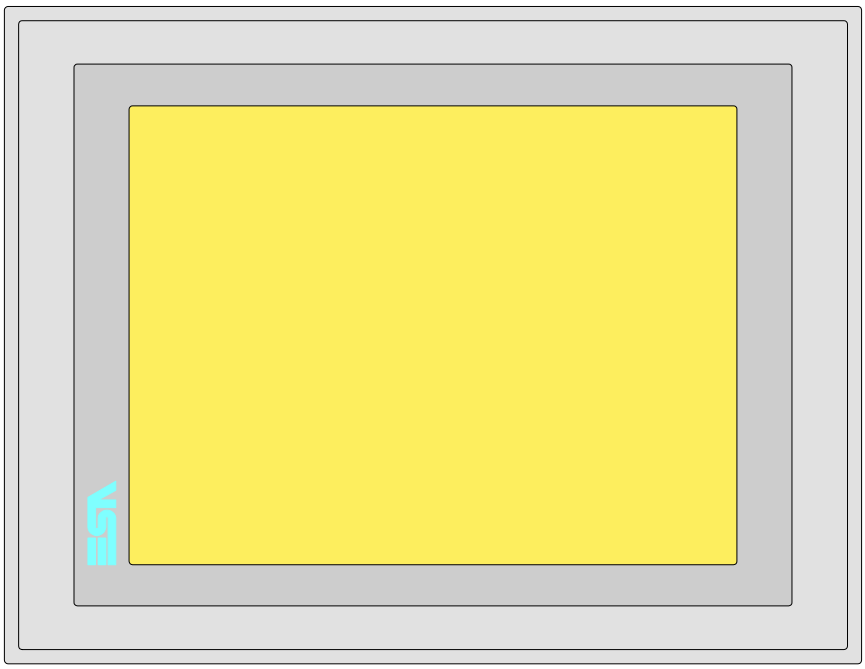
Chapter 24 Video terminal VT580W

This chapter consists of 30 pages.



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

Code of terminal	Characteristics of the terminal					
VT580W APS00						
VT580W 0PSDP						
VT580W 0PSCN						
VT580W 0PSET						
Display		▼	▼	▼	▼	
Type	LCD Monochromatic STN					
	LCD 256 Colors STN					
	LCD 256 Colors TFT	●	●	●	●	
Touch screen [cells]	Matrix 50x40 (Cell:16x15 pixels)	●	●	●	●	
Representational format	Graphic	●	●	●	●	
Resolution [pixels]	800 x 600 (8,4”)	●	●	●	●	
Rows per character	40 x 100 / 20 x 50 / 10 x 25	●	●	●	●	
Dimension of visible area [mm]	174,8 x 131,2	●	●	●	●	
Character matrix in text mode [pixels]	8 x15 / 16 x 30 / 32 x 60	●	●	●	●	
Character size [mm] x1 / x2 / x4	1,7 x 3,2 / 3,4 x 6,4 / 6,8 x 12,8	●	●	●	●	
Contrast adjustment	Software	●	●	●	●	
	Automatic compensation with temperature	●	●	●	●	
Character set	Programmable fonts/TTF Windows ®	●	●	●	●	
Backlighting						
Type	LED					
	CCFL lamp	●	●	●	●	
Minimum lamp-life at 25°C [hours]	50000	●	●	●	●	

Code of terminal	Characteristics of the terminal	VT580W APS00	VT580W 0PSDP	VT580W 0PSCN	VT580W 0PSET
User memory		▼	▼	▼	▼
Project [Bytes]	960K + 6M (Text + Graphic)	●	●	●	●
Data memory [Bytes]	128K (Flash EPROM)	●	●	●	●
Memory for Windows ® -based fonts [Byte]	512K	●	●	●	●
Memory Card for backup	8Mb	●	●	●	●
Memory Card for expansion	4Mb (Only for graphic type)				
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	Connection for accessory devices				
Accessories					
Connectable accessories	See table ”Chapter 33”	●	●	●	●
Clock					
Clock	Hardware (with Supercapacitor - Min.72h Typically130h)	●	●	●	●
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	15W				
Protection fuse	Ø5x20mm - 1,25A 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	1500gr				
Dimensions					
External W x H x D [mm]	245,9 x 188,6 x 37,6				
Cut-out W x H [mm]	233 x 176				
Certification					
Certifications and approvals	CE, cULus, NEMA12				

Functions

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

Table 24.1: Functions and objects realizable with this VT (Part 1 of 4)

Code of terminal		
VT580W *****		
Objects/Functions	Quantity	▼
Alarm field		●
Alarm help	1024	●
Alarm history buffer	256	●
Alarm statistics		
Alarms (Total/active simultaneously)	1024/256	●
Arc		●
Automatic operations	32	●
Backup/Restore		●
Bar data		●
Bit-wise password	8bits	●
Buttons	1200xpage	●
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 24.1: Functions and objects realizable with this VT (Part 2 of 4)

Code of terminal		
VT580W ✳✳✳✳✳		
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	1024*	●
Dynamic texts: Single-bit dynamic texts		●
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)	128/128	●
Info-messages (Total/active simultaneously)	1024/256	●
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 24.1: Functions and objects realizable with this VT (Part 3 of 4)

Code of terminal		
VT580W *****		
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	1024	●
Multilanguage texts	8 Langs.	●
Object - Indicator	128	●
Object - Potentiometer knob	128	●
Object - Selector knob	128	●
Object - Sliding potentiometer	128	●
Object - Sliding selector	128	●
Page	1024	●
Page help	1024	●
Password	10	●
Pipelines (Number/Tot bytes)	64/512	●
Print		●
Print page (Total/Number of fields per page)	1024/128	●
Programmable fonts		●
Project images		●
Public variables of ESANET network (Number/Total bytes)	512/1024	●
Recipe field for recipe structure		●
Recipes (Number of variables per recipe)	1024/512	●
Rectangles		●
Redefinable characters		
Reports	128	●
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		●

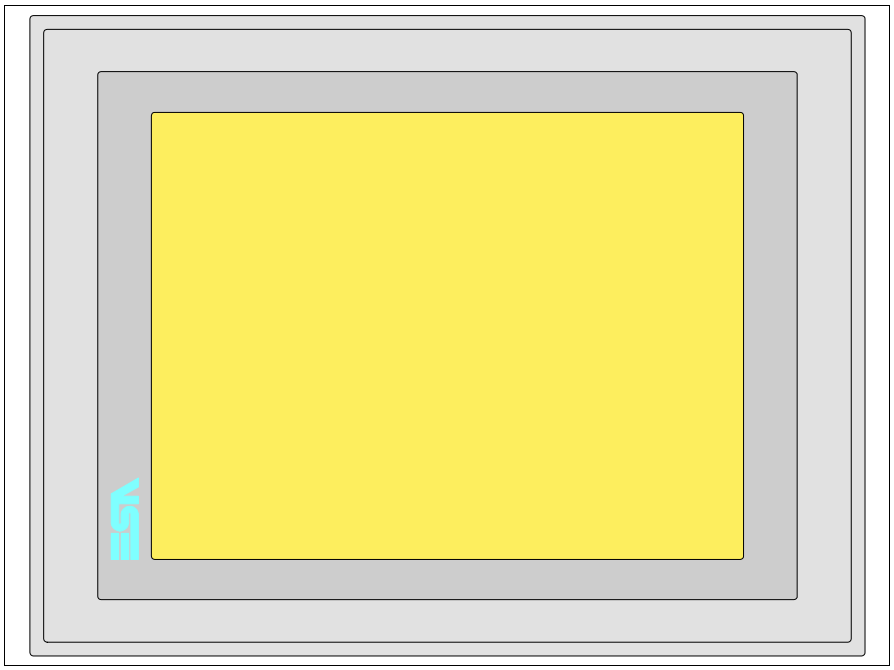
Unless otherwise stated, there is no limit to the number of includable elements, only the size of project memory sets a limit.
*) indicative value determined by the dimensions of the project, **) depends on memory available

