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Recommendations for usage

Do not connect or disconnect the pointing device when the terminal is powered-up

Recommendations for connection

- Power cables
Check that the FTX 507 terminal and all its peripherals (printer, screen, etc.) are connected via their respective power cables to the same protective ground. Use the standard cables supplied with the products (2 poles + ground).
- Connection cables
Good quality cables must be used between the FTX 507 terminal and its peripherals (screened cables, metalized connectors) to ensure continuity of ground between the various devices.
- Interconnections between the FTX 507 terminal and its peripherals must be made with the power switched off.



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This manual is intended for users of FTX 507 6B/8C/9T terminals based on 80486 microprocessors with black and white or colour monitor.

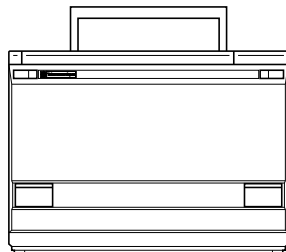


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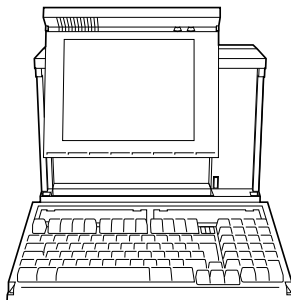
1.1 Introduction

1.1-1 Introduction to the FTX 507

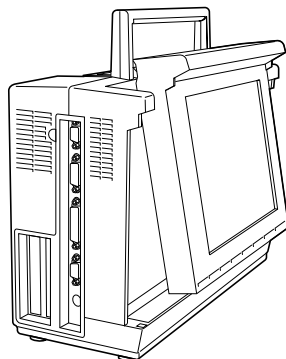
The **FTX 507** is a portable, industrial, personal computer, based on the 486 microprocessor.



The **FTX 507** family of rugged, portable PCs provides professionals working in industrial environments such as a manufacturing workshop with all the capacity of the best PCs currently available, as well as exclusive features for ease of installation of Telemecanique components.



Aesthetically, the FTX 507 is particularly well designed and may also be used in an office environment. It represents a perfect solution for all who wish to use their workshop equipment in the office or vice versa.



Proficient users may wish to refer directly to the Characteristics table in Section 1.5

1.1-2 Basic elements

Microprocessor	The 80486 (32-bit) microprocessor is easily powerful enough for all Telemecanique group software.
Dynamic RAM memory	A minimum of 8 Mb RAM memory is incorporated into the basic unit.
CMOS user-memory	A 128 Kb CMOS battery-backed RAM memory (long-life : 3 to 5 years) is used for storing small files using utility software supplied with the FTX 507.
Hard disk	A fixed hard disk unit stores data. Available in different sizes (depending on configuration).
Disk drive	A drive unit takes 3"1/2 IBM format (1.44 Mb and 720 Kb) and Telemecanique format (TSX T607) diskettes.
9"1/2 monochrome or colour LCD screen (depending on the version)	High-resolution, back-lit LCD screen (640x480 pixels), 64 shades of grey or high-resolution colour (640 x 480 pixels). These screens are compatible with VGA, EGA, and CGA modes and protected against mechanical shocks. The screen can be tilted through more than 120° and the brightness and contrast are especially well adapted to lighting conditions in industrial locations.
Keyboard	A detachable 101 or 102-key keyboard, compatible and interchangeable with standard IBM PS/2 keyboards. There are 6 basic versions which correspond to user standards in many countries.
Time/date clock	A battery-backed clock, provides the current date and time.
RS 232 C port (COM1)	A 9-pin male connector for an RS 232C serial link (IBM PS/2 standard).
Parallel connection port (LPT 1)	A 25-pin female connector for a bi-directional parallel link (CENTRONICS/IBM PS/2 standard).
Series 7 port (COM2)	A 26-pin female connector for a dual standard serial link RS 485 /20mA current loop. Allows direct connection to TSX 7 PLCs, to the UNI-TELWAY bus, or to any other device with an RS 485 or 20 mA current loop standard interface.

Basic elements (cont.)

Mouse port	A DIN micro connector for connecting a mouse, (IBM PS/2 standard).
Remote video port	A 15-pin female connector for connecting a standard monochrome or multisync color monitor. This monitor may be operated either at the same time as the LCD screen or on its own (see section 6.2-5).
AC supply	Power via an industrial 110/127 VAC or 220/240 VAC (-15%,+10%)- 50/60 Hz AC outlet (see 1.1-3 for supply using 24 VDC).
Software key slots	The FTX 507 has two slots for 2 software protection keys allowing access to Telemecanique software.
Extension slots	Two standard IBM PC-AT slots (ISA bus) for extension cards : <ul style="list-style-type: none">• one for a short-format card• one for a long-format card which can also take the TSX MAP PC7 42M module for connecting directly to the MAPWAY network.

1.1-3 Extension elements

Dynamic RAM memory

Depending on the model, a memory extension card enables the RAM memory to be increased (see characteristics, section 1.5). It is installed directly on the mother board.

Rechargeable batteries

Batteries which ensure autonomous operation during a power break (up to 30 min depending on the configuration for 6B models and up to 20 min depending on the configuration for models 8C and 9T models).

24 VDC adapter

An adapter for supplying the FTX 507 from an industrial 24 VDC supply (19.2 to 30 V).

Optional cards

Two slots (1 long and 1 short) for optional IBM PC-AT compatible cards (ISA bus).

**Discrete outputs
(ALF 0 and ALF 1)**

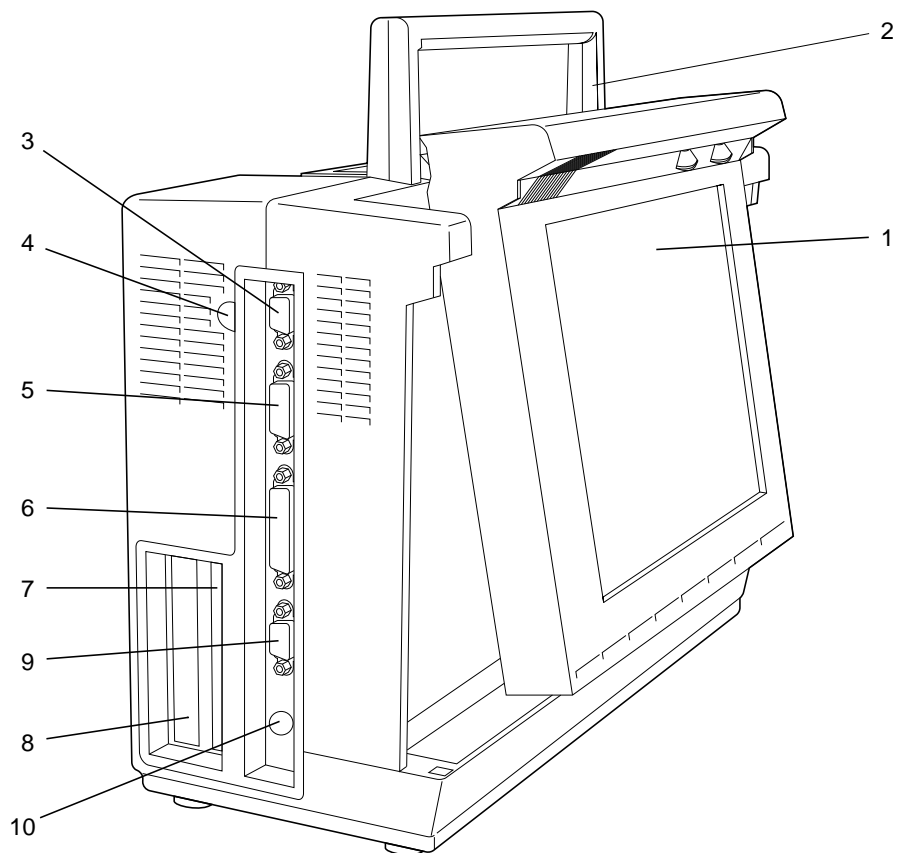
Two discrete transistor outputs are available (with extension for battery/24 VDC supply).

These outputs may be :

- used for indicating states or alarms (watchdog, temperature, programmable alarm, etc.)
- or controlled by the application program.

1.2 Physical appearance

1.2-1 Viewed from the left-hand side



View from the left-hand side (cont.)

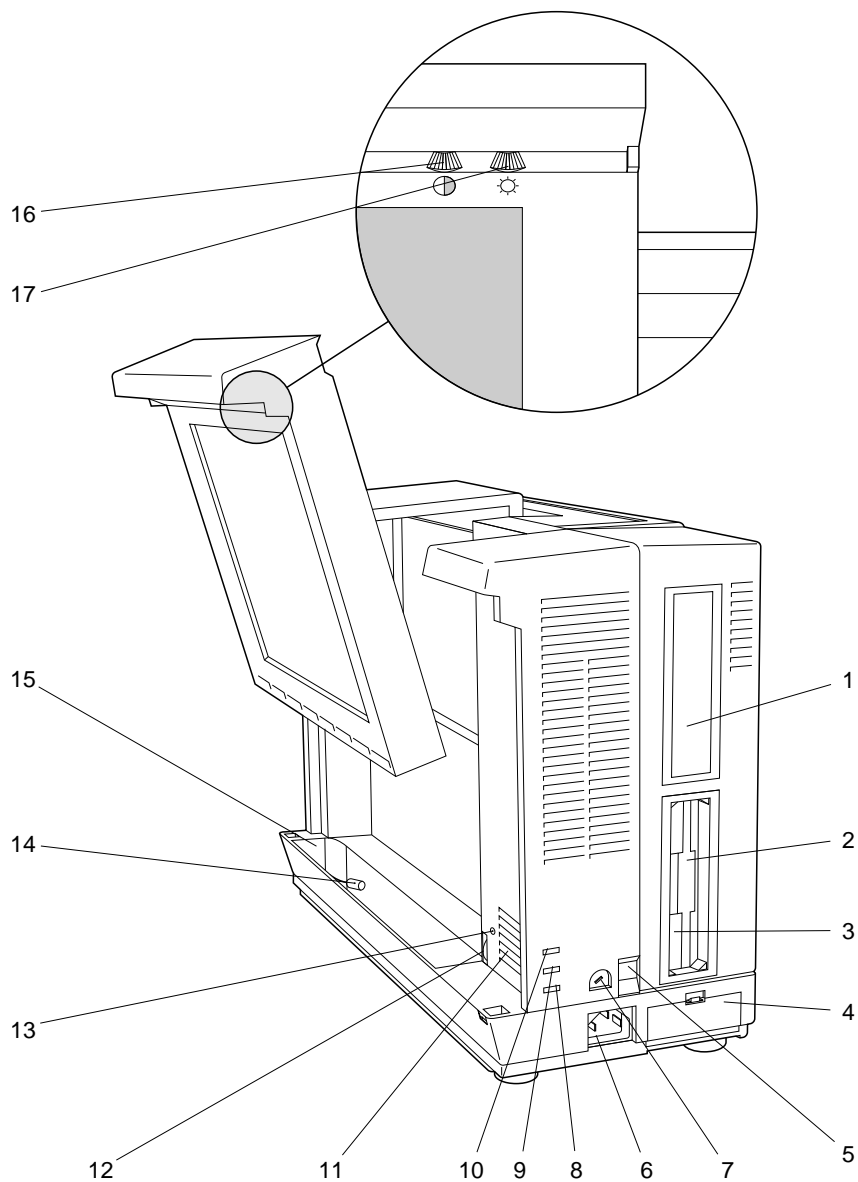
1. 9"1/2 back-lit, monochrome LCD screen which can be tilted by more than 120°.
2. Fold-away carrying handle.
3. 15-pin female connector for connecting a monochrome or mutisync colour monitor.
4. Cut-out for :
 - power cable when using the optional 24 VDC supply.
 - wires for carrying power and data to the discrete outputs.

Note

In order to create this access, cut away the protective cover and fit the grommet supplied with the accessories.

5. 26-pin female connector for direct connection to :
 - TSX 17 PLCs (isolated RS 485 port),
 - TSX 27 and TSX/PMX 47/67/87/107 PLCs (isolated 20 mA current loop port),
6. 25-pin female connector for CENTRONICS bi-directional parallel link.
7. IBM PC-AT standard slot for short-format extension card. When the card is not inserted, this slot is protected by a cover.
8. IBM PC-AT standard slot for long-format extension card. This slot can also take the MAPWAY network module. When the card is not inserted, this slot is protected by a cover.
9. 9-pin male connector for RS 232C serial link (IBM PS/2 standard).
10. DIN micro-connector for mouse link (IBM PS/2 standard).

1.2-2 Viewed from the right-hand side



Viewed from the right-hand side (cont.)

1. Hard disk
2. Disk drive for 3" 1/2 format IBM (1.44 Mb or 720 Kb) or Telemecanique (TSX T607) standard diskettes.
3. Pushbutton to eject diskette.
4. Slots for 2 software protection keys which give access rights to Telemecanique software (TE90 standard).
5. ON/OFF switch.
6. Socket for connecting the power cable (AC).
7. Selector switch for choosing AC supply voltage, 110/127 or 220/240 VAC.
8. PWR indicator lamp (green), lit when the terminal is powered-up. This lamp is also visible on the front panel.
9. Indicator lamp 1 (red), lit when the disk drive is in use. This lamp is also visible on the front panel.
10. Indicator lamp 2 (red), lit when the hard disk is in use. This lamp is also visible on the front panel.
11. Audible alarm.
12. Volume control for the audible alarm.
13. Pushbutton, for use with a pencil point, to reinitialize the FTX 507 terminal.
14. Socket for connecting the extendable keyboard cable.
15. Space for storing the keyboard cable.

Elements accessed on the movable screen

16. Contrast control for the screen.
17. Brightness control for the screen.

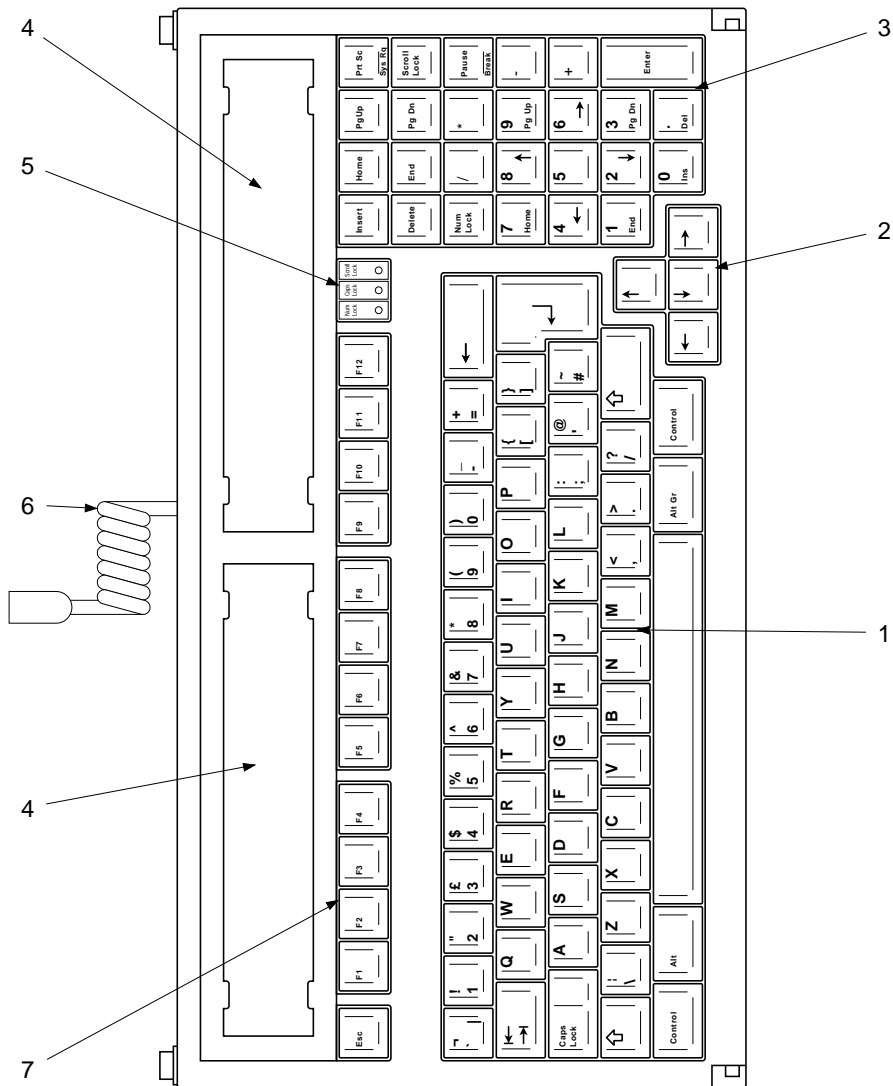
Elements accessed from the underneath the terminal

- Fuse (2A TD - 5x20) to protect the AC power supply.
- Fan filter.
- Two inserts for M5 screws to secure the terminal in a permanent position.

1.2-3 Keyboard

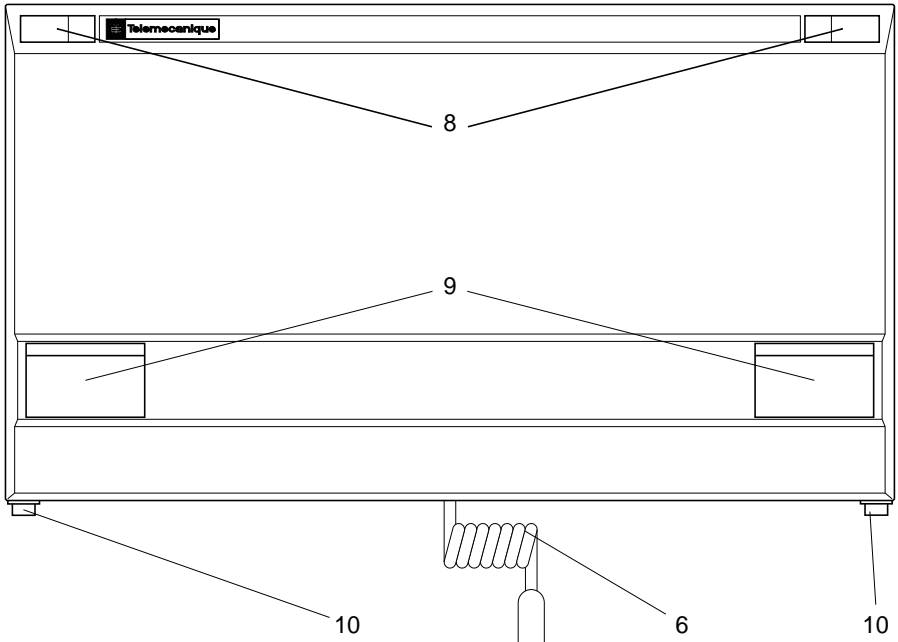
Detachable 102-key (QWERTY) or 101-key (QWERTY USA) keyboard compatible and interchangeable with IBM 101/102-key standard keyboards. There are 7 basic versions (see Appendices section 9).

- View from above (102-key QWERTY)



Keyboard (cont.)

- View from below



1. Alphabetic keys
2. Cursor keys
3. Numeric keypad
4. Two slots for quick reference cards supplied with the Telemecanique software.
5. Operating mode LEDs
6. Extendable cable for connection to the FTX 507 terminal.
7. Function keys
8. Sliding catches for releasing the keyboard when the terminal is in the carrying position.
9. Retractable feet which allow the keyboard to be inclined when working on a table (keyboard detached from the terminal).
10. Retainers, which :
 - lock the keyboard when in the carrying position,
 - or attach the keyboard to the terminal when in the working position (keyboard fixed firmly to the terminal).

1.3 Features specific to the FTX 507

1.3-1 Monitoring the ambient temperature

When the ambient temperature of the FTX 507 terminal exceeds 40°C, the built-in temperature probe triggers an audible and visible alarm (the red light (2) on the front panel of the terminal blinks). This alarm is also available via a discrete transistor output assigned to this task (by configuration) provided that the terminal is fitted with a “battery charger/24 VDC supply” unit. In order to avoid any damage to components, such as the hard disk, etc., the supply is automatically cut off if no action is taken within 2 minutes. Wait 20 seconds before switching on again with the ON/OFF switch (the terminal cannot be switched on while the temperature is too high).

1.3-2 Discrete outputs

If the FTX 507 terminal is fitted with a “battery charger/24 VDC supply” unit, the user has 2 discrete transistor outputs available, which can have various functions depending on the configuration (SETUP software) :

ALF0 output

This may be configured in one of two ways :

- either assigned to the user, in which case it can be controlled by program independently of the state of the machine,
- or assigned to the system, in which case it acts as an internal watchdog which is activated if there is a serious fault (stoppage of the processor or the internal clock).

ALF1 output

This may be configured in one of 3 ways :

- either assigned to the user, in which case it can be controlled by program independently of the state of the machine,
- or assigned to the temperature alarm, in which case the output is activated when an excessive temperature is detected inside the terminal (see section 1.3-1),
- or assigned to the state of the power supply, in which case the output is activated when the terminal is operating with a battery which has fallen to 10% of its capacity.

1.3-3 Operational safety devices

Unbreakable password

Each terminal is fitted with an access control system which limits access to the terminal to authorized persons only, via a password, which is effective even after disconnection of the internal battery.

Individual serial number

An individual serial number appears on every power-up. This serves as a deterrent to theft.

Specific rights of use for Telemecanique software

Each terminal takes 2 TE90 standard Telemecanique software protection keys.

1.3-4 For use as a fixed workstation terminal

The FTX 507 terminal has also been designed for use as a fixed station in an industrial environment, where it can be used for data entry, operator assistance or control functions.

The terminal is fitted with two anchor points to enable it to be fixed to a support (see appendix 10.12). A T FTX KFX 5 kit is required to fix the terminal.

