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Equipment: Bluetooth Module

Manuals (Host Device)



User Manual

Trux 700



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1 About this manual

This manual covers these topics related to installation, startup, operation, and maintenance of Åkerströms Trux AB, Tx700:

- Safety considerations
- General product information
- Product installation procedures
- Product use and maintenance
- Troubleshooting

The appendices provide this reference information: technical specifications; port signals; environmental considerations; fulfillment of EU and US compliance regulations; warranty, support, and service; and Åkerströms Trux AB addresses and phone numbers.

1.1 Who should read this manual

Use this manual if you are responsible for installing, setting in operation, maintaining, or repairing Trux Solutions; it provides information you need for mechanical and electrical installation of Åkerströms Trux AB, Tx700 and configuration of basic functions.

You must:

- Be very familiar with mechanical, electrical, and computer installations.
- Have experience with computers and knowledge of the operating system that will run on the computer.



The manual does not describe how to install and use the operating system or applications.

1.2 Notices

This manual describes the product's basic design and main procedures for installing, operating, and maintaining the product. Deviation might exist between information in this manual and the appearance and functions in the delivered product because of differences in hardware and software versions.

When product updates affect functions and security, recent, relevant, updated information is available from Åkerströms Trux AB.

1.3 How to use this manual

To ...	Read chapter ...
Prepare for electrical installation	2. Safety
Prepare for product installation	3. Product description
Install Åkerströms Tx700	4. Product installation
Operate Tx700	5. Using the product
Keep the product in good shape	6. Maintaining the product
Solve problems	7. Troubleshooting



1.3.1 Prerequisites

To perform some tasks listed above, you'll need:

- The Trux Computer Manager application, which comes with Tx700.
- Åkerströms Trux AB or other manufacturers' documentation related to options and peripherals.
- Manufacturers' product documentation for the:
 - Operating system and other applications
 - Global positioning system (GPS)
 - Global system for mobile communication (GSM)
 - General packet radio service (GPRS)

1.3.2 Explanation of symbols

This manual contains these symbols, abbreviations, and terms:

Symbol	Heading	Description
	Warning!	Warns about risk of damage to people or property. Always follow the instructions provided in conjunction with this symbol.
	Note!	Calls your attention to problems that may arise if a measure is not taken or is taken incorrectly.

2 Safety

2.1 Assuring personal safety

Keep this information in mind:



Always exercise caution when working with electricity.

2.2 Product safety

2.2.1 Electrical supply

You must:

- Fit the computers with an external fuse before connecting to the recommended voltage
- Connect the computers to the recommended voltage; if they are connected to another voltage, then the product can be destroyed or its operation put at risk; see 4.2.1

Design the external electrical system so that voltage peaks do not occur in the electrical supply to the computer.

2.2.2 Humidity, moisture, cold, and heat

Install the product in an environment as described in Appendix I, Specifications. If environmental requirements are not met, the product can be destroyed or its function put at risk.



Never turn on the computer unless the environmental conditions are within the specified limits (see Appendix I, Specifications). For example, ensure that the computer is turned on before you drive into a cold storage unit.

2.2.3 Interference

Ensure that:

- Any nearby electrical cabling (mains supply) is run so that interference does not occur.
- The immediate environment meets requirements stated in the specified standards (see Appendix IV) with regard to interference.

2.2.4 Vibrations

Mount the computer so that any vibrations that are transmitted to it do not exceed the limits at which the computer was tested (see Appendix I, Specifications). If the vibrations exceed these limits, use rubber pads or other insulation.



3 Product description

3.1 Function and design

Åkerströms Trux AB designed and developed Tx700 for mounting on mobile or stationary units. Rugged design, intense screen brightness, and exceptional reliability make Tx700 suitable for demanding environments in which vehicles such as forklifts, forestry machines, and trucks operate.

Tx700 is based on a standard PC platform that enables use of most types of software adapted for Windows XP Professional or Windows XP Embedded.

Tx700 is a stand alone computer or a thin client that requires an application server.

The model is equipped with Pentium M or Celeron M processor, built-in hard disk, battery backup function, and UPS function that prevent the computer from being turned off during short power supply interruptions, to ensure that data is not lost.

Tx700 is available with several options and peripherals that are described in this manual.

3.2 Usage areas

Your operation can use Tx700 for mobile and fixed applications. Typical usage areas include:

- Computers mounted on forklifts that operate within a warehouse and communicate via a wireless network.
- Trucks that contain software for global positioning system (GPS) navigation, routes, maps, and picking lists.
- Forestry machines that contain software for GPS navigation, maps, and felling instructions.

3.3 Basic product structure

Position	See Figure 1 on the following page
1	Connection for external aerial
2	Power supply
3	COM2 (serial port 2)
4	COM1 (serial port 1)
5	Keyboard/mouse
6	RJ-45 10/100 LAN
7	1 x USB 2.0 (USB 1.1 CE)
8	Connection for multi purpose usage
9	Audio Out 3.5 mm
10	Mic In 3.5 mm

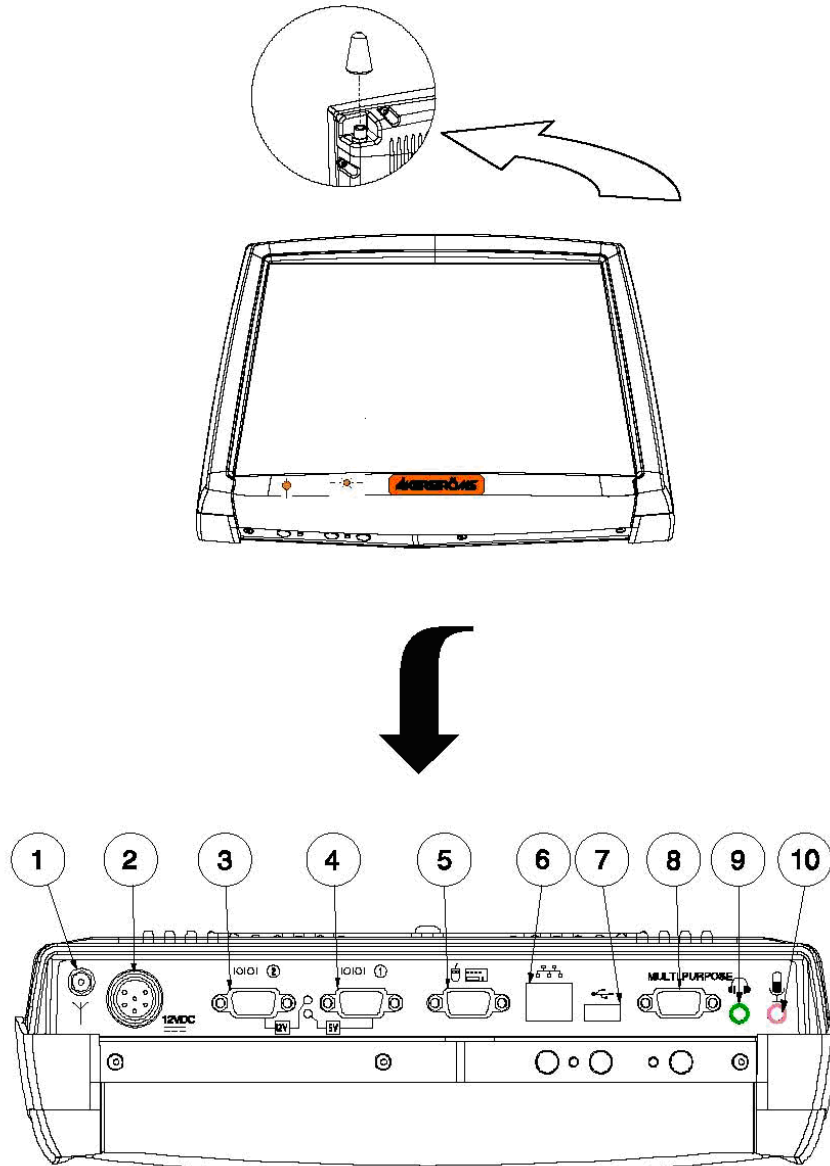


Figure 1 Basic product structure

3.4 Tx700 series

3.4.1 Tx700 Wireless Application Platform

Åkerströms Tx700 Wireless Application Platform is developed for companies that want total versatility and need powerful computers that enable several heavy applications to run simultaneously.

The Tx700 Wireless Application Platform comes in various configurations to meet your requirements. You select operating system, processor and primary memory, based on the types and numbers of applications that you run at the same time.

3.4.2 Tx700 Wireless Client Terminal

Åkerströms Tx700 Wireless Client Terminal is developed for companies that have stringent safety demands and want genuine, robust, thin clients for running various client server applications.

The Tx700 Wireless Client Terminal is a robust client, adapted for client/server environments. It comes with Windows XP Embedded, which enables total control of the user environment. Users only have access to functions needed for doing their jobs.

3.4.3 Peripherals

You can order the peripherals listed below when (or after) you order the computer. The **Section** column lists the sections in this manual that describe how you should install the peripherals. For information on use, refer to the documentation that accompanies the product.

Go to www.akerstroms.com to display a complete list of peripherals or order the list from Åkerströms Trux AB.

Peripheral	Section
Keyboard	4.4.3
Mouse	4.4.3
Printer	4.4.4
Bar-code reader	4.4.5
GPS	4.4.6
GSM/GPRS-system	4.4.6
Audio Out	4.4.7
Mic In	4.4.8
Aerials	4.4.9



4 Product installation

4.1 Mounting the unit

Tx700 is intended to be mounted so that operators can easily perform tasks while in the vehicle.

When positioning the computer on the vehicle, carefully account for operators' working situations. An ergonomically correct installation, with an optimal field of vision, greatly facilitates the operators' work.



Before installation, ensure that all the environmental requirements are met. Appendix I, Specifications, lists these requirements.

4.1.1 Mounting Brackets

You can order several different types of brackets for the Tx700. The brackets have built-in shock absorption and can move in all directions. The arms come in three lengths, for 1,5" ball: 95 mm (3 3/4"), 154 mm (6"), 233 mm (9 2/14") and three lengths for 2,25" ball: 128 mm (5"), 213 mm (8 2/5"), 328 mm (13").



Do not change the original screws that the brackets are mounted with. Screws that are too long can damage the computer's electronics.