Table 24.1: Functions and objects realizable with this VT (Part 4 of 4)

Code of terminal		
VT580W ✳✳✳✳✳		
Objects/Functions	**Quantity**	▼
Timer	32	●
Touch Area	256	●
Trend buffers	128	●
Trends (Trends x page/Channels x trend)	8/8	●
Trends sampled automatically (Memory/Trends/Readings)	6144bytes /**/480	●
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	256 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)		●

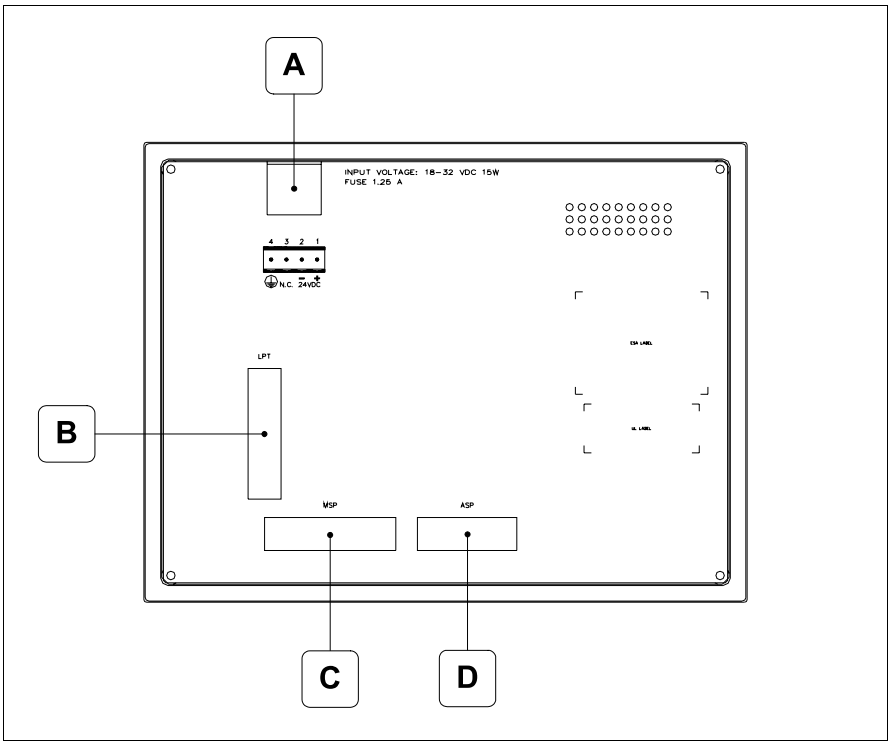
Unless otherwise stated, there is no limit to the number of includable elements, only the size of project memory sets a limit.
*) indicative value determined by the dimensions of the project, **) depends on memory available

Front view



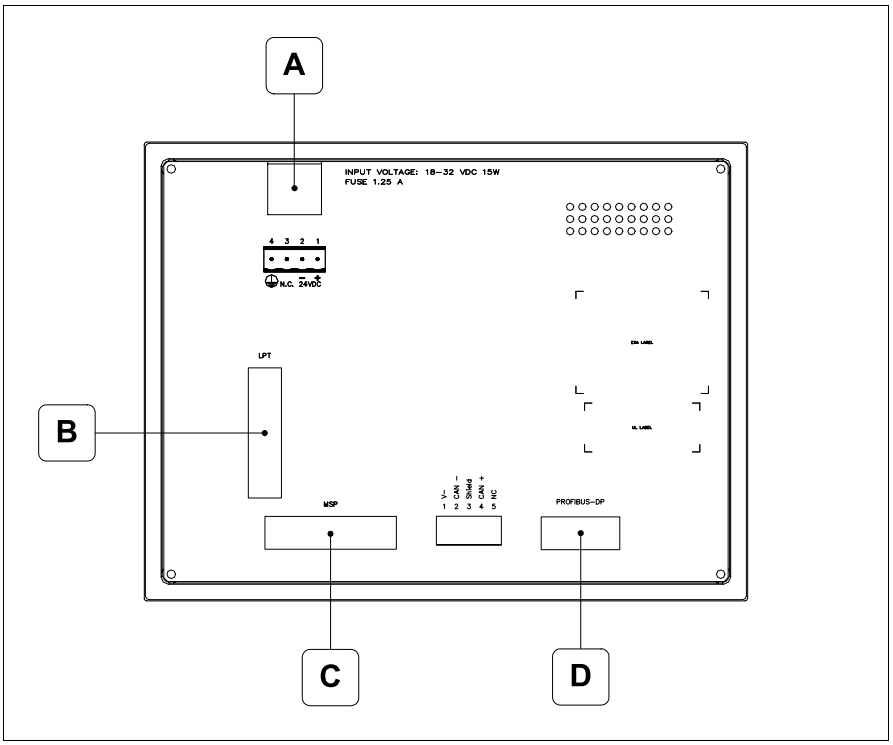
All buttons and signals are defined via the programming software (see Software Manual).

Standard series rear view



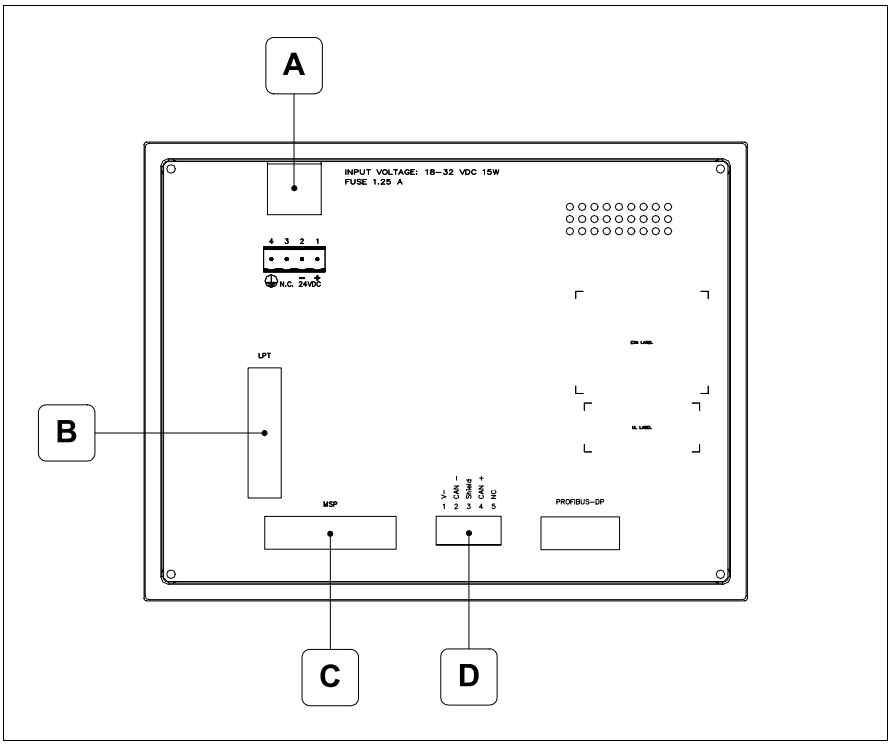
Position	Function
A	Power supply connector
B	LPT port for connecting printer
C	MSP serial port for communicating with PLC/PC
D	ASP serial port for communicating with PC or other devices