1.3-5 LCD screen adjustment

In addition to the contrast and brightness controls on the screen itself, a combination of keystrokes allows reverse video display (see section 6.2-7).

1.4 Operating systems and utility software

1.4-1 Operating systems

FTX 507 terminals are supplied with DOS and/or OS/2 and/or WINDOWS operating systems already installed. The full range of FTX 507 functions can only be guaranteed with software supplied by Telemecanique.

PC compatibility is not guaranteed in the event of using any other operating system.

The operating systems are supplied on 3"1/2 diskettes with their own documentation.

1.4-2 Telemecanique utility software

Telemecanique utility software is divided into 3 groups :

- The SETUP program, in ROM, displays the configuration parameters of the FTX 507 terminal in English, and allows them to be changed.
- A collection of multilingual utilities for DOS supplied on a 3" 1/2 diskette (T FTX LF TDS 5), including a SETUP program which operates in exactly the same way as the resident SETUP program.
- A collection of utilities for OS/2 supplied on a 3" 1/2 diskette (T FTX LF TS2 52).

The functions and installation of this software are described in section 6.

1.4-3 Items supplied with FTX 507 terminals

The user receives together with the terminal :

- Telemecanique BIOS and SETUP resident in the ROM memory,
- Formatted hard disk with DOS and/or OS/2 operating systems and utilities already installed.

1.5 Characteristics

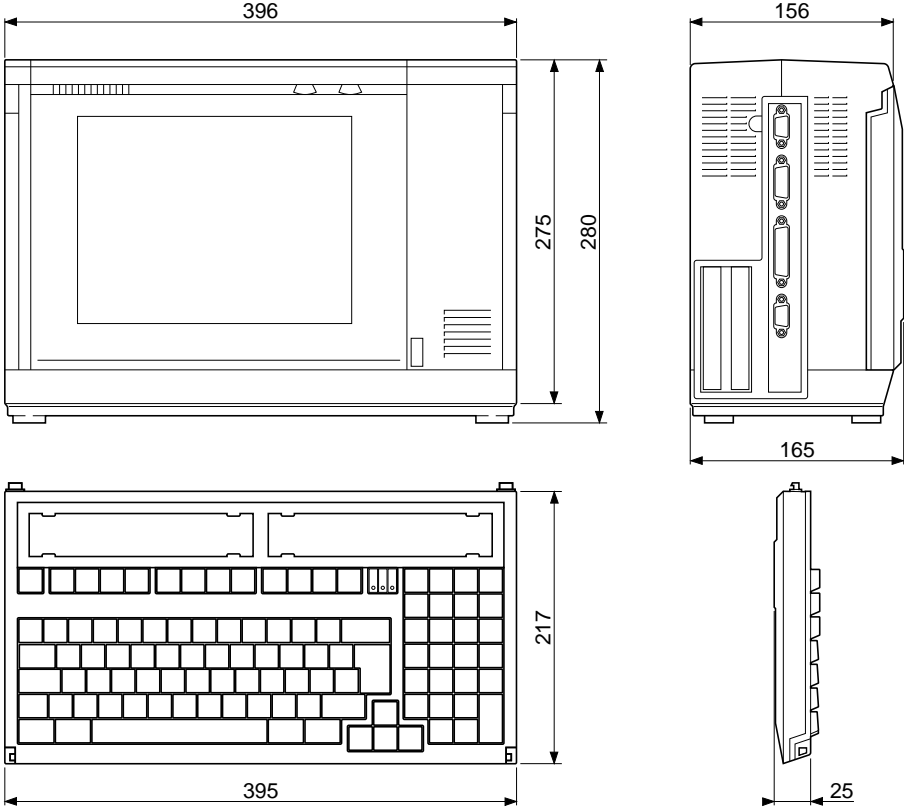
Terminal	FTX 507 6B	FTX 507 8●	FTX 507 9● (*)
Processor	80486 SX 25 MHz	80486 DX2 66 MHz	DX2 100MHz
Math coprocessor	-	integral	integral
Hard disk capacity	depending on configuration		
RAM memory basic	depending on configuration		
expandable to (*)	32Mb	32Mb	32 Mb
Disk drive	1 3"1/2 IBM format (1.44 Mb and 720 Kb) and Telemecanique standard (TSX T607)		
9"1/2 LCD screen (can be tilted)	monochrome, back-lit with 64 shades of grey	<ul style="list-style-type: none"> ● = C Colour, passive matrix (STN double scan) high-resolution (640 x 480) ● = T Colour, active matrix (TFT) high-resolution (640 x 480) 	
Keyboard	102 or 101 keys, compatible with IBM 101/102 keys, detachable. Available in 6 basic versions.		
Output ports standard	RS 232C serial port (DB9) bi-directional parallel port (DB25)		
TSX	RS 485 serial port/20 mA current loop		
mouse	IBM PS/2 standard		
VGA video port	for monochrome or multisync colour monitor		
X-WAY	MAPWAY	with TSX MAP PC7 42M extension card (long format)	
network	ETHWAY	with TSX ETH PC101M extension card (short format)	
connection	FIPWAY	with TSX FPC10M extension card (short format)	
Power supply basic	via 110/127 VAC or 220/240 VAC industrial supply		
extension	rechargeable batteries for independent operation in case of power break up to 30 min up to 20 min depending on depending on configuration configuration via 24 VDC supply with adaptor		
Discrete outputs ALF0 and ALF1	2 channels (ALF0 and ALF1) if power supply extension (battery or 24 VDC adapter). 24 VDC / 350 mA transistor outputs		
Slots for extensions	PC-AT ISA bus compatible cards • 1 slot for long-format card • 1 slot for short-format card		
Operating systems	DOS and/or OS/2		

(*) available first quarter of 1995

Characteristics (cont.).

Terminal	FTX 507 6B	FTX 507 8●	FTX 507 9●	
Operational safety	<ul style="list-style-type: none">• access via unbreakable password• individual serial number• slot for TE software protection keys (TE90 standard)			
Dimensions	size	H=280 mm	W=396 mm	D=165 mm
	weight	7 to 9 Kg depending on the model		
Environment	Hardware tested in the following environments : <ul style="list-style-type: none">• industrial (mechanical shocks/vibrations/temperature/ electromagnetic interference)• office			

1.6 Dimensions



Fixed-position mounting (see appendix 10.12)



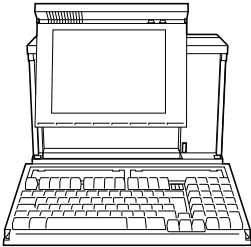
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2.1 Checking the equipment

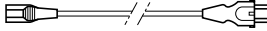
Terminal

FTX 507



Software and accessories

T FTX CA51 AC power cable



Fuses



TD 5 x 20 5A



TD 5 x 20 2A

Grommet



Dust filter for fan

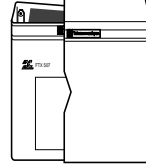


Extension card location guide
(standard IBM PC.AT long format)



Documentation

FTX 507 User's guide
T FTX DM 507 2E



DOS utility software
1 diskette 3"1/2 T FTX LF TDS5



OS/2 utility software
1 diskette 3"1/2 T FTX LF TS252



Depending on the configuration

Pointing device
T FTX MM2 M



Operating systems

- DOS
- OS/2
- WINDOWS



2.2 Preparation for use

The FTX 507 terminal is supplied with the screen and keyboard already connected.

The FTX 507 terminal is fitted with a fan which draws in air from below, so it must be placed on a flat surface free of any objects which might prevent good air circulation.

2.2-1 Releasing the keyboard

- 1- Two sliding catches hold the keyboard in place. In order to free the keyboard, move these catches as shown in fig. a.
- 2- Lower the keyboard as shown in fig. b.
- 3- Set the keyboard either :
 - fixed firmly to the terminal as in fig. c
 - or separated from the terminal as in fig. d

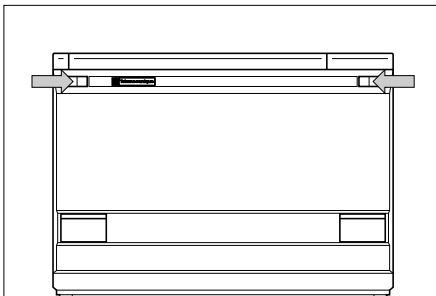


fig. a

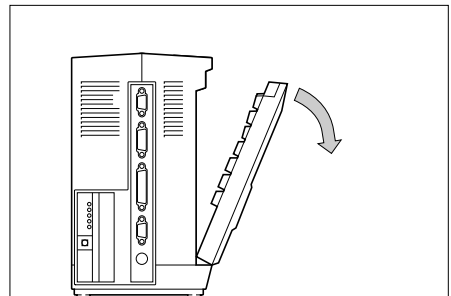


fig. b

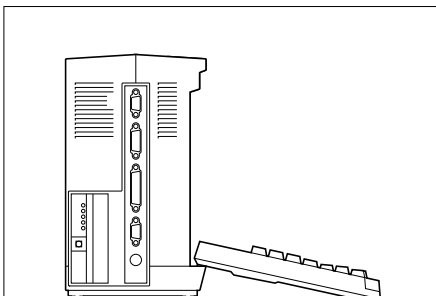


fig. c

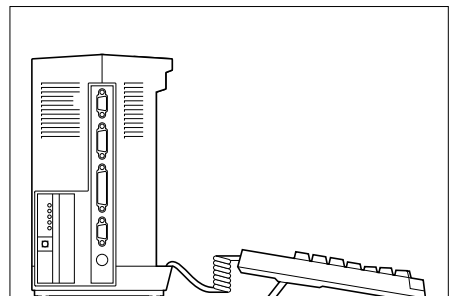
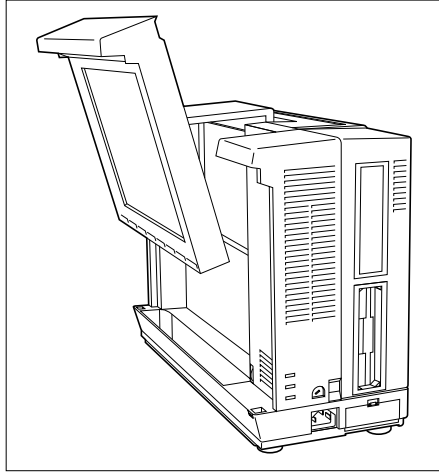
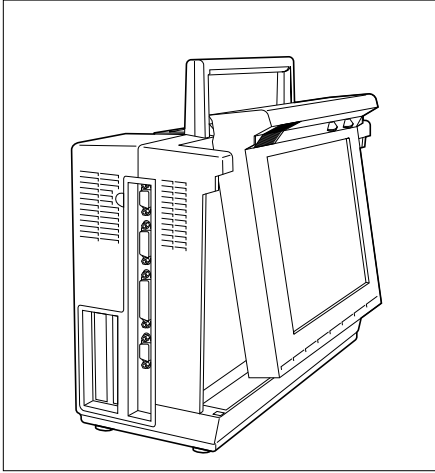


fig. d

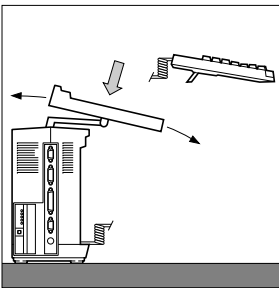
2.2-2 Position of the screen

The screen may be tilted so that it remains at any angle between the vertical and the horizontal (it can be tilted through 120°). The screen is positioned by tilting it while holding its upper rim.

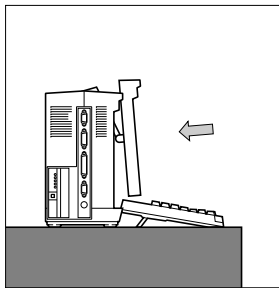


Reading the screen

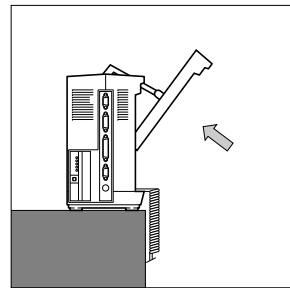
The fact that the screen can be tilted and the keyboard detached gives the operator optimum flexibility for use in any given environment (position, lighting, etc.).



On the floor



On a table

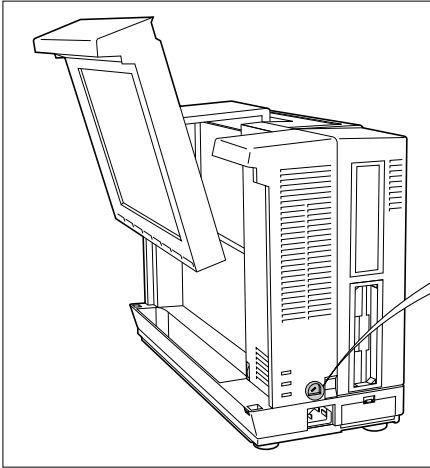


On a cabinet

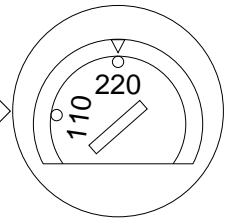
2.2-3 Checking the voltage selector

The voltage supplied to the terminal is adjusted, using a selector switch, according to the available AC supply (110/127 VAC or 220/240 VAC). Initially this switch is set to 220 VAC.

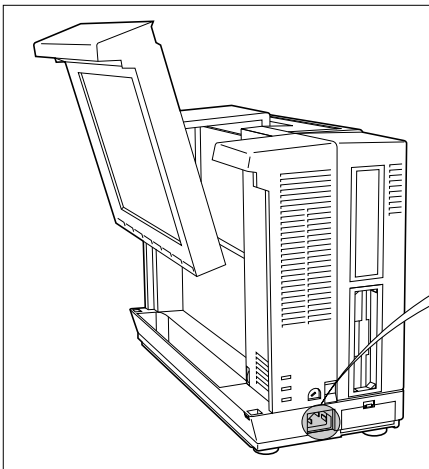
Warning : If this voltage selector switch is set incorrectly, the FTX 507 may be damaged and the guarantee invalidated.



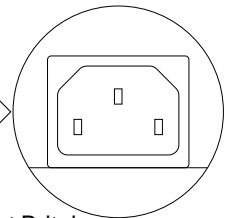
If necessary, set the selector switch to the voltage required, 110 VAC or 220 VAC, using a screwdriver.



2.2-4 Connecting the AC power cable



Each FTX 507 terminal is supplied with an AC power cable (depending on the country), which plugs into the socket indicated below.



T FTX CA 52 : Great Britain.

T FTX CA 57 : Canada, United States.

T FTX CA 51 :

Austria, Belgium, Denmark, Finland,
France, Germany, Italy, Netherlands,
Norway, Portugal, Spain, Sweden.

T FTX CA 58 : Switzerland.

2.3 Switching on

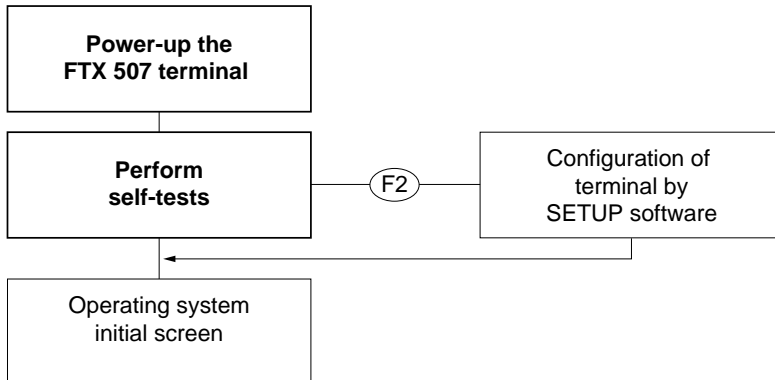
2.3-1 Introduction

Warning

Before switching on the FTX 507 terminal the following should be checked :

- on first power-up, the voltage selector, situated next to the on/off switch, must be in the correct position, (110 V or 220 V),
- that it is properly connected to a protective ground via its power cable,
- that there is no diskette already in the disk drive.

When switched on, the FTX 507 terminal carries out a series of self-tests and then one of the following is displayed :



2.3-2 Self-test screen

The FTX 507 terminal performs the following sequence of tests when first powered-up, or during initialization (pressing on the RST pencil-point pushbutton, see 13 page 1/8) or when rebooting (by pressing <Control>, <Alt> and), these being listed on the self-test screen :

- base RAM memory test : 639 Kb (640 Kb less 1 Kb reserved for BIOS),
- RAM memory reserved for the system test : 384 Kb,
- expanded RAM memory test : xxxxx Kb depending on size of installed memory,
- type of video test : VGA,
- protected processor mode test,
- keyboard test,
- disk drive controller test,
- hard disk test,
- math coprocessor test, (if present),
- serial port(s) test,
- parallel port(s) test,
- Cmos memory test : 128 Kb,
- real-time clock test.

Example of a self-test screen

T e l e m e c a n i q u e		FTX507 BIOS Vx.y Copyright 1993	
CHIPS 65520/525/530		VGA 32Kb BIOS V.1.1.0 Copyright (c) 1992	
FTX507	Serial Number :	30171001	
Base Memory	:	639Kb	OK
System Ram	:	384Kb	OK
Extended Memory	:	7168Kb	OK
Video type	:	VGA	
Virtual mode	:	OK	
Keyboard	:	OK	
Diskette Drive(s)	:	1	
Hard Disk(s)	:	1	
Math Coprocessor	:	0	
Serial Port(s)	:	2	
Parallel Port(s)	:	1	
User Cmos Memory	:	128Kb	
Real Time Clock	:	OK	
Configuration	:	OK	
Press F2 key continuously to run SETUP			

B

Each time a self-test is performed, the configuration is saved to a permanent memory in order to compare the present configuration with the preceding configuration, (performing the preceding self-test sequence). If the two configurations are different (for example, if RAM memory has been increased), the operator should save the new configuration by pressing the F1 key.

If one of the tests is incorrect, a message (for example *Error*) is displayed on the line for the faulty element. In order to explain this message and to facilitate maintenance, additional data may also be provided in the *ERROR REPORT* window : (e.g. Keyboard Stuck Key : 21) and/or in the display line at the bottom of the screen.

T e l e m e c a n i q u e		FTX507 BIOS Ux.y Copyright 1993	
CHIPS 65520/525/530		UGA 32Kb BIOS U.1.1.0 Copyright (c) 1992	
FTX507 Serial Number : 30171001			
Base Memory	: 639Kb OK	- ERROR REPORT - Keyboard Stuck Key : 21	
System Ram	: 384Kb OK		
Extended Memory	: 7168Kb OK		
Video type	: UGA		
Virtual mode	: OK		
Keyboard	: Error		
Diskette Drive(s)	: 1		
Hard Disk(s)	: 1		
Math Coprocessor	: 0		
Serial Port(s)	: 2		
Parallel Port(s)	: 1		
User Cmos Memory	: 128Kb		
Real Time Clock	: OK		
Configuration	: OK		

Display line

2.3-3 Messages associated with the sub-groups tested

x	Memory size or number of peripherals.
OK	Sub-group test correct.
Error	Sub-group test incorrect. Read the additional data, if present, in the ERROR REPORT window and on the display line (see following paragraphs).
Resident SETUP activated	Selection of SETUP (by pressing F2 during the self-tests) has been taken into account.
Checksum error	Configuration error. Use SETUP to correct this error.
Changed (VERIFY then strike F1 key)	The configuration has been modified (additional memory or peripheral). Press F1 for the terminal to accept the new configuration.

2.3-4 Report confirmation messages

These messages are displayed in the ERROR REPORT window.

When one of these messages appears, switch the terminal off for a few seconds and then switch it on again.

If the message reappears, please consult your approved Telemecanique agent.

Memory size error	Memory size error (memory has been increased or cannot be used). Please refer to SETUP to display the memory configuration or confirm the additional memory with F1.
Memory error addr (data) or Low meg. chip select error	RAM memory access error.
Video subsystem error	VGA video sub-system fault.
Keyboard stuck key xx	Key xx on the keyboard is stuck. Check that this key is not being pressed accidentally. xx : corresponds to the ASCII code for the key (in hexadecimal)
System or keyboard error	Keyboard controller fault.
Keyboard clock fail	Communication error between the keyboard and the terminal.
Interface fail	Keyboard self-tests incorrect.

Keyboard test failure Keyboard not present. Plug in the keyboard and reinitialize the system by pressing F1.

Diskette init error Faulty diskette drive or controller.

Disk controller failure Faulty hard disk.

Disk C : Error test

User Cmos checksum error
Checksum error in the Cmos memory, parameters modified. Use SETUP to modify the parameters. (Warning, some files may still be open).

!!WARNING!! Replace battery
Change the time/date clock backup battery.

2.3-5 Messages shown on the display line

***** Resume = F1 key ***** Press F1 to continue. This **automatically** corrects changes in configuration.

***** Resume = F1 key or Run SETUP = F2 key *****
Press F1 (for example, to correct a change in configuration) or run SETUP using F2.

***** Press F2 key continuously to run SETUP *****
During power-up, keep F2 pressed down to run SETUP.

***** Password ***** Enter password.

OK Password correct.

Invalid Password incorrect.

**** Battery option ON ** Press any key to confirm!!!**
Press any key to confirm terminal being powered by battery. If there is no confirmation within 10 seconds, selection is that defined in SETUP : terminal switched off.

Boot fail ? [ENTER] to retry
Fault in system files on the diskette or hard disk. Diskette or hard disk not formatted. Insert a new system diskette in drive a : and press <Enter> to continue.

No boot sector ? [ENTER] to retry
The diskette inserted in a : or the hard disk, is not a system disk(ette). Insert a new system diskette in drive a : and press <Enter> to continue.

2.3-6 Error messages which stop the system

The following messages correspond to serious faults and cause the system to stop. In this case, you must consult your approved Telemecanique agent.

