Chapter 19 Video terminal VT525H

This chapter consists of 24 pages.

Technical characteristics

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

Code of terminal	Characteristics of the terminal		
VT525H 00000			
VT525H 000CN			
Display		▼	▼
Type	LCD 4 tones of blue STN		
	LCD 16 Colors STN	●	●
	LCD 16 Colors TFT		
Touch screen	Matrix 20 x 16 (Cell:16x15 pixels)	●	●
Representational format	Graphic	●	●
Resolution [pixels]	320 x 240 (5,7")	●	●
Rows x characters	16 x 40 / 8 x 20 / 4 x 10	●	●
Display area size [mm]	115,2 x 86,4	●	●
Character matrix in text mode [pixels]	8 x15 / 16 x 30 / 32 x 60	●	●
Character size [mm] x 1 / x 2 / x 4	2,9 x 5,4 / 5,8 x 10,8 / 11,6 x 21,6	●	●
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]	15000	●	●

1 – Using the VTHCB card (see "Chapter 34 -> Page 9")
2 - RS232 only

Code of terminal	Characteristics of the terminal		
VT525H 00000			
VT525H 000CN			
Keyboard		▼	▼
Non-customizable function keys	10	●	●
User memory			
Project [Bytes]	960K	●	●
Data memory [Bytes]	32K (Flash EPROM)	●	●
Memory for Windows ® -based fonts [Byte]	256K	●	●
Memory Card for backup	--		
Memory Card for expansion	--		
Interfaces			
MSP (Multi-serial port)	RS232/RS422/RS485/TTY-20mA	●[2]	●[1]
ASP (Auxiliary serial port)	RS232/RS485		
ASP-15L (Auxiliary serial port)	RS232/RS485		●[1-2]
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 34”	●	●
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 34”	●	●
Proprietary networks			
ESA-Net	Network server		
	Network client		●

1 – Using the VTHCB card (see “Chapter 34 -> Page 9“)
2 - RS232 only

Wrapping	
Type	Antiflame PC/ABS halogen-free (UL94 5VA at 2.5mm)
Drop test	1 m.
Connection cable	
Type	Antiflame shielded cable halogen and silicone-free
Radius of curve (moving/fixed)	120mm/60mm
Conductors (number/section)	25x0,25mmq (AWG24)
System shut-down button	
Positions	2 (Normal - Pushed)
Contacts	1 NC + 1 NC (NC1/NC2 + NC3/NC4)
Maximum tension	30Vdc
Maximum/minimum current	500mA/5mA
Conforms to the following standard(s)	EN 60947-5-1, UL-508, CSA 22.2. No. 14)
Enabling button	
Positions	3 (Normal - Pushed - Panic)
Contacts	1 NC/NO + 1 NC/NO (NC1/NO1/C1 + NC2/NO2/C2)

Maximum tension	30Vdc
Maximum/minimum current	500mA/5mA
Conforms to the following standard(s)	IEC 60947-5-1, EN 60947-5-1, JIS C8201-5-1, UL-508, CSA 22.2. No. 14
Approval(s)	ISO12100/EN292, IEC60204-1/EN60204-1, ISO11161/prEN11161, ISO10218/EN775, ANSI/RIA R15.06
Technical data	
Power supply	24Vdc (18..32Vdc)
Power absorbed at 24Vdc	10W
Protection fuse	Self-resetting
Protection level (Certificated)	IP65
Operating temperature	0..50°C
Storage and transportation temperature	-20..+60°C
Humidity (non-condensing)	<85%
Weight (with cable length 10m)	3000gr
Dimensions	
External W x H x D [mm]	See on Page 34-8
Cut-out W x H [mm]	--
Certification	
Certifications and approvals	CE

Functions

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

Table 19.1: Functions and objects realizable with this VT (Part 1 of 4)

Code of terminal		
VT525H *****		
Objects/Functions	**Quantity**	▼
Alarm field		●
Alarm help	256	●
Alarm history buffer	256	●
Alarm statistics		
Alarms (Total/active simultaneously)	256/256	●
Arc		●
Automatic operations	32	●
Backup/Restore		●
Bar data		●
Bit-wise password	8bits	●
Buttons	320 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 19.1: Functions and objects realizable with this VT (Part 2 of 4)

Code of terminal		
VT525H *****		
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)	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 19.1: Functions and objects realizable with this VT (Part 3 of 4)

Code of terminal		
VT525H *****		
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	6 Langs.	●
Object - Indicator		
Object - Potentiometer knob		
Object - Selector knob		
Object - Sliding potentiometer		
Object - Sliding selector		
Page	150	●
Page help	150	●
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		●

