Handbücher/Manuals

VIPA
art of automation

Manual

VIPA HMI
Touch Panel

Order no.: VIPA HB160E_TouchPanel

Rev. 07/28

Appendix

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M. Stich

Chapter 3   Installation Guidelines

Outline   The chapter "Installation Guidelines" gives you information about the interference-immune installation of Programmable Logic Controls (PLC) together with a Touch Panel.

Here we describe possible paths in which interference can enter the controller, how you ensure the electromagnetic compatibility (EMC) and how to approach shielding and screening issues.

The following text describes:

- EMC and possible interference sources
- Basic rules for ensuring EMC
- EMC-orientated assembly and cabling
- Guidelines for the installation of couplers

Content

Basic rules for the EMC-equitable assembly of installations

What is EMC?   The term electromagnetic compatibility (EMC) refers to the ability of an electrical device to operate properly in an electromagnetic environment without interference from the environment or without the device causing illegal interference to the environment.

The Operation Panels are developed for applications in harsh industrial environments and complies with EMC requirements to a large degree. In spite of this you should implement an EMC strategy before installing any components which should include any possible source of interference.

Possible sources for disturbances   Electromagnetic interference can enter your system in many different ways:
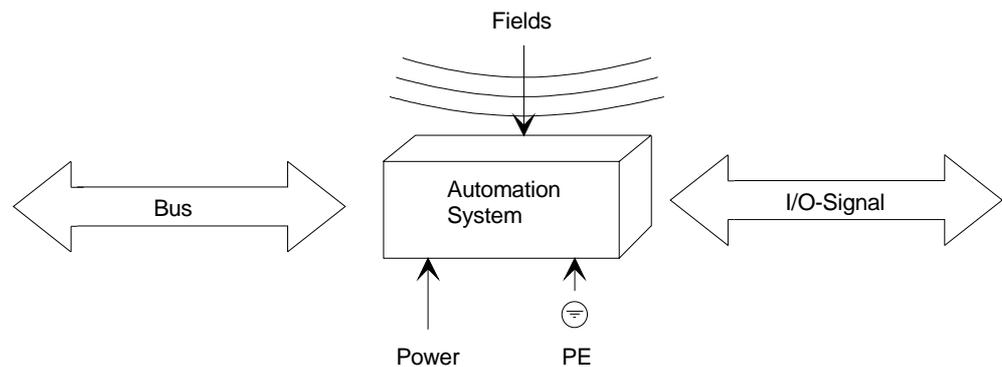
Interference is coupled into your system in different ways, depending in the propagation medium (conducted or not conducted) and the distance to the interference source.

We differentiate between:

- galvanic coupling
- capacitate coupling
- inductive coupling
- radiated power coupling

Coupling mechanisms and interference sources

The following table shows the four different coupling mechanisms, their causes and possible interference sources.