- **Err ITs controller - HALT**
- **Err. I/O 16 Bits - HALT**
- **Err Hot NMI - HALT**
- **Err Timer failure - HALT**
- **Err Timer interrupt failure - HALT**
- **Err 8042 last command not accepted - HALT**
- **Invalid product Type - HALT indicates that the configuration is invalid.**

Note

In the event of excessive temperature (above 40 °C) when the FTX 507 terminal is switched on, it automatically switches off.

During normal operation, this fault is indicated by the hard disk LED blinking (labelled 2 on the front panel of the terminal) and by an audible beep. The user then has 2 minutes to back up his files.

2.4 Inserting the software protection keys

Telemecanique design and operating software requires the use of a special tool which gives right of use. This right of use is contained on a key module supplied with the software which it authorizes.

This right of use is handled by a KEY MANAGER utility program which is included with Telemecanique basic software.

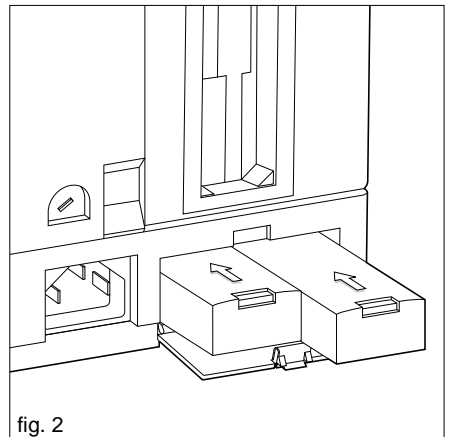
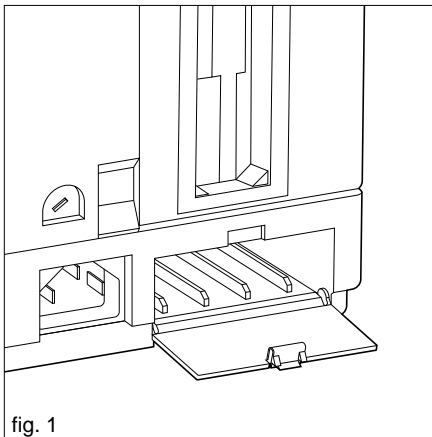
The FTX 507 terminal has slots for 2 software protection keys (TE90 standard).

Assembly procedure

- 1- Open the access door (fig. 1)
- 2- Insert the key into the relevant slot (fig. 2).

Note

The keys slot into "drawer" guides so that they are easy to remove.



2.5 Handling the diskettes



2.5-1 Precautions

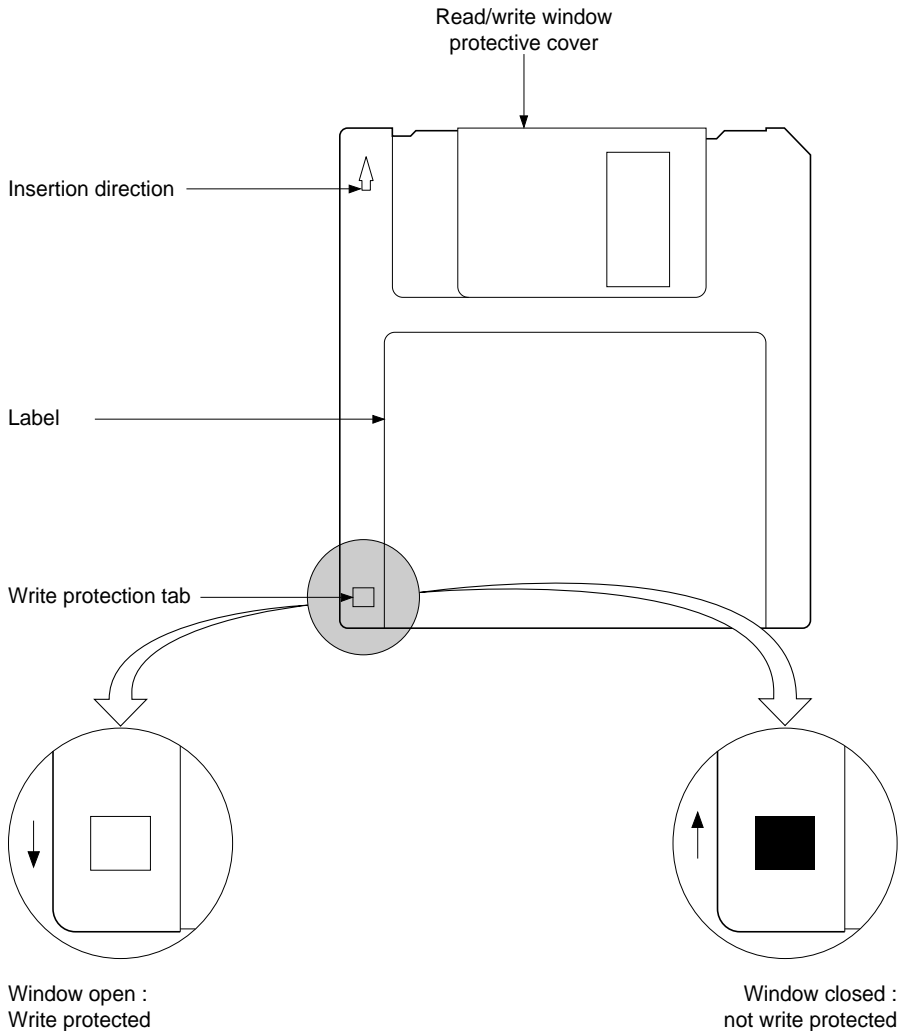
To ensure that diskettes are always read and written to correctly and to extend their lifetime, the following precautions need to be observed :

- Store the diskettes away from direct sunlight and in a cool environment.
- Keep the diskettes in the supplier's box or in a proper storage case.
- Do not clean the surface of any diskette. Cleansing products may render the contents of the diskette unreadable.
- Do not expose the magnetic surface by dismantling the diskette or by removing the metal plate.
- Do not touch the magnetic surface of the disk. Fingerprints prevent the data being read.
- Protect the diskette from dust and smoke.
- Do not place heavy objects on the diskettes.
- Do not use an eraser to remove the wording on labels. Particles of rubber may slide under the plastic cover.
- Keep diskettes well away from any magnetic source as this may destroy data.

2.5-2 Write-protecting diskettes

When a diskette is write-protected, it is impossible to add, modify or erase files. This prevents accidental deletion of data. On 3" 1/2 diskettes a sliding plastic tab, located in one corner of the diskette, covers or uncovers a small "window". When the window is open, the diskette is write-protected.

To write once again, the protection tab should simply be pushed back to close the window.





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3.1 Mouse	3/2
3.1-1 General	3/2
3.1-2 Pin connections on the "MOUSE" Connector	3/2
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3.2 Monitors	3/3
3.2-1 General	3/3
3.2-2 Pin connections for the "VIDEO (VGA)" connector	3/3
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<hr/>	
3.3 Printers	3/5
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3.3-2 Pin connections for the RS 232C (COM1) serial port	3/5
3.3-3 Pin connections for the CENTRONICS (LPT 1) parallel port	3/6

This section ends at page

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C

3.1 Mouse

3.1-1 General

Various pointing devices are available from Telemecanique:

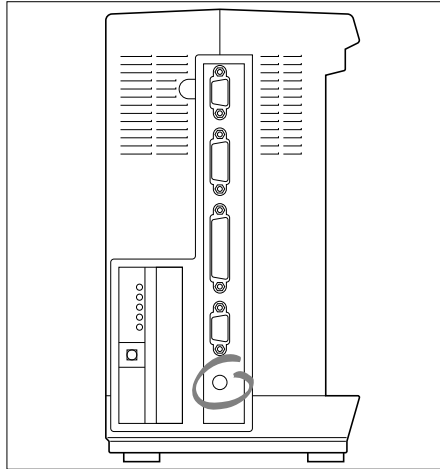
- mouse included with the terminal as standard,
- T FTX MM2 M mouse pointer to be ordered separately.

These pointing devices connect to the dedicated mouse port, which is a standard IBM PS/2 serial link DIN micro-connector.

Important

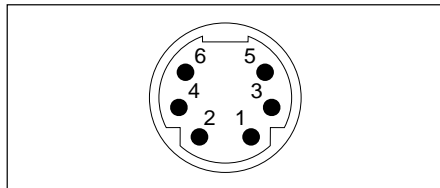
Do not connect or disconnect the mouse when the terminal is powered up.

To be operational, the driver for the pointing device must be installed (see service instruction supplied with the pointing device).



3.1-2 Pin connections on the "MOUSE" Connector

Female 6-pin DIN micro-connector
(front view)

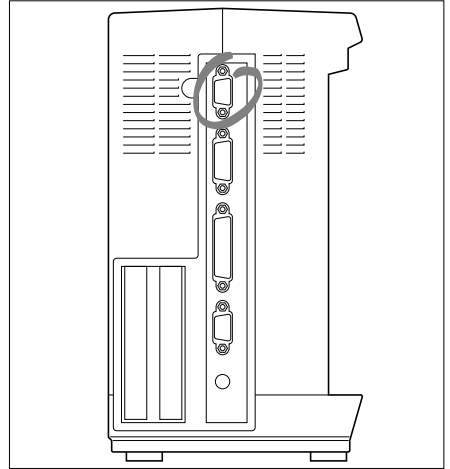


Pin No.	Signal	I/O	Description
1	MDATA	I/O	Data
2	NC	-	Not used
3	0V	-	Ground
4	5V	-	5V DC
5	MCLK	O	Real-time clock
6	NC	-	Not used

3.2 Monitors

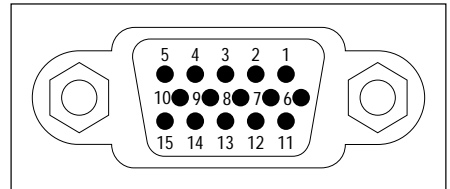
3.2-1 General

The FTX 507 workstation includes a 15-pin video connector (IBM PS/2 standard). It can accept any kind of monochrome or multisync. color screen. It supports VGA, EGA and CGA graphic resolutions and can display up to 256 colors.



3.2-2 Pin connections for the “VIDEO (VGA)” video connector

Front view of female connector



Pin No.	Signal	I/O	Description
1	RED	O	Red
2	GREEN	O	Green
3	BLUE	O	Blue
4	Reserved	-	Reserved
5	Self-test	O	Self-test output
6/7/8	0V	-	Red/green/blue ground
9	PLUG	-	Locating device
10	0V	-	Ground
11/12	Reserved	-	Reserved
13	HSYNC	O	Horizontal synchro
14	VSYNC	O	Vertical synchro
15	NC	-	Not used

3.2-3 Use

It is possible to select several types of operation, either in the SETUP file or by using the SCREEN utility command :

LCD screen only, external video screen only or both screens at the same time (see sections 6.2-5 and 6.3).

Use of a color monitor.

The FTX 507 terminal can automatically recognize if a monitor is present and its type (recognition device conforms to IBM standards). It follows that the monitor should also conform to this standard.

External monitors which can be used and which are guaranteed to operate :

- NEC Multisync II.

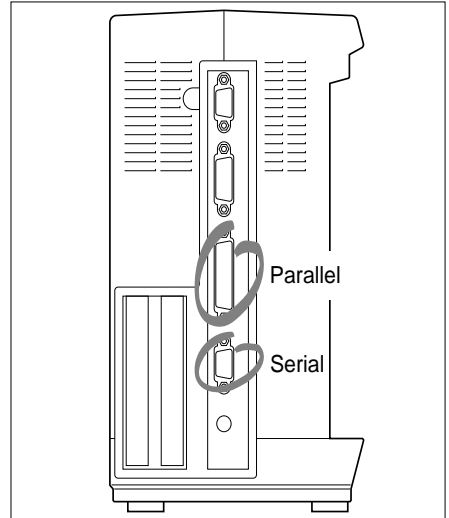
C

3.3 Printers

3.3-1 General

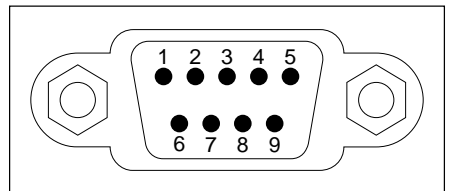
The FTX 507 workstation connects to various kinds of printer using the RS232C serial interface or the Centronics parallel interface. The requisite printer driver must be installed. The operating systems offer a list of printer drivers.

These drivers can be selected, either during installation, or later (see operating system installation manual).



3.3-2 Pin connections for the RS 232 "RS232C(COM1)" serial port

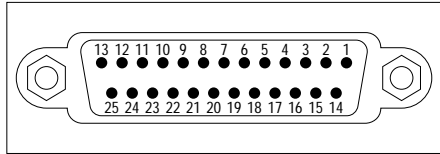
Male connector (front view)



Pin No.	Signal	I/O	Description
1	DCD	I	Data Carrier Detected
2	RXD	I	Receive Data
3	TXD	O	Transmit Data
4	DTR	O	Data Terminal Ready
5	0V	-	Ground for Signal
6	DSR	I	Data Station Ready
7	RTS	O	Request to Send
8	CTS	I	Clear to Send
9	RI	I	Alarm Bell Indicator

3.3-3 Pin connections for the CENTRONICS (LPT1) parallel port

Female connector (front view)



Pin No.	Signal	I/O	Description
1	-STROBE	O	Strobe
2	D0	O	Data bit 0
3	D1	O	Data bit 1
4	D2	O	Data bit 2
5	D3	O	Data bit 3
6	D4	O	Data bit 4
7	D5	O	Data bit 5
8	D6	O	Data bit 6
9	D7	O	Data bit 7
10	-ACK	I	Receipt acknowledgment
11	BUSY	I	Occupied
12	PE	I	Paper end
13	SLCT	I	Select
14	-AUTOFEED	O	Automatic line-feed
15	-ERROR	I	Error
16	-INIT	O	Printer initialization
17	-SLCTIN	O	Input selection
18/19/20	0V	-	Signal ground
21/22/23	0V	-	Signal ground
24/25	0V	-	Signal ground



Sub-section	Pages
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4.1-1 Installation	4/2
4.1-2 Removing the rear cover	4/3
4.1-3 Removing the front cover	4/4
4.2 T FTX RAM 58 dynamic RAM memory extension	4/6
4.3 IBM PC-AT standard (ISA bus) extension cards	4/7
4.4 Internal battery back-up	4/10
4.4-1 Introduction	4/10
4.4-2 Operation	4/11
4.4-3 Charging a battery which is new or has been stored for some time	4/12
4.4-4 Installation procedure	4/13
4.5 Adapter for 24 VDC supply	4/15
4.5-1 Introduction	4/15
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4.5-3 Installation procedure	4/16
4.6 Discrete outputs ALF0 and ALF1	4/17
4.6-1 Introduction	4/17
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4.1 Accessing internal extensions

4.1-1 Installation

The FTX 507 can accept Telemecanique equipment extensions and commercially available IBM PC-AT standard extension cards.

The table below lists the various extensions together with Telemecanique reference numbers if applicable, and indicates which access cover has to be removed.

Extensions	Reference	Access	See section
Memory extensions RAM 8 Mb	T FTX RAM 58	front cover	4.2
Internal back-up battery	T FTX CHG 5* and T FTX RBA T5	rear cover	4.4
24 VDC supply adapter	T FTX CHG 5* and T FTX ADC 5	rear cover	4.5
Connection to network		rear cover	5.2
AT/ISA bus standard extension card		rear cover	4.3

The remainder of this sub-section gives instructions for :

- removing the rear cover, see 4.1-2,
- removing the front cover, see 4.1-3.

Note

The front cover must be accessed by the following sequence :

- ① Remove the rear cover
- ② Remove the front cover

* Includes discrete outputs ALF0 and ALF1.

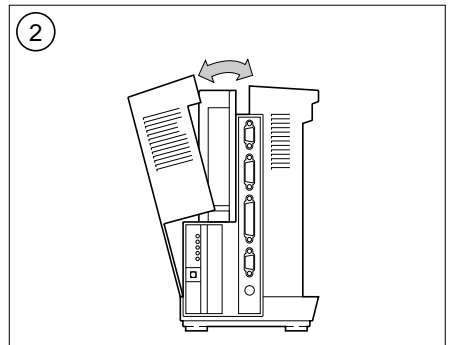
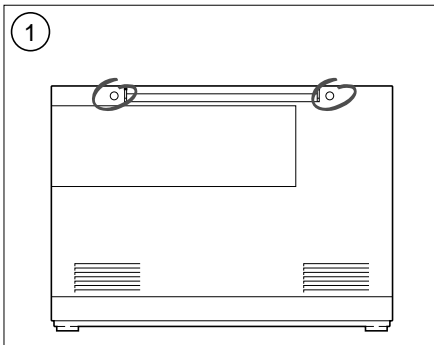
4.1-2 Removing the rear cover

Warning

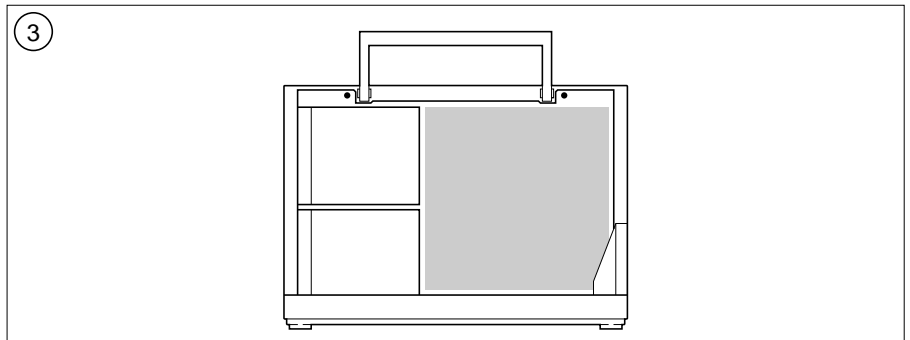
Before attempting to remove the rear cover, switch off the terminal and disconnect all power cables and connections. Check that the disk drive is empty.

The rear cover is removed as follows :

1. Using a No. 2 pozidrive screwdriver, remove the two screws indicated (see figure 1).



2. Lower the rear cover (see figure 2) and slide it out of the holding groove at the bottom.
3. The extension slots mentioned in 4.1-1 are then accessible (see fig. 3).



4. After installing the relevant extension card, replace the cover by reversing this procedure.

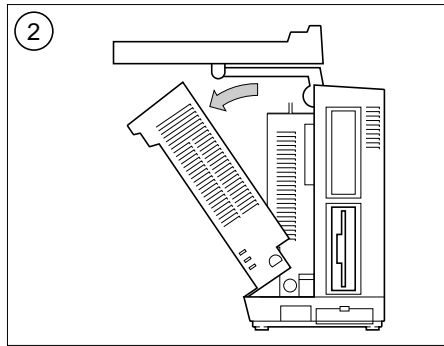
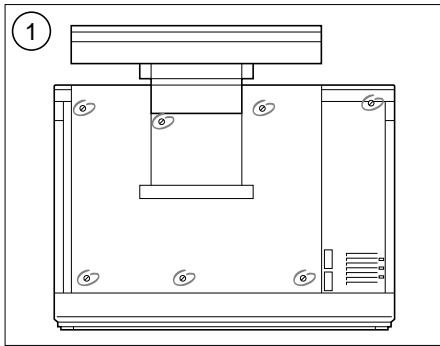
4.1-3 Removing the front cover

Warning

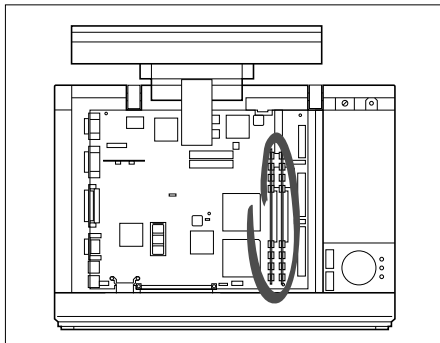
Before attempting to remove the front cover, switch off the terminal and disconnect all power cables and connections.

The front cover is removed as follows :

1. First remove the rear cover as shown in 4.1-2.
2. Position the screen at its maximum height so that the front cover is freely accessible
3. Using a No. 2 pozidrive screwdriver, unscrew and remove the seven screws indicated (figure 1).

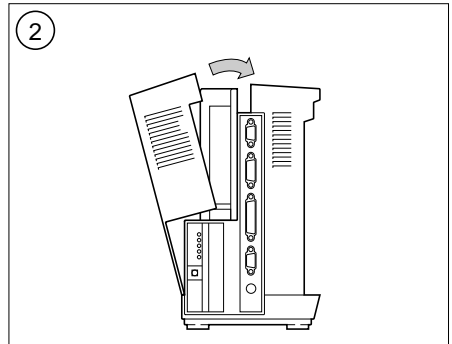
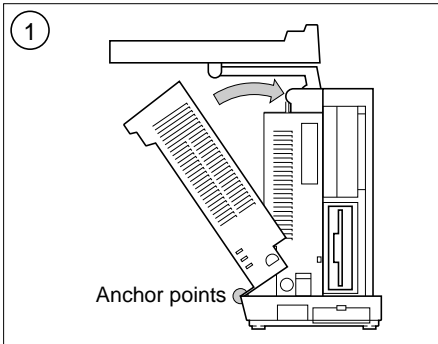


4. Lower the front cover (figure 2) and remove it from the two internal anchor points.
5. The memory extension slots are then accessible.



RAM memory slots

6. After installing the relevant extension card, replace the front cover by reversing this procedure :
- replace the front cover, figure 1,
 - replace the rear cover, figure 2.



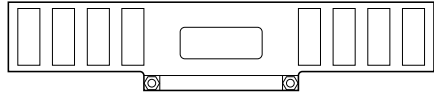
Warning

When replacing the front cover ensure the 2 internal anchor points are located correctly before tilting upwards.