Profibus-DP series rear view



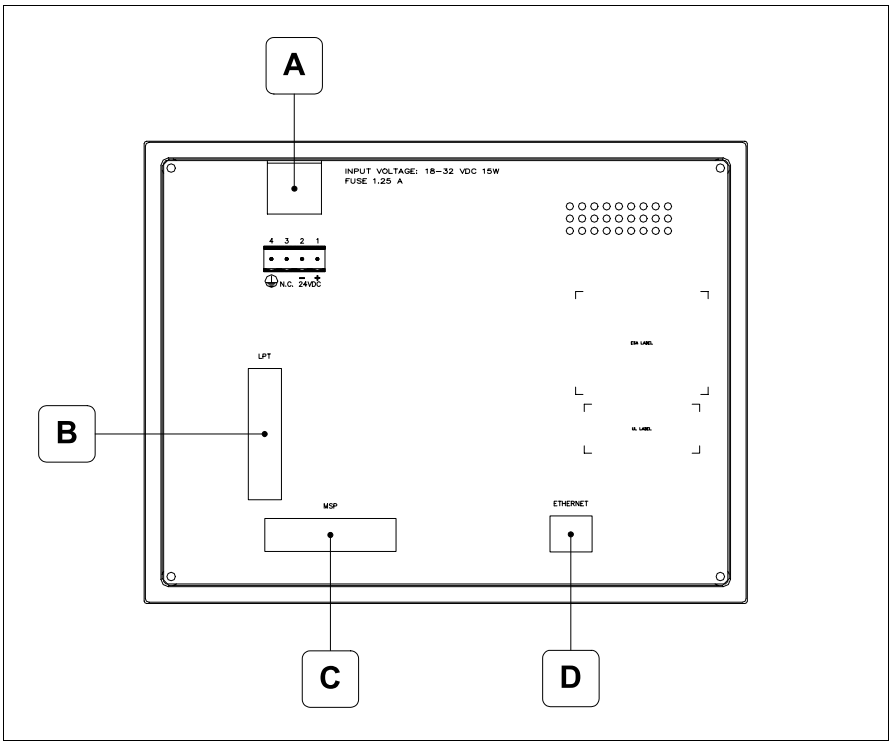
Position	Function
A	Power supply connector
B	LPT port for connecting printer
C	MSP serial port for communicating with PLC/PC
D	Serial port for network communication

CAN series rear view



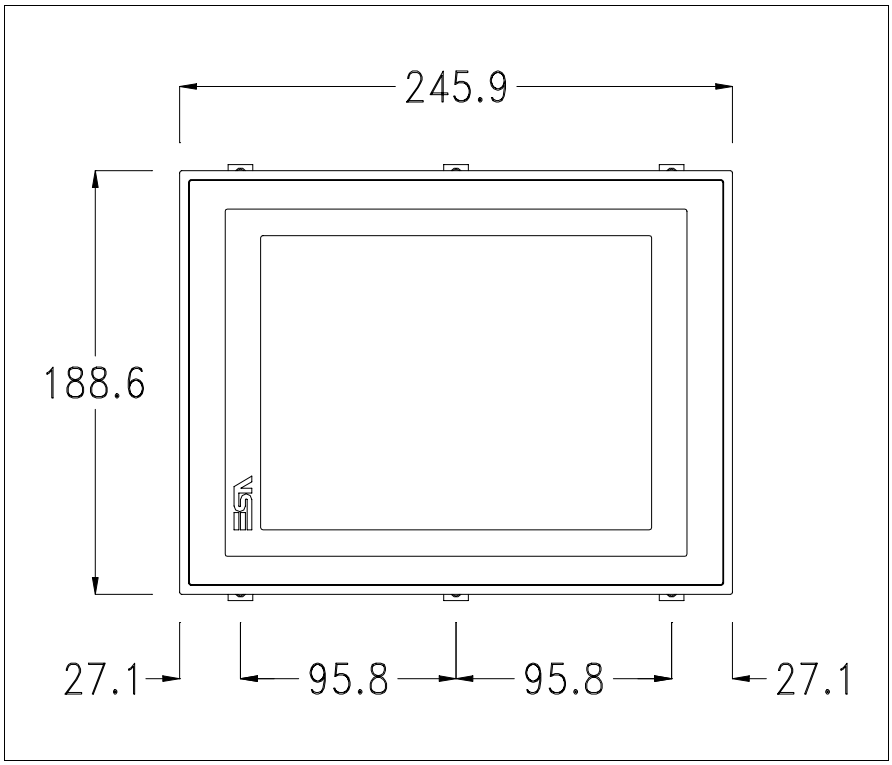
Position	Function
A	Power supply connector
B	LPT port for connecting printer
C	MSP serial port for communicating with PLC/PC
D	CAN serial port