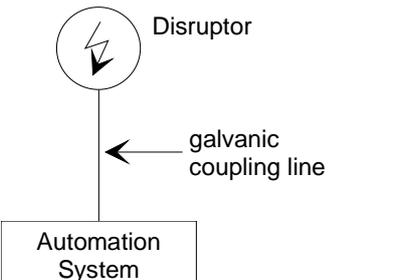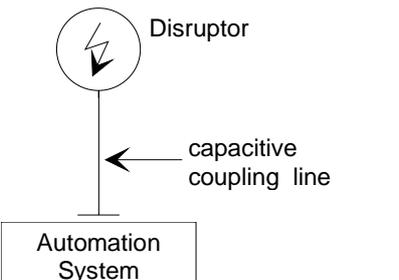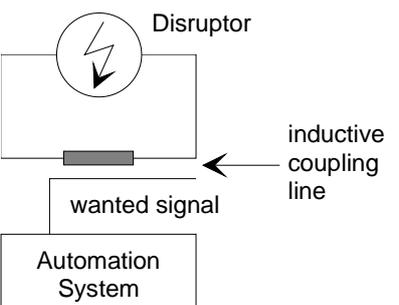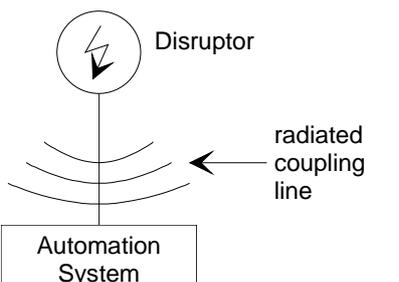| Coupling mechanism	Cause	Typical source
Galvanic coupling Disruptor galvanic coupling line Automation System	Galvanic or metallic coupling always occurs when two current circuits have a common line	• Pulsed devices (Net influence from transducers and foreign net devices) • Starting motors • Different potential of component cubicles with common current supply • Static discharges
Capacitate coupling Disruptor capacitive coupling line Automation System	Capacitate or electric coupling occurs between conductors with different potential. The coupling is proportionate to the timewise change of the voltage.	• Interference through parallel signal lines • Static discharge of the personnel • Contactors
Inductive coupling Disruptor inductive coupling line wanted signal Automation System	Inductive or magnetic coupling occurs between two current active line loops. The magnetic flows associated with the currents induct an interference voltages. The coupling is proportional to the time related change of the current.	• Transducers, motors, electric welding devices • Parallel net cables • Cables with toggled currents • Signal cable with high frequency • Unused coils
Radiate power coupling Disruptor radiated coupling line Automation System	One talks of radiate power coupling, when an electromagnetic wave meets a line circuit. The hit of the wave inducts currents and voltages.	• Sender in the neighborhood (e.g. walkie-talkie) • Sparking lines (sparking plugs, collector of electric motors, welding devices)

Basic rules for ensuring EMC

In many cases, adherence to a set of very elementary rules is sufficient to ensure EMC. For this reason we wish to advise you to heed the following rules:

During the installation of your automation units you should ensure that any inactive metal components are grounded via a proper large-surface earth

- Interconnect any inactive metal components via low-impedance conductors with a large cross-sectional area.
- Execute screw connections at coated and anodized metal parts either with special contact washer or remove the isolating protective film.
- Install a central connection between the chassis ground and the earthing/protection system.

Ensure that cabling is routed properly during installation

- Divide the cabling into different cable groups (High voltage lines, power supply lines, signal lines, data lines).
- Always install high voltage lines and signal or data lines in separate channels or bundles.
- Install signal and data lines as close as possible to any metallic ground surfaces (e.g. frames, metal rails, sheet metal).

Ensure that the screening of lines is grounded properly

- Data lines must be screened. The screen has to be laid both-sided.
- Analog lines must be screened. Where low-amplitude signals are transferred it may be advisable to connect the screen on one side of the cable only.
- Attach the screening of cables to the ground rail by means of large-surface connectors located as close as possible to the point of entry. Clamp cables mechanically by means of cable clamps. Route the connected screen to the modules without interruptions, but don't connect the screen again.
- Ensure that the ground rail has a low-impedance connection to the cabinet/cubicle.
- Use only metallic or metallized covers for the plugs of screened data lines.

In critical cases you should implement special EMC measures

- Connect snubber networks to all inductive loads that are not controlled by special EMC-modules.
- Use incandescent lamps for illumination purposes inside cabinets or cubicles, do not use of fluorescent lamps.

Create a single reference potential and ensure that all electrical equipment is grounded wherever possible

- Ensure that grounding measures are implemented effectively. The controllers are earthend to provide protection and for functional reasons.
- Provide a star-shaped connection between the plant, cabinets/cubicles and the grounding/ protection system. In this way you can avoid ground loops.
- Where potential differences exist you must install sufficiently large equipotential bonding conductors between the different parts of the plant.

EMC-equitable assembly

Mostly, measures for suppressing interference voltages are only taken, when the control is already in commission and the perfect receive of a wanted signal is disturbed.