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4.2 T FTX RAM 58 dynamic RAM memory extension

The T FTX RAM 58 8 Mb memory extension is a daughter board positioned directly on the mother board.



The procedure for installing the 8 Mb memory extension is as follows :

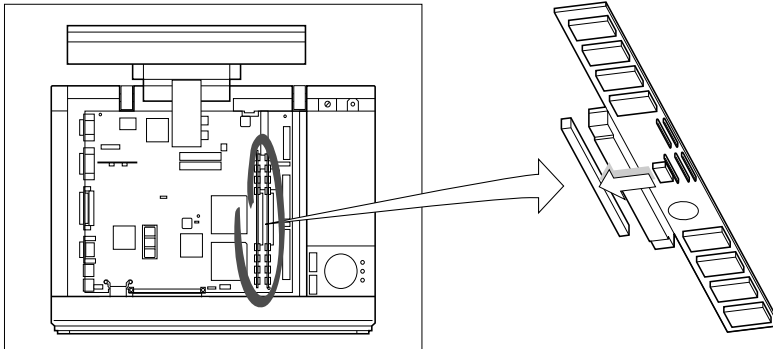
1. Remove the front cover (see section 4.1-3).
2. Place the memory extension card in the connector provided, making sure it is the right way round (connector is fixed to the right).

Warning

Handle the card with great care because the components are sensitive to static electricity :

- Do not remove the card from its anti-static packaging until the very last moment.
- Hold the card by the edge of the printed circuit.

3. Check that both ends of the card are pushed in firmly.



The base board pushes into the connector on the right marked JMO

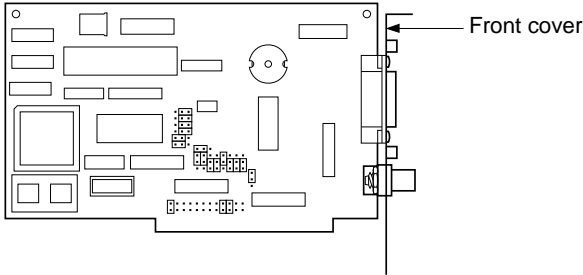
4. Replace the front cover using the procedure on page 4/5.

The additional memory is incorporated into the system by pressing the F1 key after switching on the FTX 507 (no declaration is required by the SETUP program).

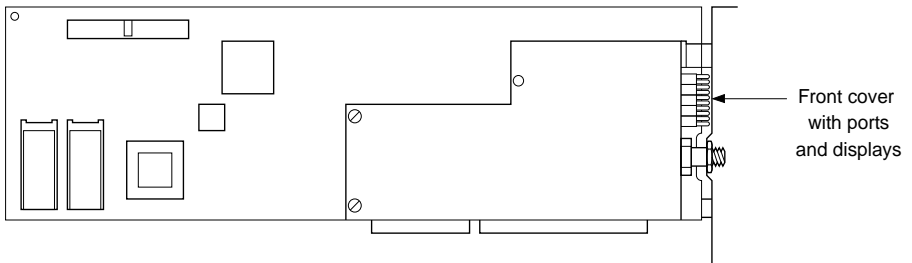
4.3 IBM PC-AT standard (ISA bus) extension cards

The FTX 507 has two slots for IBM PC-AT standard (ISA bus) extension cards :

- 1 slot for short-format cards



- 1 slot for long format cards

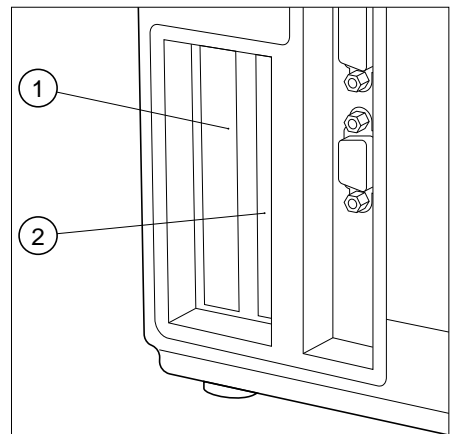


Each slot has a dual connector (62 + 36 pins).

These cards fit into the rear portion of the terminal. Access to the front cover, for external connection, is via two windows situated on the left hand side of the terminal :

1. Long slot.
2. Short slot.

The rear cover has to be removed to insert these cards.



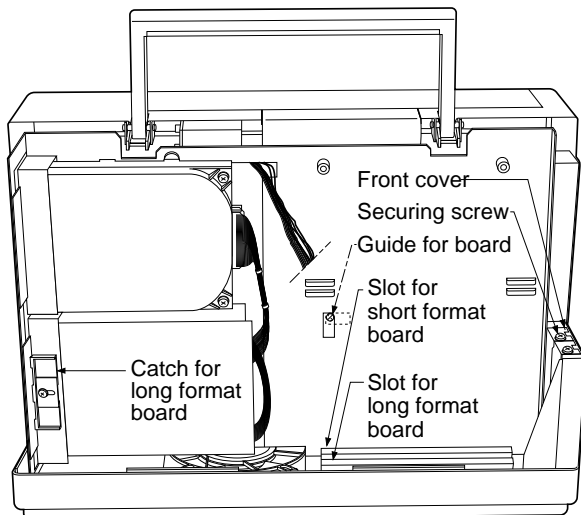
Maximum power consumption. The total consumption of the two cards on the AT bus should not exceed the following :

Voltage 5 V : 1.5 A max
Voltage 12 V : 0.5 A max

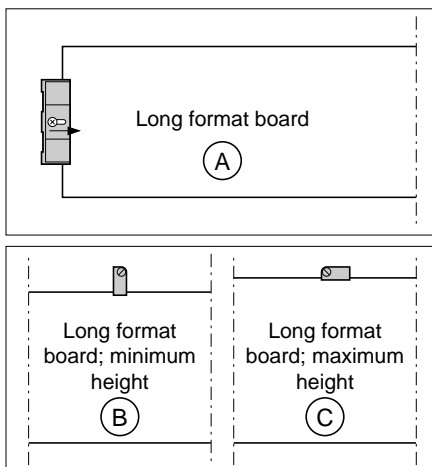
Voltage -5 V : 60 mA max
Voltage -12 V : 60 mA max

The extension cards are inserted as follows :

1. Remove the rear cover (see section 4.1-2).
2. Locate the two ISA bus extension connectors in the lower section of the terminal.
3. Take out the window corresponding to the slot to be used, after removing the retaining screws.
4. If the card concerned is a long-format card, fix the card guide (supplied in the accessories bag) in place by screwing it into the insert provided.



5. Plug the extension card into the connector, after making the necessary adjustments (*).
6. Clamp the extension card in place using the fixing screw on the front cover.
7. In the case of a long format card,
 - clamp the left-hand end in place (fig. A), using the locking device, by :
 - loosening the screw,
 - sliding the locking device towards the right and
 - tightening the screw.
 - Position the card guide depending on the height of the card and then tighten the screw (figs B and C).
8. Replace the rear cover.



(*) The switches may need some adjustment. See the manufacturer's instructions.

IBM PC-AT standard (ISA bus) extension cards (cont.)

Note

Since mechanical standards have not been set by IBM, some commercial cards may not be physically compatible with the two ISA bus slots.

E.g. The electrical components on some cards are arranged in such a way that they may make contact with the metal parts of the FTX 507 chassis.

4.4 Internal battery back-up

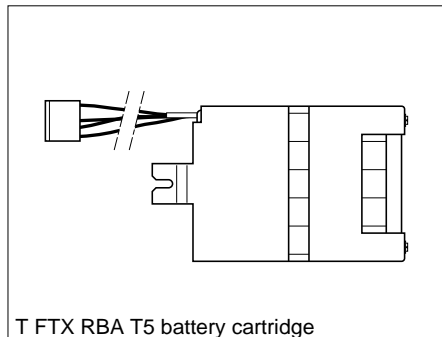
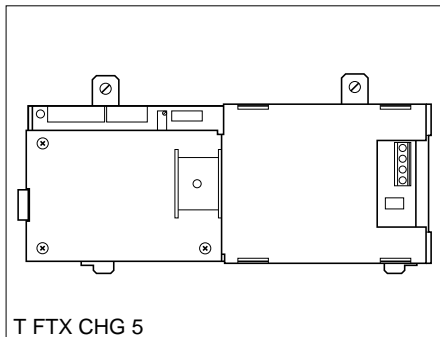
4.4-1 Introduction

The power supply for the FTX 507 terminal is compatible with 110-127 VAC or 220-240 VAC, 47 to 63 Hz AC outlets and is not affected by micro-breaks lasting ≤ 20 ms.

For variable industrial AC outlets, Telemecanique can supply an optional back up device using internal batteries with an integral charger. This device ensures autonomous operation up to 20/30 minutes (depending on configuration, see characteristics in section 1.5).

This device has two parts :

- A battery charger/24 VDC supply, Ref. No. T FTX CHG 5, for mounting on the chassis of the terminal, accessible after removing the rear cover.
- A battery unit, Ref. No. T FTX RBA T5, to attach to the T FTX CHG 5 charger.



T FTX CHG 5 includes :

- A dual-rate battery charger (rapid charge, trickle charge).
- A battery voltage monitoring device.
- A circuit to manage the operational modes of the back-up option.
- A circuit to manage the green PWR lamp on the front panel of the terminal.
- An interface and connection block for two discrete transistor outputs, ALF0 and ALF1, 24 VDC/350 mA.

4.4-2 Operation

Rapid charge

Rapid charge is activated every time the terminal is switched on.

- Charging time for a battery which is well charged : about 5 min.
- Rapid charge current : $I = 350 \text{ mA}$

Trickle charge

After charging, the battery charger switches automatically to trickle charge,

- Charge and trickle charge current : $I = 15 \text{ mA}$.
- Max. voltage threshold : $U = 30 \text{ V}$

Power cuts

It is advisable to back up the application currently running.

Threshold alarm

This is the threshold for detecting the end of the reserve power ($U = 22.5 \text{ V}$ or time $t_{e^*} - 1 \text{ min}$). If power returns during the 2 protected supply phases, battery charging is reactivated, indicated by a long audible beep.

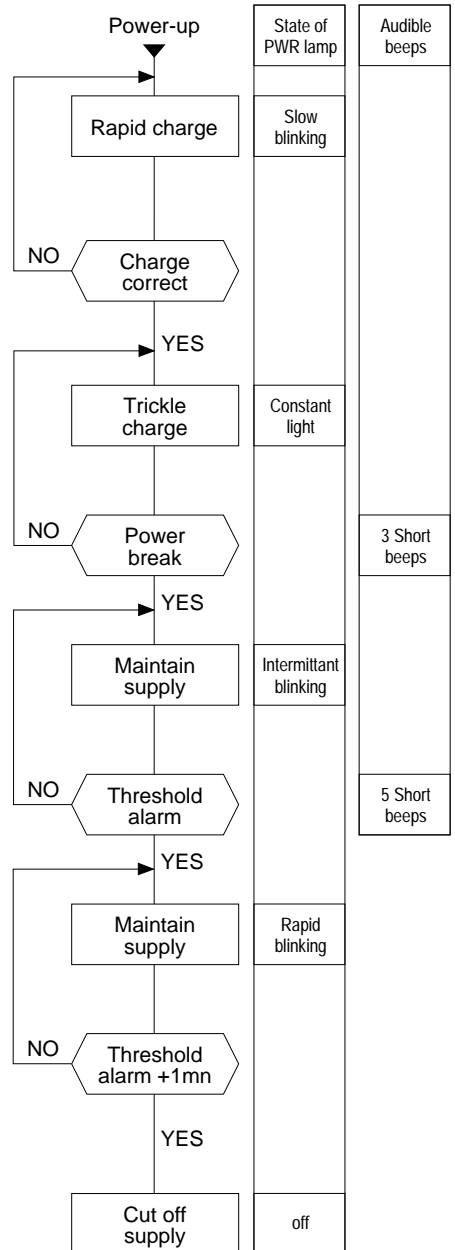
Supply cut-off

The supply cut-off comes into operation 1 min after the threshold alarm is triggered unless the power returns in the meantime.

Resetting the power supply

2 possibilities, depending on the situation :

- Time $\geq 20 \text{ s}$ after power-break : The power supply is automatically reset.
- Time $< 20 \text{ s}$ after power-break : Operate the OFF/ON switch, taking the 20 s period into account.



* t_e = operating time limit defined by the user as being from 1 to 15 min (see SETUP, section 6).

4.4-3 Charging a battery which is new or has been stored for some time

The following procedure is recommended to reduce the time for charging the battery :

- Switch the terminal on for at least 1 hour (in this case the slow charging rate is activated).
- Switch the terminal off.
- Switch the terminal on again within 10 s (this activates rapid charging). The battery is then charged completely in less than 3 hours.

Every time the terminal is switched on after this, operation is as described in sub-section 4.4-2.

Note

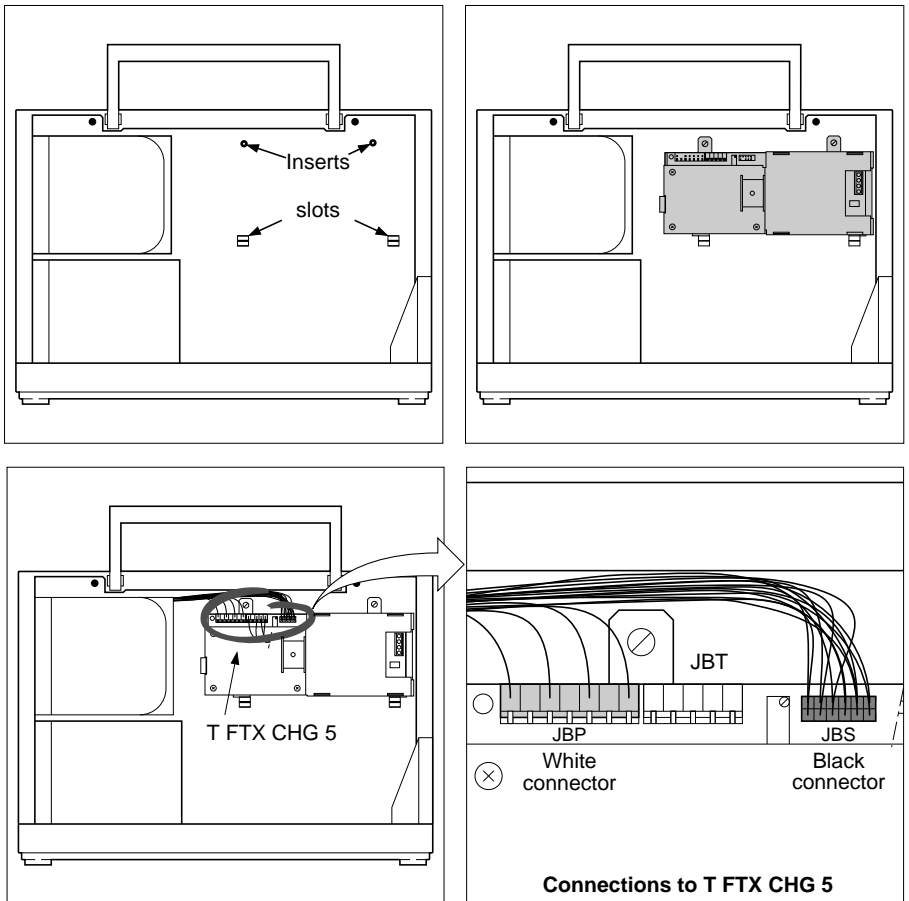
Effective autonomy of a battery depends on the charge-discharge cycle. In order to provide maximum autonomy, it is recommended that rapid charging is followed by a few hours of trickle charging.

4.4-4 Installation procedure

• Installing the T FTX CHG 5

After unplugging the power cable, set the power switch to OFF and remove the rear cover (see section 4.1-2).

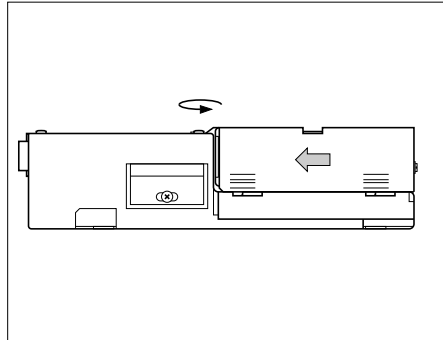
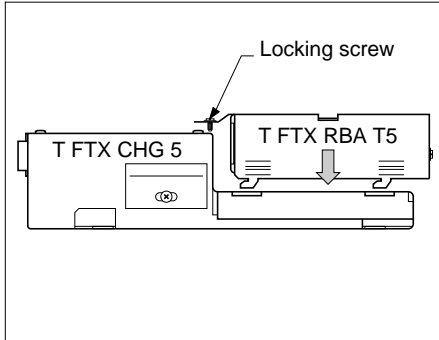
1. Locate the 2 slots and the 2 inserts for mounting the T FTX CHG 5 on the terminal chassis.
2. Slide the lower 2 tabs on the T FTX CHG 5 into the 2 slots and screw the 2 upper screws firmly into the inserts on the chassis.
3. Plug in the 2 connectors, 1 white and 1 black, coming from the terminal. Note the polarization device on each connector.
4. Connect the two discrete outputs, ALF0 and ALF1, if required (see section 4.6).



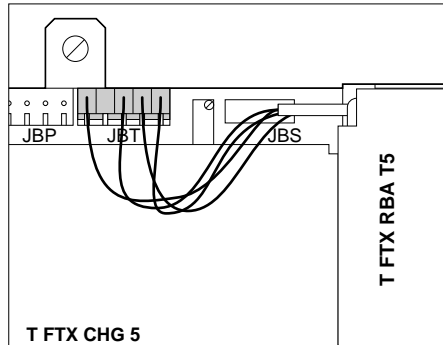
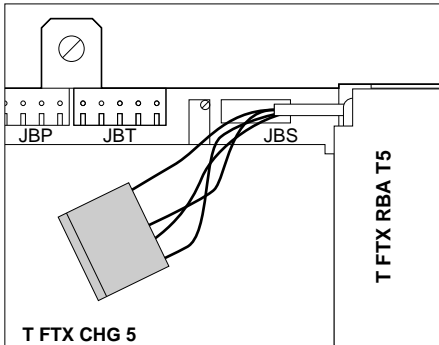
C

- **Installing the TFTX RBA T5 battery cartridge**

1. Position the T FTX RBA T 5 battery unit on the T FTX CHG 5 charger unit. Lock it into place using the screw at the top.



2. Plug in the connector



Warning

For safety reasons, installation of the battery protection device must be carried out with the FTX 507 terminal power cable unplugged and the power switch in the OFF position.

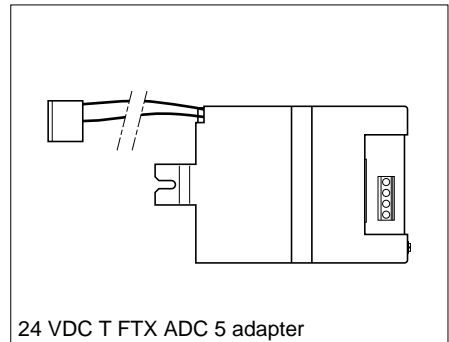
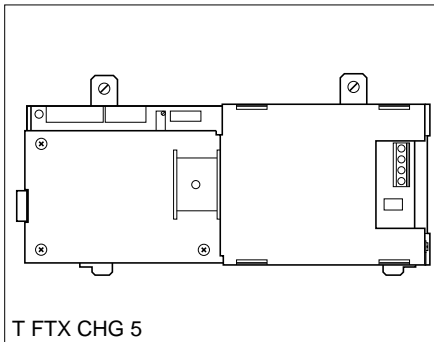
4.5 Adapter for 24 VDC supply

4.5-1 Introduction

The FTX 507 terminal may be supplied from an industrial 24 VDC supply. Operation is guaranteed for voltages varying from 19.2 to 30V (including ripple).

A 24 VDC supply requires two items :

- A battery charger/24 VDC supply unit, Ref. No. T FTX CHG 5 for mounting on the terminal chassis (accessible after removal of the rear cover).
- A 24 VDC adapter module, Ref. No. T FTX ADC 5 for fixing on the charger unit.



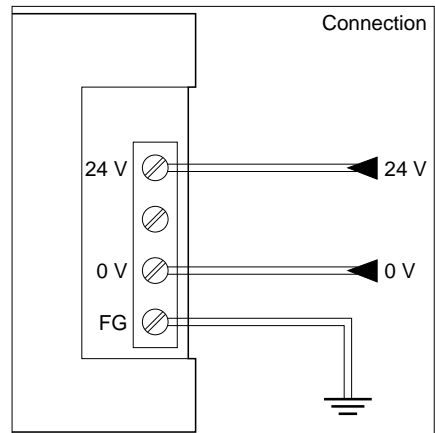
The T FTX CHG 5 also includes the interface and connection block for two discrete transistor outputs, ALF0 and ALF1.

The T FTX CHG 5 and T FTX ADC 5 adapter together enable the terminal to operate from an external 24 VDC industrial supply. This can be used as a back-up voltage if the terminal is normally supplied from an AC outlet. It includes a device for monitoring the voltage in the supply being used (with the battery charger inactive).

This supply is protected by a 5 x 20 5A TD fuse.

Important

The connections between the 24 VDC and the FTX 507 terminal include a direct link to 0V on the terminal chassis (FG).

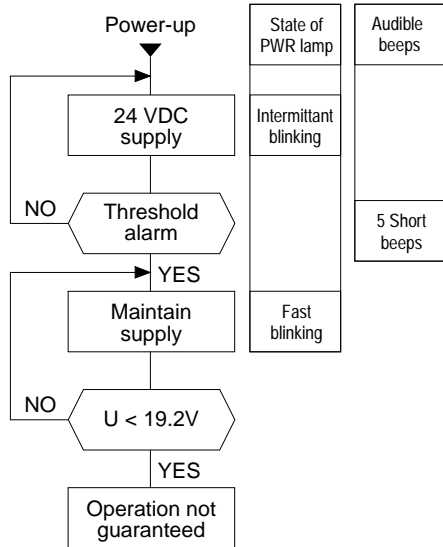


4.5-2 Operation

Threshold alarm

Corresponds to the detection threshold ($U = 22.5\text{ V}$).