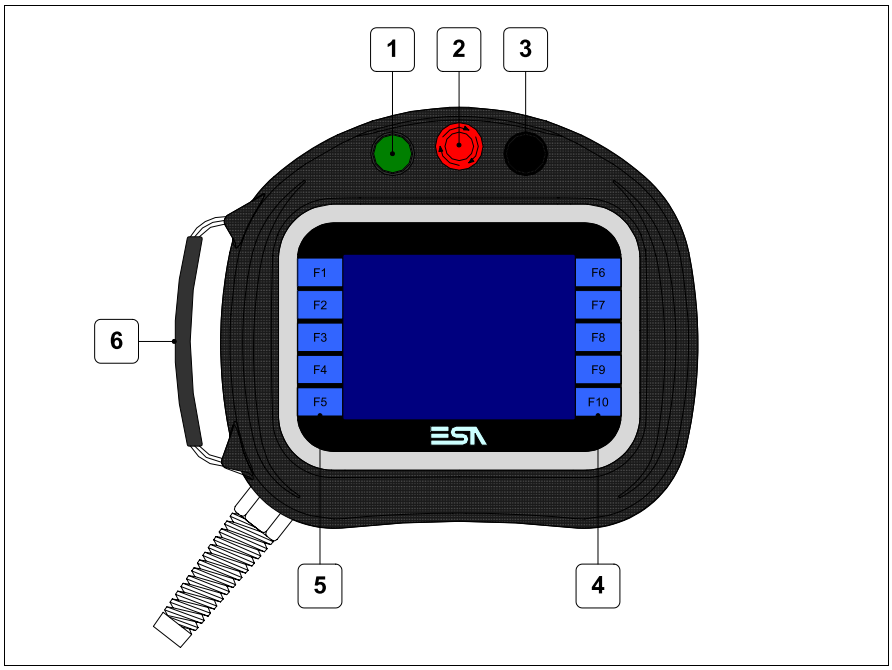
Unless otherwise stated, there is no limit to the number of includable elements, only the size of project memory sets a limit.
*) indicative value determined by the dimensions of the project, **) depends on memory available

Table 19.1: Functions and objects realizable with this VT (Part 4 of 4)

Code of terminal		
VT525H ✳✳✳✳✳		
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	48 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

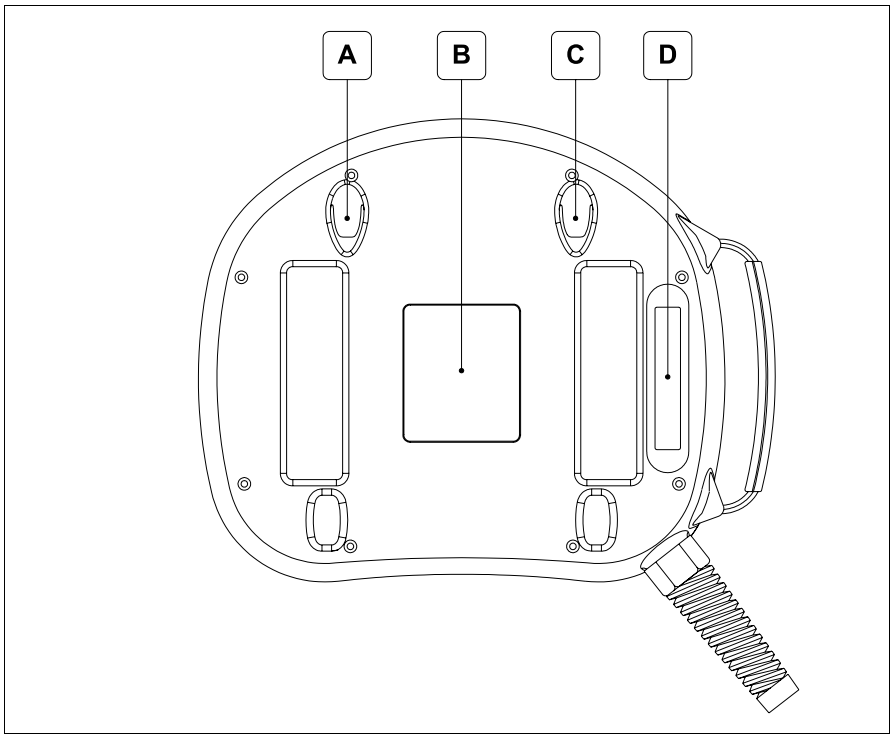


Key	Function
1	Command and/or signal unit
2	System shut-down button (Conforms to the following standard(s): EN 60947-5-1, UL-508, CSA 22.2. No. 14)
3	Command and/or signal unit
4	F-keys
5	F-keys
6	Adjustable gripper belt

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

The system shut-down button and the enabling button do NOT guarantee the operatr's complete personal safety. Be sure to design your system so that is ensures the operator's complete personal safety.