Causes for such interference's are in the most cases inadequate reference potentials, coming from mistakes at the device assembly and installation.

Guidelines for assembling and grounding of inactive metal parts

When assembling the devices, you have to ensure the large-surface grounding of the inactive metal parts. A correctly done grounding supports a unambiguous reference potential for the control and reduces the impact of coupled interference's.

Grounding means the conducting connection of all inactive metal parts. The sum of all interconnected inactive parts is called Ground.

Inactive parts are all conductive parts electrically separated from all active parts by means of a basic isolation and that may only get voltage in case of an error.

The ground must not adopt dangerous contact voltage even in case of an error. Thus you have to connect the ground with the protected earth conductor. To avoid ground loops, local distant ground constructions (cubicles, construction and machine parts) have to be connected with the protected earth conductor system in star-topology.

Please regard at grounding:

- Connect the inactive metal parts as carefully as the active ones.
- Take care of impedance-low metal-metal-connections, for e.g. with large-surface and well conductive contacts.
- If you include coated or anodized metal parts in the grounding, you have to come through the isolating protection layers. For this you may use special contact washers or remove the isolation layer.
- Protect the connection points from corrosion, e.g. with grease.
- Moveable grounding parts (e.g. cubicle doors) have to be connected via flexible ground strips. The ground strips should be short and have a large surface, because the surface is decisive for the diversion of high frequency interference's.

EMC-equitable cabling

Line routing   Content of this section is the line routing of bus, signal and supply lines. Object of the line routing is to suppress the "slurring" at parallel lines.

Line routing inside and outside of cubicles

For an EMC-equitable routing of the lines it is convenient to divide the cables in different groups and install each group itself:

Group A
- screened bus and data lines
- screened analog lines
- unshielded lines for direct voltage $\leq 60V$
- unshielded lines for alternating voltage $\leq 25V$
- Coaxial cables for monitors

Group B
- unshielded lines for direct voltage >60V and $\leq 400V$
- unshielded lines for alternating voltage >25V and $\leq 400V$

Group C
- unshielded lines for direct and alternating voltage >400V

Group D
- Lines for H1 resp. TCP/IP

Combination of groups

Following the table you may see the conditions for the cabling of the line groups by combining the single groups:

	Group A	Group B	Group C	Group D
Group A	[1]	[2]	[3]	[4]
Group B	[2]	[1]	[3]	[4]
Group C	[3]	[3]	[1]	[4]
Group D	[4]	[4]	[4]	[1]

[1]	The lines may be installed in common bundles or cable trusses.
[2]	The lines have to be installed in different bundles or cable trusses (without min. distance).
[3]	The lines have to be installed in different bundles or cable trusses inside of cubicles and outside of the cubicle but inside the building in separated cable trusses with a min. distance of 10cm.
[4]	The lines have to be installed in different bundles or cable trusses with a min. distance of 50cm.

Line routing outside of buildings

Wherever possible, exterior cabling should be installed on metallic cable trays. A galvanic connection must be provided for joints between cable trays.

You must abide by the applicable lightning protection and grounding regulations when installing exterior cables.

Lightning protection

Attention!

Where cables and signal lines for PLC equipment are installed outside of buildings, the conditions for internal and external lightning protection must be satisfied.

Exterior lines should either be installed in

- metallic conduit pipes that is grounded on both ends

  or

- in steel-reinforced concrete cable trunks with continuously connected reinforcing

- Install these protective elements at the location where the cables enter the building.

Note!

Any lightning protection system must be based on an individual assessment of the entire plant.

Equipotential bonding

Potential differences can occur between different sections when controllers and peripheral equipment are connected by means of non-isolated connections or the screens of screened cables are connected at both ends and grounded on different sections of the plant.

One reason for a potential difference can be that different sections of the plant are powered from different power sources. These potential differences must be reduced by means of equipotential bonding conductors to ensure that the electronic equipment employed on the plant operates properly.