If the voltage rises above the threshold of 22.5 V during the trickle phase, the terminal is automatically reset to the preceding state.



4.5-3 Installation procedure

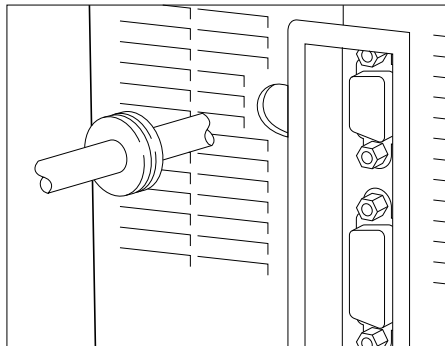
Warning

For safety reasons, installation of the 24 VDC supply adapter must be carried out with the FTX 507 power cable unplugged and the power switch in the OFF position.

The installation and connection procedure is identical to that described in 4.4-4, the T FTX ADC 5 being fitted instead of the T FTX RBA T5 battery unit.

To insert the 24 VDC supply cable :

- Lift the protective cap on the right of the rear cover.
- Insert the sleeve supplied with the terminal.
- Thread the cable through the sleeve.



4.6 Discrete outputs ALF0 and ALF1

4.6-1 Introduction

Use of the battery charger/24 VDC supply unit, Ref. No. T FTX CHG 5 also makes 2 discrete outputs available.

These two outputs, called ALF0 and ALF1, have the following characteristics :

- Nominal voltage 24 VDC (to be supplied).
- Nominal current 350 mA.
- Type : transistor, protected against heat and inductive overvoltages.
- Limiting values : 19.2 to 30 VDC.
- Isolated by : an opto-electronic module,
isolation resistance $\geq 10 \text{ M } \Omega$ at 500 VDC.

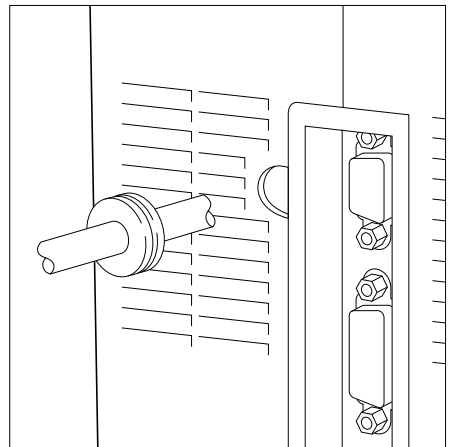
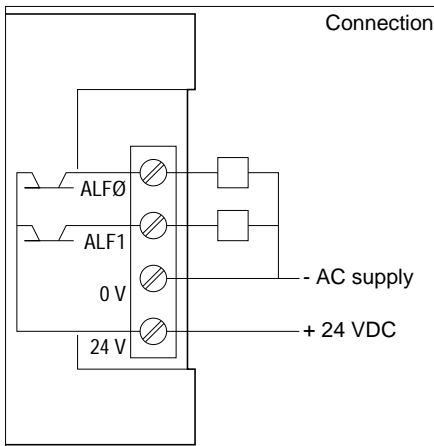
Assignment of these outputs is described in section 1.3-2. It has to be specified during configuration of the terminal, using SETUP (see section 6.2-5).

4.6-2 Connections

The installation procedure for the T FTX CHG 5 unit (with or without a T FTX RBA T5 unit or T FTX ADC 5 adapter) is described in section 4.5-3.

To insert the discrete output connection cable :

- Lift the protective cap on the right of the rear cover.
- Insert the sleeve supplied with the accessories.
- Thread the cable through the sleeve.



C



Sub-section	Page
5.1 Introduction	5/2
5.2 Connecting to series 7 PLCs	5/2
5.2-1 Connecting to TSX 17 PLCs	5/2
5.2-2 Connecting to TSX 27-TSX/PMX 47/67/87/107 PLCs	5/3
5.2-3 Connecting to the X-WAY network	5/4
5.2-4 Connecting to UNI-TELWAY bus	5/5
5.3 Modem link	5/6
This section ends at page	5/6



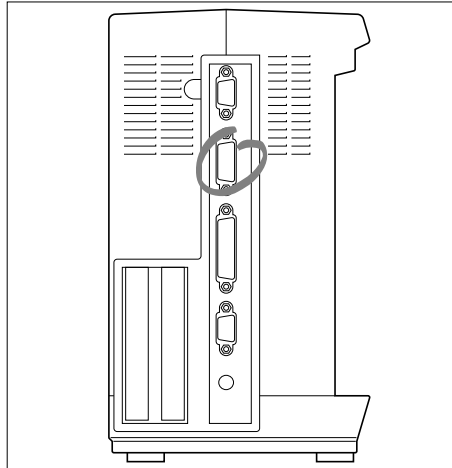
5.1 Introduction

In addition to standard ports, the FTX 507 terminal has an isolated multifunction port for direct connection to Telemecanique products.

This port offers 2 types of connection :

- CL (20 mA current loop) for connecting to TSX 27/47/67/87 version V3 or TSX/PMX 47/67/87/107 model 40 PLCs.
- RS 485 for connecting to TSX 17 PLCs.

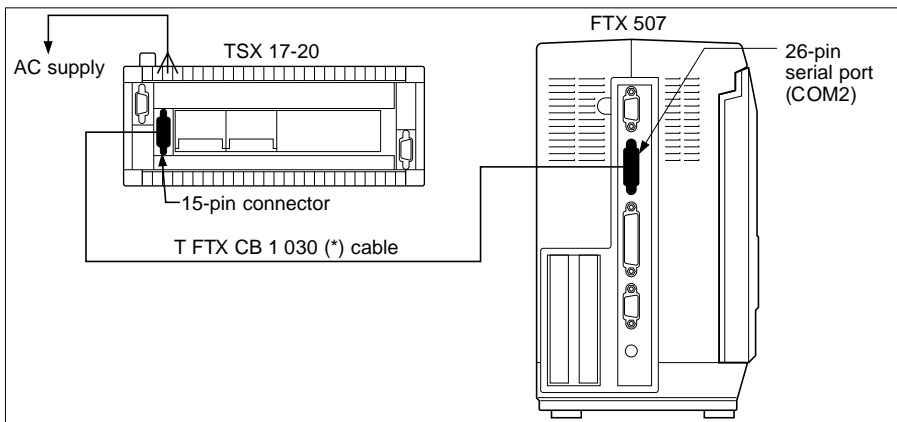
Telemecanique software automatically selects the type of connection used, depending on the PLC connected.



However to make the most rapid connection the selection can be specified during configuration using the SETUP software (see section 6.2-6).

5.2 Connecting to series 7 PLCs

5.2-1 Connecting to TSX 17 PLCs

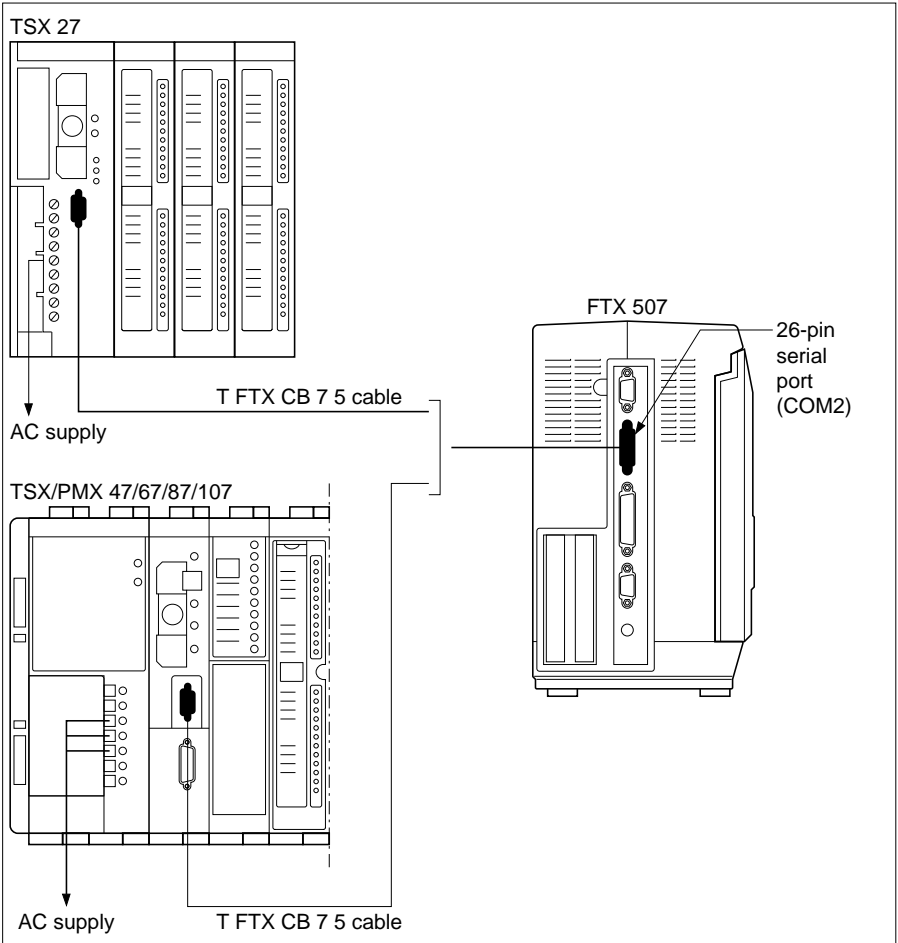


This connection requires a T FTX CB 1 030 (*) cable (to be ordered separately), which is 3 m long and is fitted with :

- A 26-pin male SUB-D type connector on the FTX 507 side.
- A 15-pin male SUB-D type connector on the TSX 17-10/20 side.

(*) replaces the T FTX CB 17 5 cable.

5.2-2 Connecting to TSX 27-TSX/PMX 47/67/87/107 PLCs



Connecting to TSX 27 and TSX/PMX series 7 PLCs (version V3 or model 40) requires a T FTX CB 7 5 cable (to be ordered separately). This cable is 5 m long and is fitted with :

- A 26-pin male SUB-D type connector on the FTX 507 side.
- A 9-pin male SUB-D type connector on the TSX 7 side.

C

5.2-3 Connecting to the X-WAY network

The FTX 507 terminal with an X-WAY network communication card is connected directly to the appropriate network.

The terminal with the X-TEL Software Workshop is then considered to be a network station. It can access all PLC stations in the same network architecture (single network or multinetwork). All the modes available with Telemecanique software (PL7-X or X-DIAG) can be used, including loading a program from a remote PLC.

C X-WAY network cards

- FIPWAY network or FIPIO fieldbus :
via the TSX FPC 10M short format card.
For hardware and software installation information, refer to the TSX DM FPC 10M manual.
- ETHWAY network :
via the TSX ETH PC 101M short format card.
For hardware and software installation information, refer to the TSX DM ETH PC 101M manual.
- MAPWAY network :
via the TSX MAP PC7 42M long format card.
For hardware and software installation information, refer to the TSX DM MAP PC7 M manual.

5.2-4 Connecting to UNI-TELWAY bus

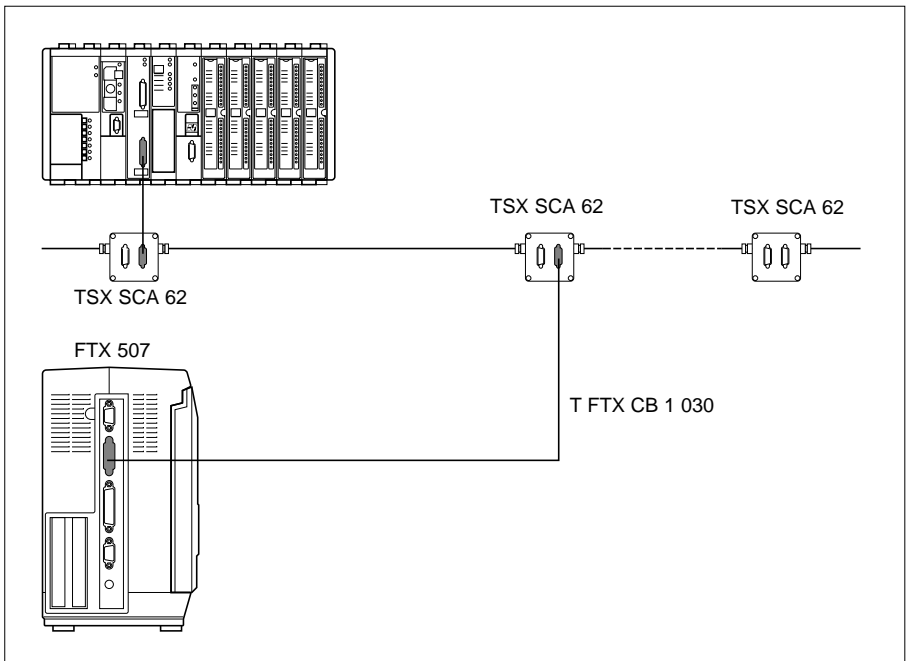
The connection of a workstation to UNI-TELWAY enables local maintenance of an application which includes a UNI-TELWAY bus.

The UNI-TELWAY bus can only be connected when the UNI-TELWAY software driver is installed. This driver is supplied with X-TEL and MINI X-TEL software or PL7-DOS user interface software.

The connection is made on the TSX SCA 62 subscriber socket using the T FTX CB 1 030 (1) cable (to be ordered separately).

This 3 m cable is fitted with :

- A 26-pin male SUB-D type connector on the FTX 507 side,
- A 15-pin male SUB-D type connector on the TSX SCA 62 side.



The terminal can also be connected via the UNI-TELWAY link :

- to the integrated UNI-TELWAY port on the processor using the T FTX CB 2 030 (2) cable which is 3 m long,
- on a TSX SCM 21●6 module channel using the T FTX CB S5 cable (3 m long).

(1) replaces the T FTX CB 17 5 cable,

(2) replaces the T FTX CB W5 cable.

5.3 Modem link

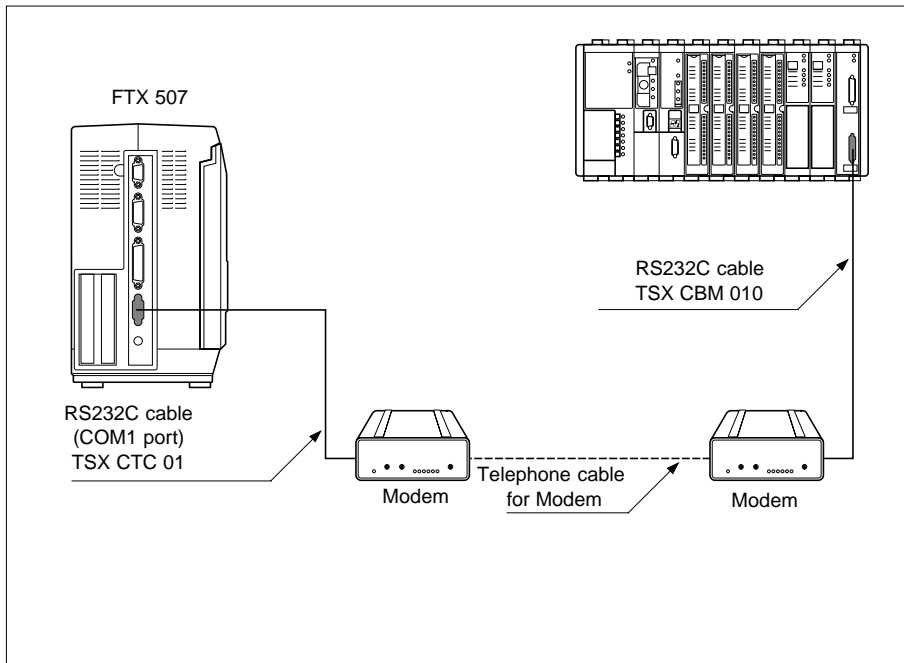
The FTX 507 workstation can be connected via a modem link to PLCs for remote maintenance.

• TSX range

The modem link is only possible when the UNI-TELWAY software driver is installed. This driver is supplied with :

- MINI X-TEL or X-TEL software;
- SYSDIAG software under the PL7-DOS user interface.

For further information, see the relevant manuals.



Connection via the RS232C serial port (see section 3.3-2) uses the TSX CTC 01 cable (to be ordered separately).

This 2 m cable is fitted with :

- A 9-pin female SUB-D connector on the FTX 507 side,
- A 25-pin male SUB-D connector on the modem side.



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6.1-1 List of utilities	6/2
6.1-2 Installation procedure	6/3
6.2 Configuration utility (SETUP)	6/4
6.2-1 Accessing SETUP	6/4
6.2-2 The screen	6/5
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6.2-6 OPERATING CONFIGURATION window (Communication ports)	6/15
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6.8 Save files to CMOS memory utility	6/23

This section ends at page 6/24



6.1 Introduction to the DOS/WINDOWS utilities

6.1-1 List of utilities

Telemecanique utilities are divided into two groups :

- SETUP, resident in ROM, displays the configuration parameters for the FTX 507 workstation and allows them to be altered. This software is in English only.
- A set of utilities supplied on a 3 1/2" diskette (Ref. No. T FTX LF TDS 5) containing the following :
 - SETUP.EXE, described in section 6.2, displays the configuration parameters for the FTX 507 workstation and allows them to be altered. This SETUP program performs the same function as the one resident in ROM, but it is a multilingual version (French, English, German, Italian, Spanish).
 - SCREEN.EXE, described in section 6.3, manages the screen.
 - VALIDWDG, described in section 6.4 enables the watchdog to be activated when this is confirmed in the SETUP configuration utility.
 - DISKSTOP.EXE, described in section 6.5 stops the hard disk and locks the reading heads (when transporting the workstation).
 - T607TOPC.EXE, described in section 6.7 converts files used in a TSX T607 Telemecanique terminal into files which may be used with PL7 languages.
 - CMOS.EXE, described in section 6.8 backs up the files in the FTX 507 workstation's CMOS RAM memory.

Installing this software onto the hard disk in the FTX 507 workstation is described in section 6.1-2.

D

6.1-2 Installation procedure

Important

It is only necessary to install the utilities if you have installed the operating system(s) yourself. In this case, get into DOS and follow the procedures below.

When the "prompt" appears on the screen :

- put the utilities diskette into the drive,
- select the drive where the diskette is located and type, for example, A : the "prompt" A:\>is then displayed.
- launch the utilities installation procedure by typing the command INSTALL then confirm with <Enter>.

The following message is then displayed :

Installation of TELEMECANIQUE Tools in progress...

When installation is performed under DOS, the software creates a directory C:\TE_TOOLS in which the SETUP.EXE, VALIDWDG.EXE, CMOS.EXE, SCREEN.EXE and DISKSTOP.EXE utilities are placed, and then modifies the Autoexec.bat start-up file.

Note :

To install any specific mouse drivers, refer to the relevant documentation :

When installation is complete, the following message is displayed :

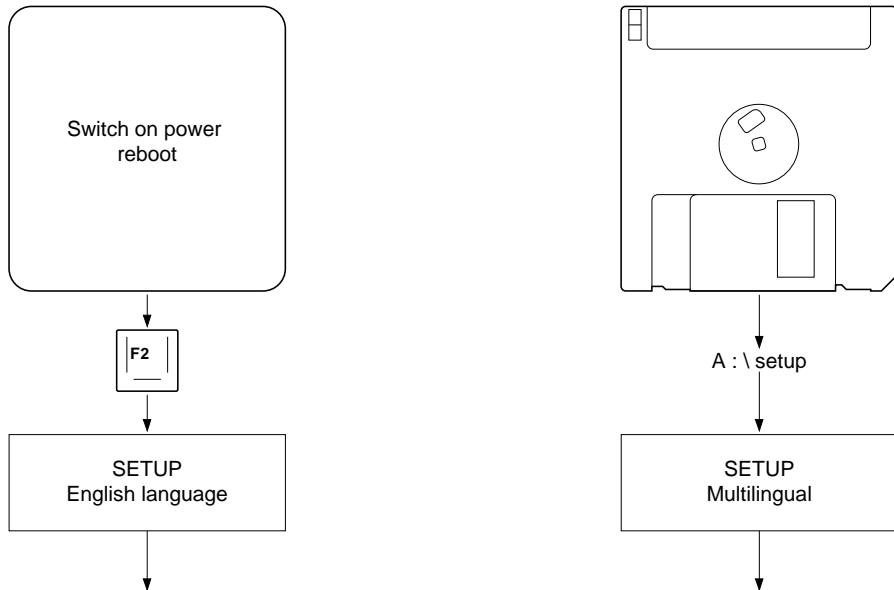
**The installation of TELEMECANIQUE tools is now complete.
Remove the floppy and hit CTRL-Alt-Del to restart the machine.**

6.2 Configuration utility (SETUP)

6.2-1 Accessing SETUP

SETUP may be accessed in one of two ways :

- By keeping F2 pressed down during the self-tests when the FTX 507 workstation is switched on or rebooted. This method of access starts the SETUP program in the ROM memory. This version is in English.
- Under DOS or in an OS/2 session, by opening the DOS compatibility window, which starts the SETUP.EXE file supplied on the T FTX LF TDS 5 UTILITIES diskette. This version is multilingual (French, English, German, Italian, Spanish).



When SETUP is started using the F2 key, the message ****RESIDENT SETUP ACTIVATED**** is displayed at the bottom of the screen.

If the terminal is already powered up, SETUP can be accessed by pressing F2 and then entering the password (if configured), ****RESIDENT SETUP ACTIVATED**** is displayed at the bottom of the screen.