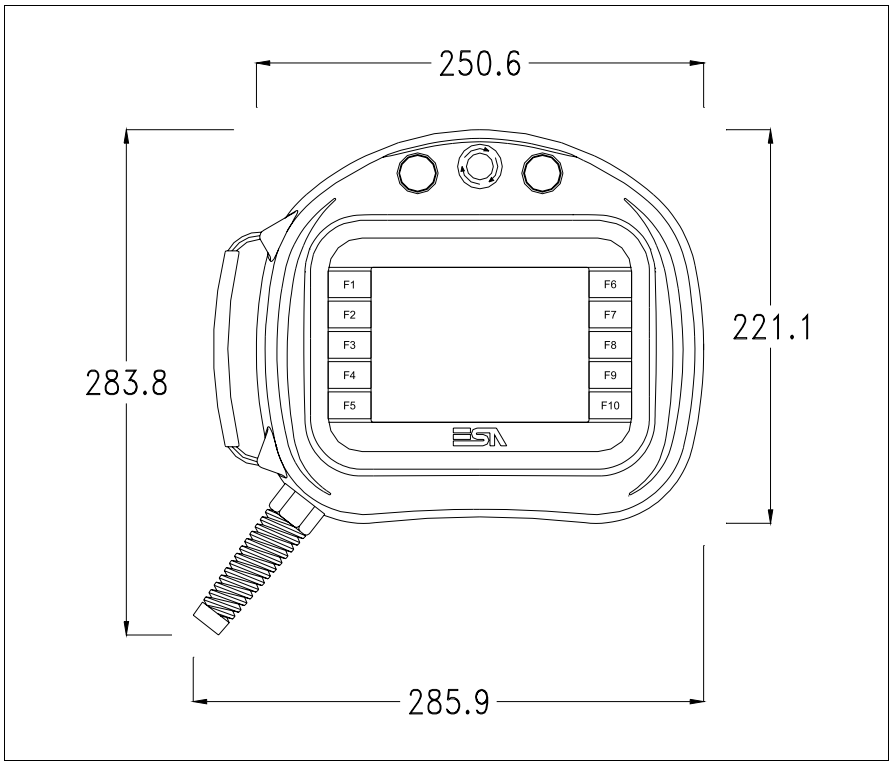
Rear view

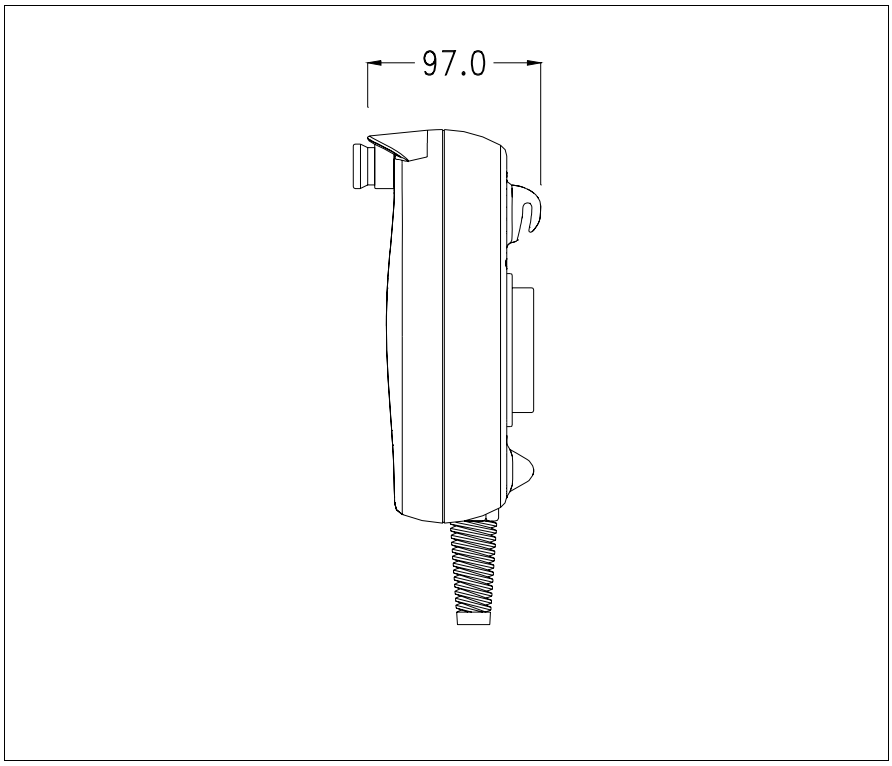


Position	Function
A	Housing for wall-fixing hook
B	Identification label
C	Housing for wall-fixing hook
D	Enabling button (Conforms to the following standard(s): IEC 60947-5-1, EN 60947-5-1, JIS C8201-5-1, UL-508, CSA 22.2. No. 14) (Approval(s): ISO12100/EN292, IEC60204-1/EN60204-1, ISO11161/prEN11161, ISO10218/EN775, ANSI/RIA R15.06)