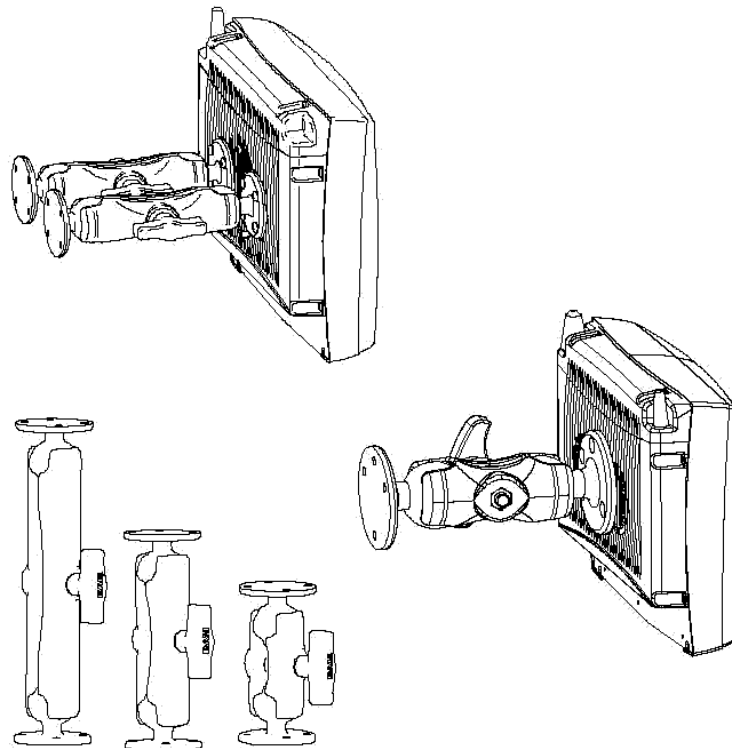
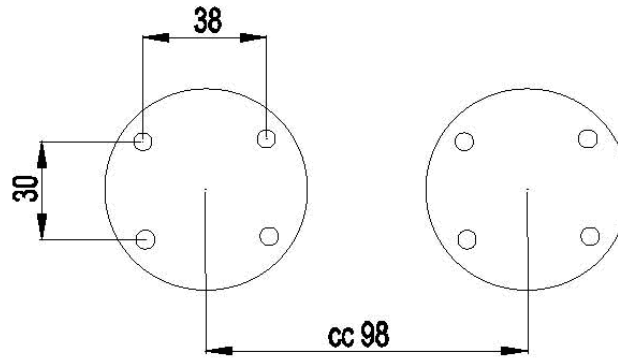
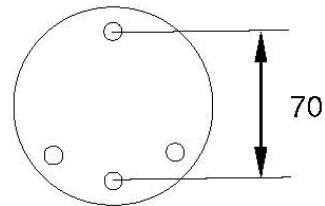


Figure 2 Different types of Tx700 brackets

- 1 Check that the planned location of the computer meets ergonomic and field-of-vision requirement.
- 2 Ensure there is sufficient space underneath the computer so that service can be performed. There must be space to connect and disconnect the wires from the ports.
- 3 Mark the positions of the holes on the mounting surface. See Figure 3 below.



Location of holes for 1,5" ball



3 + 1 hole, 08 mm

Location of holes for 2,25" ball

Figure 3 Templates for RAM Ball

- 4 Drill holes for the attachment screws.
- 5 Firmly fasten the computer's bracket onto the mounting surface with the screws.

4.2 Installing electrical components



Always exercise caution when working with electricity.

4.2.1 Connecting electrical cables to power sources

The Tx700 comes with a four-meter, four-wired power cable; brown for positive and white for negative, and 2 conductors; yellow and green, to enable the screen black-out function (if selected), see 4.2.2. Connect the brown part of this cable to positive and the white part to negative on the power source (DC/DC converter), and fuse it according to these specifications shown below:

Specifications for electrical supply

Voltage	12 VDC \pm 10% always use insulated DC/DC transformers
Power	50 W
Fuse	6 A (slow blow fuse)



If the vehicle's negative is not the same as the vehicle's chassis, then you must mount the computer on rubber pads.

Then connect the power cable to the computer's power supply outlet; see Figure 4.



Never connect power to pins 5 or 6, which are for the screen's black-out function described in section 4.2.2.

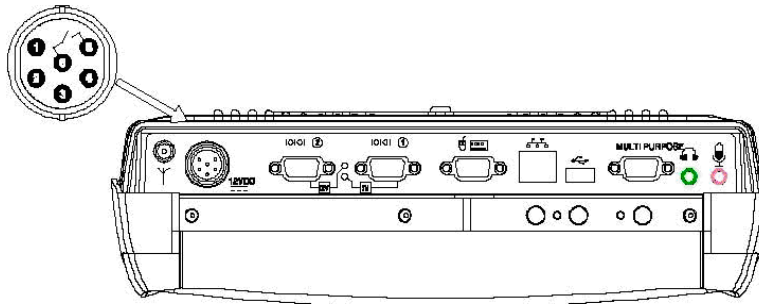


Figure 4 Connection for power supply

4.2.2 Enabling the screen black-out function

The power supply chassis connector contains two pins that are dedicated to dimming the screen for example when the vehicle is set in motion (when the gas pedal is pressed). The screen then lights up when the vehicle stops (when the gas pedal is released).

Connect pins 5 (green conductor) and 6 (yellow conductor) to the vehicle's gas pedal relay via a galvanically (electrically) isolated, open/close relay contact.

If the screen's black-out function is not selected and installed, isolate the end of the green and yellow parts in the open end of the cable.



You can set this function in the Trux Computer Manager application; see 4.3.1.

4.3 Settings

4.3.1 Using the Trux Computer Manager application

To configure certain Tx700 functions you can use the Trux Computer Manager, which is installed in the computers before shipping.

- 1 Start the Control Panel from the Settings option on the Start menu.
- 2 Double-click on the Trux icon.

The first window displays information about the application's ID, version and release date. You might need this information when you contact Åkerströms Trux AB support department.



Only experienced (IT) employees should use the Trux Computer Manager because incorrect settings can have undesired effects on some functions.

4.3.2 Configuring the battery backup function (UPS)

Tx700 has a unique, in-house developed system for battery backup (UPS) if temporary power-supply interruptions occur.

Use the Trux Computer Manager to specify values for:

- When the system should react to a power shortage
- The degree to which monitor brightness should decrease
- When the system should try to shut down the computer

Refer to the Trux Computer Manager for a more detailed description of how to configure the battery backup function.

4.3.3 Adjusting start-up and shutdown settings

Depending on the environment in which Tx700 is used, the nature of the power supply and prevailing environmental conditions, you might have to adjust the ways in which start-up and shutdown will occur.

For example, using the Trux Computer Manager, you can specify whether the computer can be started from battery power when the incoming power supply is connected. You can also configure the system to shut down the computer in different situations.

Refer to the Trux Computer Manager for a detailed description of available settings.

4.3.4 Configuring power supply to peripherals

Some peripherals require power from the computer's COM or Multi Purpose ports. You can configure Tx700 so that power is supplied from pin 9 on the COM port and/or from pin 5 on the Multi Purpose port.

Refer to the Trux Computer Manager for information on how the power supply at the ports is activated.

4.3.5 Battery charge function

The battery charge function can be alternate, only under operation or even when the computer is turned off or standby.

To change the battery charge function, refer to the Trux Computer Manager.

4.3.6 Black-out screen function

The black-out screen (dim) function is not activated at delivery. About function and connection see 4.2.2.

To activate this function, refer to the Trux Computer Manager.

4.4 Installing peripherals

Åkerströms Trux AB offers peripherals that facilitate use of Tx700. If you order peripherals with the computer, then all drivers are pre-installed. If you order them later or from a supplier other than Åkerströms Trux AB, you might have to install the drivers; if so, refer to the peripheral's documentation.

4.4.1 Ports for connection of peripherals

Position see figure below

1	Connection for external aerial
2	Power supply
3	COM2 (serial port 2) Yellow light indicates 12V out from pin 9
4	COM1 (serial port 1) Green light indicates 5V out from pin 9
5	Keyboard/mouse
6	RJ-45 10/100 LAN
7	1 x USB 2.0
8	Connection for multi purpose usage
9	Audio Out 3.5 mm
10	Mic In 3.5 mm

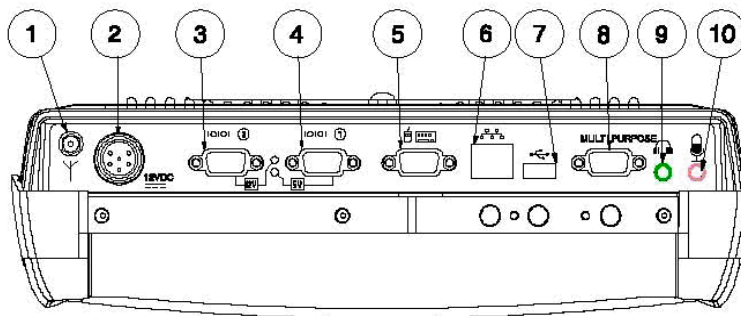


Figure 5 Ports for connecting peripherals

The following section describes function and use of the ports.



After peripherals are connected, the cables are to be assembling by cable straps.

4.4.2 Supplying power to peripherals

Some peripherals require power from the computer's COM or Multi Purpose port, for example a bar-code reader or an illuminated keyboard.

You can configure the Tx700 as follows:

- 12 V power is supplied from pin 9 on the COM 2 port.
- 5 V power is supplied from pin 9 on the COM 1 port.
- 12 V power is supplied from pin 5 on the Multi purpose port (see Appendix II, Port signals).

Peripherals, with maximum power consumption of 300 mA, can then be supplied from these ports.

Use the Trux Computer Manager to configure activation of the power supply; see 4.3.4.

4.4.3 Connecting keyboards and pointing devices

Tx700 supports USB and PS/2-compatible keyboards and mice.

Connect keyboards and pointing devices to the computer's keyboard port; see Figure 5, pos. 5. Note that some require an adapter and others must be configured. Follow the instructions for the type of keyboard that you have.

PS/2-compatible keyboards and mice

- 1 Connect the PS/2 adapter (included) to the keyboard port on the computer; see Figure 5, position #5.
- 2 Connect the PS/2 connections from the keyboard to the adapter.

4.4.4 Installing printers

You can install printers via the:

- COM port; see Figure 5, pos. 3 or 4
- USB port; see Figure 5, pos. 7

For more information, refer to the printer's documentation.

4.4.5 Installing bar code readers

Use this installation procedure for all bar code readers that Åkerströms Trux AB supplies for Tx700:

- 1 Connect the barcode reader to the COM port; see Figure 5, position #3 or #4.
- 2 Activate the power supply on the COM port according to the instructions in the Trux Computer Manager (4.3.4) documentation.

To convert the signals from the scanner to keystrokes, you can use the FreeFloat WLinQ software. WLinQ listens for signals at the COM port and converts these to the corresponding key that is sent to the active application.

WLinQ comes with all bar code readers from Åkerströms Trux AB. You can also order WLinQ separately.

4.4.6 Connecting GPS and GSM/GPRS products

You connect GPS and GSM/GPRS products to the computer's COM port; these products usually require power supply from the computer.

- 1 Connect the GPS or GSM/GPRS product to the COM port; see Figure 5, position #3 or #4.
- 2 Activate the power supply on the COM port according to the instructions in the Trux Computer Manager (4.3.4) documentation.

For information about how to configure GPS and GSM/GPRS products, see the manufacturers' documentation.

4.4.7 Audio Out

Audio Out is a standard earphone outlet, Ø 3.5 mm.

4.4.8 Mic In

Mic In is a standard microphone inlet, Ø 3.5 mm.

4.4.9 Installing aerials

The computer must be fitted with one or two aerials if you ordered the Tx700 with a wireless network.



To be valid, network cards for wireless networks, which are not supplied by Åkerströms Trux AB, must meet the Radio & Telecom Terminal Equipment (R&TTE) directive for certification; see Appendix IV.

