary serial port)	RS232/RS485			
ASP-15L (Auxiliary serial port)	RS232/RS485			
ASP-8 (Auxiliary serial port)	RS232	●	●	●
ASP-9 (Auxiliary serial port)	RS232			
LPT parallel port	Centronics			
Auxiliary port	Connections for accessories			
Accessories				
Connectable accessories	See table "Chapter 33"	●	●	●
Clock				
Clock	Hardware (with Supercapacitor - Min.72h)	●	●	●
Networks				
Integrated	Profibus-DP			●
	CAN Open (Optoisolated interface)		●	
	Ethernet 10/100Mbit RJ45	●		
Universal Bus Connector	--			
Optional	See table "Chapter 33"	●	●	●
Proprietary networks				
ESA-Net	Network server			
	Network client	●	●	●
Technical data				
Power supply	24Vdc (18..32Vdc)			
Power absorbed at 24Vdc	10W			
Protection fuse	Ø5x20mm - 800mA Quick Blow F			
Protection level	IP65 (front-end)			
Operating temperature	0..50°C			
Storage and transportation temperature	-20..+60°C			
Humidity (non-condensing)	<85%			
Weight	500gr			
Dimensions				
External W x H x D [mm]	166 x 100 x 39,6			
Cut-out W x H [mm]	157 x 91			
Certification				
Certifications and approvals	CE, cULus			

*) vertical mounting

Functions

The following table lists in alphabetical order all the functions of the VT in question.

Table 12.1: Functions and objects realizable with this VT (Part 1 of 4)

Code of terminal		
VT155W ****		
Objects/Functions	Quantity	▼
Alarm field		●
Alarm help	256	●
Alarm history buffer	220	●
Alarm statistics		
Alarms (Total/active simultaneously)	256/256	●
Arc		●
Automatic operations	32	●
Backup/Restore		●
Bar data		●
Bit-wise password	8bits	●
Buttons	160 x page	●
Circles		●
Command: Change language		●
Command: Clear trend buffer		
Command: Delete recipe		●
Command: Hardcopy		●
Command: Load recipe from data memory		●
Command: Modify password		●
Command: Next page		●
Command: Page help		●
Command: Password login		●
Command: Password logout		●
Command: Previous page		●
Command: Print alarm history		●
Command: Printer form feed		●
Command: Quit project		●
Command: Report		●
Command: Restarts reading time-sampled trend		
Command: Run pipeline		
Command: Save alarms history and trend buffers in flash		●
Command: Save recipe in data memory		●
Command: Save recipe received from device in buffer		●
Command: Save recipe received from device in data memory		●
Command: Send recipe from video buffer to device		●
Command: Send recipe to device		●
Command: Service page		●

Unless otherwise stated, there is no limit to the number of includable elements, only the size of project memory sets a limit.
*) indicative value determined by the dimensions of the project, **) depends on memory available

Table 12.1: Functions and objects realizable with this VT (Part 2 of 4)

Code of terminal		
VT155W ****		
Objects/Functions	Quantity	▼
Command: Show alarms history		●
Command: Show page directory		●
Command: Show project information		●
Command: Show recipe directory		●
Command: Show sequence directory		
Command: Shows driver status page		●
Command: Shows page help		●
Command: Shows page with function: PG		
Command: Stops reading time sampled trend		
Command: Trend reading saved in device		
Command: Zero number of general pages		●
Date field		●
Day-of-the-week field		●
Dynamic texts: Bit-group-structured dynamic texts		●
Dynamic texts: Single-bit dynamic texts	1024*	●
Dynamic texts: Value-structured dynamic texts		●
E-keys		
Equations	32	●
F-keys		
Free terminal		
Function: Disables key		
Function: Go to page		●
Function: Internal command		●
Function: Invert bit value		●
Function: Macro		●
Function: None		
Function: Reset bit permanently		●
Function: Reset real-time bit		●
Function: Sequences		
Function: Sets bit permanently		●
Function: Sets real-time bit		●
Function: Value-structure direct command		●
Global configuration of E-keys		
Global configuration of F-keys		
Headers and footers (Total/Number of fields per H-F)	32/128	●
Info-messages (Total/active simultaneously)	256/256	●
Internal registers	4096bytes	●
Labels		●
LEDs assigned to sequence		

Unless otherwise stated, there is no limit to the number of includable elements, only the size of project memory sets a limit.
 *) indicative value determined by the dimensions of the project, **) depends on memory available

Table 12.1: Functions and objects realizable with this VT (Part 3 of 4)