6.2-2 The screen

The basic screen is described below (some parameters may be different, depending on the hardware configuration) :

TELEMECANIQUE FTX 507 CONFIGURATION Version x.y	
BASIC CONFIGURATION	OPERATING CONFIGURATION
Memory Size : 8192 Kb CMOS RAM Size : 128 Kb Drive A : 1.44 Mb Hard Disk : 233 Mb Video Interface : UGA Math Coprocessor : Absent Serial Ports : 02 Parallel Ports : 01 Language : English Bios Version : U x.y Serial Number : 10376001	Operating Parameters Communication Ports Select Hot Keys Language Selection
Cursor Key : ↑, , →, ← Select : Enter Exit : ESC Help : F1	

This screen has two windows :

- A BASIC CONFIGURATION window indicating accessories which are set up. The parameters in this window cannot be modified.
- An OPERATING CONFIGURATION window which is used to modify the dynamic parameters for the FTX 507 workstation :
 - Date, time, password.
 - Assignment of communication ports.
 - Selection of active keys for changing the video mode (reverse or normal) and modifying the shades of grey on the LCD screen.
 - Language selection. This selects the language used by all the Telemecanique utilities.

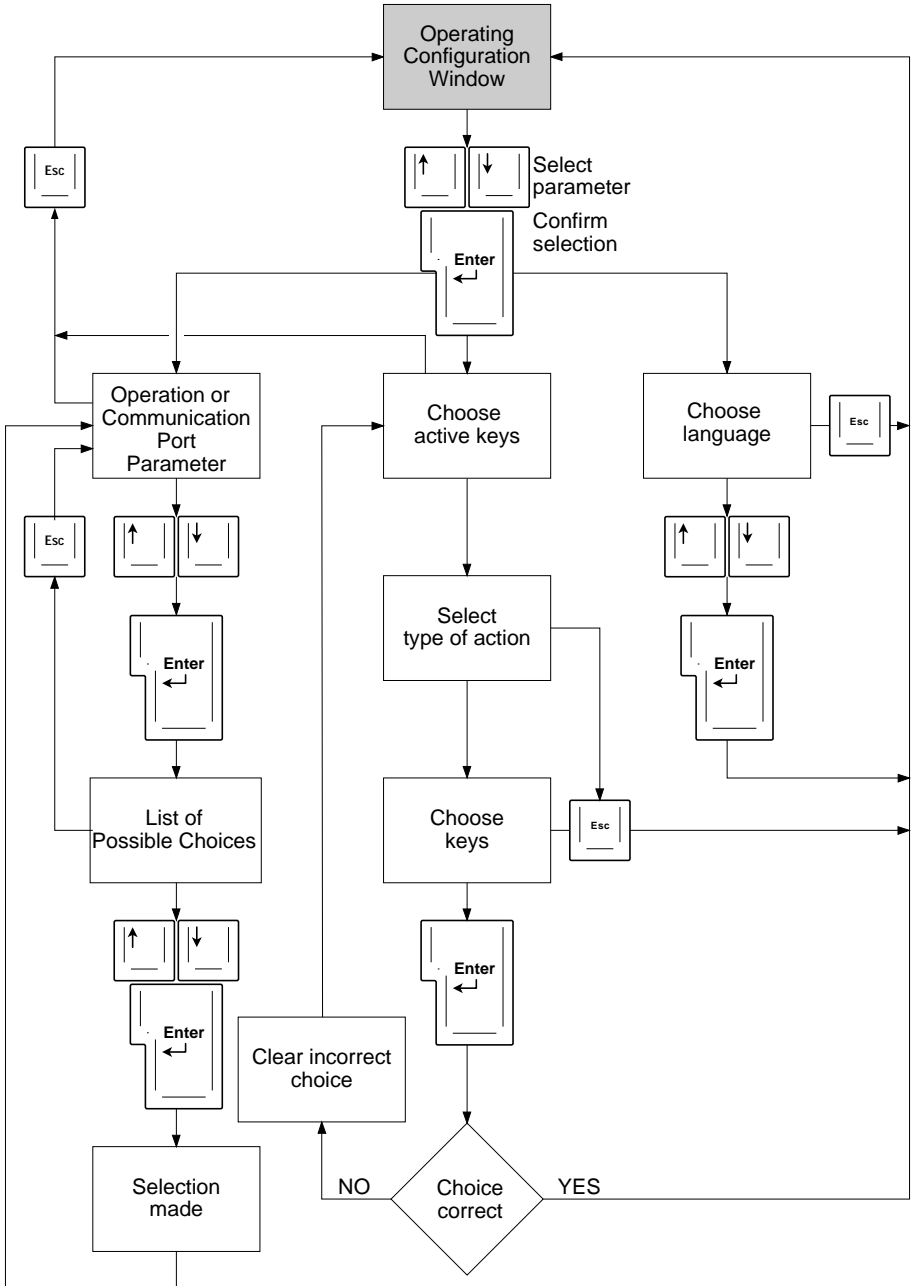
The keys to use

The two windows are accessed by the ← and → keys. The vertical arrow keys are used to select the parameters inside these windows.

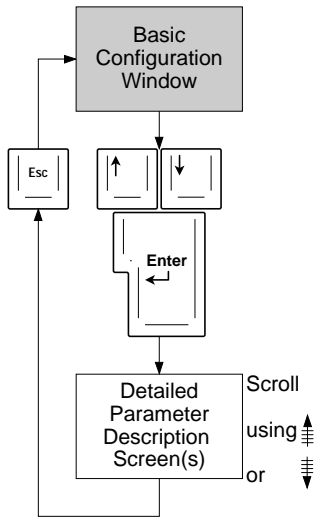
The <Esc> key is used to exit either from the current function or from SETUP.

F1, which can be used at any time, accesses a help file corresponding to the screen displayed and the subject selected.

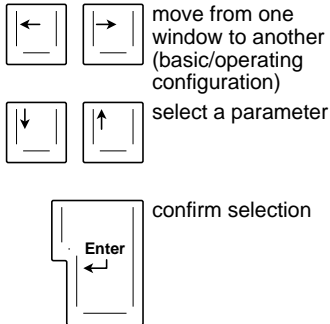
6.2-3 Summary of operations



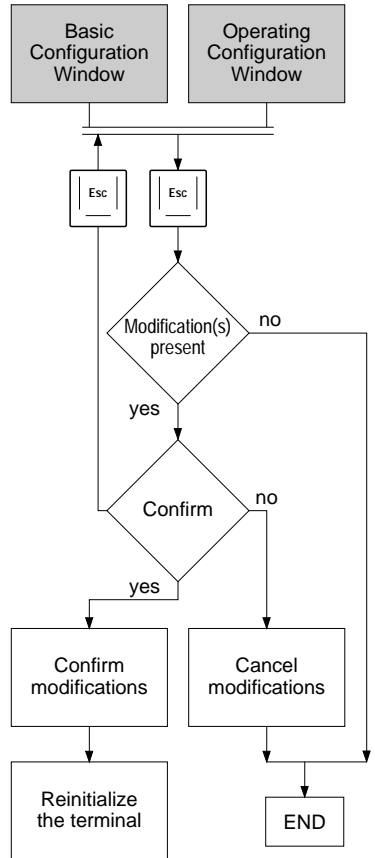
Summary of operations (cont.)



Key legend.



Principle of confirmation



D

6.2-4 BASIC CONFIGURATION window

The BASIC CONFIGURATION window provides information about the physical set-up of the FTX 507 workstation :

- Size of the RAM memory,
- Size of the CMOS RAM memory,
- Disk drive A,
- Hard disk,
- Video board,
- Math coprocessor,
- Serial ports,
- Parallel ports,
- Dialogue language

BASIC CONFIGURATION	
Memory Size	: 8192 Kb
CMOS RAM Size	: 128 Kb
Drive A	: 1.44 Mb
Hard Disk	: 233 Mb
Video Interface	: VGA
Math Coprocessor	: Absent
Serial Ports	: 02
Parallel Ports	: 01
Language	: English
Bios Version	: U x.y
Serial Number	: 10376001

A detailed description of each parameter in this window can be obtained by selecting the parameter and then pressing <Enter>, providing it has been configured.

Memory Size

Gives the total size of the RAM memory, as well as the partition between the system board and an AT (ISA) bus extension board.

CMOS RAM Size

Gives the size of the CMOS RAM memory built into the FTX 507 workstation. This is a permanent memory for storing small files using CMOS.EXE on the T FTX LF TDS 5 UTILITIES diskette (further information is given in section 6.7).

Drive A

Gives the capacity of the disk drive installed.

Hard Disk

Gives the capacity of the hard disk. The hard disk can be configured to stop after a certain period of inactivity (programmable from 5 to 18 minutes). DISKSTOP.EXE which is on the T FTX LF TDS 5 UTILITIES diskette can also be used to stop it immediately on request (further information is given in section 6.5).

Video Interface

Gives the type of video interface.

Math Coprocessor

Indicates the presence or absence of the optional math coprocessor.

Serial Ports

Gives the number of serial ports included and confirmed in the FTX 507 workstation.

Parallel Ports

Gives the number of parallel ports in the FTX 507 workstation.

Language

Gives the language used for all the Telemecanique utilities.

Bios Version

Gives the Bios version installed in the FTX 507 workstation.

Serial Number

Gives the serial number of the FTX 507 workstation. This number is unique. It cannot be modified.



6.2-5 OPERATING CONFIGURATION window (Operating parameters)

The "Operating parameters" selection in the OPERATING CONFIGURATION window is used to modify the following functions :

- Date.
- Time.
- The default screen.
- Assignment of digital output ALF0.
- Assignment of digital output ALF1.
- Setting the password.
- Carrying out self-tests when switching on.
- Adjusting the FTX 507 screen.
- The state of the CMOS RAM.
- Mode of use of backup supply.
- Setting the relevant times for using :
 - The hard disk and the disk drive.
 - The FTX 507 screen.

The screen below shows the default settings :

OPERATING PARAMETERS	CAUTION !!!!
<p>Date 06/12/1991 Time 16:50:12 Priority screen . . . External (EXT) ALF0 digital output . User defined ALF1 digital output . User defined Password Absent Self-tests Quick LCD setting Reverse video CMOS RAM Status . . . Checksum correct Optional Power supply Battery (Continuous) Operating time :<ul style="list-style-type: none">- To disk shutdown . Continuous- To LCD shutdown . Continuous</p>	<p>The selections made by the user for the message display language, the time and date and the display settings take effect immediately. All other selections will only take effect when the FTX 507 is rebooted.</p>

Important

The modified parameters, in reverse video, are only used after exiting SETUP. Data relating to the date and screen adjustment take effect immediately.

When a parameter is selected, an entry window provides the available choices or indicates the syntax to be used.

Date

Updates the date in the format shown.

Time

Updates the time in the format shown.

Priority screen

Defines the combination of screen(s) used on starting up the terminal :

- Internal LCD :
Only the internal LCD screen is selected.
- External CRT :
Only the external screen is selected.
- Both LCD+CRT :
Simultaneous use of internal and external screens.

Note

The LCD + CRT function is not supported on FTX 507 8C terminals (with colour STN screen).

If there is no external screen on start-up, the FTX 507 automatically sets to internal screen.

ALF0 digital output

The ALF0 digital output (Ref. No. T FTX CHG 5 : battery charger / 24 VDC supply), may be configured in two ways :

- User defined :
It can be controlled by program, independently of the state of the machine.
- Watchdog :
It reflects the state of an internal watchdog and is triggered if there is a serious fault.

ALF1 digital output

The ALF1 digital output (Ref. No. T FTX CHG 5 : battery charger / 24 VDC supply), may be configured in three ways :

- User defined :
It can be controlled by program independently of the state of the machine.
- Temperature alarm :
It is activated on detection of excessive temperature inside the terminal.
- Low battery :
It is activated when :
 - the workstation is operating with a battery which has fallen to 10% of its capacity,
 - an external supply 24VDC is being used and the voltage is less than 22.5V.

Password

This function defines (or cancels) a password of 3 to 8 alphanumeric characters. When it has been registered, the password is requested each time the terminal is switched on. After three unsuccessful attempts, the terminal must be switched on again.

- Creation of a password :
When the terminal does not have a password, enter the selected password twice in succession.
- Modifying the password :
Type the old password and then key in the new one twice.
- Deleting the password :
Type the old password, then press <Enter> twice.

If the user loses his password, he should contact his approved Telemecanique service centre and provide the following information :

- His location.
- The two pieces of data which appear on the screen after three unsuccessful attempts to enter the password when switching on, which are :
 - the serial number,
 - the random code number.

Telemecanique will provide a specific code for reinitializing the FTX 507 workstation and defining a new password. This unique code will not work if it is entered at a later date when the password is lost again.

Important

The password system makes use of the positions of the keys used and not their labels. Therefore it is strongly recommended that the type of keyboard is not changed after introducing a password (e.g. the password "ZAZ" on an AZERTY keyboard corresponds to "WQA" on a QWERTY keyboard).

Self-tests

This parameter selects the way the self-tests are carried out when the FTX 507 workstation is switched on :

- Complete :
Tests the whole of the RAM memory.
- Quick :
Only tests the basic memory (640 Kb) and the system memory (384 Kb). This saves a great deal of time when running self-tests on a terminal with a large amount of RAM memory.

Video mode selection

This function is used to modify the video mode (Video mode selection)

The vertical arrow keys can be used to display the screen in normal or reverse video mode. The video mode may also be modified at any time, under DOS, by pressing on a combination of active keys. These keys are defined in the "Select active keys" menu in the OPERATING CONFIGURATION window (refer to section 6.2-7 for more details).

Important

This option can only be accessed when the internal screen is selected. If both the internal and external screens are selected, these keys only have an effect on the internal screen.

CMOS RAM status

After confirmation, this function initializes the contents of the CMOS RAM memory in the event of an incorrect checksum.

An incorrect checksum indicates that at least one of the files in this memory is damaged. The CMOS.EXE utility on the T FTX LF TDS 5 UTILITIES diskette handles the files contained in CMOS RAM memory. Refer to section 6.8 for more details about this utility.

Optional Power Supply**Battery**

The back up battery (Ref. no. T FTX RBA T 5) enables the FTX 507 workstation to operate without AC power. The operating time with the battery can be selected from the following options :

- **Battery continuous :**
If there is a power break, the battery is automatically brought into use. An audible alarm is triggered. The time available for independent operation depends on the operating mode of the terminal and the extension boards installed. A second signal indicates that the battery is 90% discharged.
- **Battery disabled :**
If there is a power break, independent operation will continue for between 20 and 60 ms, depending on the hardware configuration of the terminal. In this mode, the FTX 507 workstation can still be started without any external power supply. The self-tests then request confirmation of starting by pressing any key. If there is no confirmation, the terminal is automatically switched off to conserve the battery.

-
- Time limited :

if there is a power break, the battery is used for the period specified (from 1 to 15 minutes). After this time, the FTX 507 workstation is cut off. One minute before the end of the fixed time, an audible alarm sounds. If power returns during battery operation, a long beep is sounded and the battery goes back on charge.

Note : This option is not available when starting up directly off the battery.

With external 24 VDC supply

The 24 VDC power adaptor (reference number T FTX ADC5) enables the terminal to operate off a 24 VDC supply.

- External 24 VDC
Enables the terminal to be supplied by external 24 VDC supply. An audible alarm (5 short beeps) and a visual alarm (rapid blinking of PWR lamp) indicates the voltage is less than 22.5V. This voltage can be monitored by output ALF1.

Operating time to disk shutdown

This defines the time the hard disk and the disk drive may be inactive before they are shutdown.

- Continuous :
The hard disk and the disk drive remain in permanent operation.
- Stop after x minutes :
Stops the hard disk and the disk drive at the end of a programmable time interval (from 5 to 31 minutes) during which neither has been accessed. Once stopped, any access request brings these peripherals back into operation.
This function provides :
 - a saving in energy while operating off the battery
 - the ability to transport the workstation while still operating.

The reliability of a hard disk depends on the number of times it is switched on. Therefore, it is recommended that the hard disk is operated continuously except when it is necessary to save the battery or when the terminal needs to be moved while still operating.

Moreover, access times are much shorter for an operating disk than a shutdown disk.

DISKSTOP.EXE on the T FTX LF TDS 5 utilities diskette stops the hard disk and the disk drive on request.

Operating time to LCD shutdown

In the same way as for the hard disk and the disk drive, the LCD screen on the FTX 507 workstation may be configured to go into standby mode after a programmable period during which the keyboard has not been touched.

- Continuous :
The screen is in permanent operation.
- Stop after x minutes :
Offers a programmable period, from 1 to 15 minutes, before the screen passes into standby mode. Once the screen has cleared, it can be reactivated simply by pressing <Shift>, <Alt>, or <Ctrl> (only under DOS) or by touching the mouse if there is one in use. This function saves energy when operating off the battery.

6.2-6 OPERATING CONFIGURATION window (Communication Ports)

Selection of "Communication Ports" in the OPERATING CONFIGURATION window allows the user to modify the assignment of the different kinds of link :

- RS 232 C, •RS 485 / CL 20, •Parallel//,

to the communication ports in the workstation :

- COM1, •COM3, •LPT1,
- COM2, •COM4, •LPT2.

COMMUNICATION PORTS		
Assignment of the built in ports :		
- RS 232 c	.	.COM1 (default)
- RS 485 / CL20 (PLC)	.	.COM2 (default)
- Parallel port address	.	.378h (default)
Communication mode selected for the RS485/CL20 (PLC) communication port :		
- Selected mode	.	.CL20

ASSIGNMENTS		
Port	Address	Int
COM1	3F8	IRQ4
COM2	2F8	IRQ3
COM3	3E8	IRQ4
COM4	2E8	IRQ3



Built in to the mother board in the terminal are :

- Two serial ports
 - one port with RS 232C format, assigned by default to COM1,
 - one port assigned to COM2, for interfacing with Telemecanique PLCs :
 - using RS 485 format for connecting to the UNI-TELWAY bus, to TSX 17 micro-PLCs or any other device to RS 485 standard,
 - using current loop (CL 20) format for connecting to other PLCs.
- One parallel port, assigned by default to LPT1.

If necessary, other optional ports may be installed on the ISA bus. It is advisable to assign these to COM3 and COM4 for serial ports and to LPT2 and LPT3 for parallel ports.

Important

Modified parameters, shown in reverse video, are only used after exiting SETUP. A high numbered communication port may only be selected if lower numbered ports are also used (e.g. if COM3 is declared, COM1 and COM2 must be used).

When selecting a parameter, an entry window shows the various possible choices.

RS 232 C

Assigns the COM1 (selected by default) or COM3 port as an RS 232C link. It is also possible not to assign an RS 232C port (selection inhibited).

RS485 / CL 20 (PLC)

Assigns the COM2 (selected by default) or COM4 port as an RS 485 or CL 20 link. It is also possible not to assign an RS 485 port (selection inhibited).

Parallel port address

Assigns the LPT1 port (selected by default) or LPT2 port as a parallel link. It is also possible not to assign a parallel port (selection inhibited).

Note

An LPT1 port must be declared in order to use the X-TEL Software Workshop.

Selected mode

The Telemecanique port (RS 485 / CL 20), when it is not inhibited, can be programmed in two communication formats :

- RS 485 for connecting to the UNI-TELWAY bus, to TSX 17 micro-PLCs or to any other device using the RS485 standard.
- Current loop (CL 20) for communicating with the programming terminal port of other PLCs.

6.2-7 OPERATING CONFIGURATION window (Active keys selection)

The "Select active keys" choice in the OPERATING CONFIGURATION window, offers the possibility of choosing a sequence of three keys which can readily modify the configuration parameters of the LCD screen so as to modify the video operating mode (normal or reverse).

The three keys for this sequence must be selected from the following :

- "Shift" on the left of the keyboard
- "Shift" on the right of the keyboard
- "Control" on the left of the keyboard
- "Control" on the right of the keyboard
- "Alt" on the left of the keyboard
- "Alt" on the right of the keyboard

The modifications become effective under DOS, at any time, by pressing the previously defined sequence of keys.

Configuration screen :

LCD DISPLAY SETTING - HOT KEYS SELECTION	
NORMAL / INVERSE toggle hot-keys :	
SHIFT	Select zero or three keys
CONTROL	ALT
ALT	CONTROL
(To Enable / Disable, press the corresponding key) (To disable the whole selection, press Space bar)	
The video hotkey provides a direct control of the normal / reverse mode of the display by depressing simultaneously the appropriate set of 3 keys. This change is temporary. The default settings will prevail at the next power on or reboot A valid selection must contain exactly 3 keys. Exactly zero keys must be selected to invalidate the mechanism	
Select : Enter	Exit : ESC

The default value is :

- Left and right Shift, left Alt.

Selection or deselection of a key is performed by pressing the key concerned. In order to be effective, any selection must consist of three keys. If no active key is selected, the function concerned is inhibited.

A key which has been selected is seen in reverse video.

The space-bar deselects all the keys in the active zone.

Important

The same combination of active keys may be used by other applications. In this case, try another combination or deactivate this function.

The video state selected with this combination of active keys is temporary. When switching on or powering up, the default state is restored.

6.2-8 OPERATING CONFIGURATION window (Language selection)

The "Select language" choice in the OPERATING CONFIGURATION window gives a choice of languages in which to execute Telemecanique utilities. The languages are English, French, German, Italian and Spanish.

Screen

LANGUAGE SELECTION
English : Select the country
Fran aais : Slectionner la nationalit
Deutsh : Wahlen sie die nationalitat
Italiano : Selezionare la nazionalit
Espanol : Selectar la nacionalidad

Any modification to the language selected takes effect immediately.

Reminder : The SETUP program resident in the FTX 507 workstation ROM is an exception. It is in English only.

6.2-9 Saving the modifications

Once the modifications have been entered, they must be saved.