Ariel

- 1 Mount the aerial on the top of the computer; see Figure 6

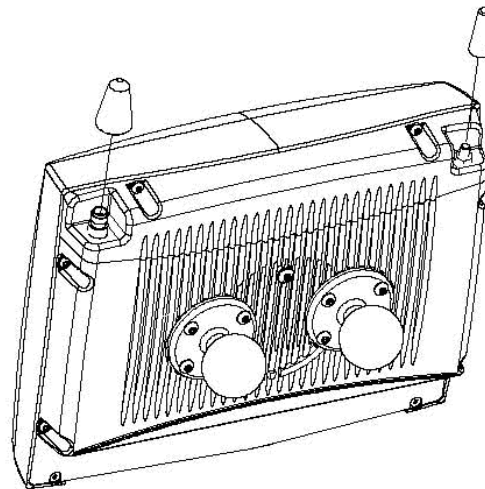


Figure 6 Aerial Outlets

5 Using the product

5.1 Operating the computer

5.1.1 Starting the computer

To turn on the computer:

- Press the on/off button on the computer's lower side, see pos 1 in Figure 7, or
- Click on the screen if:
 - You specified this setting using the Trux Computer Manager (see section 4.3.3) and
 - The computer is equipped with an integrated touch screen

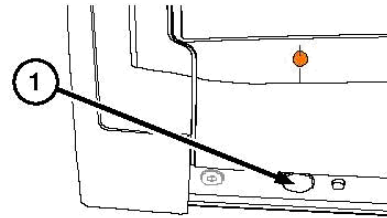


Figure 7 On/Off Button

5.1.2 Turning off the computer

To turn off the computer:

- Press the on/off button on the computer's left side, see pos 1 in Figure 7, or
- Select the appropriate object on the operating system's interface

Note: Some operating systems can also be put on standby by selecting the appropriate object.



In first place, turn off the computer via the operating system, in second place by the button. All to secure the data storage.

5.2 Working with the touch screen

The Tx700 is equipped with a pressure-sensitive touch screen. Rather than using mice for pointing devices, users select objects by touching the screen with a stylus or a finger.



Always use the accompanying stylus to point, drag, or tap the screen. Never use sharp, pointed objects. Click with the stylus on the screen.

5.2.1 Using the stylus to select screen objects

To select an object on the interface, gently tap the screen:

- One time to click.
- Two times in rapid succession to double-click.
- Tap on the mouse symbol in the system tray, down in the right corner, than the next click will be a right click.

5.2.2 Adjusting screen brightness

To	Use
Increase or decrease the screen's brightness	The buttons on the lower side of the computer. Increase (1) or Decrease (2) on the lower side of the computer.

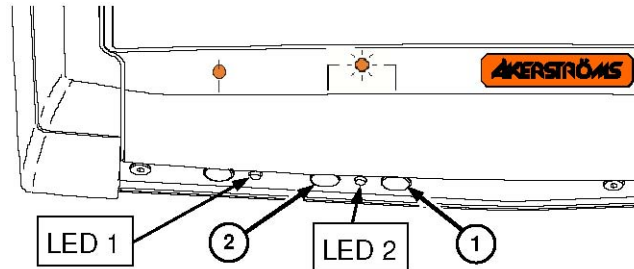


Figure 8 Increase or Decrease button, LED's

Turn off the screen's background lighting	Both buttons on the lower side of the computer; press them simultaneously
Restore the screen	One of the buttons on the lower side or the stylus (tap lightly)

5.2.3 LED indications

See the LED's location in Figure 8.

LED at Main Switch indicates Operating Mode

Function	LED 1
Off and not powered	Off (no light)
Off but powered	Green flash very slow
Operating normally	Green on
Suspend	Green flashing slow
Black-out Screen	Green flashing fast
Over voltage shutdown	Red on
Over temperature	Red flashing

LED at brightness controls indicates UPS Mode

Function	LED 2
UPS battery powered	Green flashing fast
UPS battery charging	Green on or flashing slow
UPS battery charged	Off (no light)

6 Maintaining the product

6.1 Cleaning the screen

Clean the screen when necessary. Use a soft, slightly damp cloth. If required, use a cleaning solution that is intended for computer screens.



Never use strong cleaning or solvent solutions when you clean the screen.

6.2 Checking connections

Check regularly that all connections are firmly in place and that all cables are securely fastened.

6.3 Service

To secure operation of the unit, various types of support agreements are available for Tx700. Contact Åkerströms Trux AB for more information.



7 Troubleshooting

Perform the following troubleshooting procedures before contacting Åkerströms Trux AB regarding problems with Tx700:

7.1 Problems with the computer

7.1.1 The computer will not start



If nothing happens when the button is pressed, ensure that the:

- Power supply is connected.
- Fuse is intact.
- DC/DC converter delivers correct voltage.

7.1.2 The screen is blank

If the computer is on but the screen is blank or is only faintly lit, ensure that the:

- Screen black-out (dim) function is not active.
- Screen's brightness is not set too low; adjust the on the lower side of the computer.



7.2 Problems with peripherals

If a peripheral:

- Does not work, always check all contacts and connections first.
- Requires a power supply, ensure that the power supply for peripherals is activated in the Trux Computer Manager; see 4.3.4).

7.2.1 Keyboard/mouse

Restart the computer and, if possible, test by using another keyboard.

7.2.2 Communication

If communication problems arise with a wireless network and GPS and GSM/GPRS products, you can test coverage in two ways:

- Check the computer's software for indications of poor coverage (normally indicated by an icon in the systray).
- Put another computer in the same location as the one with the problem to see if it has the same problem.



Appendix

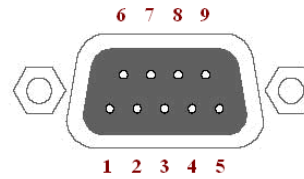
I Specifications

	Wireless Application platform	Wireless Client Terminal
Processor/RAM	Intel Pentium M 1,4GHz, 512 MB Intel Celeron M 600MHz, 512 MB	Intel Celeron M 600MHz, 512 MB
Storage	40 GB IDE ATA hard disk 4 GB Compact Flash	1 GB Compact Flash (XPE) 64 MB Compact Flash (CE)
Screen	12,1" TFT Flat Panel SVGA (800x600) Maximum brightness 400 cd/m2 Contrast Ratio 500:1 12,1" TFT Flat Panel, XGA (1024x768) Maximum brightness: 320 cd/m2 Contrast Ratio 550:1	
Graphics card	Intel Extreme Graphics 2, maximum 32 MB RAM	
Ports	2 PC card, type II 1 PS/2 keyboard/mouse port 2 serial ports (COM1) and (COM2) 1 USB 2.0 port (USB 1.1 for CE) 1 Multi Purpose connector 1 RJ-45 Ethernet 10/100 1 Audio Out (Head Set) 1 Mic In (microphone)	
Cooling	Passive cooling	
Power supply	12 VDC ± 10%, Integrated Li-ION battery Integrated battery charger	
Dimensions	307 x 248 x 75 mm (12.1 x 9.8 x 3.0 inches)	
Weight	3,7 Kg (8.16 lb)	
Options	Wireless network, Flash disk, Bluetooth, Defroster, Hardened Touch panel.	
Peripherals	DC/DC power supply	
Operating system	Windows XP	Windows XP Embedded
Power Consumption	Operation: 2.5 A (typical); 4 A (maximum) Standby: 0.7 A (typical); 1.0 A (maximum)	
Temperature limits	Start-up: -20° – 50° C (-4° – 122° F) non-condensing Operation: -30° – 50° C (-22° – 122° F) non-condensing Storage: -20° – 50° C (-4° – 122° F) non-condensing	
Vibrations	The unit has been tested according to: EN 60068-2-6 (1995): Sweep 5–200 Hz with 2 g rms acceleration amplitude in 1 hour per axis (x, y, z).	
Shocks	The unit has been tested according to: EN 60068-2-9 (1993) 5000 shocks at an acceleration of 30g in 6 directions (x, y, z pos, and neg.).	

II Port signals

Keyboard/Mouse

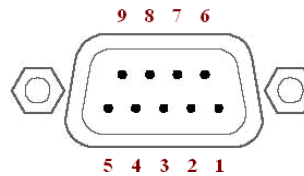
9-Pin Dsub
(see Pos. 5, Figure 5)



Pin	Signal	Type	Purpose
1	-	Reserved	Do not connect
2	MS_DATA	Input/output	Mouse data
3	MS_CLK	Input/output	Mouse clock
4	VCC	Power output	+5 V power supply
5	GND		
6	+12VKB	Power output	+12 V power supply
7	KB_DATA	Input/output	Keyboard data
8	KB_CLK	Input/output	Keyboard clock
9	-	Reserved	Do not connect

Serial (COM1)

9-Pin Dsub
(see Pos. 4, Figure 5)

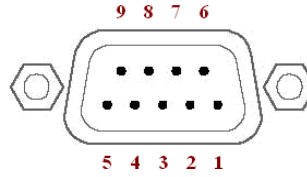


Pin	Signal	Type	Purpose
1	DCD	RS232 input	COM1 handshake
2	RXD	RS232 input	COM1 receive data
3	TXD	RS232 output	COM1 transmit data
4	DTR	RS232 output	COM1 handshake
5	GND		
6	DSR	RS232 input	COM1 handshake
7	RTS	RS232 output	COM1 handshake
8	CTS	RS232 input	COM1 handshake
9	RI (EXTPWR) ¹	RS232 input	COM1 power supply 5 VDC

¹ Power supply 5VDC output for external utilities as bar code reader, activated in the Trux Computer Manager application.

Serial (COM2)

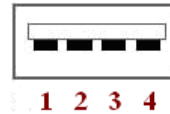
9-Pin Dsub
(see Pos. 3, Figure 5)



Pin	Signal	Type	Purpose
1	DCD	RS232 input	COM2 handshake
2	RXD	RS232 input	COM2 receive data
3	TXD	RS232 output	COM2 transmit data
4	DTR	RS232 output	COM2 handshake
5	GND		
6	DSR	RS232 input	COM2 handshake
7	RTS	RS232 output	COM2 handshake
8	CTS	RS232 input	COM2 handshake
9	RI (EXTPWR) ²	RS232 input	COM2 power supply 12VDC

USB

USB
(see Pos. 7, Figure 5)

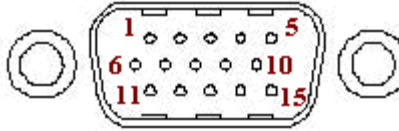


Pin	Signal	Type	Purpose
1	VCC	USB power	+5V power supply
2	USB0	Input/output	USB differential negative
3	USB0+	Input/output	USB differential positive
4	GND		

² Power supply 12VDC output for external utilities as barcode reader, activated in the Trux Computer Manager application.

Multi Purpose

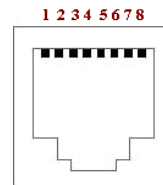
15-Pin D-sub
(see Pos. 8, Figure 5)



Pin	Signal	Type	Purpose
1	VCC 5	5 V Power	+5 V Power Supply
2	RXD	RS232 Input	COM 4 Receive data
3	TXD	RS232 Output	COM 4 Transmitting data
4		Reserved	
5	+12V	Power Supply ³	+12 V Power Supply
6	USB +	Input/Output	USB data +
7	USB	Input/Output	USB data
8	GND		
9		Reserved	Not used
10	GND		
11	GND		
12	RTS	RS232 Outlet	COM4 Handshake
13	CTS	RS232 Inlet	COM4 Handshake
14		Reserved	Not used
15		Reserved	Not used

RJ-45 LAN

8-Pin Modular
(see Pos. 6, Figure 5)



Pin	Name	Description
1	TX+	Send data + (pair 2)
2	TX-	Send data (pair 2)
3	RX+	Receive data + (pair 3)
4	Not used	(pair 1)
5	Not used	(pair 1)
6	RX-	Receive data - (pair 3)
7	Not used	(pair 4)
8	Not used	(pair 4)

³ Power supply 12VDC output for external utilities, activated in the Trux Computer Manager application.