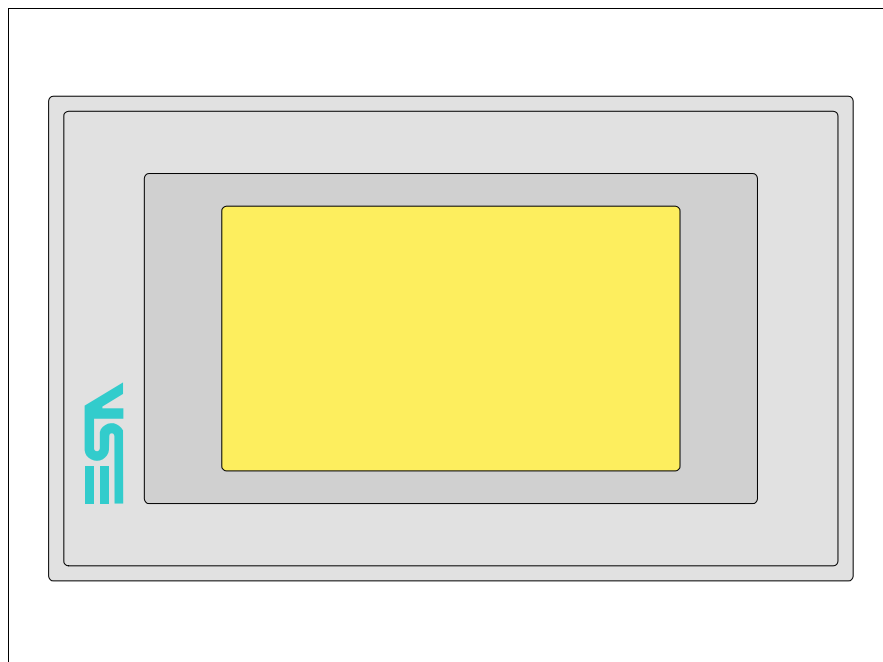
Code of terminal		
VT155W *****		
Objects/Functions	Quantity	▼
Lines		●
Lists of bitmap images		●
Lists of texts		●
Local configuration of E-keys		
Local configuration of F-keys		
Macro field		
Macros (Total/Commands x macro)	1024/16	●
Message field		●
Message help	256	●
Multilanguage texts	4 Langs.	●
Object - Indicator		
Object - Potentiometer knob		
Object - Selector knob		
Object - Sliding potentiometer		
Object - Sliding selector		
Page	64	●
Page help	64	●
Password	10	●
Pipelines (Number/Tot bytes)		
Print		●
Print page (Total/Number of fields per page)	64/128	●
Programmable fonts		●
Project images		●
Public variables of ESANET network (Number/Total bytes)		
Recipe field for recipe structure		●
Recipes (Number of variables per recipe)	128/256	●
Rectangles		●
Redefinable characters		
Reports	32	●
Sequences - Random		
Sequences - Start/stop		
Static bitmaps		●
Symbolic field: Bit-group-structured dynamic bitmaps	1024*	●
Symbolic field: Single-bit-structured dynamic bitmaps		●
Symbolic field: Value-structured dynamic bitmaps		●
System messages		●
System variables assigned to recipe structure		●
Time long field		●
Time short field		●

Unless otherwise stated, there is no limit to the number of includable elements, only the size of project memory sets a limit.
*) indicative value determined by the dimensions of the project, **) depends on memory available

Table 12.1: Functions and objects realizable with this VT (Part 4 of 4)

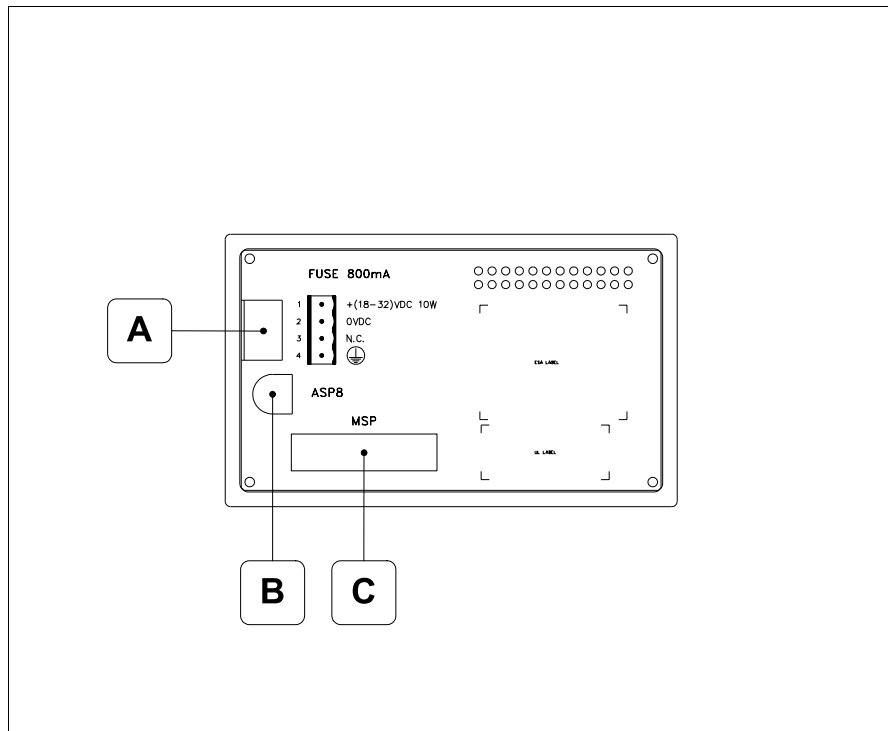
Code of terminal		
VT155W *****		
Objects/Functions	Quantity	▼
Timer	32	●
Touch Area	24	●
Trend buffers		
Trends (Trends x page/Channels x trend)		
Trends sampled automatically (Memory/Trends/Readings)		
Trends sampled on command (Memory/Trends/Readings)		
Value direct command: ADD		●
Value direct command: AND		●
Value direct command: OR		●
Value direct command: SET		●
Value direct command: SUBTRACT		●
Value direct command: XOR		●
Variables: Limit values and linear scaling variables	32 x pages	●
Variables: Movement variable (Mobile symbolic field)		●
Variables: Threshold variables		●
Variables: Floating Point numerical variables		●
Variables: Numerical variables (DEC, HEX, BIN, BCD)		●
Variables: String variables (ASCII)		●

Unless otherwise stated, there is no limit to the number of includable elements, only the size of project memory sets a limit.
 *) indicative value determined by the dimensions of the project, **) depends on memory available