The system shut-down button and the enabling button do NOT guarantee the operatr's complete personal safety. Be sure to design your system so that is ensures the operator's complete personal safety.

Dimensions and Cut-out





For VT mounting instructions see “Chapter 30 -> 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 34 -> Video terminal accessories“).

Connection cable

The terminal is provided with a 10m long (AWG24) 25x0.25mmq shielded cable already attached (see “Chapter 33 -> Connection cable for H Series terminals“).

Adjusting holding strap for grip

The strap can be altered to adjust the grip for different hand sizes. To alter strap:

- Open the leather cover
- Detach the strap ends
- Adjust the holding strap length
- Secure strap ends again
- Close leather cover

Calibration of Touch Screen

The screen of VT525H 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.

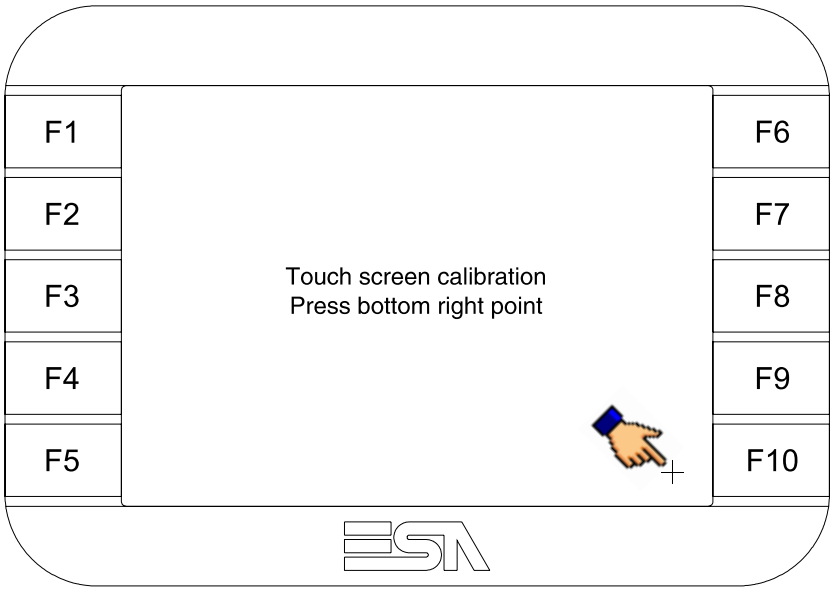
How to perform the calibration procedure:

- Switch on the terminal; the following mask appears

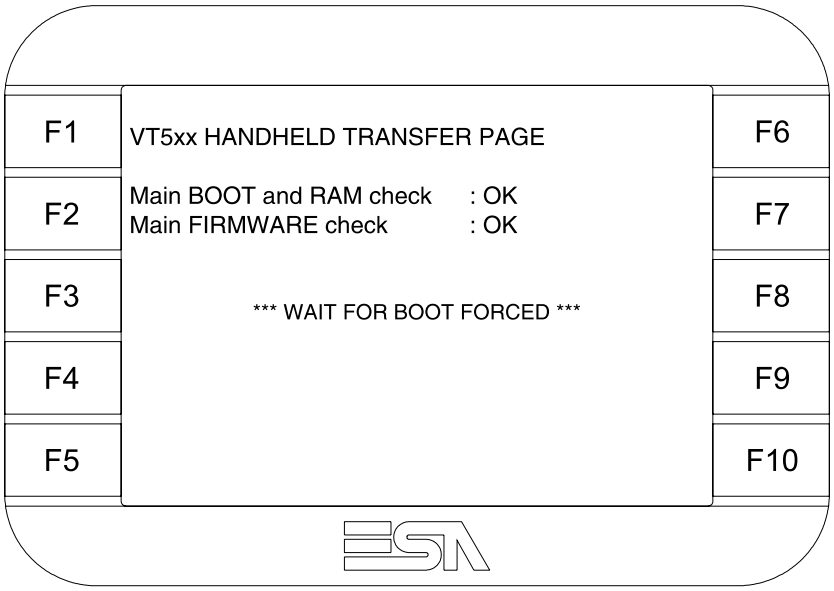
- To access the calibration page, touch the message ***WAITING FOR BOOT FORCED*** three to six times in quick succession