Rules for equipotential bonding

- The lower the impedance of the equipotential bonding conductor, the higher the effectiveness of potential equalisation.
- The impedance of the equipotential bonding conductor must not exceed 10% of the impedance of the screen where screened signal lines are connected between the different sections of the plant and the screening is connected to ground/neutral on both sides.
- The cross-sectional area of the equipotential bonding conductor must be calculated to carry the maximum equalisation current. The following cross-sections have been successfully employed:
  - $16mm^2$ Cu for equipotential bonding conductors up to 200m
  - $25mm^2$ Cu for equipotential bonding conductors exceeding 200m
- Use copper or galvanized steel for equipotential bonding conductors. These must be connected to ground/neutral by means of large-surface connections that are protected from corrosion.
- The equipotential bonding conductor should be installed in such a manner that it includes the smallest surface between the bonding conductor and the signal lines.

Screening of lines and cables

Screening is one method commonly used to reduce (attenuate) the interference pick-up from magnetic, electrical or electromagnetic fields.

- Interference on screens is conducted to ground by the conductive connection between the screen and the screening rain/enclosure. To avoid interference from these currents it is very important that the neutral connection is a low-impedance connection.
- You should only use of cables that are provided with a braided screen. The degree of screening should be more than 80%.
- Avoid cables with foil-type screens as the foil is easily damaged by tension and pressure at the point of attachment; this can result in reduced effectiveness of the screening action.
- As a rule you should always ground the screens of cables on both ends. This is the only way in which you can ensure that high frequency interference is attenuated properly.

**One-sided
grounding of
screens**

In exceptional cases it may be necessary to ground the screen on one side only. However, this will only attenuate the lowest frequencies. The one-sided grounding of screens may provide advantages when:

- It is not possible to install an equipotential bonding conductor
- Analogue signals (a few mV or μA) must be transmitted
- Foil-type screening (static screening) is employed.

You should always use metallic or metallized covers for serial data lines. Connect the screen of the data line to the cover. Do **not** connect the screen to PIN 1 of the connector!

In case of stationary operations it is recommended that the remove the insulation from the screened cable without cutting the screen and to attach this point to the screening/neutral rail.

Note!

Potential differences can give rise to an equalization current via the screen connected between the two ground connections.

In this case you must install an additional equipotential bonding conductor.

**Connecting the
screen**

Please observe the following points when you handle the screens:

- Use only metallic cable clamps when connecting the screening of cables. These clamps must provide a good electrical contact and a large-surface connection to the screen.
- Attach the screens to the screening rail directly at the point where the cables enter the enclosure. The screening conductor must be continued to the module without interruption, however, it must not be connected to the module!
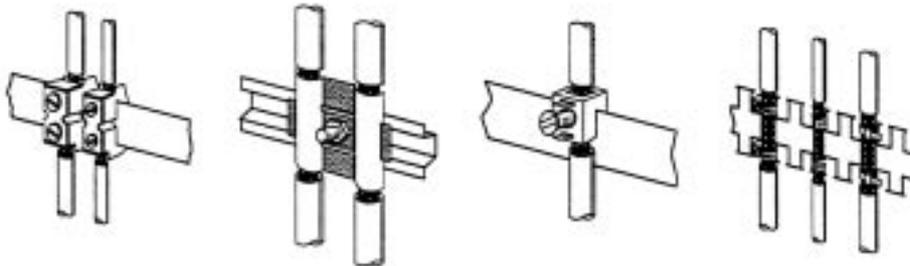
Special precautions providing high noise immunity

Inductors require snubber networks

Inductors controlled by your programmable controller (e.g. contactors and relays) do not normally require additional snubber networks or suppressors as the respective modules have been provided with the required components.