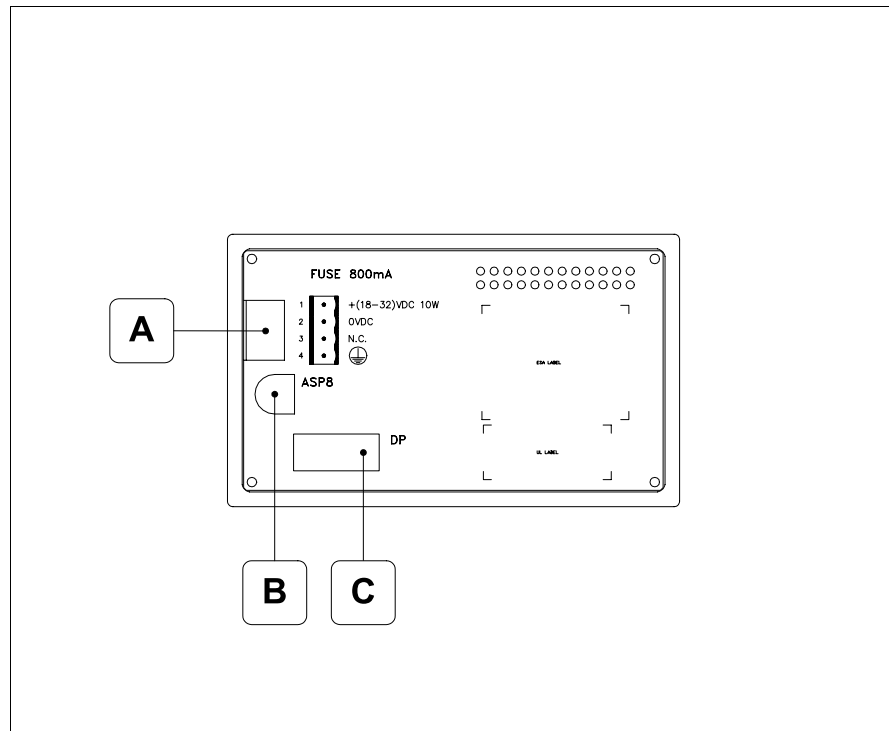
Front view

All buttons and signals are defined using the programming software (see Software Manual).

**Standard
series rear
view**

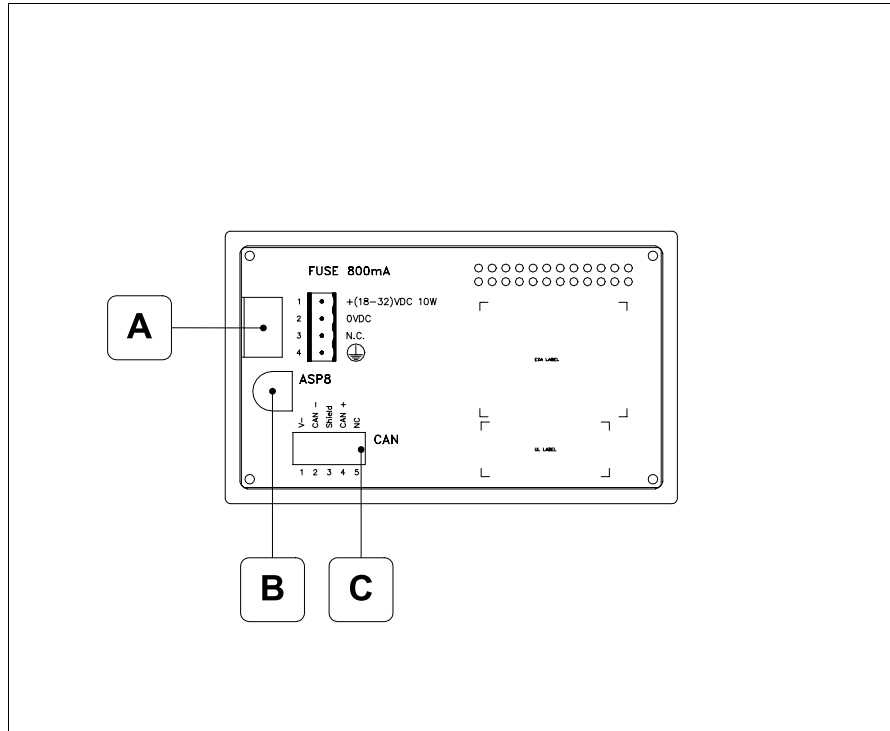


Position	Function
A	Power supply connector
B	ASP serial port for communicating with PC or other devices
C	MSP serial port for communicating with PLC/PC

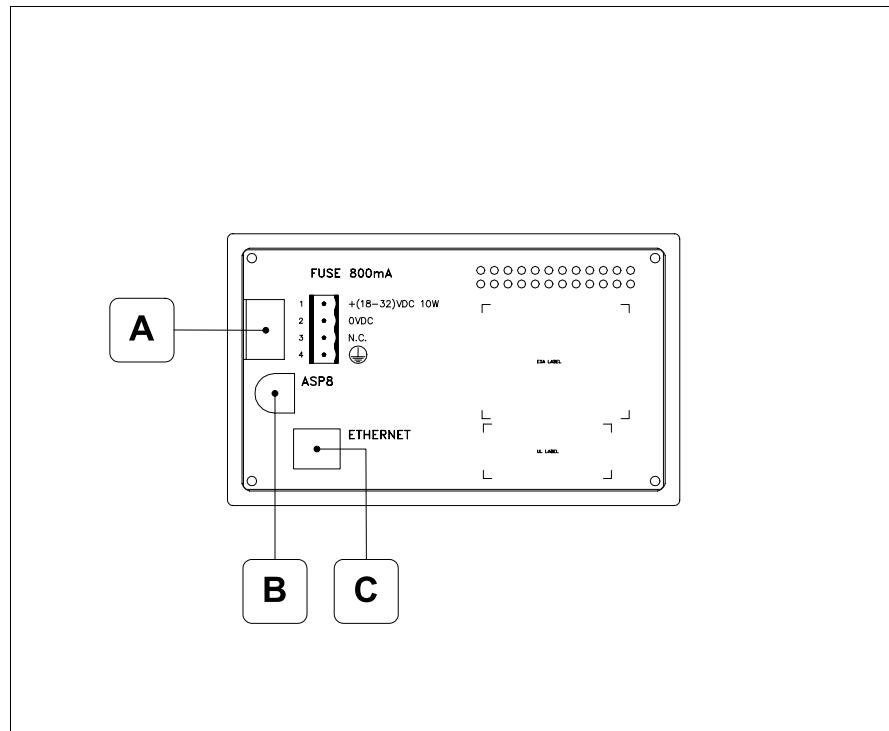
**Profibus-DP
series rear
view**

Position	Function
A	Power supply connector
B	ASP serial port for communicating with PC or other devices
C	Serial port for network communication