• 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)



- Wait for the start-up of the VT to be completed

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

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

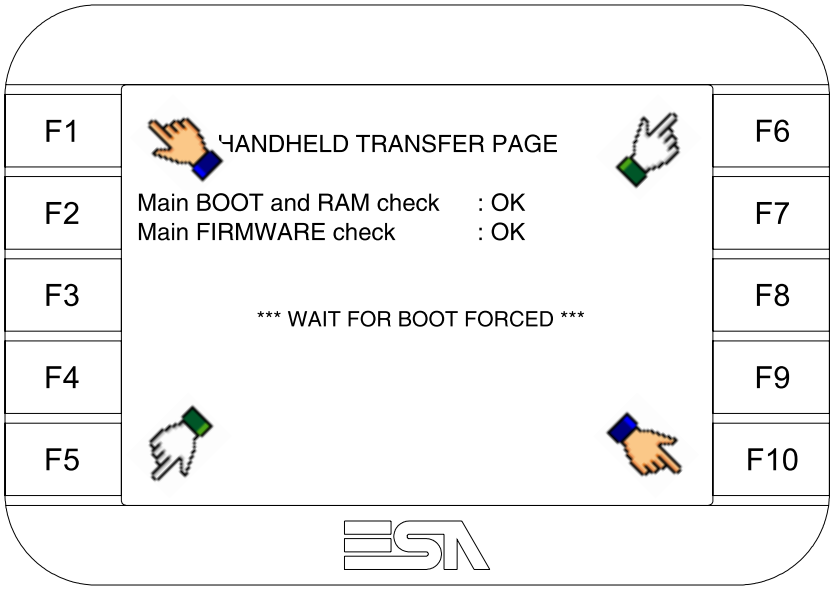
(Given that the transfer of the three files in practice occurs with a single operation, it will be defined as “Project transfer” for the sake of simplicity.)

For this it is essential that the VT be prepared to receive the transfer. (See also “Chapter 38 -> Command area“).

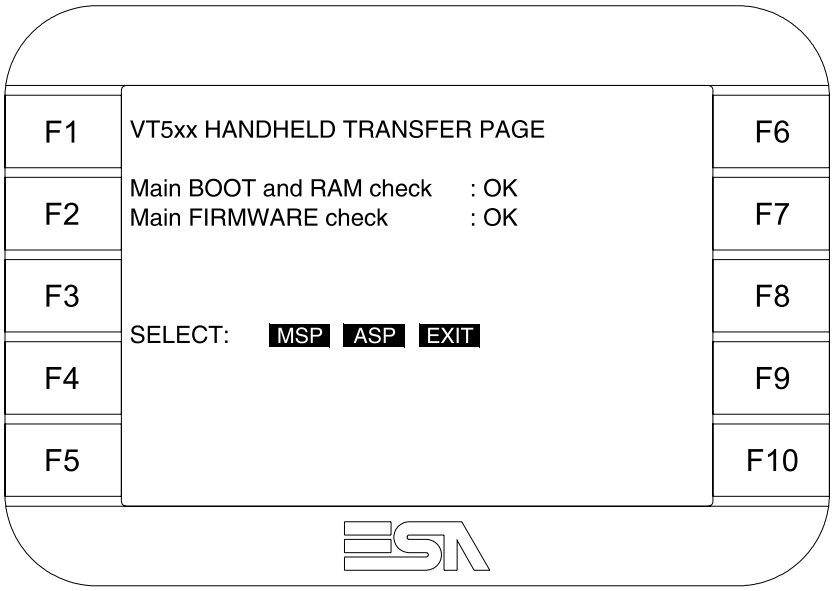
Preparation for reception

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:

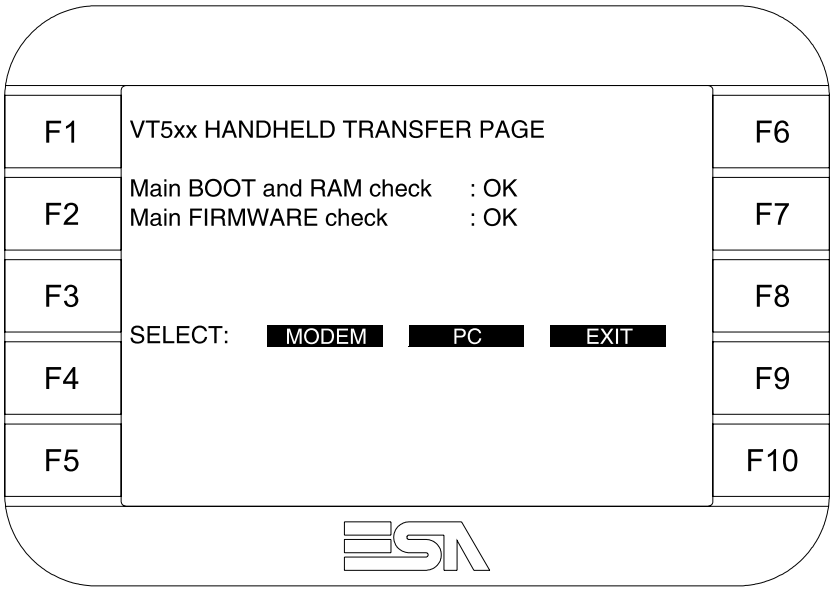
- Check that the VT is off
- Check that there is a serial connection between the PC and the VT
- Switch on the VT and wait for the following mask to appear
- Press one after the other the diagonally opposite corners free of settable objects or buttons (at least one corner needs to be free)



and wait a moment, or, using the appropriate button (see Page 19-21), till the VT displays the following mask

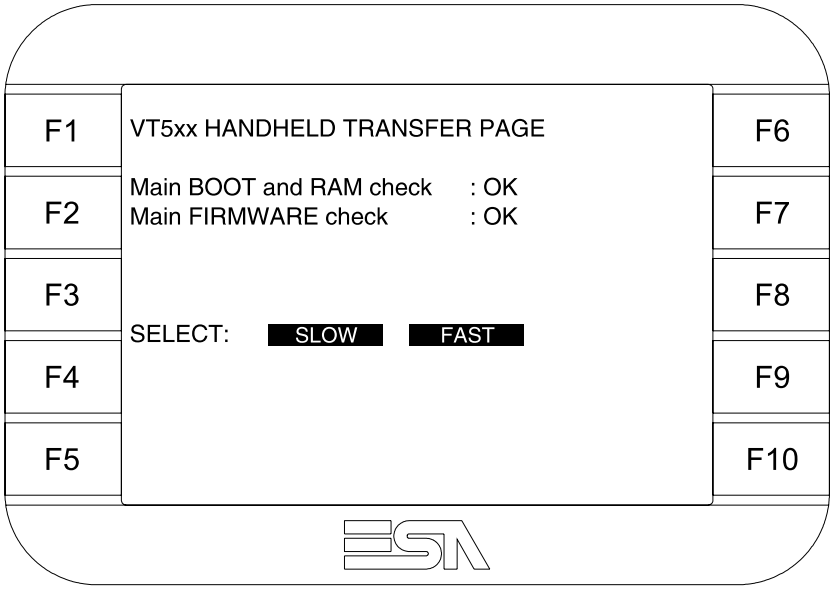


• Choose the port you intend to use for the transfer (MSP or ASP); touch the relevant ▣ on the display. The VT is now ready to receive (refer to Software Manual for transfer procedure).



• 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).