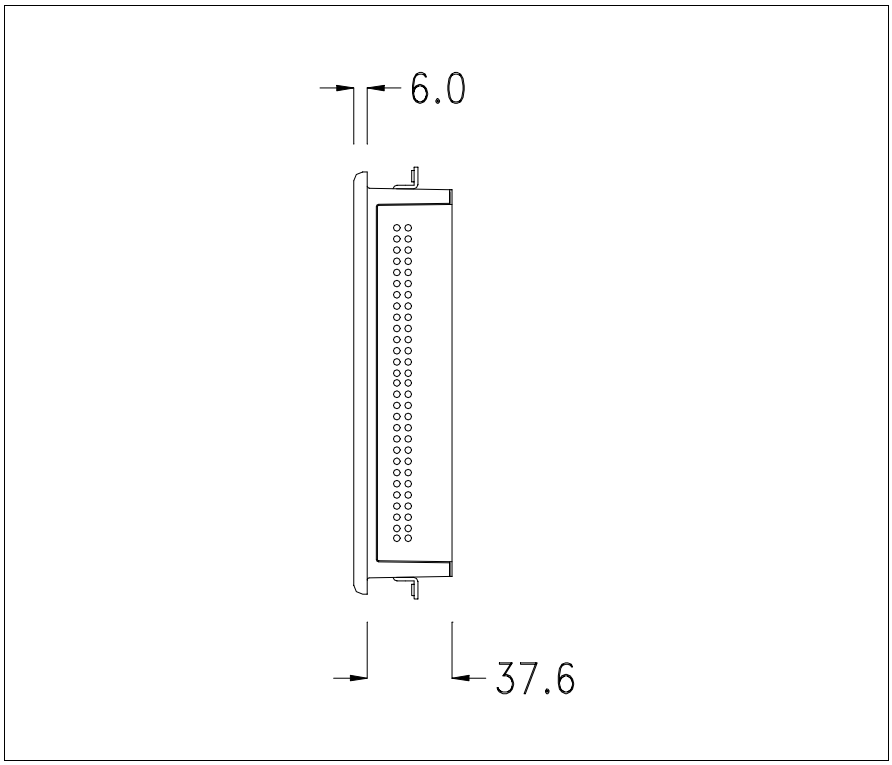
Ethernet series rear view

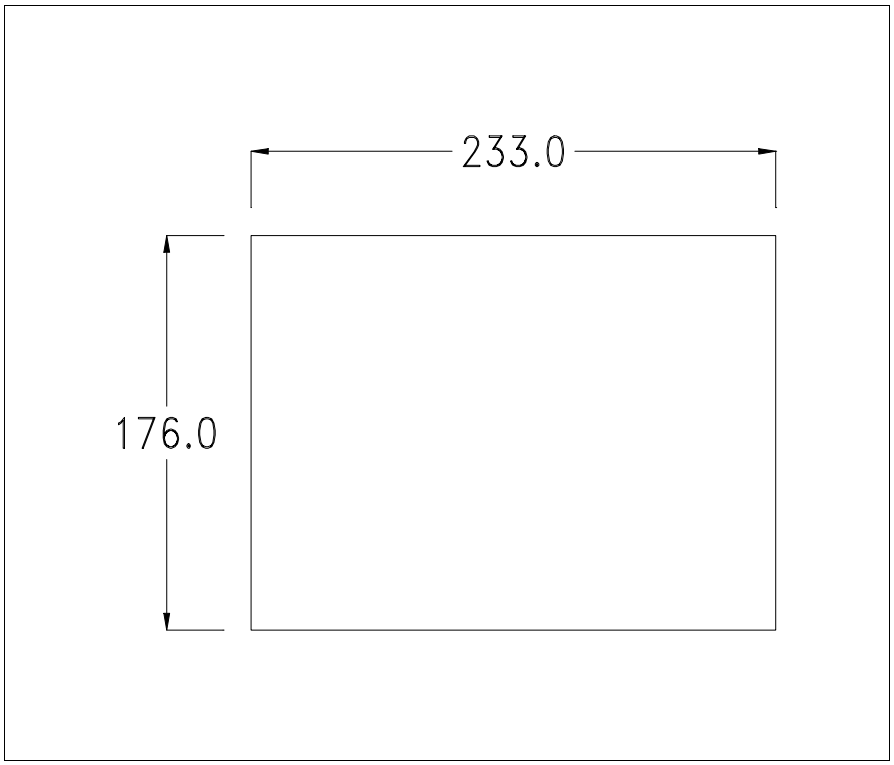


Position	Function
A	Power supply connector
B	LPT port for connecting printer
C	MSP serial port for communicating with PLC/PC
D	Ethernet network 10/100Mbit RJ45 (For the diagnostic mode of the LEDs see “Chapter 30 -> Ethernet port“)

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“).

Calibration of Touch Screen

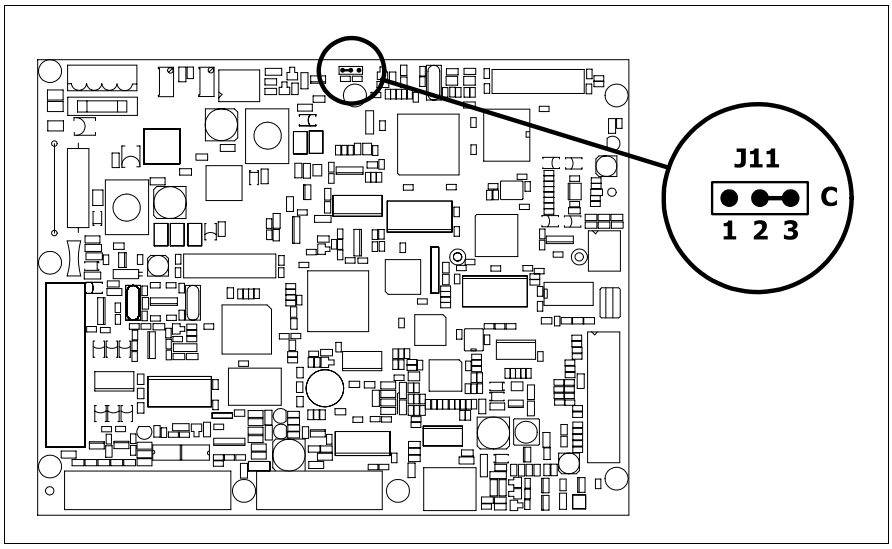
The screen of VT580W is made of resistive, sensitive glass; for this type of glass to work properly it requires a calibration procedure (**the terminal is already calibrated when supplied**), that is, the resistive area of the glass has to be adjusted to the visible are of the display.

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

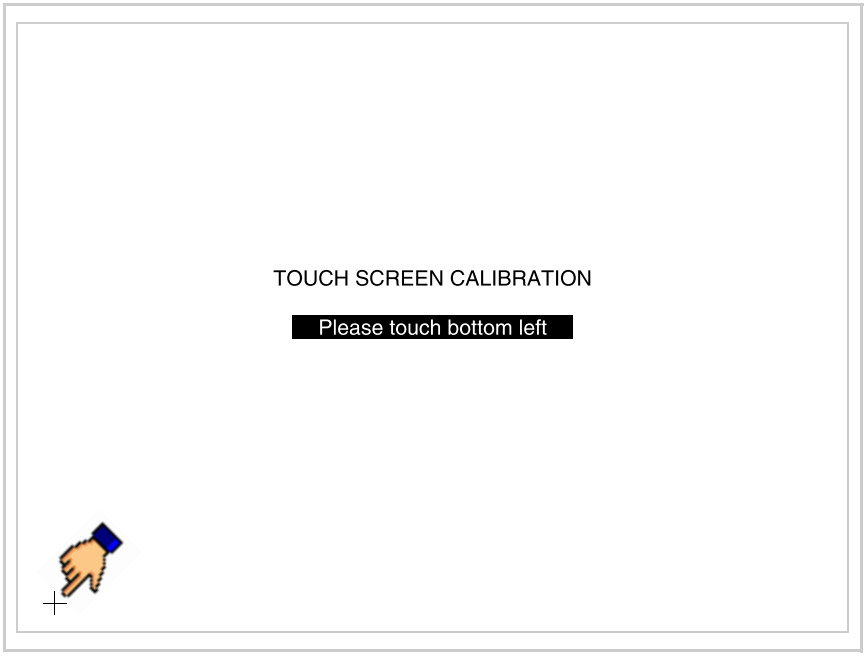
The procedure must be carried out with great care as the precision of the keys area depends on the calibration.

How to perform the calibration procedure:

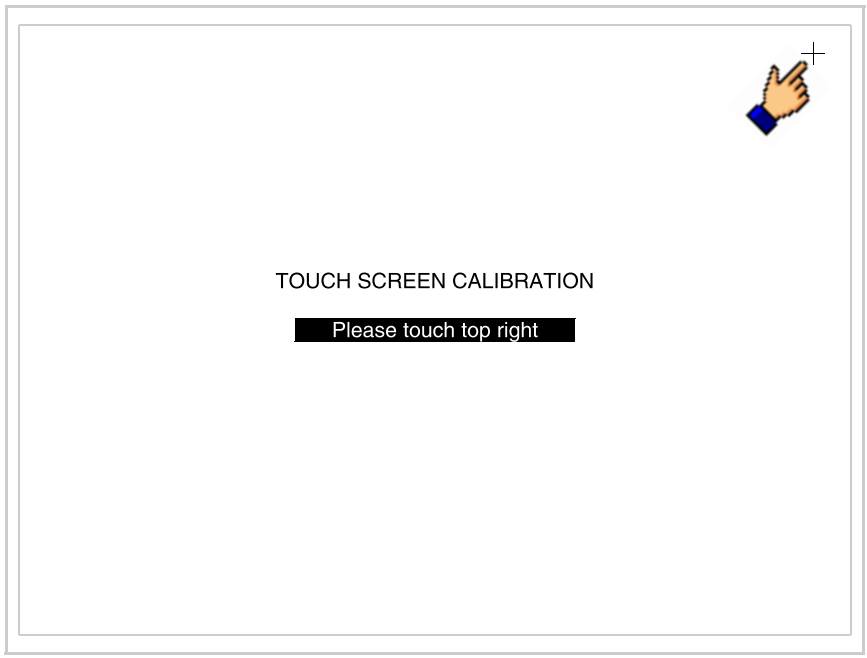
- Make sure the VT is not connected to the power supply
- Remove the back cover
- Identify jumper J11



- Position J11 on pins 2-3 (C)
- Reconnect the power supply and switch on the terminal; the following mask appears