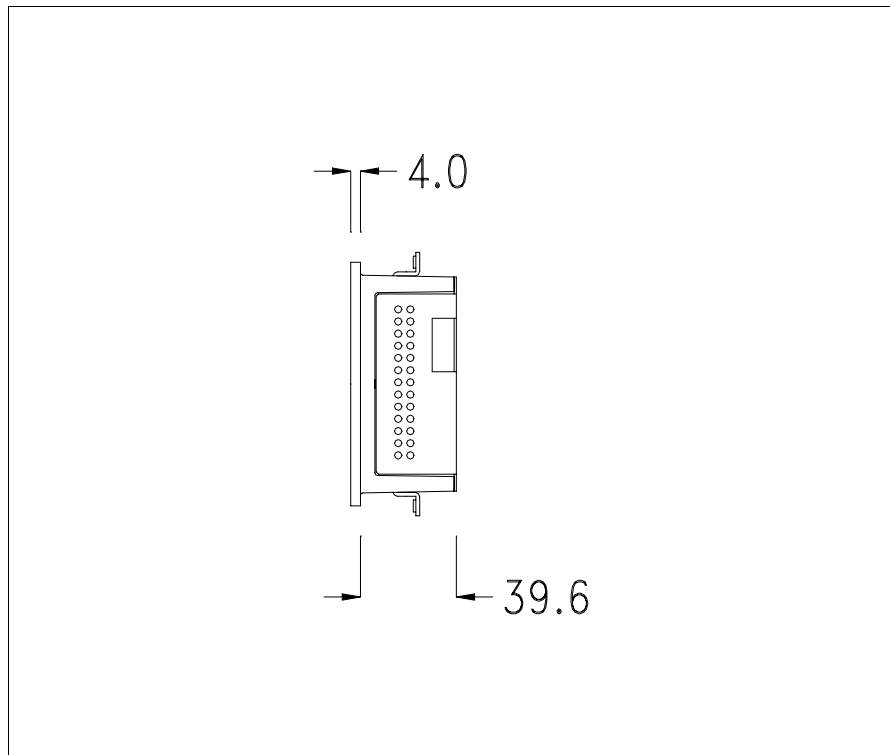
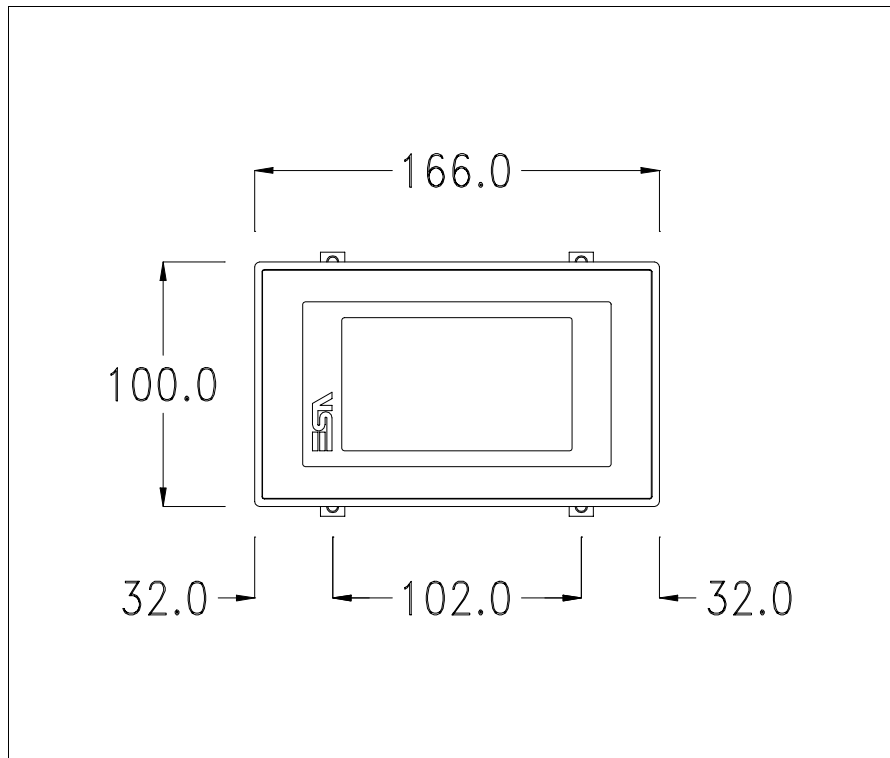
**CAN series
rear view**

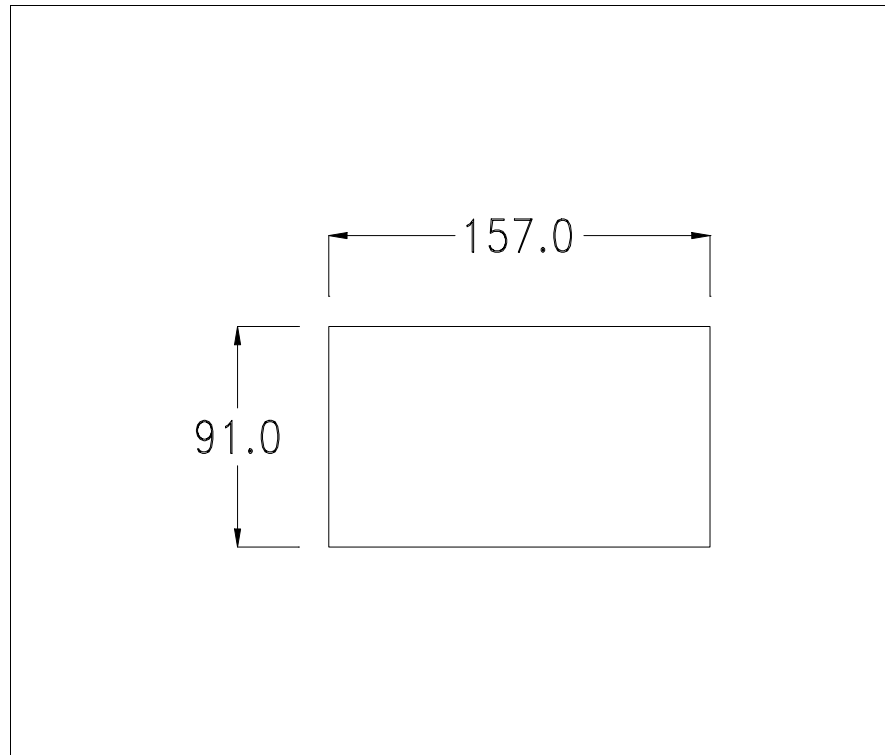


Position	Function
A	Power supply connector
B	ASP serial port for communicating with PC or other devices
C	CAN serial port