III Technical recommendation

To make sure that all software and hardware will be fully functional the image needs to be created from a factory default Tx700 computer, meaning either new out of the box or reinstalled from a recovery media supplied by Åkerströms Trux AB.

The recovery media can be ordered from Åkerströms Trux AB as a stand alone product.

From a factory default Tx700 computer you can do your own customizations and finally create an image to be used to prepare other units based on the same hardware.

In order to achieve a successful image creation for the Tx700 it is important to follow these steps.

- 1 **IMPORTANT!** First it is very important to make sure that the boot order in BIOS is set to boot from diskette/USB boot media/(Compact Flash) otherwise the computer will start and we will not be able to make an image of the system in the wanted state. The master is only a master image until it is started. As soon as it is started it can not be used as a master image anymore.
- 2 Boot the system with diskette/USB boot media/Compact Flash with support for USB mass storage or network.
- 3 Attach a USB mass storage device or a network share containing the image software e.g. Norton Ghost, as well as enough space for storing the image.
- 4 Run the image software and make an image of the disk. The image should be stored in a safe place.

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License costs, update responsibility, functionality, interoperability of the customer image are under the responsibility of the customer. Åkerströms is not responsible to any consequence costs due to faulty, illegal or accidentally related issues to the customer image creation.

IV Environmental care information

Thanks to its low energy consumption, the use of Tx700 has a minimal effect on the environment. However, the computer should still be turned off or put on standby when it is not in use, to avoid the unnecessary consumption of energy.

Information on recycling

Since the computer contains materials that can harm the environment if handled improperly, a disused computer should always be taken to a recycling depot for electronic waste.

Åkerströms Trux AB is happy to take back disused computers and will ensure that they are recycled in accordance with sound environmental practice. Contact Åkerströms Trux AB for more information.

Product contents that can be harmful to the environment

If the computer is sent in for recycling anywhere else than Åkerströms Trux AB, that organisation should be informed of the following contents:

- Li-ION batteries (there is one battery for operations and one back-up battery on the motherboard)
- Circuit boards and circuits
- Screen (LCD and glass)
- Metal casing
- Cables

V Certification

Declaration of conformity

Type of equipment: Industrial PC
Brand name/trade mark: ÅKERSTRÖMS
Type designation/model: TRUX 700
Manufacturer: Åkerströms Trux AB
Björbovägen 143
S-780 45 BJÖRBO, Sweden
Pone +46 241 25000
Fax +46 241 25061

All models in Tx700 are CE certified, according to EMC Directive 89/336/EEC, including amendments in the CE marking directive, 93/68/EEC.

The product complies with the harmonized European standards and technical specifications listed below:

Standard

EN 61000-6-4:2001

En 61000-6-2:2001

FCC part 15 Subpart B

Reference

Test report no.

56505 – 050584

The products are CE marked in 2005.

Additionally all models in Tx700 are CB certified and complies with the standard below.

Standard

IEC 60950-1:2001 (1st Edition)

En 61000-6-2:2001

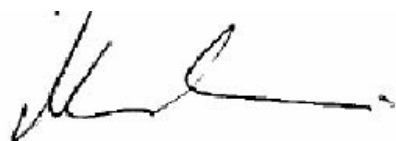
Incl.: Group-and national differences for the CENELEC countries and national differences for US and Canada according to CB Bulletin 109A / USCA 05 I.

Reference

Test report no.

611755-01

As a manufacturer within the EEA, we declare under our sole responsibility that the equipment follows the provisions of the directives stated above.



Marianne Arosenius, CEO January 19, 2007, Åkerströms Trux AB

FCC Information:

This device complies with FCC Rules, part 15. Operation is subject to the following conditions:

1. This device may not cause harmful interference and
2. This device must accept any interference that may be received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Warning: Changes or modifications to this device not expressly approved by LXE, Inc., could void the user's authority to operate this equipment.

EMC Directive Requirements:

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Industry Canada:

This Class A digital apparatus meets all requirements of the Canadian Interference Causing Equipment Regulations. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada. Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe A prescrites dans le Règlement sur le brouillage radioélectrique édictés par le ministère des Communications du Canada.

RF Safety Notice:

Caution: *This device is intended to transmit RF energy. For protection against RF exposure to humans and in accordance with FCC rules and Industry Canada rules, this transmitter should be installed such that a minimum separation distance of at least 20 cm (7.8 in.) is maintained between the antenna and the general population. This device is not to be co-located with other transmitters.*



Important: *This symbol is placed on the product to remind users to dispose of Waste Electrical and Electronic Equipment (WEEE) appropriately, per Directive 2002-96-EC. In most areas, this product can be recycled, reclaimed and re-used when properly discarded. Do not discard labeled units with trash. For information about proper disposal, contact LXE through your local sales representative, or visit www.lxe.com.*



Lithium Battery Safety Statement



Caution:

Lithium battery inside. Danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type recommended by battery manufacturer. (US)

Attention:

Contient une pile de lithium. Risque d'explosion dans le cas où la pile ne serait pas correctement remplacée. Remplacer uniquement avec une pile semblable ou équivalente au type de pile recommandé par le fabricant. (FR)

Forsigtig:

Indeholder lithiumbatterier. Risiko for eksplosion, hvis batteriet udskiftes forkert. Må kun udskiftes med samme eller tilsvarende type, som anbefalet af fabrikanten. (DK)

Varoitus:

Tämä tuote käyttää laservaloa. Skannerissa on jokin seuraavista tarroista. Lue Huomio-kohta. (FI)

Vorsicht:

Enthält Lithium-Batterie. Bei unsachgemäßem Ersatz besteht Explosionsgefahr. Nur durch gleichen oder vom Hersteller empfohlenen Typ ersetzen. (DE)

Attenzione:

Batteria al litio. Pericolo di esplosione qualora la batteria venga sostituita in maniera scorretta. Sostituire solo con lo stesso tipo o equivalente consigliato per il fabbricante. (IT)

Atenção:

Contém pilha de lítio. Há perigo de explosão no caso de uma substituição incorreta. Substitua somente pelo mesmo tipo, ou equivalente, recomendado pelo fabricante. (PT)

Varning:

Innehåller litiumbatteri. Fara för explosion om batteriet är felaktigt placerat eller av fel typ. Använd endast samma eller motsvarande typ batterier rekommenderade av tillverkaren. (SE)

Advarsel:

Innmontert Lithium batteri. Eksplosjonsfare ved feil montering av batteri. Benytt kun batteri anbefalt av produsent. (NO)

Cuidado:

Pila de litio adentro. Peligro de explosión si la pila se reemplaza incorrectamente. Reemplace solamente con el mismo tipo o equivalente recomendado por el fabricante. (ES)

Oppassen:

Bevat Lithium-batterij. Incorrecte plaatsing van batterij kan leiden tot explosiegevaar. Alleen vervangen door hetzelfde of door fabrikant aanbevolen gelijkwaardig type. (NL)

VI Warranty, support and service

Warranty

The functioning of a Tx700 is under warranty for one year from date of delivery.

The warranty presupposes that the product was used in a way that can be considered normal and that all the requirements in this manual are met.

If modifications are made to the computer without the consent of Åkerströms Trux AB, the warranty will no longer apply.

Support

To secure operation of the unit, various types of support agreements are available for Tx700. Contact Åkerströms Trux AB for more information.

Always start by reading section 7, Troubleshooting, if there is something that does not work satisfactorily.

If the problem cannot be solved, check with the person in charge at your company to see whether there are support agreements for your Tx700. Then contact Åkerströms Trux AB.

Åkerströms Trux AB can offer support for only the Windows XP, and Windows XP Embedded operating systems.

Service

After repairs or service, the computer will be returned with the operating system and software in the same condition as when it was sent to Åkerströms Trux AB, if possible. Otherwise, it will be returned with the original configuration, unless agreements are reached.

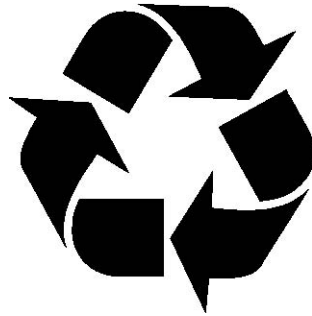
VII Batteries

CAUTION:

Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

DISCHARGED BATTERY

Disposal of a Li-Ion battery poses a smaller threat to the environment when compared to other battery types. However, all used Li-Ion batteries should be immediately sent to a qualified battery collection centre for recycling.



Old batteries shall be returned for recycling.

VIII Français Avertissement et emarque



Le manuel n'explique pas comment installer et utiliser le système d'exploitation ou les applications.



Avertissement !

Vous avertis des risques de dommages pour les individus ou les biens. Suivez toujours les instructions qui figurent en regard de ce symbole.



Remarque !

Attire votre attention sur les problèmes qui peuvent survenir si une mesure n'est pas prise ou est prise de manière incorrecte.



Soyez toujours prudent lorsque vous travaillez avec l'électricité.



Ne mettez jamais l'ordinateur sous tension si les conditions environnementales ne sont pas dans les limites indiquées (cf. Annexe I, Spécifications). Par exemple, vérifiez que l'ordinateur est mis sous tension avant d'entrer dans une unité de stockage froide.



Avant l'installation, veillez à ce que tous les critères relatifs à l'environnement soient respectés. Vous trouverez une liste de ces critères en Annexe I, dans les Spécifications.



Ne changez pas les vis d'origine avec lesquelles sont montés les supports. Des vis trop longues peuvent endommager le système électrique de l'ordinateur.



Soyez toujours prudent lorsque vous travaillez avec l'électricité.



Si la masse du véhicule n'est pas la même que celle du châssis du véhicule, vous devez alors monter l'ordinateur sur des patins en caoutchouc.



Ne connectez jamais l'alimentation aux prises 5 ou 6, qui servent à la fonction de noir de l'écran décrite à la section 4.2.2.



Vous pouvez définir cette fonction dans l'application Trux Computer Manager ; cf. 4.3.1.



Seuls les salariés (IT) expérimentés sont autorisés à utiliser le logiciel Trux Computer Manager car des paramètres incorrects peuvent avoir des effets indésirables sur certaines fonctions.



Si vous modifiez ou réinstallez le système d'exploitation de l'ordinateur, vous pouvez être amené à réinstaller les pilotes pré- installés.



Une fois que les périphériques sont connectés, fixez les câbles sur la partie inférieure de l'ordinateur qui comporte des trous prévus pour les brides de câbles.



N'oubliez pas que les systèmes d'exploitation n'ont pas tous une prise en charge intégrée de la souris (par exemple, DOS).



Pour être valides, les cartes réseaux utilisées pour les réseaux sans fil, qui ne sont pas fournies par Åkerströms Trux AB, doivent respecter la directive R&TTE (Radio & Telecom Terminal Equipment) pour la certification ; cf. Annexe IV.



Dans le premier endroit, arrêtez l'ordinateur par l'intermédiaire du logiciel d'exploitation, dans le deuxième endroit par le bouton. Tous pour fixer le stockage de données.



Utilisez toujours le stylet fourni pour pointer, déplacer ou tapoter sur l'écran. N'utilisez jamais d'objets tranchants ni pointus. Cliquez avec le stylet sur l'écran.



N'utilisez jamais de solutions de nettoyage fortes ni de solvants pour nettoyer l'écran.