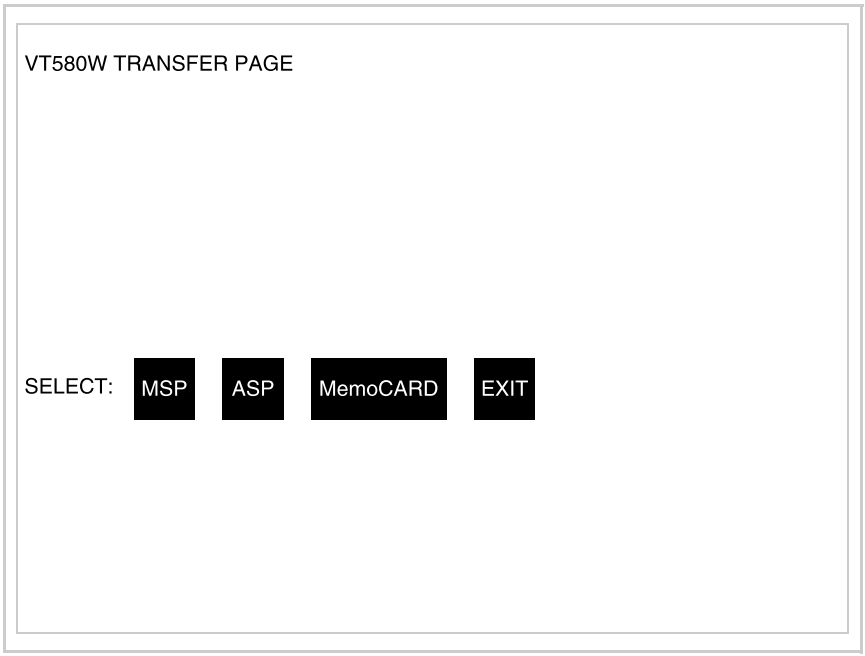


• Touch the corner indicated in the figure; then the following page appears on screen



• Touch the corner indicated in the figure to complete the Calibrazione procedure; the following page now appears

• Wait a few moments until the VT displays either the following mask or the project page



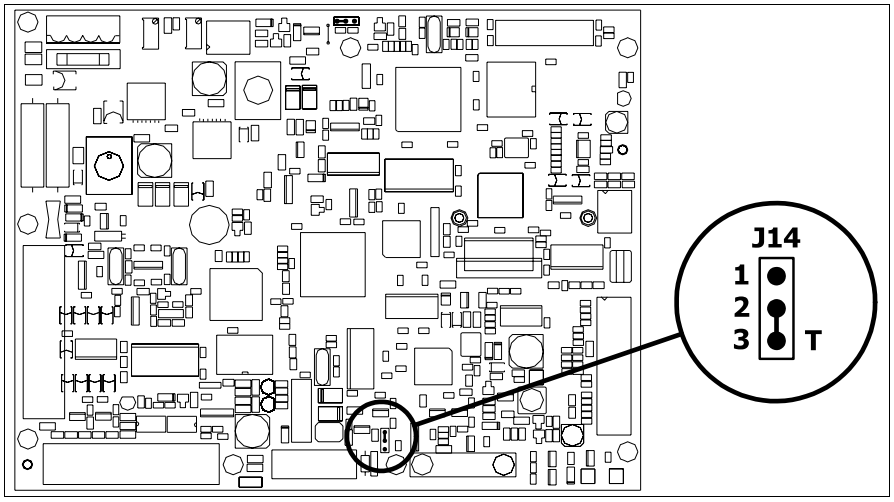
• Switch off the terminal
• Reposition J11 on pins 1-2
• Replace the back cover
• Switch on the terminal again

The calibration procedure has finished; if the calibration has be 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:

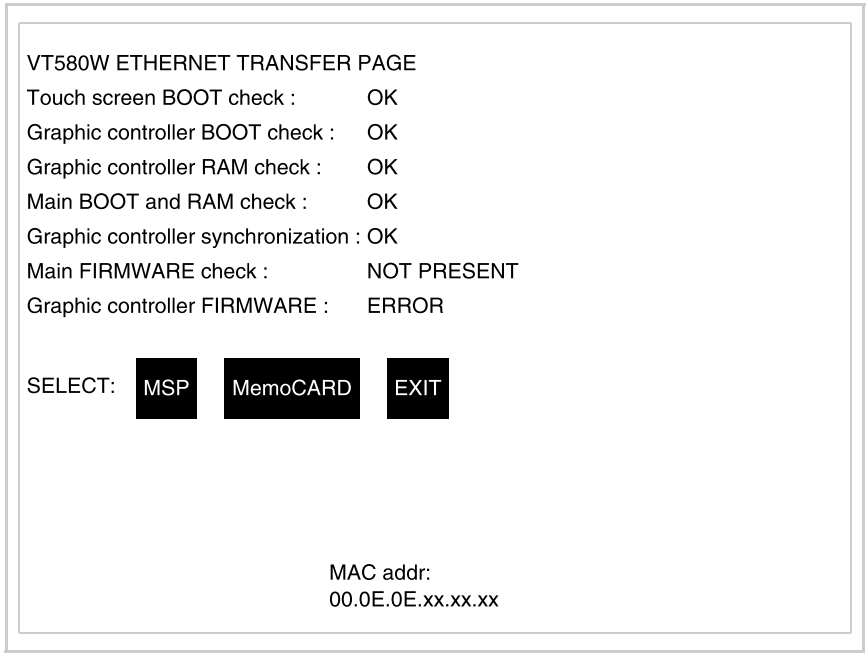
• Make sure the device is not connected to the power supply.
• Remove the cover.
• Identify the jumper unit J14.



- 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.



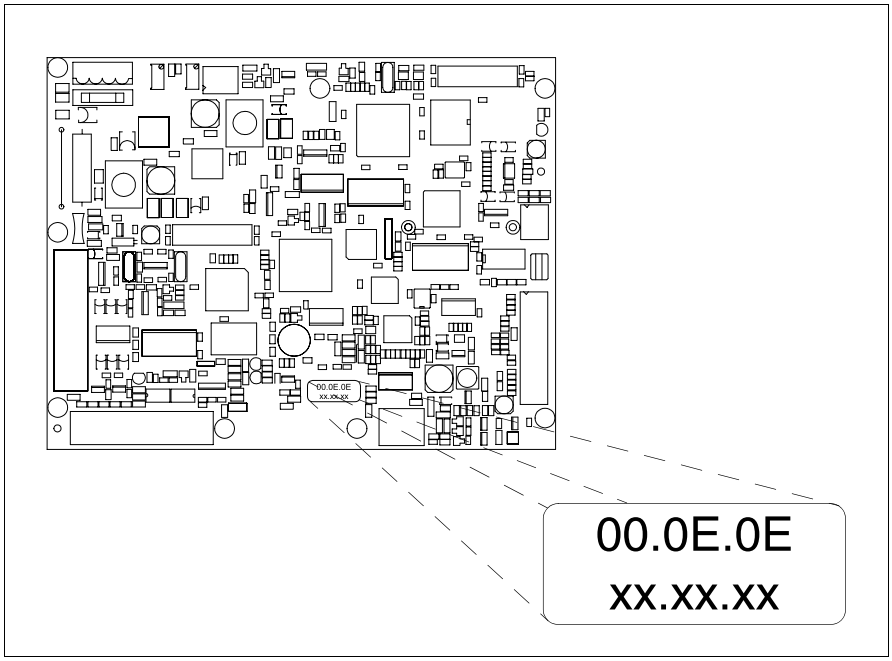
The MAC address is permanently memorized in the terminal, but should it

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:

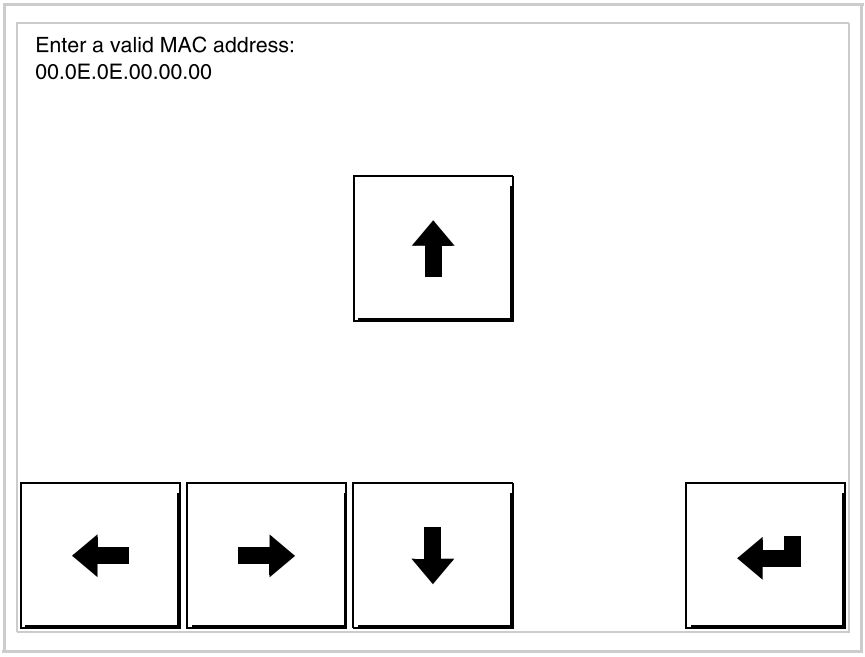
- Check that the VT is not connected to the power supply.
- Remove the back cover
- Locate the label carrying the MAC address