**Ethernet
series rear
view**

Position	Function
A	Power supply connector
B	ASP serial port for communicating with PC or other devices
C	Ethernet network 10/100Mbit RJ45 (For the diagnostic mode of the LEDs see "Chapter 30 -> Ethernet port")

**Dimensions
and Cut-out**



To fix the sealing gasket and secure the VT to the container see “Chapter 29 -> Mounting the terminal within the container“.

⚠ Where accessories need to be fixed in or onto the VT terminal, you are advised to do this before securing the VT to its container.

Accessories

Any accessories should be mounted in accordance with the instructions in the relevant chapter (see “Chapter 33 -> Video terminal accessories“).

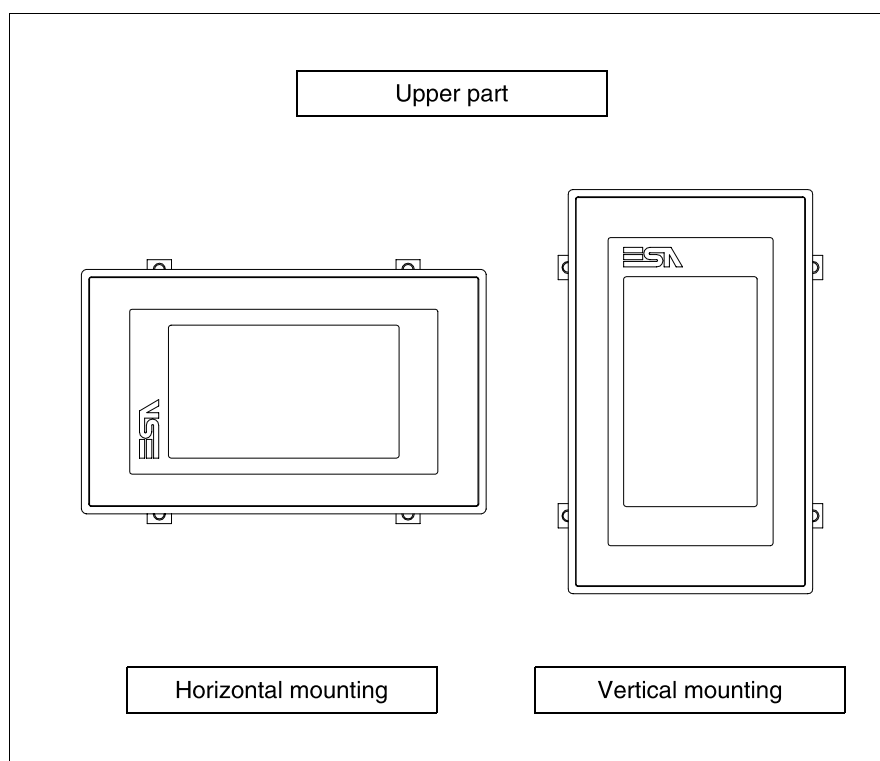
Methods of mounting

There are two ways of mounting the VT155 on the container, horizontally or vertically. Once you have chosen the direction that means you can see the project properly and you are in the project creation phase, choose the terminal with the same orientation (see Software Manual “Chapter 5 -> New...“).

⚠ Once the orientation has been defined, you are recommended not to change it, as the project created could then become unusable.

⚠ To orientate the terminal correctly use the logo on the front fascia as a reference.

Below are listed the terminals with their respective correct orientations.



Calibration of Touch Screen

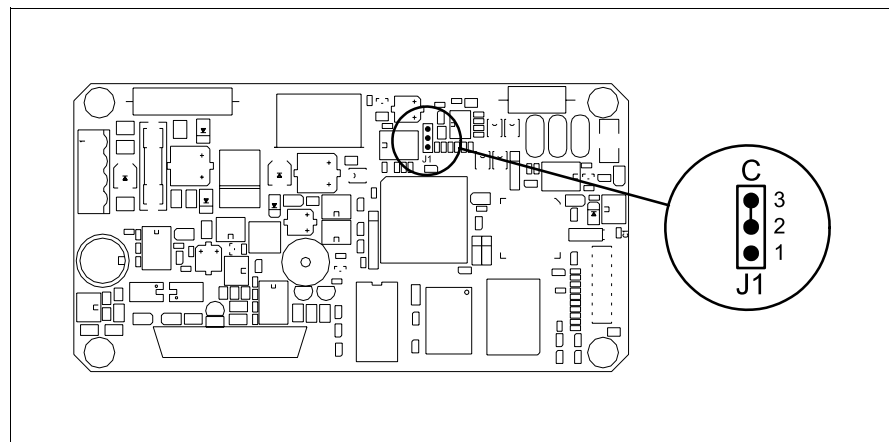
The screen of VT155W is made of resistive, sensitive glass; for this type of glass to work properly it requires a calibration procedure (**the terminal is already calibrated when supplied**), that is, the resistive area of the glass has to be adjusted to the visible area of the display.

Should it be thought necessary to repeat the calibration procedure this can be done by following the instructions set out below.