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www.akerstroms.com



User Manual Tx800 Triton





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1 About this manual

This manual covers the following topics related to installation, start-up, operation and maintenance of Tx800.

- [Safety considerations](#)

General product information

Product installation procedures

Product use and maintenance

Troubleshooting

The appendices provide this reference information: technical specifications, port signals, environmental considerations, fulfillment of EU and US compliance regulations, warranty, support, service and Åkerströms Trux AB addresses and phone numbers.

1.1 Who should read this manual

Use this manual if you are responsible for installing, setting in operation, maintaining or repairing Trux Solutions. It provides information you need for mechanical and electrical installation of Åkerströms Trux AB Tx800 and configuration of basic functions. You should:

- [Be familiar with mechanical, electrical and computer installations.](#)
- [Have experience using computers and knowledge of the operating system that will run on the Tx800.](#)



The manual does not describe how to install and use the operating system or applications.

1.2 Notices

This manual describes the product's basic design and main procedures for installing, operating, and maintaining the product. There might be deviations between information in this manual and the appearance and functions in the delivered product, because of differences in hardware and software versions.

When product updates that affect function and security, are available at www.akerstromstrux.com or from Åkerströms Trux AB's support department.

1.3 How to use this manual

To...	Read Chapter...
Prepare for electrical installation	2 Safety
Prepare for product installation	3 Product description
Install Åkerströms Tx800	4 Product installation
Operate Tx800	5 Using the product
Maintain proper operation	6 Maintenance
Solve problems	7 Troubleshooting



1.3.1 Prerequisites

To perform some tasks listed above, you'll need:

- The Trux Computer Manager application, which comes with Tx800.
- Åkerströms Trux AB or other manufacturers' documentation related to options and peripherals.
- Manufacturers' product documentation for the:
 - Operating system and other applications
 - Global positioning system (GPS)
 - Global system for mobile communication (GSM)
 - General packet radio service (GPRS)

1.3.2 Symbols used

This manual contains these symbols, abbreviations, and terms:

Symbol	Heading	Description
	Warning	Warns about risk of damage to people or property. Always follow the instructions provided in conjunction with this symbol.
	Note	Calls your attention to problems that may arise if a measure is not taken or is taken incorrectly.

2 Safety

2.1 2.1 Personal safety

Keep this in mind:



Always exercise caution when working with electricity

2.2 Product safety

2.2.1 Supplying power

Tx800 have to be supplied with an external fuse before connecting to recommended voltage (see 4.2.1).

Connect only the recommended voltage. Any other voltage may damage the product or make its operation fail.

The external electrical system should be designed to prevent voltage peaks.

A DC/DC transformer is predominantly used to electrically isolate the Tx800 from the vehicle chassis (see 4.2.1).

2.2.2 Humidity, moisture, cold and heat

Make sure the operating environment is within the standards described in Appendix I, Technical specs.



Don't turn the Tx800 on, unless environmental conditions are met.

2.2.3 Interference

Ensure that:

- Any nearby electrical cabling (mains supply) is run so that interference does not occur.
- The immediate environment meets requirements stated in the specified standards (see Appendix IV) regarding interference

2.2.4 Vibrations

Tx800 should be mounted in a way that vibrations, transmitted to it, does not exceed the limits it is designed for (see Appendix I, Specifications).



3 Product description

3.1 Design and functionality

Åkerströms Trux AB designed and developed Tx800 for mounting on mobile or stationary units. Rugged design, intense screen brightness, and exceptional reliability make Tx800 suitable for demanding environments, in which vehicles such as forklifts, forestry machines, and trucks operate.

Tx800 is designed to withstand vibrations, moist and dust.

Tx800 is based on a standard PC platform that enables use of most types of software available for Windows XP Professional or Windows XP Embedded.

Tx800 can be used as a standalone computer or as a thin client, which requires an application server.

The model is equipped with Pentium M or Celeron M processor, built-in hard disk and battery backup function. The battery/ UPS function ensures that data isn't lost during momentary loss of power.

Tx800 is available with several options and peripherals mentioned in this manual.

3.2 Typical usage

Typical usage areas for Tx800 include:

Mounted in forklifts, operating in warehouses connected to a logistic system via a wireless network,.

In trucks using global positioning system (GPS) navigation, routes, maps, and picking lists.

In forestry machines using GPS-navigation, maps and felling instructions.

3.3 Connections and adapters

3.3.1 Interfaces and connections

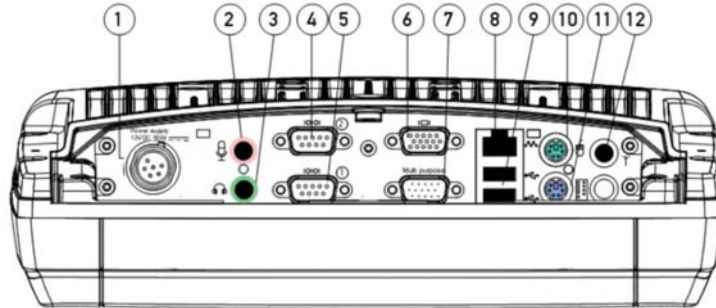


Figure 1: Overview connections and interfaces

Connections and interfaces (port lid)

Position	Function
1	Power supply (12V DC 50W)
2	Mic. in
3	Audio out
4	COM2 RS232 +12V
5	COM1 RS232 +5V
6	VGA (external monitor)
7	Multipurpose connector (USB 2.0, RS232, +12 V)
8	RJ-45 Ethernet 10/100 (LAN)
9	2x USB 2.0
10	PS/2 Mouse
11	PS/2 Keyboard
12	Bluetooth antenna connector

3.3.2 Under the service-lid

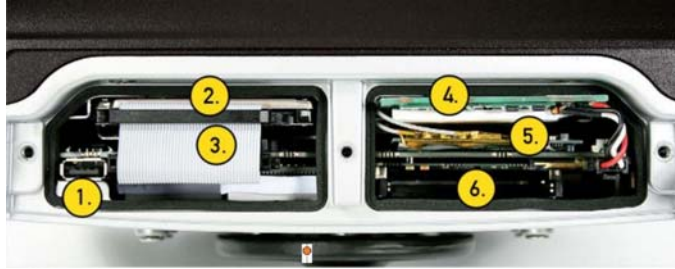


Figure 2: Overview: connections and interfaces under the service-lid

Position	Function
1	USB 2.0
2	Harddrive
3	Compact Flash slot (behind HD cable)
4	Battery/UPS
5	Mini PCI slot
6	PC Card slot (option)

3.4 Tx800 series

Åkerströms Tx800 is developed for companies that want flexibility and need powerful computers that enable several heavy applications to run simultaneously.

The Tx800 comes in various configurations to meet your requirements. You can select either the Windows XP Professional or XP Embedded operating systems, processors and primary memory, based on the types and numbers of applications that you run at the same time

Åkerströms Tx800 can be used as a robust, thin client running various client server applications. With Windows XP Embedded you get total control of the user environment and users only have access to applications on a need to use basis.

3.4.1 Peripherals and accessories

Listed below are some of the peripherals which can be connected to the Tx800. The Section column lists the sections in this manual describing how to install the peripheral. For information on use, refer to the documentation that accompanies the product.

More peripherals can be found at: www.akerstromstrux.com

Peripheral	Section
Keyboard	4.4.3
Mouse	4.4.3
Printer	4.4.4
Barcode reader	4.4.5
External monitor	4.4.6
GPS-system	4.4.7
Mobile communication	4.4.7
Headset/Audio out	4.4.8
Microfon	4.4.9
Antennas	4.4.10

4 Installation



Before mounting the Tx800, write down the license key for the operating system. It's located on the chassis, under the port lid.

4.1 Mounting the unit

Tx800 should be mounted in a way that enables the operator to easily perform tasks while in the vehicle.

When positioning the computer in the vehicle, carefully account for the operators' working situation. An ergonomically correct installation, with an optimal field of vision, greatly facilitates the operators' work.



Before installation, ensure that all the environmental requirements are met. Check Appendix I Specifications. Also check with the owner/manufacturer before drilling holes in the vehicle.

4.1.1 Mounting brackets

You can order several different types of brackets for the Tx800. The brackets have built-in shock absorption and can move in all directions.

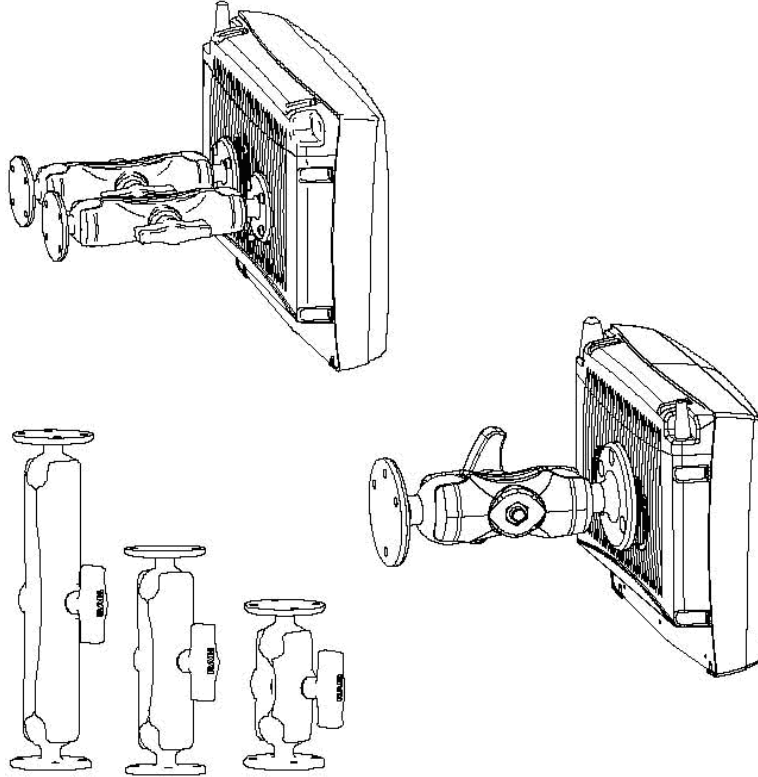


Figure 3: Brackets (are available in 2 dimensions, in 3 lengths, see below)

Bracket with 1.5" ball	Bracket with 2.25" ball
95 mm (3.75")	128 mm (5.00")
154 mm (6.00")	213 mm (9.40")
233 mm (9.14")	328 mm (13.00")

- 1 Check that the planned location of the computer meets ergonomic and field-of-vision requirement.
- 2 Ensure there is sufficient space underneath and above the Tx800 (easier to perform service/connect and disconnect cables). There should be enough space behind the unit, making the passive cooling work correctly.
- 3 Mark the positions of the holes on the mounting surface. See Figures 4 and 5 below.

5.5 mm holes

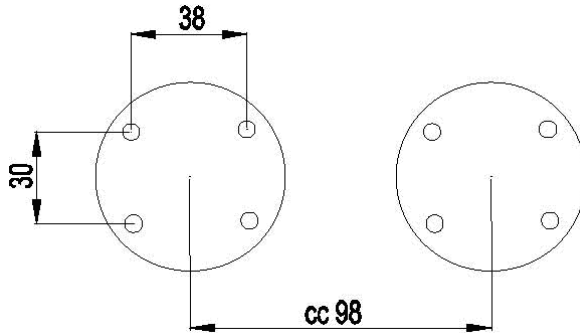
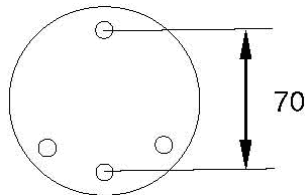


Figure 4 Locations of holes for 1.5" ball

8 mm holes



3 + 1 hole, 08 mm

Figure 3b Location of holes for 2.25" ball

- 4 Before drilling: Check behind/next to the presumed location for pre-installed electrical cabling, etc. Verify placement with owner/manufacturer. Now drill holes for the attachment screws.
- 5 Firmly fasten the bracket onto the mounting surface using bolts.