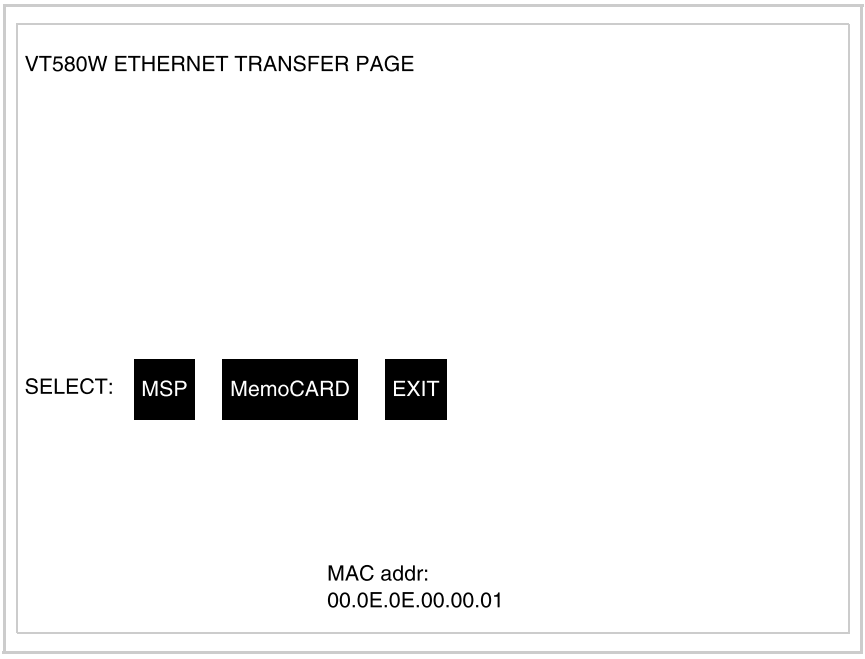
- Make a note of the number on the label (e.g. 00.0E.0E.00.00.01)

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 24-14)
- 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“).

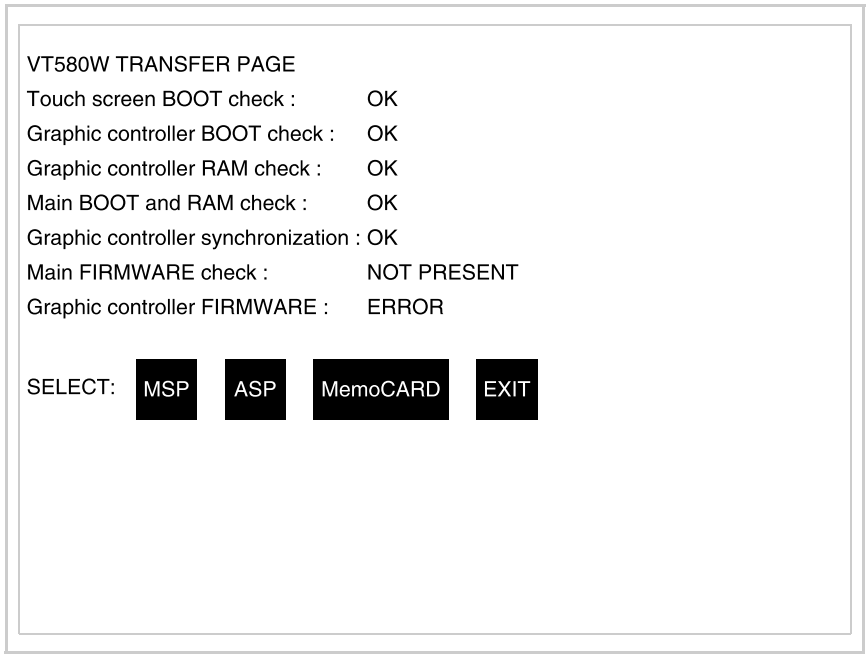
Preparation for reception

The programme VTWIN must be used for the transfer (see Software Manual), but the terminal must be prepared for reception.

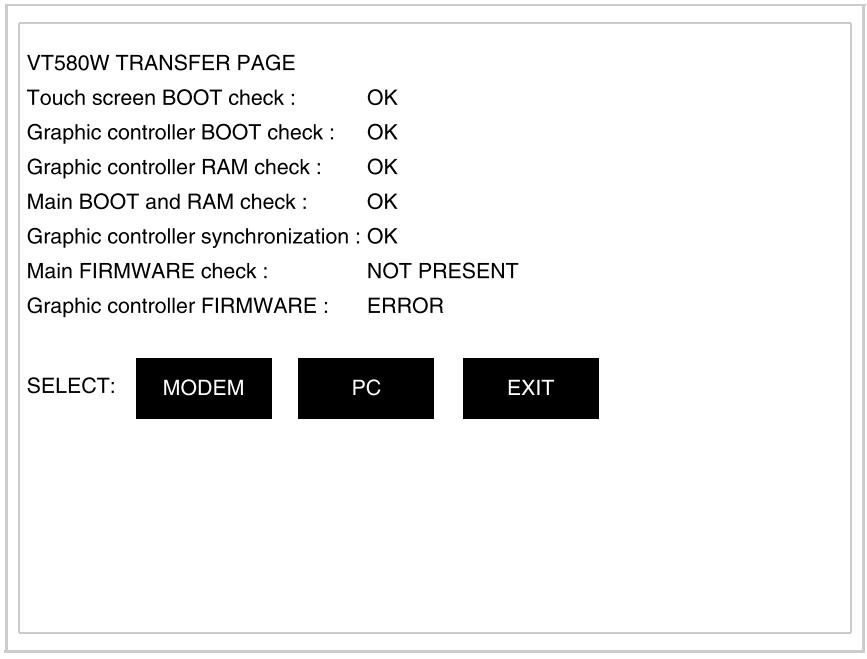
This means carrying out the following steps:

- 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 two diagonally opposite corners free of settable objects or buttons (at least one corner needs to be free)

and wait a few moments, alternatively use the button provided (see Page 24-21), until the VT displays the following mask