Snubber networks must only be connected to inductors when output circuits can be disabled by means of additional contacts (e.g. relay contacts). In this case the integrated suppressors on the module are also disabled.
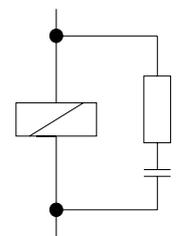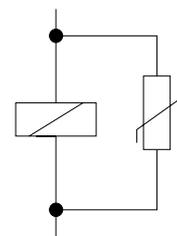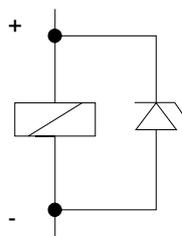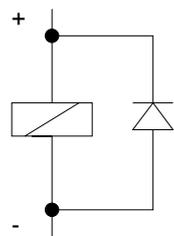
You can connect diodes to suppress back-emc, varistors or RC-networks to the inductors.

Connections of   Connections of
DC-activated inductors   AC-activated inductors

using a diode   using a Z-diode   using a varistor   using RC-network

Power outlet for PUs

Every cubicle must be provided with a power outlet for the PU. These outlets must be wired to the distribution system which is also used to connect the neutral conductor for the cubicle.

Cubicle illumination

The cubicle illumination should consist of incandescent lights, e.g. LINESTRA-lamps. Avoid using fluorescent lamps as these lamps can cause interference.

If you can not avoid using fluorescent lamps you should implement the steps outlined in the following figure.

Suppression of fluorescent lamps in cubicles
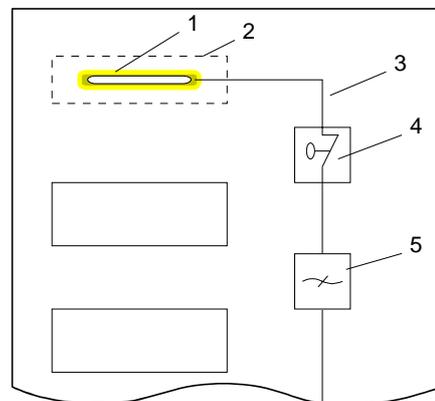
[1]   Fluorescent lamp

[2]   Screen above the lamp

[3]   Screened cable

[4]   Switch with metallic cover

[5]   Powerline filter or screened power cable

Checklist for the EMC-compliant installation of controllers

EMV-measures	Space for Notes
Connection of the inactive parts	
You should take special care to check the connections of: • Module racks • Frames • Screen and protected earth conductor	
Are all the inactive metal parts interconnected by means of large-surface and low-impedance connections?	
Has a proper connection been installed with respect to the ground/protected earth conductor system?	
Has the isolation been removed from varnished and anodized surfaces or have these connections been fitted with special contact washer?	
Have the connection been protected from corrosion, e.g. by means of grease?	
Have doors been grounded by means of grounding straps connected to the body of the cubicle?	
Cable routing	
Cabling divided into groups?	
Power cables (230 ... 400V) and signal lines installed in separate channels or bunches?	
Potential compensating	
When installing the equipment at separate locations, check the installation of the potential compensating line.	
Cable screen	
All covers of plugs are metallic?	
All analog and data lines installed screened?	
Line screens attached to the screening or the protected earth conductor?	
Have the screens been connected by means of large-surface and low-impedance cable clamps?	
Cable screens grounded both-sided where possible?	
Inductors	
Have the coils of contactors controlled by means of contacts been connected to snubber networks?	

Chapter 2   Deployment Touch Panel

Outline   This chapter deals with the employment of the Touch Panel.

At the start of the chapter you receive information about the assembly and the connection of the Touch Panel. The main part of the chapter introduces Windows CE and the various communication options offered by the Touch Panel.

The following text describes:

- Assembly, commissioning and connection to a PLC system
- The operating system Windows CE
- Communication options

Installation

Overview

The Touch Panel is suitable for the installation in operating tables and control cabinet fronts. The installation happens via the backside. The Touch Panel is provided with a patented integrated fixing technique that allows an easy connection with a simple screwdriver.

Due to the fact that the Touch Panel has a plug connector for bus connection and voltage supply, a fast and easy device change is possible.