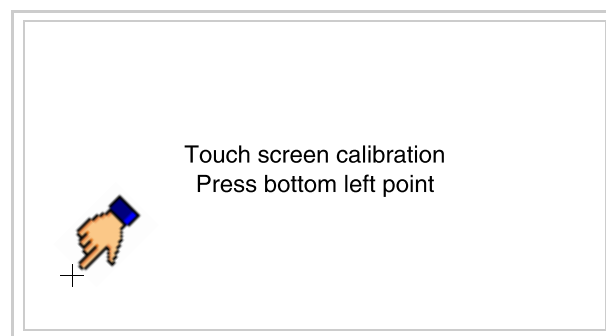
⚠ The procedure must be carried out with great care as the precision of the keys area depends on the calibration.

How to perform the calibration procedure:

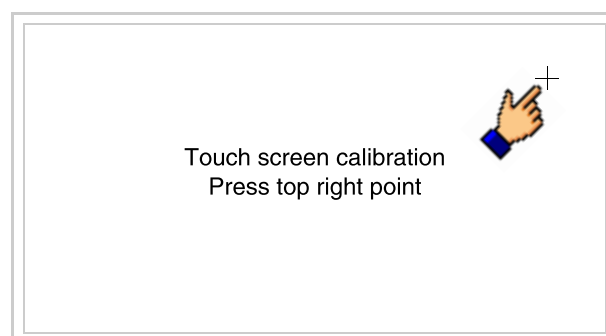
- Make sure the VT is not connected to the power supply
- Remove the back cover
- Identify jumper J1



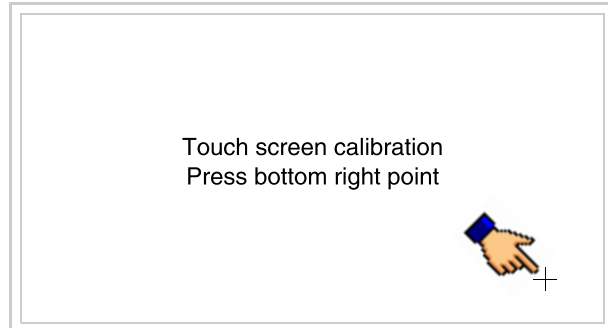
- Position J1 on pins 2-3 (C)
- Reconnect the power supply and switch on the terminal; the following mask appears



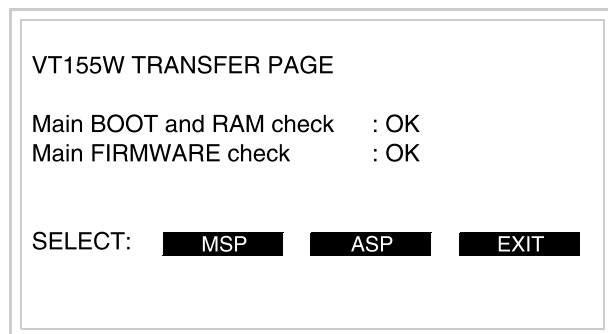
- Touch the corner indicated in the figure; then the following page appears on screen



- Touch the corner indicated in the figure to complete the calibration procedure; the following page now appears



- Wait a few moments until the VT displays either the following mask or the project page (the page may be slightly different in its wording depending on which series the terminal belongs to)



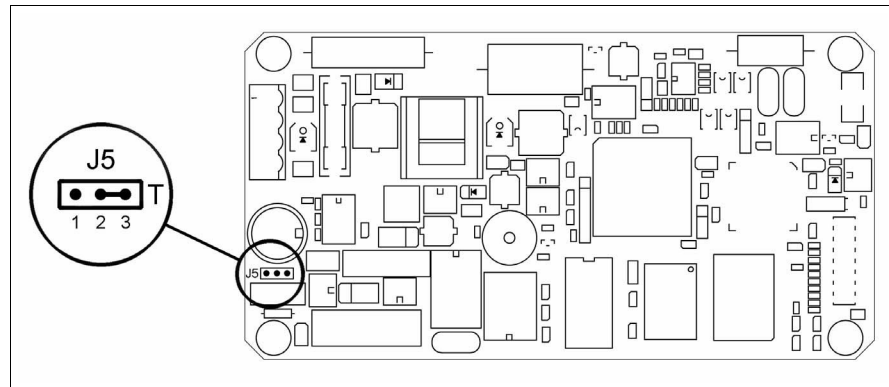
- Switch off the terminal
- Reposition J1 on pins 1-2
- Replace the back cover
- Switch on the terminal again

The calibration procedure has finished; if the calibration has been carried out wrongly or imprecisely, repeat the procedure.

Termination of CAN line

This paragraph applies only to the CAN series. The VT in question integrates the termination resistances of the serial line (typically 120 ohms) which can be inserted by means of a jumper (preset on 1-2, line not terminated). To activate the termination:

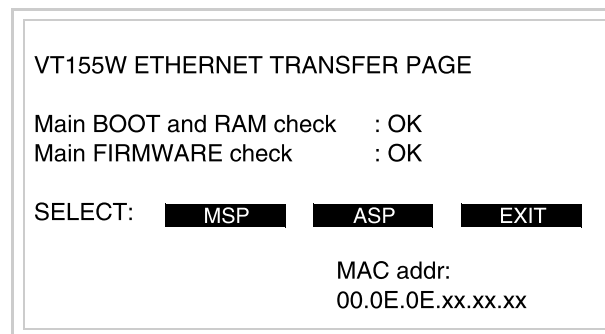
- Make sure the device is not connected to the power supply.
- Remove the cover.
- Identify the jumper unit J5.



- Position the jumper between pins 2 and 3 (line terminated).
- Replace the back cover.
- Reconnect the power supply.

Introducing the MAC address

This paragraph relates only to the Ethernet series. The Media Access Control (MAC) address unambiguously identifies each terminal connected in the Ethernet network. The terminal is acquired with the address already programmed and is shown on the display of the terminal in the transfer page.