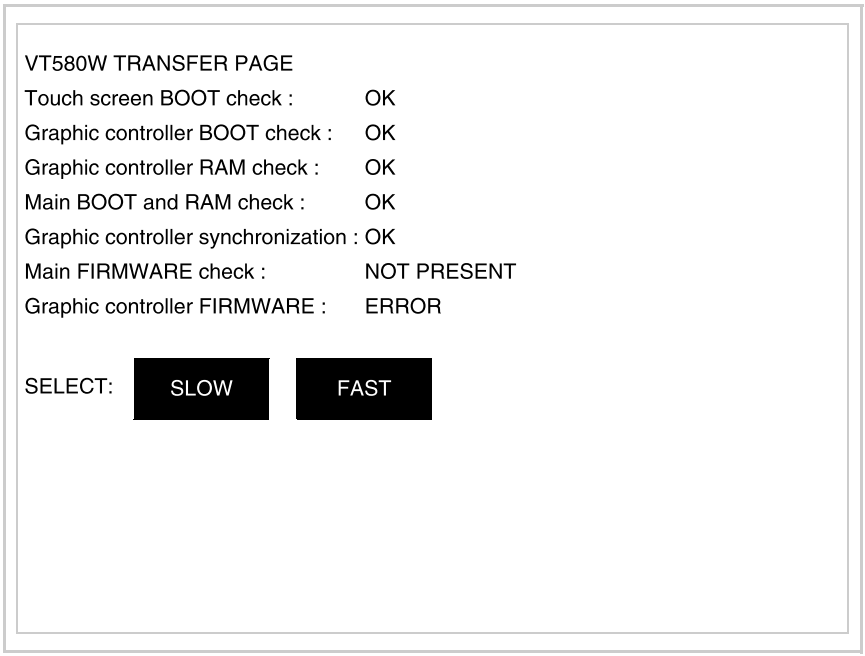


- Choose the port you intend to use for the transfer (MSP or ASP); touch the relevant ⧈ on the display. The VT is now ready to receive (refer to Software Manual for transfer procedure). The ⧈ MemoCARD appears if the Memory Card has been inserted in the VT (see Page 24-27)



• 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

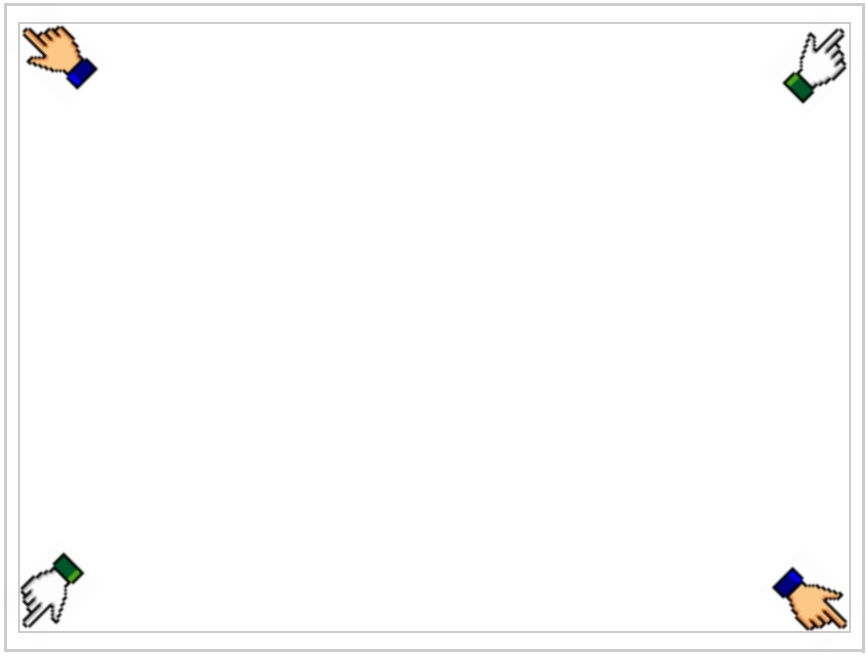
After the project has been transferred, the VT can make available information relating to what has been loaded. The information regards:

• 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

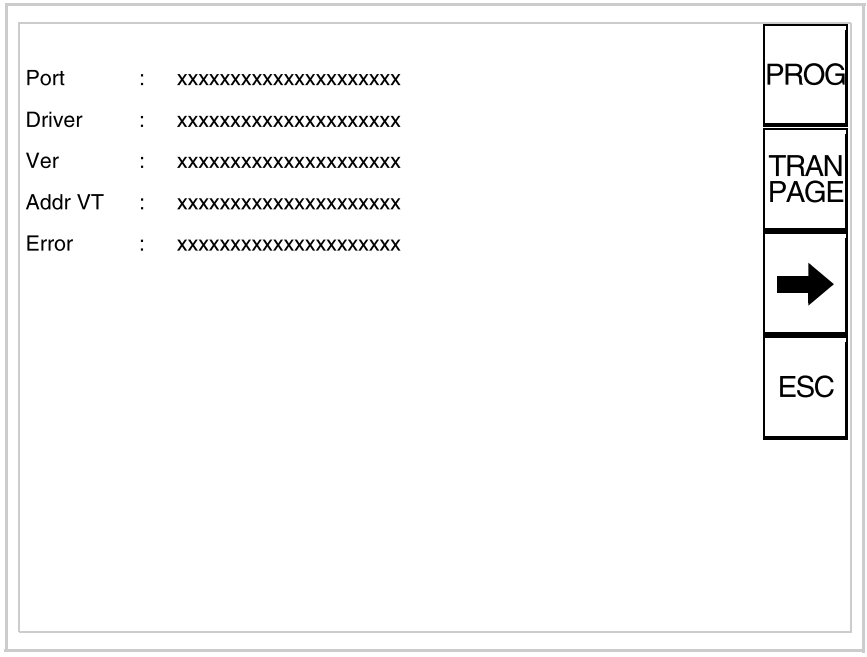
To acquire this information carry out the following operations:

• 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



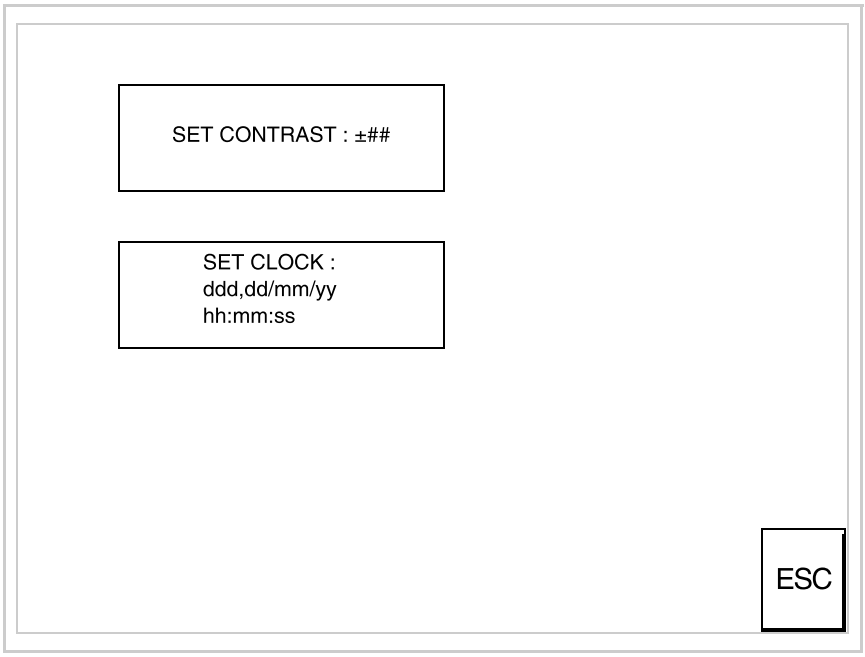
There is one of these pages for each communication port; movement between the various pages is effected by pressing [→].