This is carried out using the basic SETUP screen, by pressing the following sequence of keys :

<Esc> : displays a confirmation screen :

- **<Y>** confirms the modifications, exits from SETUP and places the terminal in work mode.
- **<N>** cancels the modifications which were made and exits from SETUP,
- **<Esc>** returns to the parameter selection display.

6.3 Screen management utilities

The following commands control and select the LCD screen in the FTX 507 workstation and the video screen connected to the remote video port.

SCREEN

Lists all the commands described below, and displays the current selection.

SCREEN INTERNAL

Selects only the LCD screen on the FTX 507 workstation. The external video screen is inhibited.

SCREEN EXTERNAL

Selects only the external video screen. The LCD screen on the FTX 507 workstation is inhibited.

SCREEN BOTH

Selects the LCD screen on the FTX507 workstation and the external video simultaneously.

SCREEN INTERNAL NORMAL

Selects only the LCD screen on the FTX 507 workstation in normal video. The external video screen is inhibited.

SCREEN INTERNAL INVERSE

Selects only the LCD screen on the FTX 507 workstation in reverse video. The external video screen is inhibited.

SCREEN BOTH NORMAL

Selects the LCD screen on the FTX 507 workstation and the external video screen in normal video.

SCREEN BOTH INVERSE

Selects the LCD screen on the FTX 507 workstation and the external video in reverse video.

SCREEN INVERSE

Selects the LCD screen on the FTX 507 workstation in reverse video.

SCREEN NORMAL

Selects the LCD screen on the FTX 507 workstation in normal video.

SCREEN <.> /P

All the commands above are valid while the FTX 507 workstation is switched on. After switching off and then on again, the selection made during SETUP becomes operative. The SCREEN <.> /P command is used to make the chosen selection permanent (the modification is registered in the SETUP file).

Example : C:\UTIL507>SCREEN BOTH INVERSE /P

6.4 Watchdog activation utility

The following command enables the internal watchdog to be activated which triggers the ALF0 output (see section 6.2-5).

The configuration must assign the ALF0 output to the watchdog in the "operating parameters" window of the SETUP program.

VALIDWDG

Validates the watchdog for the current session.

Install the DOS utilities diskette to make this command available. This facility will then start automatically as soon as the machine is switched on.

6.5 Hard disk parking utility

The DISKSTOP command stops the hard disk and then locks its heads in position. This command is used especially :

- To save energy when the workstation is used off a battery.
- To transport the workstation while still operating.

Once shut down, any access request brings the disk back into operation.

Precautions to take when using this utility are given in section 6.2-5, under the heading "Operating time to disk shutdown".
--

6.6 Mouse driver utility

The mouse driver utilities and their installation are described in the manual supplied with the mouse.

6.7 TSX 607 file conversion utility

The following commands are used to convert files created on a T607 terminal for use in an FTX 507 workstation.

T607TOPC

Lists all the commands described below.

T607TOPC DIR <source drive>

Displays the list of files on the T607 diskette.

- Insert the T607 diskette into the drive.
- Enter the T607TOPC DIR <source drive> command.

Example : C:\UTIL507>T607TOPC DIR a:

```
OVEN          151324
OVEN.CAB     196
OVEN.TIT     100
OVEN.NET     158
. . . . .
```

The screen displays the names of the files with their extensions and their size in bytes.

*.BIN files (containing application programs created on TSX T607 terminals) are read without their extensions by the FTX 507 workstation

T607TOPC <source drive>:*.* <target>

Copies the complete contents of the T607 diskette to the DOS directory selected.

- Create a directory under DOS,
Example : C:\>MKDIR APV3
- Insert the T607 diskette into the drive
- Enter T607TOPC <source drive>:*.* <target>
Example : C:\UTIL507>T607TOPC a:*.* c:\APV3

All the T607 files on the diskette are then copied into the directory.

T607TOPC <source drive>:\<T607 name> <target>

Copies the file selected from the T607 diskette to the DOS directory selected.

- Create a directory under DOS,
Example : C:\MKDIR APV3
- Insert the T607 diskette into the drive
- Enter T607TOPC <source drive>:\<T607 name> <target>
Example : C:\UTIL507>T607TOPC a:\OVEN. c:\APV3

Comment

In order to be able to use the files after transfer from the TSX T607 terminal, the original files must include an extension. If this extension is not present, .BIN extension must be added, using the DOS "RENAME" command :

Example : RENAME <PATH> FILE FILE.BIN

6.8 Save files to CMOS memory utility

The following commands are used to read and write files in the protected RAM memory in the FTX 507 workstation.

CMOS

Lists all the commands described below.

CMOS PUT <dosname> [<cmosname>]

Copies the file named (with its path) into the CMOS memory.

Example : C:\UTIL507>CMOS PUT C:\PROJECT\OVEN.CAB OVEN.CAB

CMOS GET <cmosname> [<dosname>]

Copies the file from the CMOS memory into the file named (with its path).

Example : C:\UTIL507>CMOS GET OVEN.CAB c:\PROJECT\OVEN.CAB

CMOS DEL [<cmosname>]

Deletes the file named from the CMOS memory.

Example : C:\UTIL507>CMOS DEL OVEN.CAB

CMOS DIR

Lists the files stored in CMOS memory and gives the size of memory still available.

CMOS DEL *.*

Deletes all the files in CMOS memory.



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7.1 Introduction to the OS/2 utilities

The OS/2 utilities diskette must be installed on FTX terminals used under OS/2 version $\geq 2.x$.

TE/MS-OS/2 version 1.3 already contains the functions provided by these utilities.

These utilities add functions which are specific to Telemecanique systems to the IBM OS/2 operating system.

The utilities diskette must be installed BEFORE the Software Workshop (X-TEL or MINI X-TEL).

Note :

If your terminal is supplied pre-installed, the contents of this diskette have already been installed in the factory. This therefore does not affect you.

7.2 Installation procedure

The OS/2 system must be installed BEFORE the utilities diskette. Refer to the manual provided with the OS/2 diskettes to perform this installation.

Then, install the utilities :

- start the machine under OS/2.
- do not launch any other application as the terminal should be restarted to activate the driver set up during installation.
- open an OS/2 session using the following commands :
 - in the Workplace Shell, activate the OS/2 icon (by double-clicking),
 - in the "OS/2 System - Icon view" window, activate the Command prompts icon,
 - in the Command prompts window, run the "OS/2 full screen" icon.
- insert the "TE OS/2 TOOLS" diskette in drive A:
- start the installation using the command :
a:INSTALL <Enter>
- when prompted by the program, reinitialize the system using the command <Control> <Alt> .



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8.1 General

Each time the terminal is switched on or rebooted a series of self-tests are automatically performed (see section 2.3-2). If one of the tests is not correct, an error message is displayed on the screen (see sections 2.3-3 to 2.3-6).

Depending on the type of message, the user must :

- either carry out the necessary correction (configuration not conforming, defective battery, etc.)
- or contact the local Telemecanique agent.

The user is able to change the following parts on the FTX 507 terminal :

- Internal parts
 - dynamic RAM
 - battery charger/24 VDC supply unit
 - battery cartridge module
 - 24 VDC supply adaptor
 - battery for real-time clock back-up
 - anti-dust filter for fan
 - power supply fuses.
- External parts
 - keyboard
 - power cable
 - mouse
 - terminal/PLC connection cables.

8.2 Replacement of parts by the user

The procedure for replacing some of the internal parts is identical to that for setting up.

Relevant parts :

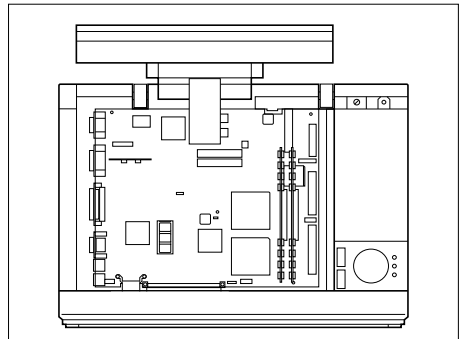
- dynamic RAM (see section 4.2),
- battery charger/24 VDC supply unit, (see section 4.4),
- battery cartridge module (see section 4.4),
- 24 VDC supply adapter (see section 4.5).

For other parts, see the following sections.

8.2-1 T FTX BAT 51 battery for real-time clock back-up

Procedure

- 1- Remove the front panel (see section 4.1-3).
- 2- Disconnect the battery.
- 3- Detach the battery from the chassis. This is attached with a “Velcro” strip.
- 4- Replace with a new battery and reassemble the unit.



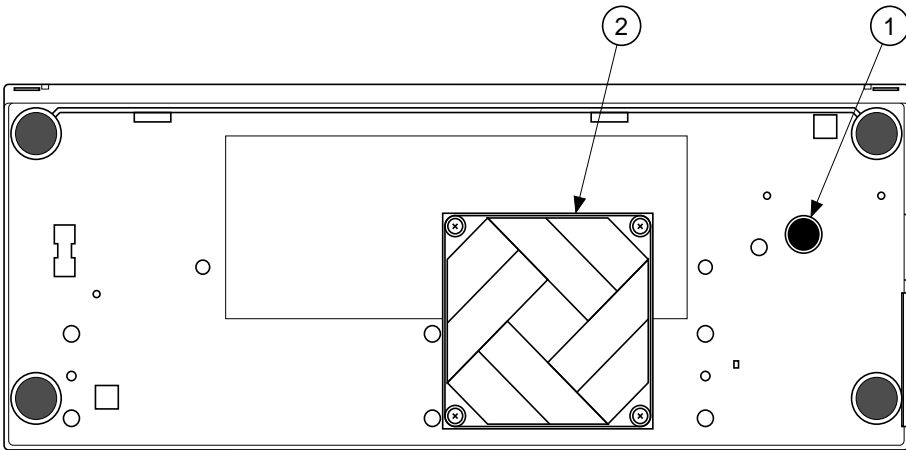
8.2-2 T FTX FTR anti-dust filter and AC supply fuses

These parts can be accessed from the underside of the terminal.

- ① 2A TD 5x20 AC power supply fuses.
- ② Anti-dust filter for the fan.

To be changed when :

- the filter appears very dusty
- cutting-out occurs for no apparent reason (a severely blocked filter will prevent adequate ventilation inside the terminal).



8.2-3 DC supply fuses

When the FTX 507 terminal is fitted with an internal 24 VDC adapter unit (T FTX ADC 5), a fuse (TD 20x5 5A) protects the 24 VDC supply.

This fuse can be found in the battery charger/24 VDC supply unit T FTX CHG 5 and can be accessed by removing the rear panel (see section 4.1-2).



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9.1 General

The FTX 507 terminals have been developed to conform to national and international standards concerning industrial control systems and electronic equipment.

- Specific to programmable controllers : functional characteristics, immunity, durability, safety, etc. NFC 63-850/IEC 65A (CO)22/CSA 22.2 n°142/UL 508,
- Immunity to electrostatic discharge : IEC 801.2 level 4 (minimum 3),
- Isolation : air and leakage distances : UL 508, NFC 20-040, IEC 664, VDE 110 b, etc.
- Dielectric and self-extinguishing characteristics of isolating materials : UL 746C, UL 94, etc.

FTX 507 terminals have been checked and satisfy all the requirements for Class A digital systems, conforming with paragraph 15 of FCC regulations. These limits ensure reasonable protection against interference in commercial environment. This relates to equipment which generates, uses and may emit high frequency energy. If not installed and used in accordance with the operation manual it may cause radio communication interference. In this event the user should take the necessary measures to eliminate it, at his own expense.

Note :

Light spots may appear on the TFT active matrix screen. These are caused by faulty pixels. The manufacturer of this screen specifies a maximum of 50 visible faults on the million points which make up the screen.

9.2 Service conditions

9.2-1 Temperature

Normal temperature conditions

θ_A operation	0°C to +40°C
θ_A storage	-25°C to +70°C

θ_A : temperature of surrounding air

9.2-2 Relative humidity

Normal conditions

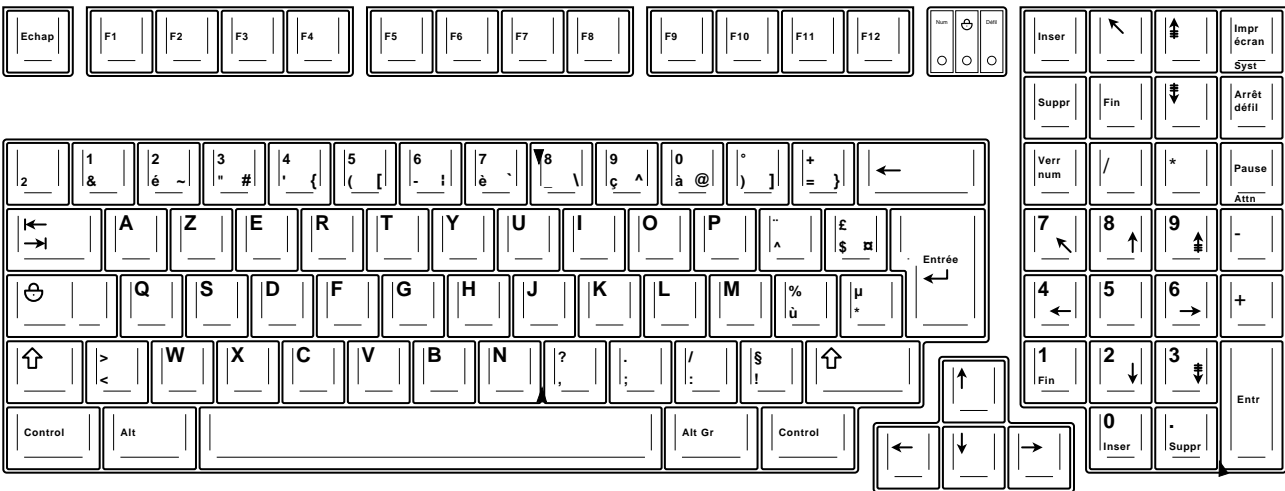
Relative humidity (without condensation)	30% to 95%
Altitude	0 to 2000 m

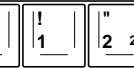
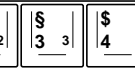
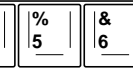
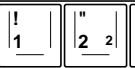
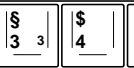
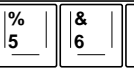
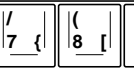
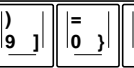
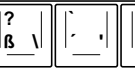
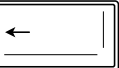
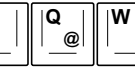
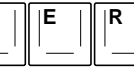
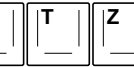
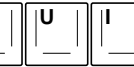
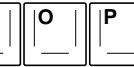
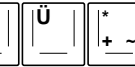
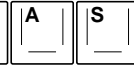
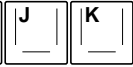
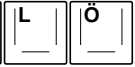
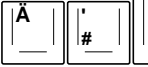
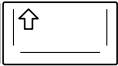
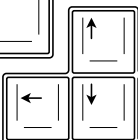
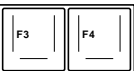
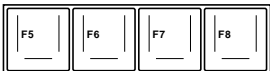
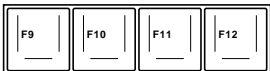
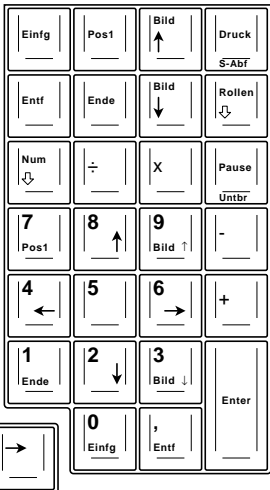
9.2-3 Power supply

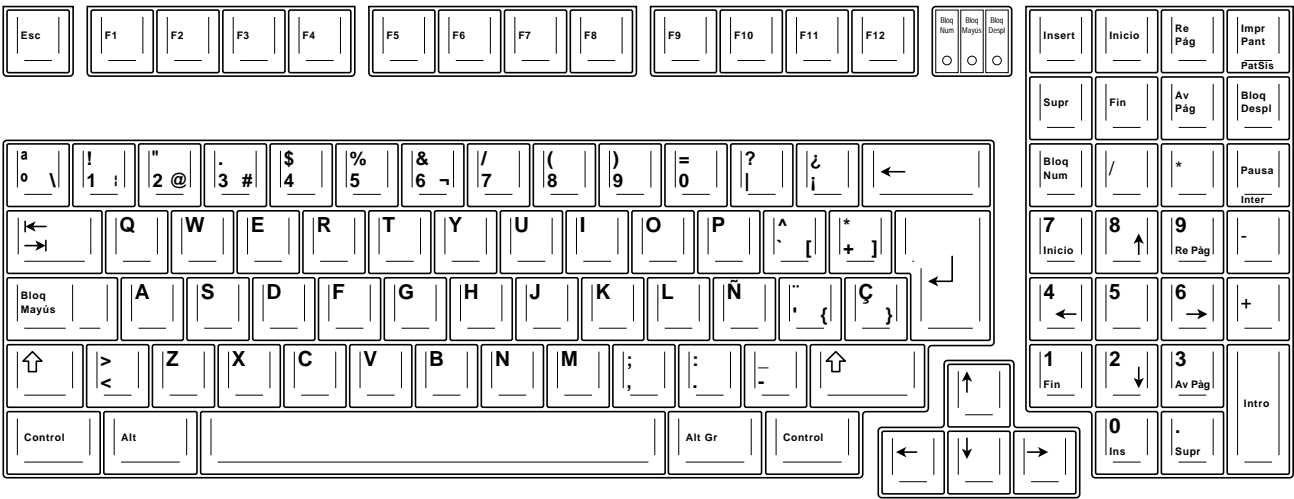
Nominal voltage (U_n)	24 VDC	110/127 VAC	220/240VAC
Operating range	19.2 to 30 V	90 to 140 V	180 to 264 V
Frequency limits	-	47 to 63 Hz	47 to 63 Hz
Micro power break	duration	20 ms	20 ms
(typically)	repeated	1 s	1 s
Total harmonic distortion	-	10 %	10 %
Residual ripple	5 % of U_n	-	-



Sub-section	Page
10.1 French keyboard : T FTX KB 51	10/2
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10.5 Swedish keyboard : T FTX KB 56	10/6
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10.7 Danish keyboard : T FTX KB 56 + conversion kit	10/8
10.8 Belgian keyboard : T FTX KB 52 + T FTX KBC 1	10/9
10.9 Swiss keyboard : T FTX KB 52 + T FTX KBC 2	10/10
10.10 Portuguese keyboard : T FTX KB 52 + T FTX KBC 4	10/11
10.11 French Canadian keyboard : T FTX KB 52 + T FTX KBC 3	10/12
10.12 Using the FTX 507 terminal as a fixed station	10/13
This section ends at page	10/14







Insert	Home	PgUp	Prt Sc Sys Rq
Delete	End	Pg Dn	Scroll Lock
Num Lock	/ _	* _	Pause Break
7 Home	8 ↑	9 Pg Up	-
4 ←	5	6 →	+
1 End	2 ↓	3 Pg Dn	Enter
0 Ins	.	Del	

Num Lock	Caps Lock	Scroll Lock
○	○	○

F9	F10	F11	F12
----	-----	-----	-----

F5	F6	F7	F8
----	----	----	----

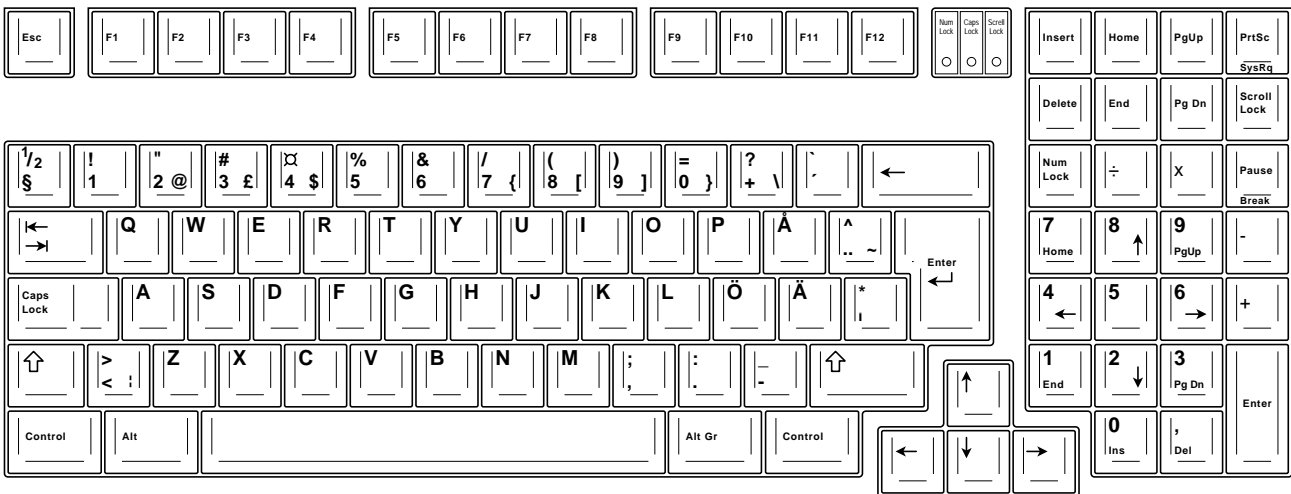
F1	F2	F3	F4
----	----	----	----

Esc

↑
↓
→

~ _	! 1	@ 2	# 3	\$ 4	% 5	^ 6	& 7	* 8	(9) 0	- _	= +	← Backspace
← Tab	Q	W	E	R	T	Y	U	I	O	P	{ [}]	; \
Caps Lock	A	S	D	F	G	H	J	K	L	: ;	" '	← Enter	
↑ Shift	Z	X	C	V	B	N	M	< ,	> .	? /	↑ Shift	↑	
Control	Alt						Alt Gr	Control	←	↓	→		

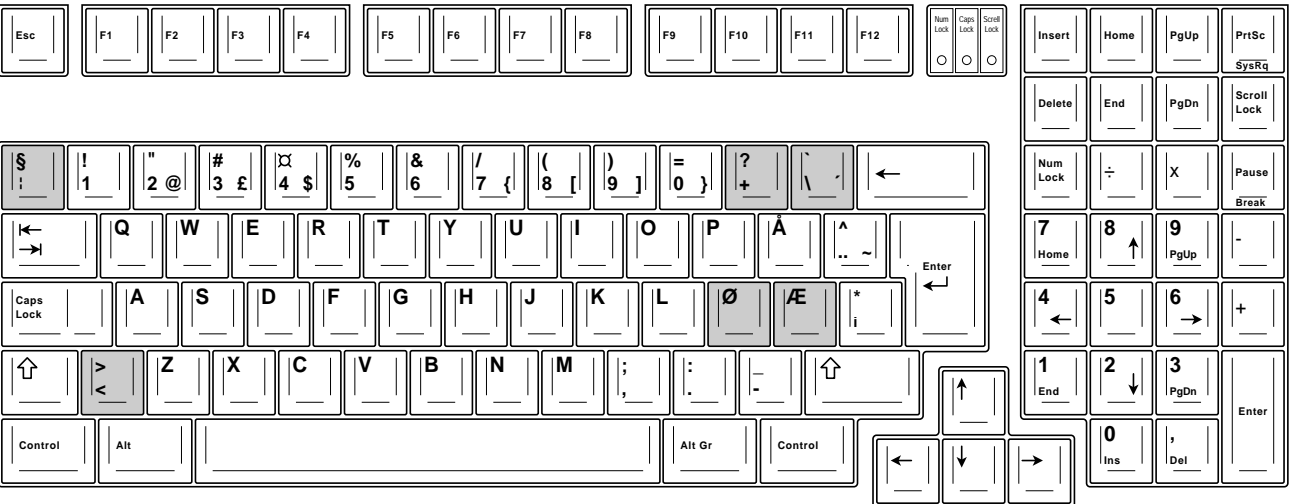




10.6 Norwegian keyboard : T FTX KB 56 + conversion kit

This keyboard is based on the Swedish keyboard T FTX KB 56. It is converted by replacing 6 key caps (in the conversion kit supplied with the T FTX KB 56 keyboard).