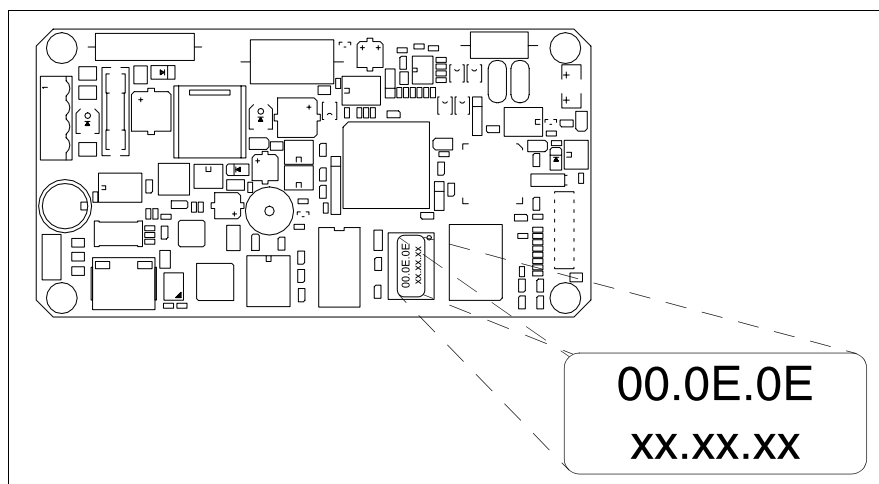
The MAC address is permanently memorized in the terminal, but should it be necessary to execute an “aided” BOOT update (see Software Manual “Chapter 14 -> BOOT update”) the address is lost.

⚠ This operation must be carried out only with the advice of the ESA Customer Care Department.

Terminals with no valid MAC address when switched present a mask for its insertion. If no MAC address belonging to the terminal is available, proceed as follows:

- Check that the VT is not connected to the power supply.
- Remove the back cover

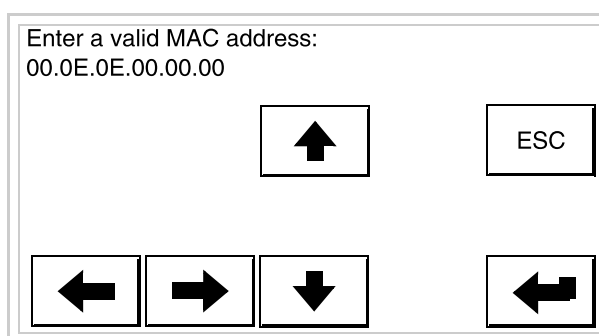
- Locate the label carrying the MAC address

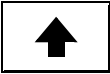


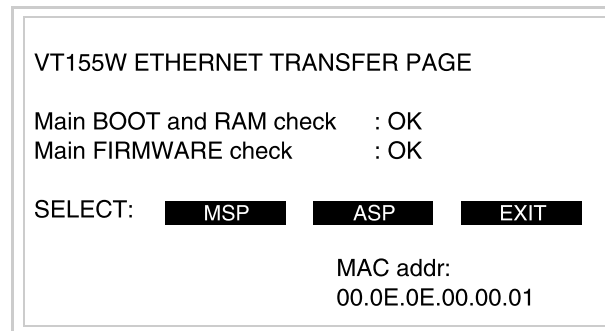
- Make a note of the number on the label (e.g. 00.0E.0E.00.00.01)

00.0E.0E -> fixed part that identifying as an ESA product
 XX.XX.XX -> variable part different for each terminal

- Reconnect the power supply to the terminal and, if necessary, calibrate the touch screen (see Page 12-15)
- Replace the back cover
- Switch on the terminal again
- The following mask appears; introduce the address previously noted down (e.g. 00.0E.0E.00.00.01)



- Use the arrow  to make the setting. Once the address has been confirmed the following page is displayed



The procedure is now terminated.

⚠ Should a wrong MAC address have been inserted contact the ESA Customer Care Department.

⚠ A wrong address could give rise to an error of conflict between VT terminals in the Ethernet network.

Transfer PC -> VT

For everything to function properly, the first time the VT operator terminal is switched on it needs to be correctly loaded, that is it needs to have transferred to it:

- Firmware
- Communication driver
- Project

(Given that the transfer of the three files in practice occurs with a single operation, it will be defined as “Project transfer” for the sake of simplicity.)

For this it is essential that the VT be prepared to receive the transfer. (See also “Chapter 37 -> Command area”).

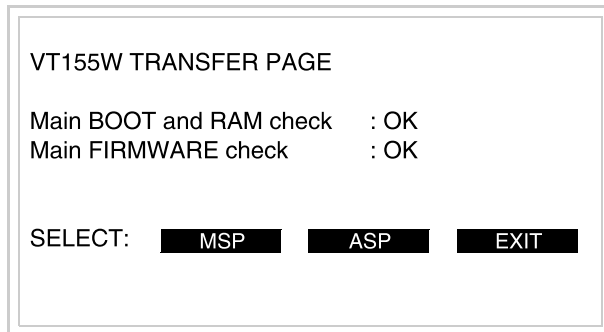
Preparation for reception


The program VTWIN (see Software Manual) must be used for the transfer, but the terminal must be set up to receive. This means carrying out the following steps:

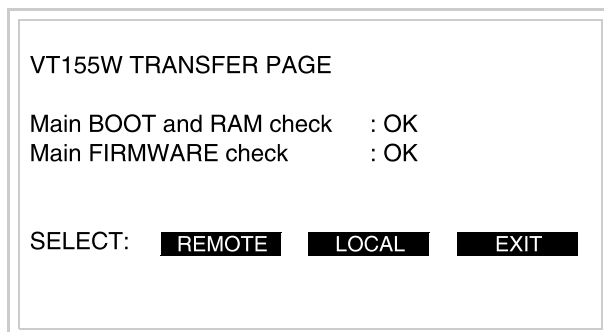
- Check that the VT is off
 - Check that there is a serial connection between the PC and the VT
 - Switch on the VT and wait for the following mask to appear
 - Press one after the other the diagonally opposite corners free of settable objects or buttons (at least one corner needs to be free)
-




and wait a moment, or, using the appropriate button (see Page 12-24), till the VT displays the following mask