Installation cutting

For the installation into a operating tableau and control cabinet fronts, the Touch Panel requires the following front plate cutting:
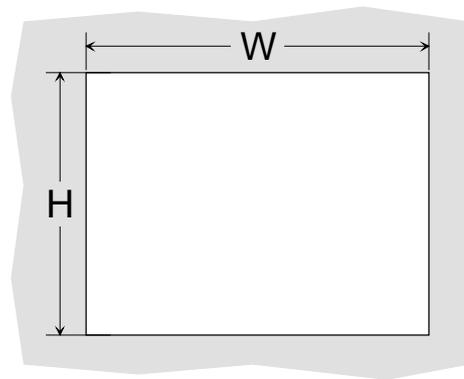
Touch Panel	W x H in mm
TP 605xx, TP 606xx	200 x 144
TP 608xx	250 x 175
TP 610xx	287 x 217
TP 612xx	311 x 249

Installation

The fixing technique is integrated in the casing of the Touch Panel and accessible via the backside.

For the installation, a small slit screwdriver is required. Push the operator panel [3] from the front side into the front panel cutting [1] until it touches the panel with the seal [2]. Now bolt the lever [5] clockwise with the screwdriver [4] until it rotates to the outside. Further screwing bolts the lever to the front panel until it holds this to the control cabinet front.
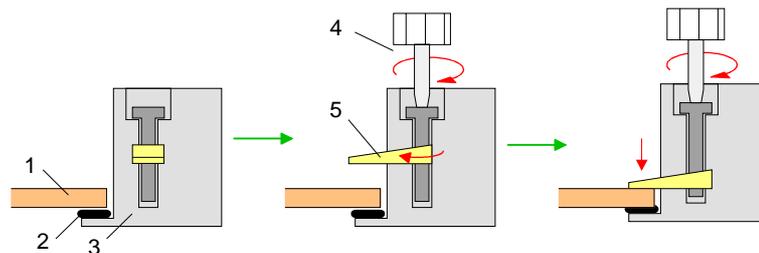
**Connect
power supply**

For the cabling of the DC 24V power supply green plugs with CageClamp technology are deployed.

The spring-clip connector technology simplifies the wiring requirements for signaling and power cables. In contrast to screw terminal connections, spring-clip wiring is vibration proof.

Here also you may connect wires with a cross-section of $0.08mm^2$ to $2.5mm^2$. You can use flexible wires without end case as well as stiff wires.
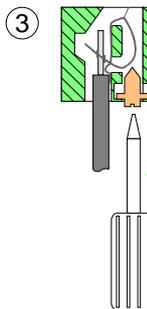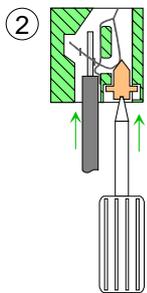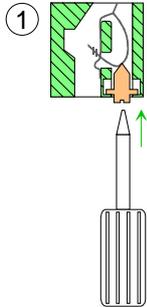
You fix the conductors to the CageClamps like this:

DC 24V
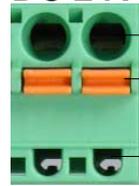
Round opening for wires

Locking (orange) for screwdriver

Test point for 2mm test tip

The picture on the left side shows the cabling step by step from top view.

- For cabling you push the locking vertical to the inside with a suiting screwdriver and hold the screwdriver in this position.
- Insert the insulation-striped wire into the round opening. You may use wires with a cross-section from $0.08mm^2$ to $2.5mm^2$.
- By removing the screwdriver the wire is connected safely with the plug connector via a spring.

Commissioning

Attention!
- Before commissioning the device must be brought to room temperature.
- At condensation the device must be absolutely dry before connected to power.
- To avoid overheat during operation the device must not be laid open to direct sun light.
- After opening the control cabinet or desk, there are parts with possible dangerous voltage available.
- For all signal connections only screened cables are permitted.
- Signal cables must not be let within the same cable shaft as high voltage cables.