Before mounting Tx800 onto the bracket, it's easier to have all the wiring done, the openable cable protection tube and the port lid in place.

4.2 Electrical installation



Always exercise caution when working with electricity!

4.2.1 Connecting to power source

The Tx800 comes with a four meter, four-wired power cable; brown for positive and white for negative, and 2 conductors; yellow and green, to enable the screen black-out function (if selected), see 4.2.2. Connect the brown part of this cable to positive and the white part to negative on the power source (DC/DC converter), and fuse it according to the specifications shown below:

Specification external power source

Voltage	12 VDC \pm 10% Always use insulated DC/DC transformers in vehicles
Power	50 W
Fuse	6 A (slow blow fuse)



The vehicle's chassis should always be electrically insulated from the Tx800.

Then connect the power cable to the computer's power supply outlet; see Fig. 6.



Never connect power to pins 5 or 6. They are used for the black-out screen function described in section 4.2.2.

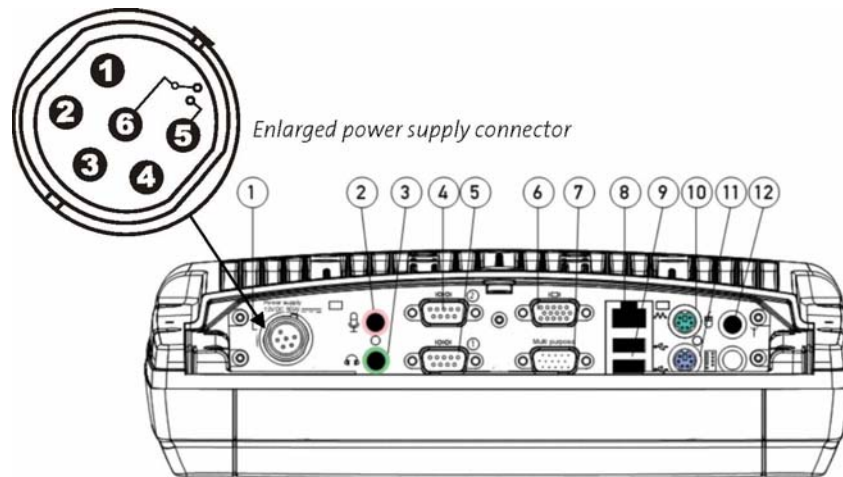


Figure 6: Power supply connector

4.2.2 Blackout screen function



This function is disabled by default but can be activated in Trux Computer Manager.

In the power supply connector there are two pins (5 and 6), dedicated to dimming the screen for example when the vehicle is set in motion (when the pedal is pressed). When the vehicle stops (when the pedal is released) the screen is lit again.

Connect pins 5 (green wire) and 6 (yellow wire) to the vehicle's pedal-relay by means of an insulated (electrically), open/close relay contact. Blackout Screen Box is an option, from Åkerströms Trux AB, which handles this.

If the screen's black-out function isn't used, insulate the end of the green and yellow wires on the open end of the cable.

4.3 Settings

4.3.1 Using the Trux Computer Manager application

To configure certain Tx800 settings, you use the Trux Computer Manager application.

- 1 Start the Control Panel from the Settings option on the Start menu.
- 2 Double-click on the Trux icon.

The first window displays information about the application's ID, version, and release date. This information could be useful when contacting Åkerströms Trux AB support department.



Only experienced (IT) personnel should use the Trux Computer Manager because incorrect settings could produce undesired results in Tx800's behavior.

4.3.2 Configuring the UPS function

Tx800 comes with a state of the art developed system for handling momentary loss of power supply.

The UPS (Uninterruptible Power Supply) battery is located under the service-lid.

Use the Trux Computer Manager to specify values for:

- When the system should react to a power shortage
- The degree to which the monitor brightness should decrease
- When the system should try to shut down

Refer to the Trux Computer Manager for a more detailed description of how to configure the battery backup function.

4.3.3 Settings for start and shutdown

Depending on the environmental conditions, in which the Tx800 is operating and the nature of the power supply, settings for start-up and shutdown can be adjusted.

For example, using the Trux Computer Manager, you can specify whether the computer can be started from battery power when the incoming power supply is connected or by touching the screen. You can also configure the system to shut down the computer in different situations.

Refer to the Trux Computer Manager for a detailed description of available settings.

4.3.4 Supplying power to peripherals

Some peripherals require power from the computer's COM or Multi Purpose ports. In Computer Trux Manger Tx800 can be set to supply power from pin 9 on the COM ports (5V from COM1 and/or 12V from COM2). From the Multi Purpose port, pin 5 can provide 12V. Also see Appendix II.

Refer to the Trux Computer Manager for information on how the power supply from the ports above is activated

4.3.5 Battery charging options

The battery charge function can be set to be active while Tx800 is operating, as well as when the computer is turned off or in standby mode.

To change the battery charge settings, refer to the Trux Computer Manager.

4.3.6 Blackout screen

The black-out screen (dim) function is not activated at delivery. About function and connection see 4.2.2.

To activate this function, refer to the Trux Computer Manager.

4.3.7 Sound, ambient light sensor and defroster

Settings for audio-out, the built-in ambient light sensor and the defroster (option) is also found in Trux Computer Manager.

4.4 Installing peripherals

Åkerströms Trux AB offers peripherals to enhance the use of Tx800. Peripherals, ordered with the computer, comes with pre-installed drivers. If you order them later, or from a supplier other than Åkerströms Trux AB, you might have to install drivers; if so, refer to the peripheral's documentation.

4.4.1 Ports for connecting peripherals

Port lid

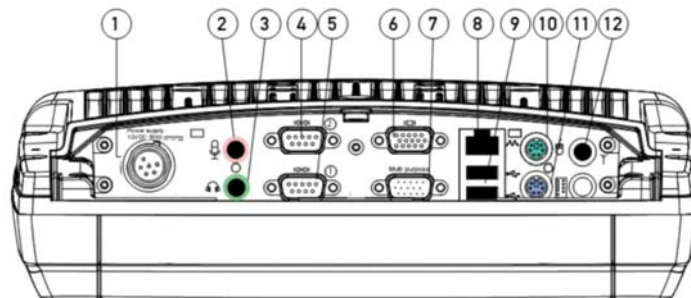


Figure 7: Ports

Connections and interfaces (port lid)

Position	Function
1	Power supply (12V DC 50W)
2	Mic. in
3	Audio out
4	COM2 RS232 (option: +12V from pin 9)
5	COM1 RS232 (option: +5V from pin 9)
6	VGA (external monitor)
7	Multipurpose connector (USB 2.0, RS232, 5/12 V)
8	RJ-45 Ethernet 10/100 (LAN)
9	2x USB 2.0
10	PS/2 Mouse
11	PS/2 Keyboard
12	Bluetooth antenna connector

The following section describes function and use of the ports.

Strain relief

Use the strain relief to prevent the contacts from disconnecting from the unit while operating.

The brackets for strain relief can be turned around, to fit various contact lengths. Use strain relief according to fig. 8 for USB and PS/2 connectors.



Figure 8: Strain relieving brackets for USB and PS/2 connectors



When all peripherals are connected, the cabling should be put in the openable cable protection tube, delivered with the unit (described in section 4.5).

4.4.2 Supplying power to peripherals

Some peripherals require power from the computer's COM or Multi Purpose port, for example a bar-code reader or an illuminated keyboard.

You can configure the Tx800 as follows:

- 12V power is supplied from pin 9 on the COM 2 port.
- 5V power is supplied from pin 9 on the COM 1 port.
- 12V power is supplied from pin 5 on the Multi purpose port.

Peripherals, with maximum power consumption of 300 mA, can be supplied from these ports.

Use the Trux Computer Manager to configure activation of the power supply from ports; see 4.3.4.

4.4.3 Keyboard and mouse

Tx800 supports either USB or PS/2 connected keyboard and mouse

Connect keyboards and pointing devices to the computer's port. Use strain relief according to fig. 8, section 4.4.1. Note that some require an adapter and others may need additional configuration. Follow the instructions for the type of keyboard that you have.

4.4.4 Printers

You can connect printers to either:

- COM ports; see Fig 7, pos. 4 or 5, or
- USB ports; see Fig 7, pos. 9,

For more information, refer to the printer's documentation.

The printer will need to be supplied with power separately.

4.4.5 Barcode readers

Use this installation procedure for all bar code readers that Åkerströms Trux AB supplies for Tx800:



Select the appropriate port (COM2 supplies 12V, COM1 5V) or connect it using a keyboard wedge connector.

- 1 Connect the barcode reader to the selected port.
- 2 Activate the power supply on the COM port in Trux Computer Manager (section 4.3.4).

To convert the signals from the scanner to keystrokes, you can use the FreeFloat WLinQ software. WLinQ listens for signals at the COM port and converts these to the corresponding key that is sent to the active application.

WLinQ comes with all bar code readers from Åkerströms Trux. More details about WLinQ is found in Appendix IV.

4.4.6 External monitor

If needed, an external monitor can be connected to Tx800's VGA connector.

4.4.7 Other external accessories

Mobile communication such as GPS, GSM/ GPRS/ WCDMA-systems can be connected to the COM-ports.

Serially connected peripherals sometimes require power supply from the computer.

- 1 Connect the barcode reader to the correct COM port; see Figure 7 position 4 or 5.
- 2 Activate the power supply on the COM port (5V from COM1 or 12V from COM2) using Trux Computer Manager (section 4.3.4).

For information about how to configure accessories like GPS and GSM/GPRS/WCDMA products, see the manufacturers' documentation.

4.4.8 Audio Out

Audio Out is a standard earphone outlet, Ø 3.5 mm .

4.4.9 Mic In

Mic In is a standard microphone inlet, Ø 3.5 mm .

4.4.10 Antenna

Tx800 comes with two mounted antennas, used for WLAN/GPRS communication. If externally mounted antenna is needed, cabling and connectors for this is available from Åkerströms Trux AB. If a Bluetooth antenna is needed, this is connected to port 12 (section 4.4.1).



Wireless communication equipment, not supplied by Åkerströms Trux AB, has to comply with local Radio and Telecom Terminal Equipment directives.

4.5 Mounting the port lid

Cut the provided openable cable protection tube to the appropriate length. Put the cables in one half of it and then put the other half on, according to fig. 9.

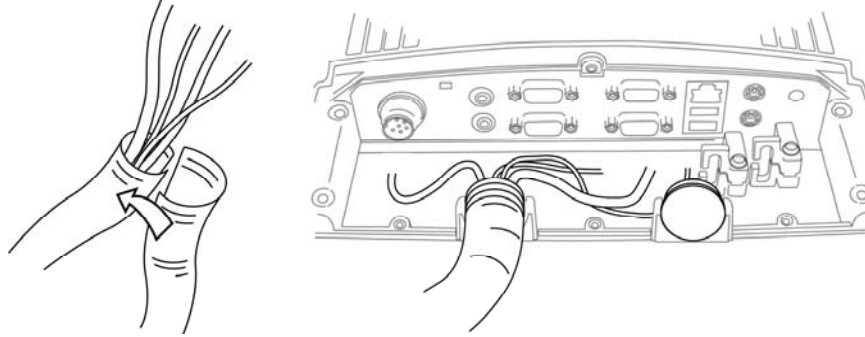


Figure 9: Applying the openable cable protection tube

Before mounting the port lid, fit the cable tube in the sockets of the chassis and lid.