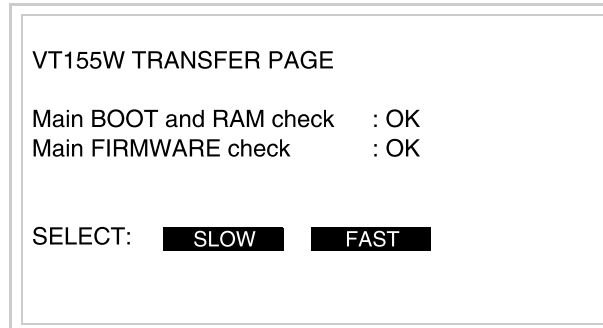
- Choose the port you intend to use for the transfer (MSP or ASP); touch the relevant  on the display. The following mask will appear



- Choose the required transfer mode: MODEM if you intend to use a modem or PC if you intend to use a serial port; touch the relevant  on the display

If the choose made is PC, the VT is ready to receive (see Software Manual for transfer), if, on the other hand, you choose MODEM, the following

mask will appear



The choice should be according to the speed you intend to use for the transfer (Slow=9600bit/sec or Fast=38400bit/sec), touch the relevant on the display. The VT is now ready to receive (see Software Manual for the transfer).

Information relating to driver

After the project has been transferred, the VT can make available information relating to what has been loaded. The information regards:

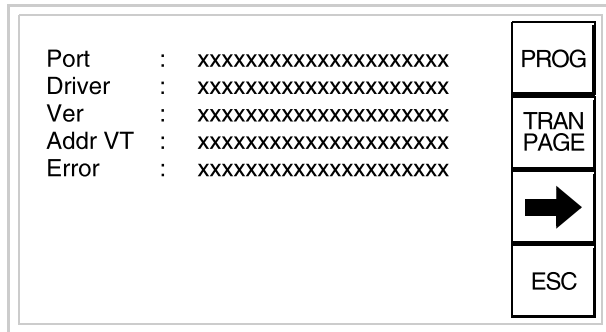
- Serial ports present
- The name of the driver loaded
- The version of the driver loaded
- Network address of the VT
- Last error to have occurred


To acquire this information carry out the following operations:

- Be situated in any page of the project
- Press two diagonally opposed angles that are free of any settable objects or buttons (at least one angle must be free)



and you will see




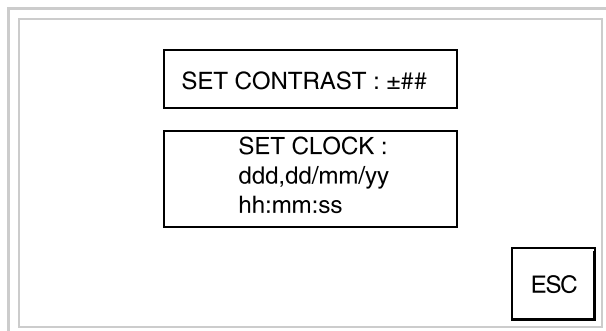
There is one of these pages for each communication port; movement between the various pages is effected by pressing .

From this page you can:

- Set the clock and the contrast
- Prepare the VT to receive the program


Setting the clock and the contrast:

To set the clock and the contrast, while displaying the above illustrated page, press ; the following mask appears

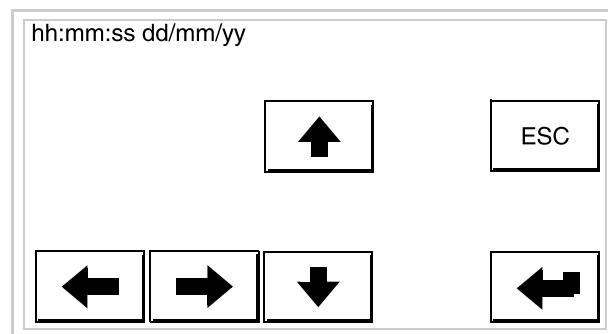



To set the contrast touch the words SET CONTRAST on the display; you will see the following mask




Use the arrow  for any variation (see “Chapter 36 -> Operation of terminal with touch screen”).

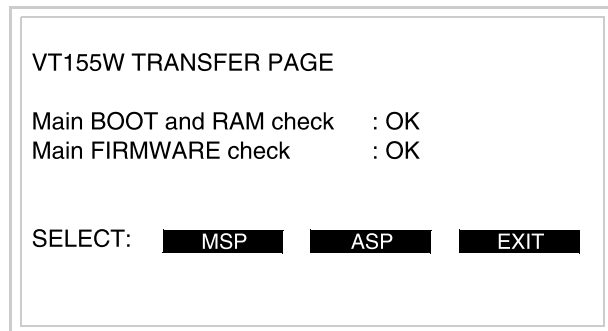
To set the clock touch the words SET CLOCK on the display; the following mask appears



Use the arrow  for any variation (see “Chapter 36 -> Operation of terminal with touch screen”).

Prepare the VT to receive the program:

To prepare the VT to receive the program, while displaying the driver information page (see Page 12-22), press , and you will see the following mask



To proceed see Page 12-20.

Possible error messages that may be encountered in the driver information page are:

- PR ERR

Problem-> Errors have been detected in the data exchange between the VT and the Device.

Solution-> Check the cable; there may be disturbance.


- COM BROKEN

Problem-> Communication between VT and Device interrupted.

Solution-> Check the serial connection cable.

An error message followed by [*] indicates that the error is not currently present but was and has since disappeared.

Example: COM BROKEN*

When  is pressed you quit the display of information regarding the driver.

Adjusting the contrast on the display

To improve the quality of the representation on the display it may be necessary to adjust its contrast. This can be done by going to the page proposed (see Page 12-23) and changing the value (from +31 to -32) in evidence at that moment. Increase the value to darken the display; to lighten it, decrease the value.

We advise this to be done at typical room temperature and with the terminal at operating temperature (about 30 minutes after switching on).