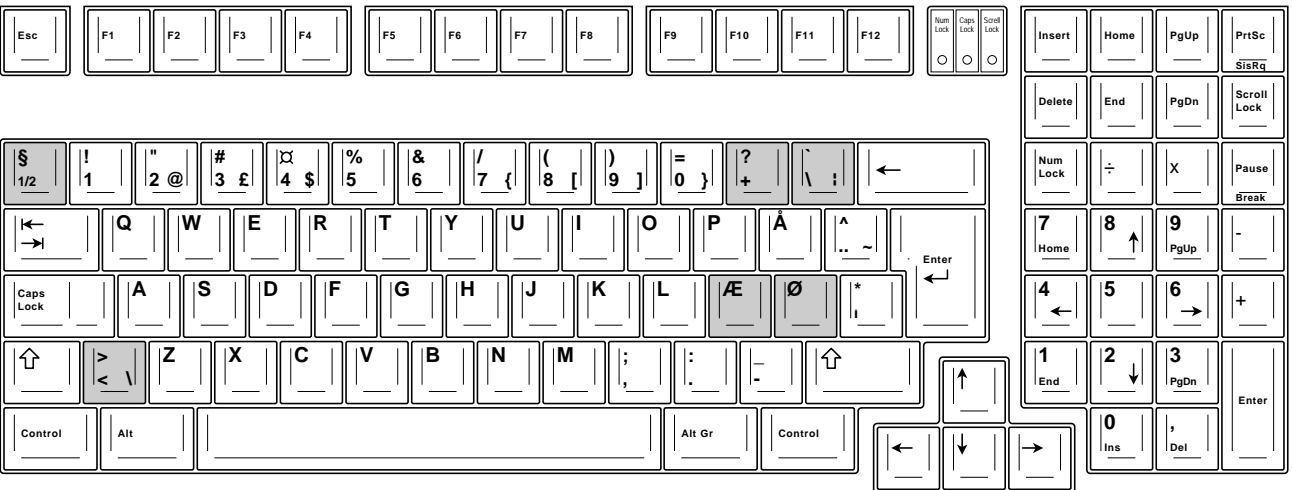
The caps to be replaced are shown grey in the illustration.



10.7 Danish keyboard : T FTX KB 56 + conversion kit

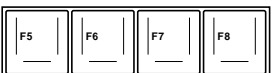
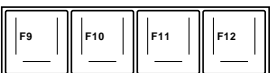
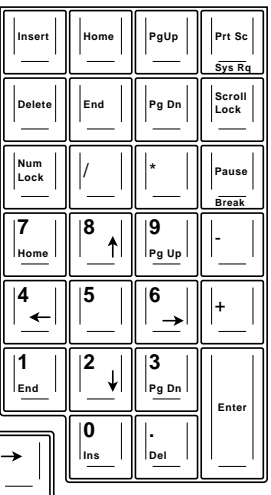
This keyboard is based on the Swedish keyboard T FTX KB 56. It's converted by replacing 6 key caps (in the conversion kit supplied with the T FTX KB 56 keyboard).

The caps to be replaced are shown grey in the illustration.

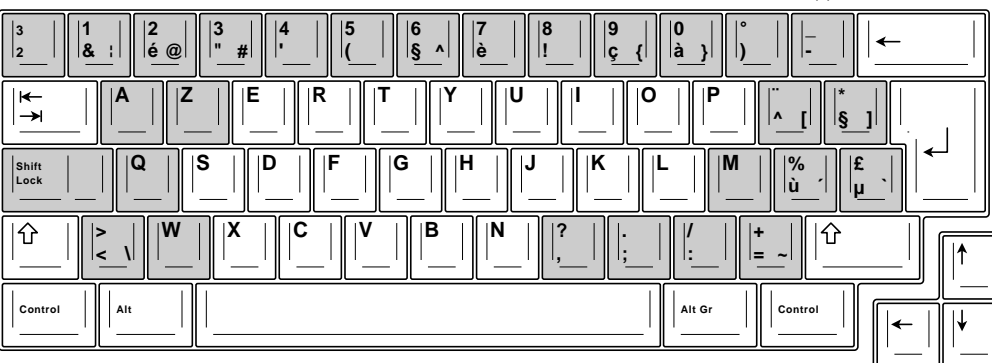


10.8 Belgian : T FTX KB 52 + T FTX KBC 1

This keyboard is based on the English (QWERTY) keyboard T FTX KB 52. It is converted by replacing 27 key caps (T FTX KBC 1 conversion kit).
The caps to be replaced are shown grey in the illustration.



(*)

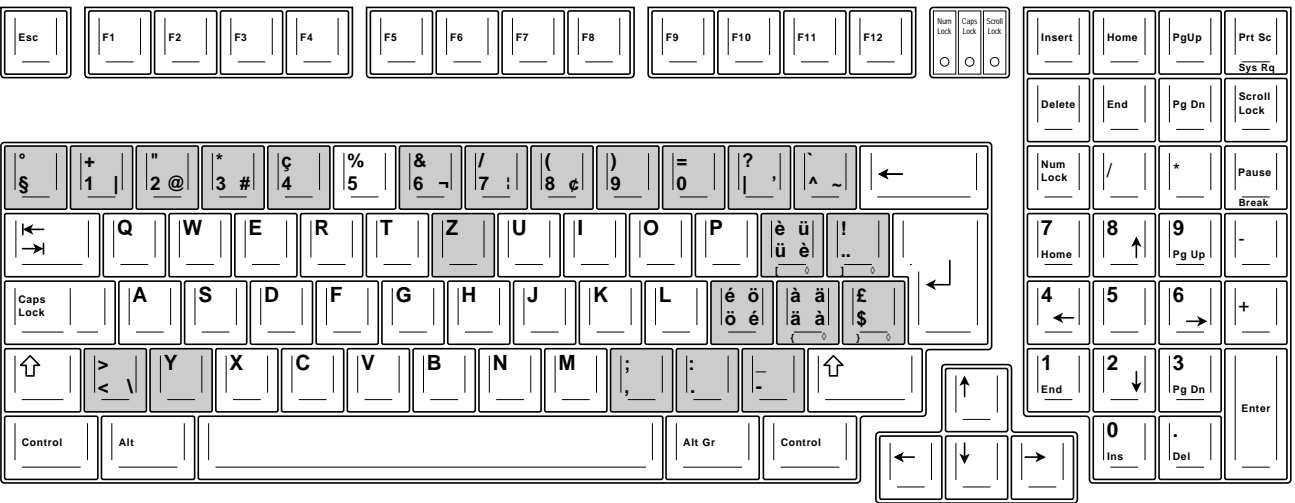


(*) This cap is not part of the T FTX KBC 1 kit. It exists on the T FTX KB 52 English keyboard, shifted one place to the left. Remove it from its original position and replace it as shown on the illustration.

10.9 Swiss keyboard : T FTX KB 52 + T FTX KBC 2

This keyboard is based on the English (QWERTY) keyboard T FTX KB 52. It is converted by replacing 23 key caps (T FTX KBC 1 conversion kit).

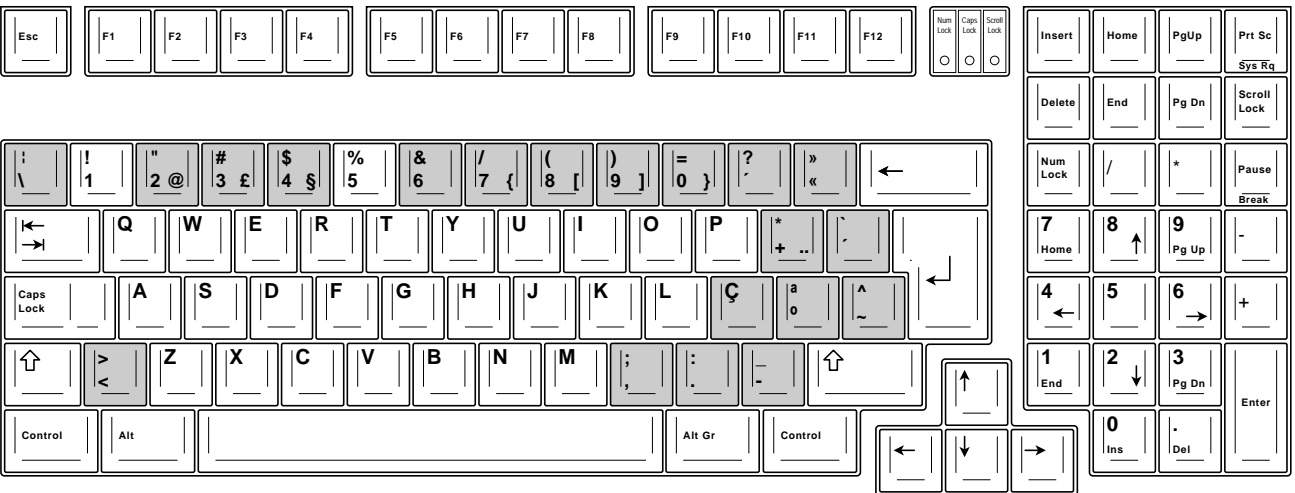
The caps to be replaced are shown grey in the illustration.



10.10 Portuguese keyboard : T FTX KB 52 + T FTX KBC 4

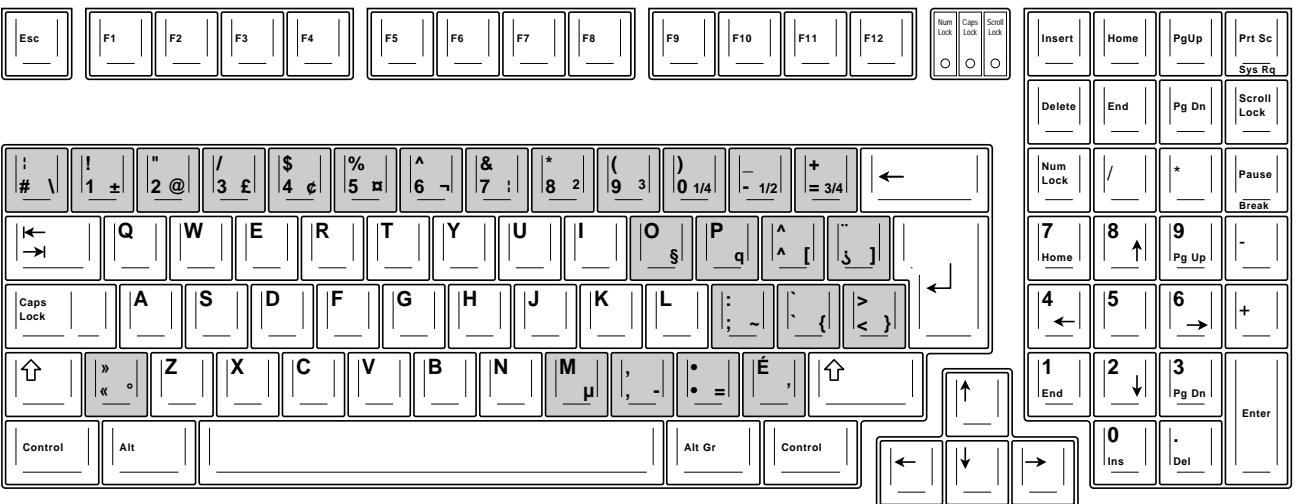
This keyboard is based on the English (QWERTY) keyboard T FTX KB 52. It is converted by replacing 20 key caps (T FTX KBC 1 conversion kit).

The caps to be replaced are shown grey in the illustration.



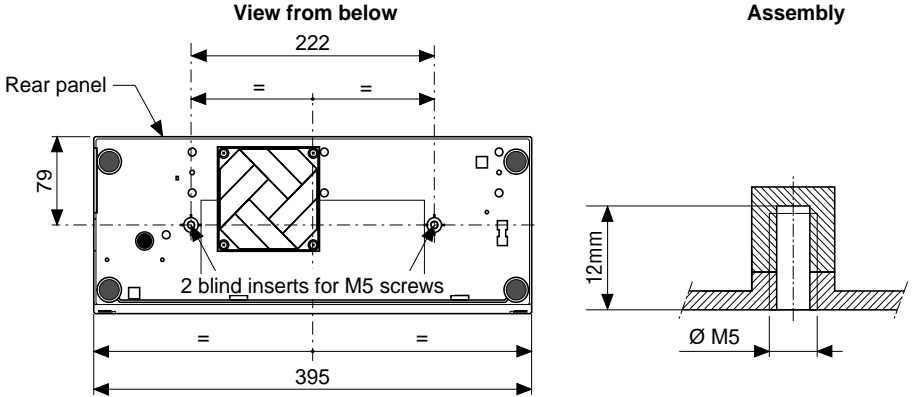
This keyboard is based on the English (QWERTY) keyboard T FTX KB 52. It is converted by replacing 25 key caps (T FTX KBC 3 conversion kit). The caps to be replaced are shown grey in the illustration

10.11 French Canadian keyboard : T FTX KB 52 + T FTX KBC 3



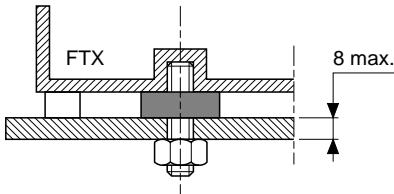
10.12 Using the FTX 507 terminal as a fixed station

This terminal has two anchor points for attaching the T FTX KFX5 fixing assembly (dampers to be ordered separately). This device enables the terminal to be set up as a fixed station.

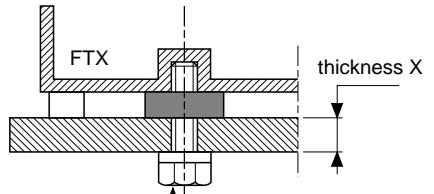


The T FTX KFX5 fixing assembly consists of two pairs of dampers :

Using 2 male/male dampers



Using 2 male/female dampers



M5 screw to be supplied
by the customer
Length : X + 12 max.

F

F

Configuration	Processor		Screen	Hard disk	Basic RAM	Key-board	Power cable	Mouse	Operating(3) systems	Software
	Type	Speed								
T FTX 507 6B 21E10	486SX	25 MHz	Monochrome	420 MB	8 MB	Qwerty	European	No	DOS 6	–
T FTX 507 6B 51E10	486SX	25 MHz	Monochrome	420 MB	8 MB	Spanish	European	No	DOS 6	–
T FTX 507 6B 61E10	486SX	25 MHz	Monochrome	420 MB	8 MB	Swedish(1)	European	No	DOS 6	–
T FTX 507 6B 77E10	486SX	25 MHz	Monochrome	420 MB	8 MB	USA	USA	No	DOS 6	–
T FTX 507 6B 22E20	486SX	25 MHz	Monochrome	420 MB	16 MB	Qwerty	European(2)	No	DOS 6-OS/2	–
T FTX 507 6B 22EX1	486SX	25 MHz	Monochrome	420 MB	16 MB	Qwerty	European(2)	Yes	DOS 6-OS/2	X-TEL PACK V52
T FTX 507 8C 21E10	486DX2	66 MHz	STN color	420 MB	8 MB	Qwerty	European	No	DOS 6	–
T FTX 507 8C 22E20	486DX2	66 MHz	STN color	420 MB	16 MB	Qwerty	European(2)	No	DOS 6-OS/2	–
T FTX 507 8C 22EX1	486DX2	66 MHz	STN color	420 MB	16 MB	Qwerty	European(2)	Yes	DOS 6-OS/2	X-TEL PACK V52
T FTX 507 8C 51E10	486DX2	66 MHz	STN color	420 MB	8 MB	Spanish	European	No	DOS 6	–
T FTX 507 8C 61E10	486DX2	66 MHz	STN color	420 MB	8 MB	Swedish(1)	European	No	DOS 6	–
T FTX 507 8C 77E10	486DX2	66 MHz	STN color	420 MB	8 MB	USA	USA	No	DOS 6	–
T FTX 507 9T 21E10	486DX4	100 MHz	TFT color	850 MB	8 MB	Qwerty	European	No	DOS 6	–
T FTX 507 9T 22E20	486DX4	100 MHz	TFT color	850 MB	16 MB	Qwerty	European(2)	No	DOS 6-OS/2	–
T FTX 507 9T 22EX1	486DX4	100 MHz	TFT color	850 MB	16 MB	Qwerty	European(2)	Yes	DOS 6-OS/2	X-TEL PACK V52
T FTX 507 9T 51E10	486DX4	100 MHz	TFT color	850 MB	8 MB	Spanish	European	No	DOS 6	–
T FTX 507 9T 61E10	486DX4	100 MHz	TFT color	850 MB	8 MB	Swedish(1)	European	No	DOS 6	–
T FTX 507 9T 77E10	486DX4	100 MHz	TFT color	850 MB	8 MB	USA	USA	No	DOS 6	–

(1) and Finland

(2) and UK power cable

(3) DOS 6 = MS DOS 6.●

OS/2 = IBM OS/2 3.●.

Your terminal has just undergone a “486 upgrade”. It is therefore being returned to you with the TFTX DM 517 E user guide.

Please read this document carefully before consulting the TFTX DM 517 E user guide.

Characteristics (cancels and replaces pages 1/15 and 1/16)

Terminal		FTX 507 8B	FTX 507 9C
Processor		80486 DX2 66 MHz	DX4 100 MHz
Math coprocessor		integral	integral
Cache			
Hard disk	capacity	540 Mb	850 Mb
RAM memory	basic	16 Mb	16 Mb
	expandable to	64 Mb	64 Mb
Disk drive		1 3"1/2 IBM format (1.44 Mb and 720 Kb) and Telemecanique standard (TSX T607)	
LCD screen (can be tilted)		monochrome, back-lit with 64 shades of grey	<ul style="list-style-type: none"> ● = C Colour, passive matrix (STN double scan) 9'5 screen, high-resolution (640 x 480) ● = T Colour, active matrix (TFT) 10'4 screen, high-resolution (640 x 480)
Keyboard		102 or 101 keys, compatible with IBM 101/102 keys, detachable. Available in 6 basic versions.	
Output ports	standard	RS 232C serial port (DB9) bi-directional parallel port (DB25)	
	TSX	RS 485 serial port/20 mA current loop	
	mouse	IBM PS/2 standard	
	video port	for external VGA or SVGA monitor.	
X-WAY network connection	MAPWAY	with TSX MAP PC7 42M extension card (long format)	
	ETHWAY	with TSX ETH PC101M extension card (short format)	
	FIPWAY	with TSX FPC10M extension card (short format)	
Power supply	basic	via 110/127 VAC or 220/240 VAC industrial supply	
	extension	rechargeable batteries for independent operation in case of power break between 30 and 20 min depending on configuration via 24 VDC supply with adaptor	
Discrete outputs ALF0 and ALF1		2 channels (ALF0 and ALF1) if power supply extension (battery or 24 VDC adaptor). 24 VDC / 350 mA transistor outputs.	
Slots for extensions		PC-AT ISA bus compatible cards <ul style="list-style-type: none"> • 1 slot for long-format card • 1 slot for short-format card 	
Operating systems d'exploitation		DOS, and/or OS/2, and/or WINDOWS	

Characteristics (continued)

Terminal	FTX 507 8B	FTX 507 9C		
Operational safety	<ul style="list-style-type: none">• access via unbreakable password• individual serial number• slot for TE software protection keys (TE90 standard)			
Dimensions	size	H=280 mm	W=396 mm	D=165mm
	weight	7 to 9 Kg depending on the model		
Environment	Hardware tested in the following environments : <ul style="list-style-type: none">• industrial (mechanical shocks/vibrations/temperature/electromagnetic interference)• office			