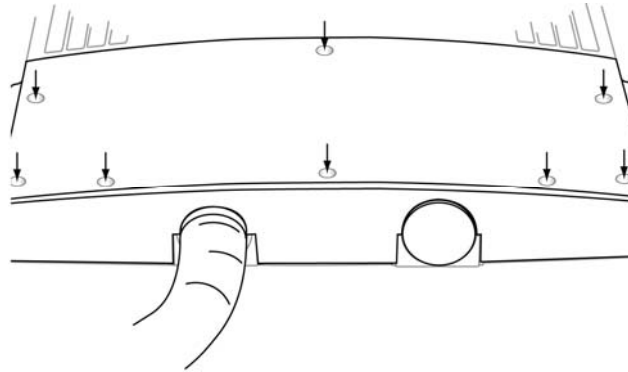


Figure 10: Mounting the port lid

The screws used for the port lid should be alternately tightened to provide proper dust and moist protection (IP65 requirement).

Fasten the cable tube in the vehicle, without putting strain on the tube. Now the Tx800 is ready to be mounted in the vehicle.

5 Using the Tx800

5.1 Operating

5.1.1 Starting the computer



Figure 11: On/Off button

To turn on the computer:

- Press the on/off button on the computer's front left side, see Fig. 11, or:

Depending on the settings in Trux Computer Manager (see section 4.3.3), Tx800 also can be started by touching the integrated touch screen, or when turning the external power source on.

5.1.2 Turning off the computer

To turn off the computer:

- Shut down using the operating system's interface, or
- Press the On/Off button on the computer's left side.



The first hand choice is to shut down using the operating system. This provides better protection against loss of data.

5.2 Touchscreen

The Tx800 is equipped with a pressure-sensitive touchscreen. Rather than using a mouse as pointing device, users select objects by touching the screen with a stylus or a finger.



Always use the accompanying stylus to point, drag or tap the screen. Never use metallic or sharp-pointed objects.

5.2.1 Using the stylus to select screen objects

To select an object on the interface, gently tap the screen:

- One time to click.
- Two times in rapid succession to double-click.
- Tap on the mouse symbol in the system tray, down in the right corner, the next click will then be a right click.

5.2.2 Calibrating the touchscreen

Touch-screen accuracy is calibrated using the touch-screen application.

5.2.3 Adjusting brightness



Figure 12: Screen Brightness

Screen brightness is adjusted using the buttons (+) or (-) on the front's right side.

The screen's background lighting can be turned off by holding both buttons simultaneously.

Background lighting is restored by pushing one of the buttons or by touching the screen

The ambient-light autosensor is located on the front, to the left of the brightness controls.

In Trux Computer Manager there are settings for adjusting the behavior of the ambient-light-control.

5.2.4 LED indications

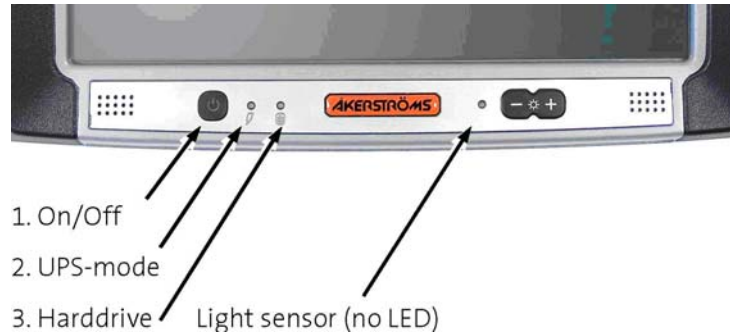


Figure 13 LED Indicators

The On/Off button's built-in LED, indicates operational mode.

1. On/Off LED

Operational Mode	Indication
Off and not powered	Off (dark)
Off but powered	Green flash very slow
Operating normally	Green on
Suspend	Green flashing slow
Black-out Screen	Green flashing fast
Over voltage shutdown	Red on
Over temperature	Red flashing

2. UPS Mode

Function	Indication
UPS battery powered	Green flashing fast
UPS battery charging	Green on or flashing slow
UPS battery charged	Off (dark)

3. Harddrive LED

Function	Indication
Harddrive activity	Green flashing
No activity	Off (dark)



6 Maintenance

6.1 Cleaning the screen

Clean the screen when necessary. Use a soft, slightly damp cloth. If required, use a cleaning solution that is intended for computer screens.



Never use detergents or any other liquid not intended for this use when cleaning the screen..

6.2 Checking connections

Check regularly that all connections are firmly in place and that all cables are securely fastened (check that strain relief is working properly).

6.3 Service

To secure operation of the unit, various types of support agreements are available for Tx800. Contact Åkerströms Trux AB for more information.



7 Troubleshooting

Perform the following troubleshooting procedures before contacting Åkerströms Trux AB regarding problems with Tx800:

7.1 Computer problems

7.1.1 The computer will not start

If nothing happens when the On/Off button is pressed, ensure that the:

- Power supply is connected (On/Off LED blinking green).
- Fuse is intact.
- DC/DC converter supplies correct voltage.
- LED Indications on the front panel are correct (section 5.2.4).

7.1.2 The screen is blank

If the computer is on but the screen is blank or is only faintly lit, ensure that the:

- Screen black-out (dim) function is not active (fast green blinking On/Off button).
- Screen's brightness is not set too low. Adjust with the brightness control buttons, (+)/(-) on the front.
- LED Indications on frontpanel are correct (see section 5.2.4).

Try attaching an external (VGA) monitor, if nothing else works.

7.2 Problems with peripherals

If a peripheral doesn't work:

- Check cabling/contacts and connections first.
 - If the peripheral needs power supply, make sure the power supply for peripherals is activated in the Trux Computer Manager (see 4.3.4).
-

7.2.1 Keyboard/Mouse

If keyboard or mouse doesn't work:

- Check strain relief, cabling/contacts and connections
 - Restart the computer and, if possible, try using another keyboard/mouse.
-

7.2.2 Touchscreen accuracy

If the touch-screen accuracy is off target:

- Calibrate the touch-screen/stylus, using the touchscreen application.
-

7.2.3 Communication

If communication problems arise with a wireless network, GPS or GSM/GPRS products, test coverage in two ways:

- Check the computer's software for indications of poor coverage (often indicated by an icon in the systray).
- Put another computer in the same location, to see if the same problem occurs.

Appendix

I Technical Specifications

Processor/RAM	Intel Pentium M 1,4GHz, 1024 MB DDR Intel Pentium M 1,4GHz, 512 MB DDR Intel Celeron M 600MHz, 1024 MB DDR Intel Celeron M 600MHz, 512 MB DDR
Storage	40 GB IDE ATA 2,5" automotive harddrive 4 GB Compact Flash 2 GB Compact Flash
Screen	10,4" TFT Flat Panel SVGA (800X600) Max 400 cd/m ² Contrast 500:1 Automatic ambient-light sensor
Graphics Card	Intel Extreme Graphics 2
Ports/Connectors	2x PS/2 (Keyboard/mouse) 2 Serial port (COM1), (COM2) 2x USB 2.0 port 1 Multi Purpose connector (USB 2.0, RS232) 1 RJ-45 Ethernet 10/100 1 Audio Out (Head set) 1 Audio in (microphone) Internal front-speakers WLAN 802.11 a/b/g (h) Internal connectors: 1x USB 2.0, 1x Mini-PCI
Antenna	Dual band (2,4/5GHz)
Cooling	Passive cooling
Power Supply	12 VDC ± 10%, 50W Integrated Li-Po (Lithium-Polymer) battery Integrated battery-charger. Option: DC/DC converter

Continued on the following page

Power Consumption	2,5 A (typ) 4 A (max) 0,7 A (typ) 1,0 A (max)
Operating System	Windows XP Professional or Windows XP Embedded
Dimensions	279 x 229 x 77 mm (11,0 x 9,0 x 3,0 inches)
Weight	2,9 kg ((7,7 lb)
Options	Flash disk, 1 PC card type II, Bluetooth, Defroster, GPRS/EDGE/WCDMA, Hardened touchscreen, external antenna
Temperature Limits	-30° – 50° C (Storage) -20° – 50° C (Operating)
Vibration tested	According to: IEC 60068-2-64, Test Fh Vibration
Shock tested	According to: IEC 60068-2-29, Test Eb Bump
Moisture tested	According to: IEC 60068-2-30, Test Db
Degree of protection	IEC 60529 (IP65) Rated
Standard	Conforms with CE, FCC and ETL standards

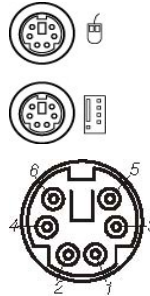
II Port Signals

PS/2

PS2Connectors

Keyboard and mouse

(position: 10 and 11, section 3.3)



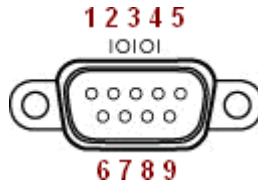
PS/2 Keyboard		PS/2 Mouse	
Pin	Signal	Pin	Signal
1	KBDData	1	MSData
2	Reserved	2	Reserved
3	Ground	3	Ground
4	Volt	4	Volt
5	KBDClock	5	MSClock
6	Reserved	6	Reserved

COM1

Serial (COM1)

9-Pin D-sub M

(position: 5, section 3.3)



Pin	Signal	Type	Purpose
1	DCD	RS232 Input	COM1 Handshake
2	RXD	RS232 Input	COM1 Receive data
3	TXD	RS232 Output	COM1 Send data
4	DTR	RS232 Output	COM1 Handshake
5	GND	Ground	Ground
6	DSR	RS232 Input	COM1 Handshake
7	RTS	RS232 Output	COM1 Handshake
8	CTS	RS232 Input	COM1 Handshake
9	EXTPWR ¹	Power out	COM1 Power supply 5 VDC

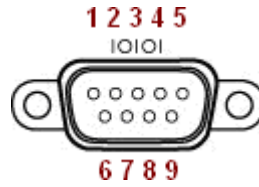
¹ Supplies 5 VDC for peripherals, activated in Trux Computer Manager.

COM2

Serial (COM1)

9-Pin D-sub M

(position: 4, section 3.3)



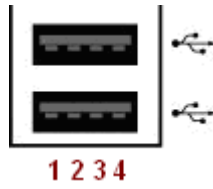
Pin	Signal	Type	Purpose
1	DCD	RS232 Input	COM2 Handshake
2	RXD	RS232 Input	COM2 Receive data
3	TXD	RS232 Output	COM2 Send data
4	DTR	RS232 Output	COM2 Handshake
5	GND	Ground	Ground
6	DSR	RS232 Input	COM2 Handshake
7	RTS	RS232 Output	COM2 Handshake
8	CTS	RS232 Input	COM2 Handshake
9	EXTPWR ²	Power out	COM2 Power supply 12 VDC

² Supplies 12 VDC for peripherals, activated in Trux Computer Manager.