From this page you can:

- Set the clock and the contrast
- Prepare the VT to receive the program
- Use the Memory Card

Setting the clock and the contrast:

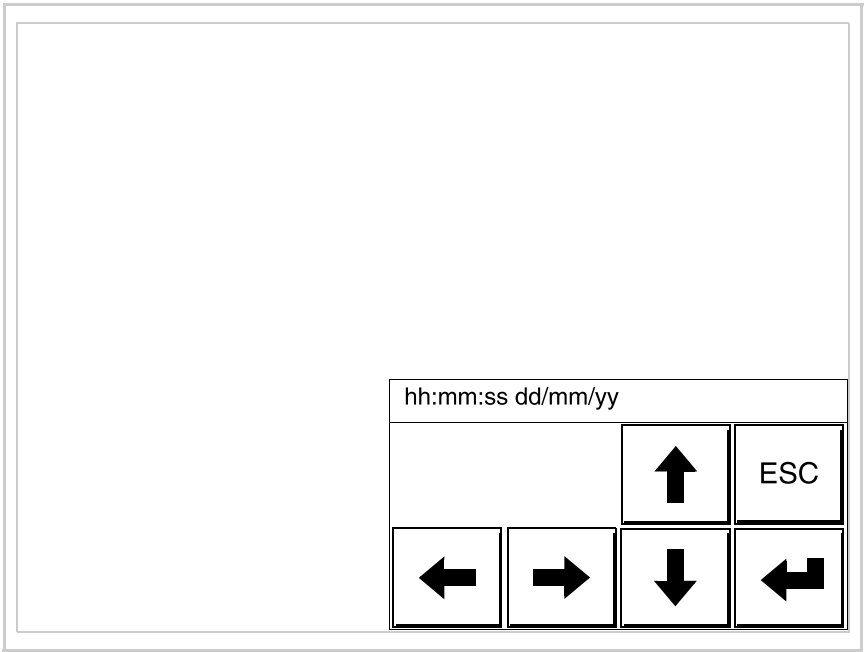
To set the clock and the contrast, while displaying the above illustrated page, press PROG; the following mask appears



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“).

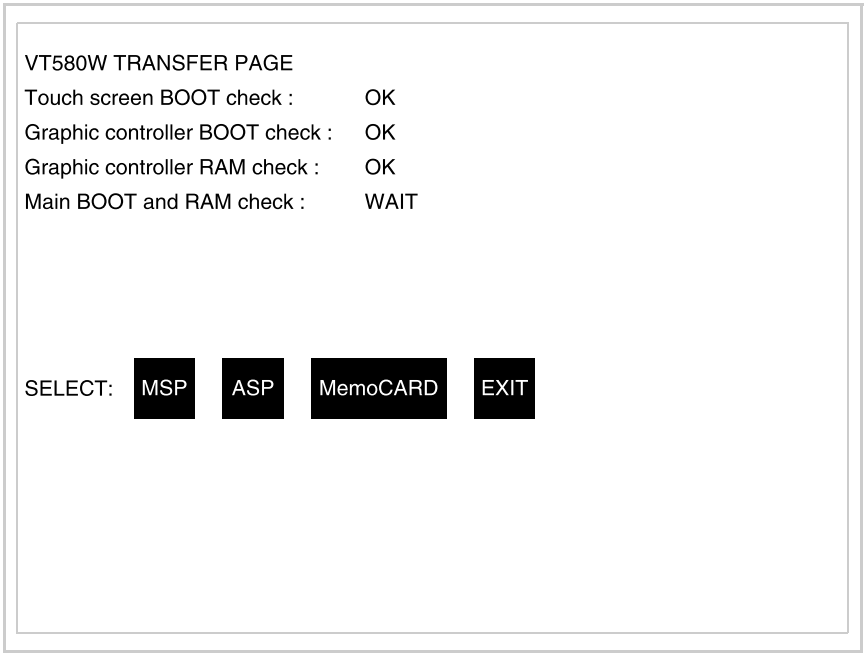
To set the clock touch the words SET CLOCK on the display; the following mask appears



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

Prepare the VT to receive the program:

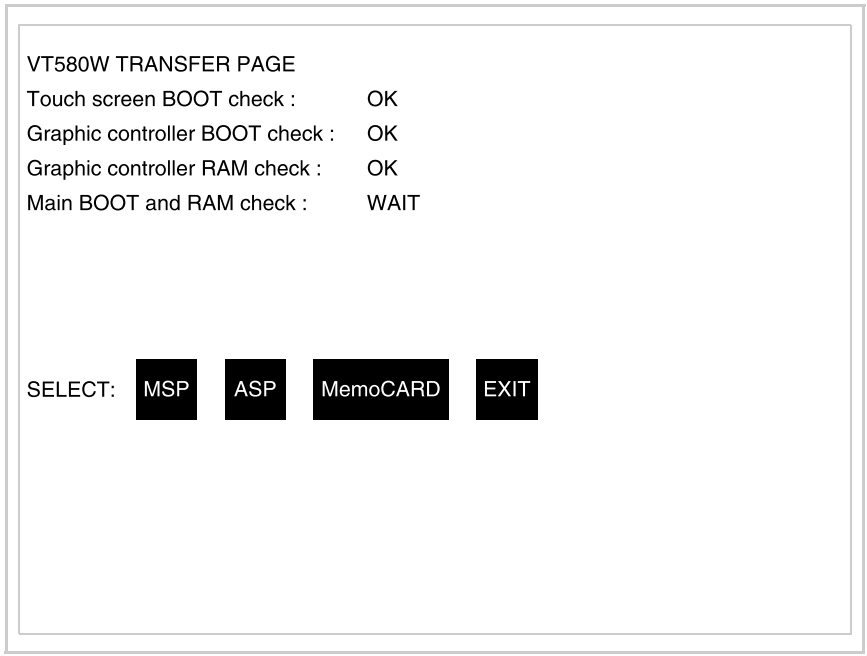
To prepare the VT to receive the program, while displaying the driver information page (see Page 24-23), press TRAN PAGE, and you will see the following mask



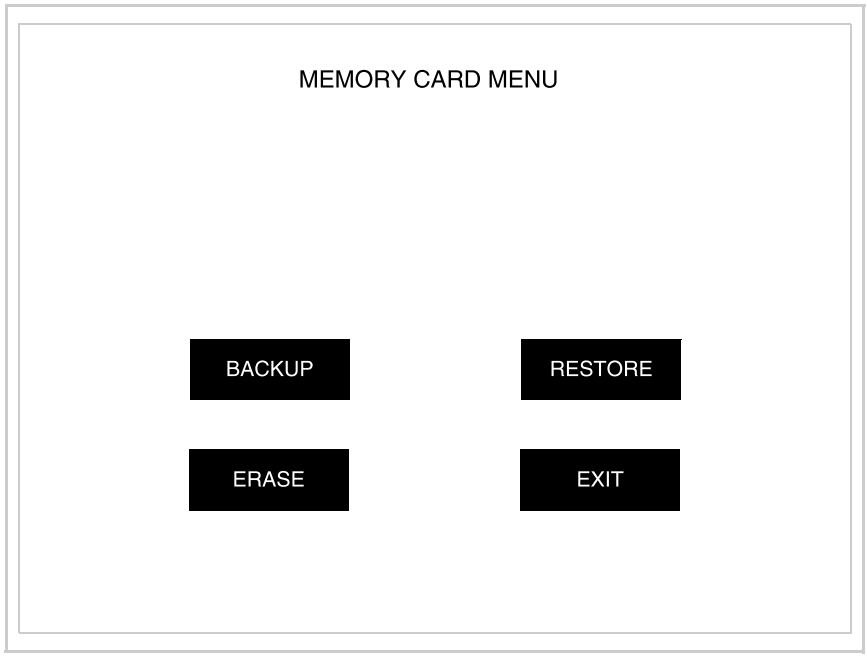
The on-screen ▢ to press depends on the port you intend to use (MSP or ASP). The VT terminal is now ready to receive (consult Software Manual for information on the transmission procedure).

Using the Memory Card:

While displaying the driver information page, press TRAN PAGE and the following mask will appear:



Touch the ▣ MemoCARD on the screen (if the key is not on screen, see Page 24-21) and the following mask will appear:



For the meaning and the functions of the keys see “Chapter 33 -> Memory card“.

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

Improving display color quality

To improve the color quality, adjust the contrast of the display: if the colors are too dark increase the contrast; if, on the other hand, the colors are too light, decrease the contrast.

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 24-25) and changing the value (from +63 to -64) 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 and with the screen saver disabled - see Software Manual).

This parameter has no effect when a TFT display is used. This kind of technology does not need adjustment.