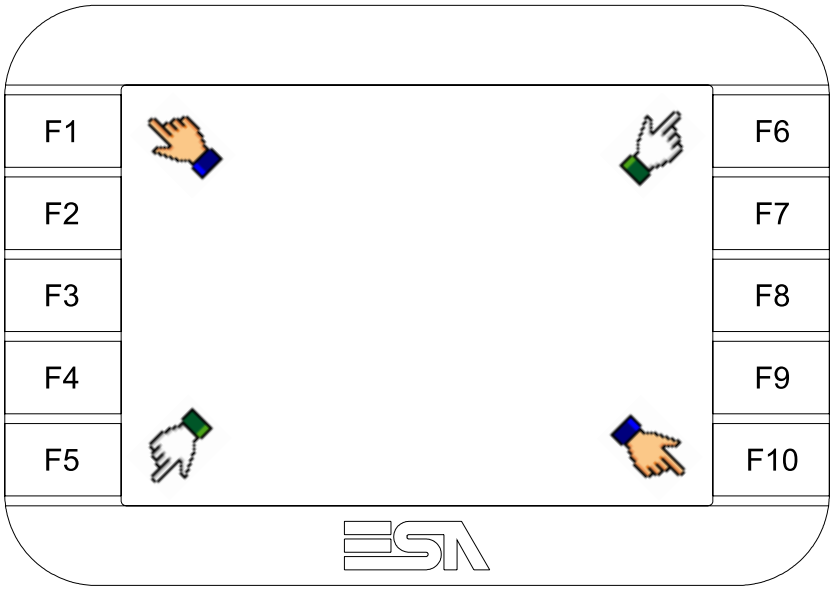
Information relating to driver

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

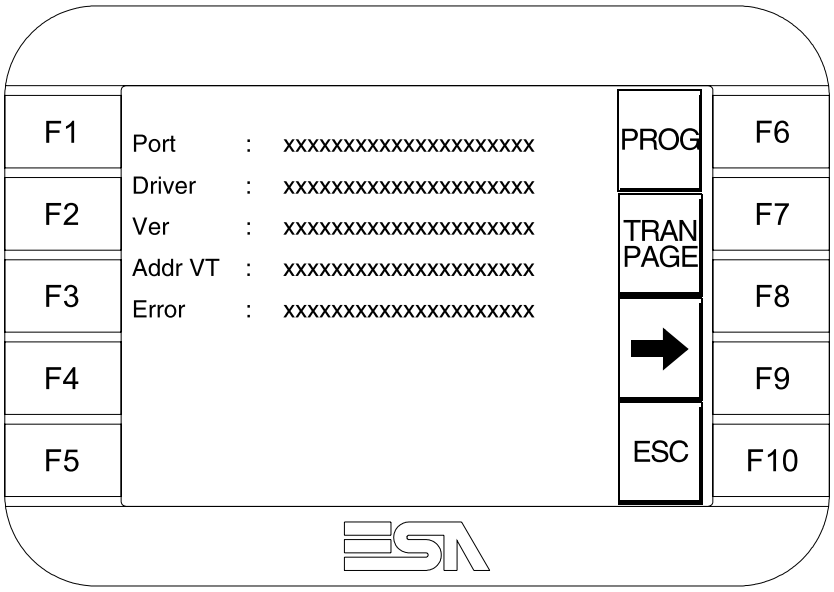
- Serial ports present
- The name of the driver loaded
- The version of the driver loaded
- Network address of the VT
- Last error to have occurred

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



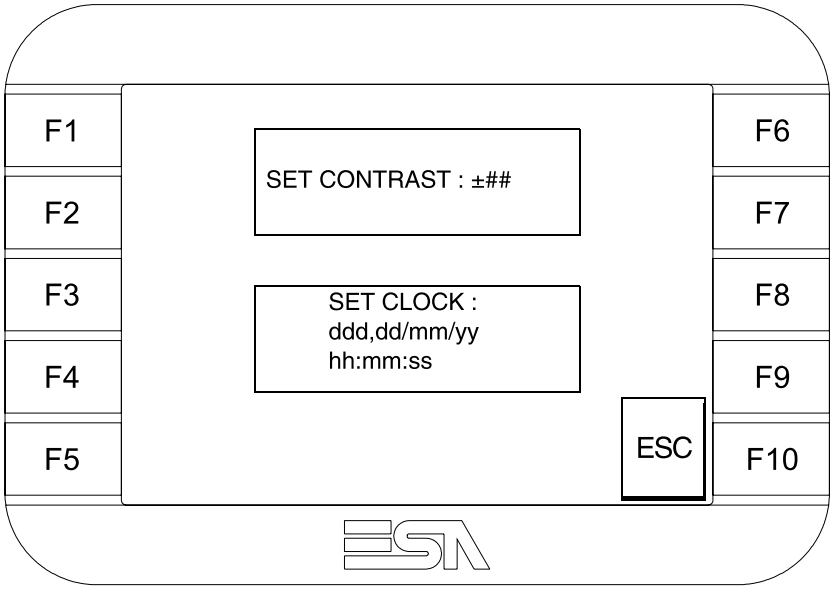
There is one of these pages for each communication port; movement between the various pages is effected by pressing [→].

From this page you can:

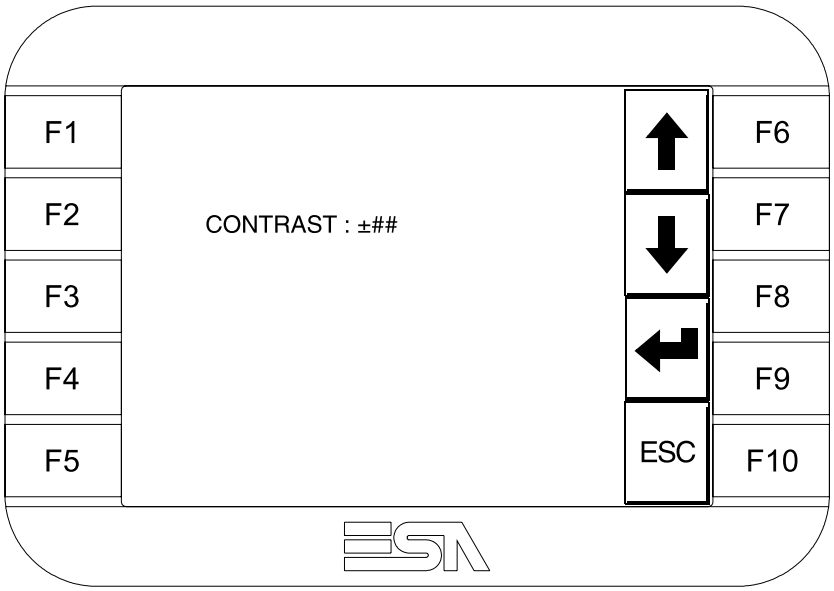
- Set the clock and the contrast
- Prepare the VT to receive the program