USB

USB 2.0 x2

(position: 9, section 3.3)



Pin	Signal	Type	Purpose
1	VCC	USB power	+5V Power out
2	USB0-	Input/Output	USB data -
3	USB0+	Input/Output	USB data +
4	GND	Ground	Ground

Multipurpose

Multi Purpose

15-Pin D-sub M

(position: 7, section 3.3)



Pin	Signal	Type	Purpose
1	VCC 5	5 V Power	+5 V USB Power Supply
2	RXD	RS232 Input	COM 4 Receive data
3	TXD	RS232 Output	COM 4 Transmitting data
4		Reserved	Not used
5	+12V ³	Power out	COM1 Power supply 5 VDC
6	USB +	Input/Output	USB data +
7	USB	Input/Output	USB data
8	GND	Ground	Ground
9		Reserved	Not used
10	GND	Ground	Ground
11	GND	Ground	Ground
12	RTS	RS232 Output	COM4 Handshake
13	CTS	RS232 Input	COM4 Handshake
14		Reserved	Not used
15		Reserved	Not used

³ Supplies 12 VDC for peripherals, activated in Trux Computer Manager.

Ethernet

RJ-45 Ethernet 10/100

8-Pin Modular

(position: 8, section 3.3)



8,7,6,5,4,3,2,1

Pin	Signal	Function
1	TX+	Transmit data + (pair 2)
2	TX-	Transmit data (pair 2)
3	RX+	Receive data + (pair 3)
4	Not used	(pair 1)
5	Not used	(pair 1)
6	RX-	Receive data - (pair 3)
7	Not used	(pair 4)
8	Not used	(pair 4)

VGA

VGA connector

15-Pin D-sub F.

(position 6, section 3.3)



Pin	Signal	Function
1	CRT_R	CRT Red
2	CRT_G	CRT Green
3	CRT_B	CRT Blue
4	N/C	Not connected
5	GND	Ground
6	RGND	Red Ground
7	GGND	Green Ground
8	BGND	Blue Ground
9	N/C	Not connected
10	GND	Ground
11	N/C	Not connected
12	SDA	DDC_Data
13	CRT_HS	CRT Horizontal Sync.
14	CRT_VS	CRT Vertical Sync.
15	SCL	DDC_Clock

III Technical Recommendations

Recovery

The recovery media can be ordered as a stand alone product.

IV Disclaimer

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V Tx800 Software

The following software is installed on a new Tx800.

Freefloat WLinQ

WLinQ is an integration tool for auto-id solutions. Featuring communication and control to devices connected to COM-ports, physical or virtual (USB and Bluetooth). For use it with barcode readers, scales, RFID readers and other serial devices.

WLinQ is bundled with the Tx800. It will run in demo mode, if installed from scratch, or normal mode, based on the original installation licensing regulations. Stand-alone licences for WLinQ can be ordered from Åkerströms Trux AB.

- [wlinqeng.exe \(English version\)](#)
- [wlinqswe.exe \(Swedish version\)](#)

Tx800 Computer Manager

Handles settings for; sound, light, power from ports, UPS, start-up and shutdown etc. Install the application with all options checked.

Freefloat Access One Terminal Emulator

Terminal emulating software for accessing mainframes, AS/400:s, Unix hosts etc.

Trux Speedometer

Handles Speedstep technology supported by some CPUs. Make sure the Trux 800 power scheme has been installed and selected. This is done via Control Panel->Performance and Maintenance->Power Options->Power Schemes.

Touchscreen software

Drivers to support the touchscreen and software for calibrating the pointing-accuracy.

Select COM3 in the installation wizard.

Communication devices

Install the proper software for your communication device,

e.g. WLAN card.

Tx800 device drivers

All the device drivers are preinstalled.

VI Certification

FCC Information:

This device complies with FCC Rules, part 15. Operation is subject to the following conditions:

1. This device may not cause harmful interference and
2. This device must accept any interference that may be received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Warning: Changes or modifications to this device not expressly approved by LXE, Inc., could void the user's authority to operate this equipment.

EMC Directive Requirements:

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Industry Canada:

This Class A digital apparatus meets all requirements of the Canadian Interference Causing Equipment Regulations. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada. Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe A prescrites dans le Règlement sur le brouillage radioélectrique édictés par le ministère des Communications du Canada.

RF Safety Notice:

Caution: This device is intended to transmit RF energy. For protection against RF exposure to humans and in accordance with FCC rules and Industry Canada rules, this transmitter should be installed such that a minimum separation distance of at least 20 cm (7.8 in.) is maintained between the antenna and the general population. This device is not to be co-located with other transmitters.



Important: This symbol is placed on the product to remind users to dispose of Waste Electrical and Electronic Equipment (WEEE) appropriately, per Directive 2002-96-EC. In most areas, this product can be recycled, reclaimed and re-used when properly discarded. Do not discard labeled units with trash. For information about proper disposal, contact LXE through your local sales representative, or visit www.lxe.com.



Lithium Battery Safety Statement



Caution:

Lithium battery inside. Danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type recommended by battery manufacturer. (US)

Attention:

Contient une pile de lithium. Risque d'explosion dans le cas où la pile ne serait pas correctement remplacée. Remplacer uniquement avec une pile semblable ou équivalente au type de pile recommandé par le fabricant. (FR)

Forsigtig:

Indeholder lithiumbatterier. Risiko for eksplosion, hvis batteriet udskiftes forkert. Må kun udskiftes med samme eller tilsvarende type, som anbefalet af fabrikanten. (DK)

Varoitus:

Tämä tuote käyttää laservaloa. Skannerissa on jokin seuraavista tarroista. Lue Huomio-kohta. (FI)

Vorsicht:

Enthält Lithium-Batterie. Bei unsachgemäßem Ersatz besteht Explosionsgefahr. Nur durch gleichen oder vom Hersteller empfohlenen Typ ersetzen. (DE)

Attenzione:

Batteria al litio. Pericolo di esplosione qualora la batteria venga sostituita in maniera scorretta. Sostituire solo con lo stesso tipo o equivalente consigliato per il fabbricante. (IT)

Atenção:

Contém pilha de lítio. Há perigo de explosão no caso de uma substituição incorreta. Substitua somente pelo mesmo tipo, ou equivalente, recomendado pelo fabricante. (PT)

Varning:

Innehåller litiumbatteri. Fara för explosion om batteriet är felaktigt placerat eller av fel typ. Använd endast samma eller motsvarande typ batterier rekommenderade av tillverkaren. (SE)

Advarsel:

Innmontert Lithium batteri. Eksplosjonsfare ved feil montering av batteri. Benytt kun batteri anbefalt av produsent. (NO)

Cuidado:

Pila de litio adentro. Peligro de explosión si la pila se reemplaza incorrectamente. Reemplace solamente con el mismo tipo o equivalente recomendado por el fabricante. (ES)

Oppassen:

Bevat Lithium-batterij. Incorrecte plaatsing van batterij kan leiden tot explosiegevaar. Alleen vervangen door hetzelfde of door fabrikant aanbevolen gelijkwaardig type. (NL)

VII Warranty, Support and Service

Warranty

The Tx800 has a warranty of one year from the date of delivery

The warranty assumes that the product was used in a way that can be considered normal and that all the requirements in this manual are met.

If alterations are made to the computer without the consent of Åkerströms Trux AB, the warranty will no longer apply.

Support

To secure operation of the unit, various types of support agreements are available for Tx800.

Contact Åkerströms Trux AB for more information.

If any problem occur; always start by reading section 7, Troubleshooting.

If the problem cannot be solved, check with the person in charge at your company to see whether there are support agreements for your Tx800. Then contact Åkerströms Trux AB

Åkerströms Trux AB only offers support for Windows XP, and Windows XP Embedded operating systems in the Tx800.

Service

After repairs or service, if possible , the computer will be returned with operating system and software in the same condition as when it was sent to Åkerströms Trux AB,. Otherwise, it will be returned with the original configuration, unless other agreements have been made.

VIII Environmental Care Information

Thanks to its low energy consumption, the use of Tx800 has a minimal effect on the environment. However, the computer should still be turned off or put on standby when it is not in use, to avoid the unnecessary consumption of energy.

Information on recycling

Since the computer contains materials that can harm the environment if handled improperly, a disused computer should always be taken to a recycling depot for electronic waste.

Åkerströms Trux AB is happy to take back disused computers and will ensure that they are recycled in accordance with sound environmental practice. Contact Åkerströms Trux AB for more information.

Contents that may be harmful to the environment

If the computer is sent in for recycling anywhere else than Åkerströms Trux AB, that organisation should be informed of the following contents:

- Li-Po battery.
- Circuit boards and circuits
- Screen (LCD and glass)
- Metal casing (magnesium)
- Cables

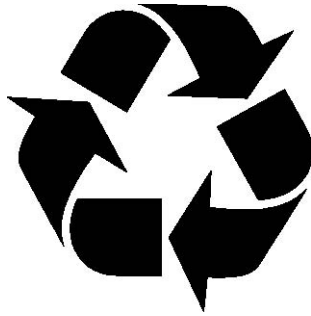
IX Batteries

CAUTION:

Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.














DISCHARGED BATTERY



Disposal of a Li-Po battery poses a smaller threat to the environment when compared to other battery types. However, all used Li-Po batteries should be sent to a qualified battery collection centre for recycling.



Remember to return old batteries for recycling!

X Français Avertissement et emarque

	Le manuel n'explique pas comment installer et utiliser le système d'exploitation ou les applications.
	Avertissement ! Vous avertis des risques de dommages pour les individus ou les biens. Suivez toujours les instructions qui figurent en regard de ce symbole.
	Remarque ! Attire votre attention sur les problèmes qui peuvent survenir si une mesure n'est pas prise ou est prise de manière incorrecte.
	Soyez toujours prudent lorsque vous travaillez avec l'électricité.
	Ne mettez jamais l'ordinateur sous tension si les conditions environnementales ne sont pas dans les limites indiquées (cf. Annexe I, Spécifications). Par exemple, vérifiez que l'ordinateur est mis sous tension avant d'entrer dans une unité de stockage froide.
	Avant l'installation, veillez à ce que tous les critères relatifs à l'environnement soient respectés. Vous trouverez une liste de ces critères en Annexe I, dans les Spécifications.
	Ne changez pas les vis d'origine avec lesquelles sont montés les supports. Des vis trop longues peuvent endommager le système électrique de l'ordinateur.
	Soyez toujours prudent lorsque vous travaillez avec l'électricité.
	Si la masse du véhicule n'est pas la même que celle du châssis du véhicule, vous devez alors monter l'ordinateur sur des patins en caoutchouc.
	Ne connectez jamais l'alimentation aux prises 5 ou 6, qui servent à la fonction de noir de l'écran décrite à la section .2.2.
	Vous pouvez définir cette fonction dans l'application Trux Computer Manager ; cf. 4.3.1.
	Seuls les salariés (IT) expérimentés sont autorisés à utiliser le logiciel Trux Computer Manager car des paramètres incorrects peuvent avoir des effets indésirables sur certaines fonctions.
	Si vous modifiez ou réinstallez le système d'exploitation de l'ordinateur, vous pouvez être amené à réinstaller les pilotes pré-installés.

	Une fois que les périphériques sont connectés, fixez les câbles sur la partie inférieure de l'ordinateur qui comporte des trous prévus pour les brides de câbles.
	N'oubliez pas que les systèmes d'exploitation n'ont pas tous une prise en charge intégrée de la souris (par exemple, DOS).



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