Setting the clock and the contrast:

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



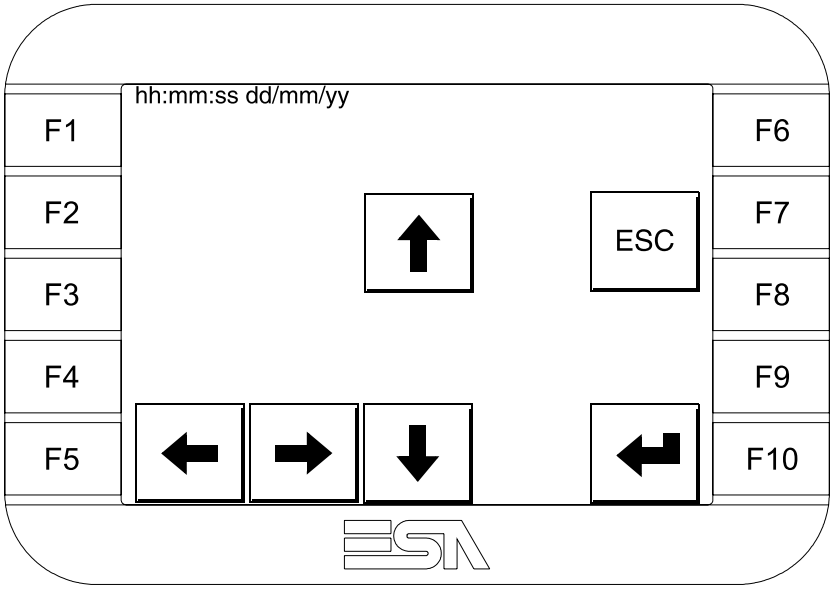
To set the contrast touch the words SET CONTRAST on the display; you will see the following mask



Use the arrow ⇦⇨ for any variation (see “Chapter 37 -> Operation of

terminal with touch screen“).

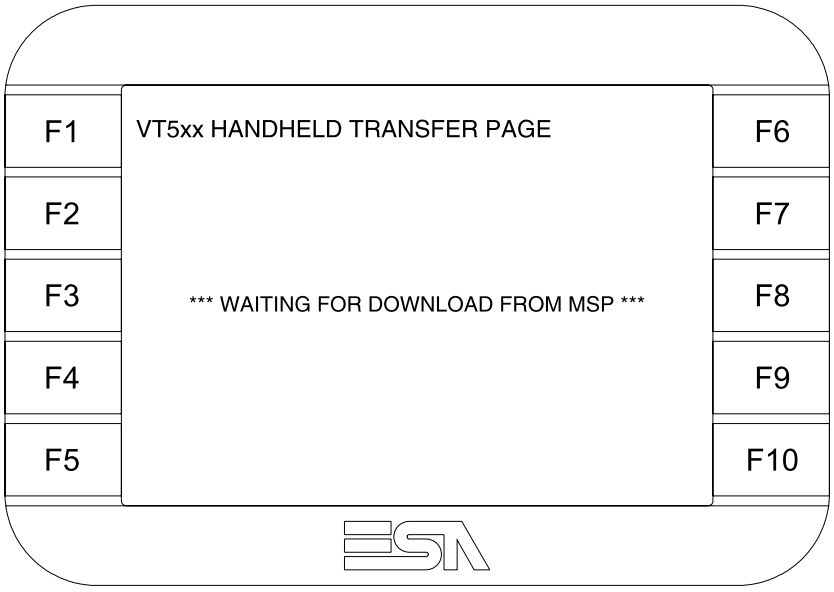
To set the clock touch the words SET CLOCK on the display; the following mask appears



Use the arrow ⧉⧉ for any variation (see “Chapter 37 -> 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 19-18), 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).

The VT terminal is now ready to receive (consult Software Manual for information on the transmission procedure).

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 19-20) 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 and with the screen saver disabled - see Software Manual).