VIPA Startup Manager

As soon as the Touch Panel is provided by power supply the Touch Panel starts with the *VIPA Startup Manager*:
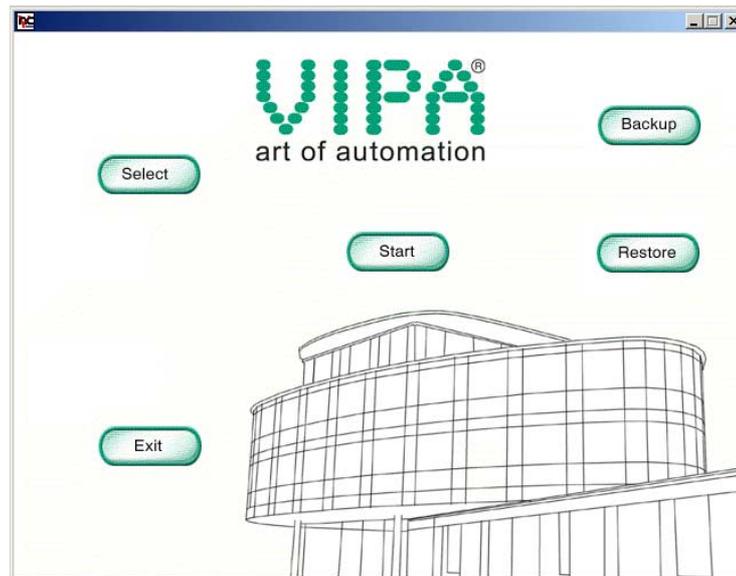
The VIPA Startup Manager has the following buttons:

Start   A project is started within the *VIPA Startup Manager* after a configured time was passed. The project may be started immediately by means of [Start].

Select   Depending on the installed visualization software the project to be started may either be selected with [Select] or within the editor of the visualization software. For an automatically start of the project the project may once be started manually by [Start] if necessary.

Exit   The *VIPA Startup Manager* is closed by [Exit] and it is returned to Windows CE.

Backup   With [Backup] the files of *Flashdisk* and the Registry settings may be stored.

Restore   The backed up files may be restored by [Restore].

Settings

The settings of the *VIPA Startup Manager* are stored in the file *StartupMngr.dat*. This file may be found on the Touch Panel at **My Device** > Flashdisk.

Within this file the settings of the VIPA Startup Manager may be changed by parameters.

Note!

This file is hidden as default. To make this file visible within Windows CE every option of **My Device** > **View** > *Options* is to be deactivated.

Parameter of
StartupMngr.dat

Depending on the installed visualization software the following parameters are used:

Parameter	Meaning
VISUALISATION	Indicates which visualization software is used.
LOCATION	Indicates the file location of the visualization software.
FILE	Path and file name of the last started project.
FONT	Indicates the storage location of additional fonts to be registered.
PASSWORD	Here a password may be entered. Before returning to Windows CE you are asked for this password.
BACKGROUND	Path and file name of the background picture.
AUTOLAUNCHDELAY	Here a delay time in seconds may be set. If this time is passed the preset project is started automatically.

Please consider this during setting parameters:

Parameter and value is always be connected by "=". Blanks are not allowed. For the parameter names capitals are to be used.

The whole path is to be used when entering a file location e.g.

BACKGROUND=\flashdisk\background.jpg

Connection to a PLC system

For the inclusion into your PLC system several HMI/SCADA project-engineering platforms are at your disposal that has to be installed at an external PC. Here you may create your project, where appropriate simulate it and transfer it to the Touch Panel via a connection that you've entered before. Via the at the Touch Panel pre-installed runtime version of the HMI/SCADA project engineering platforms your project is run able.

By using the according communication driver, the Touch Panel supports connecting options to the PLC via MPI, fieldbus and Ethernet.

During the operation your operating device communicates with the according PLC and reacts to the application courses in the PLC according to the configured processes. Via dialogs configured before, process values may be monitored graphically, altered and evaluated.
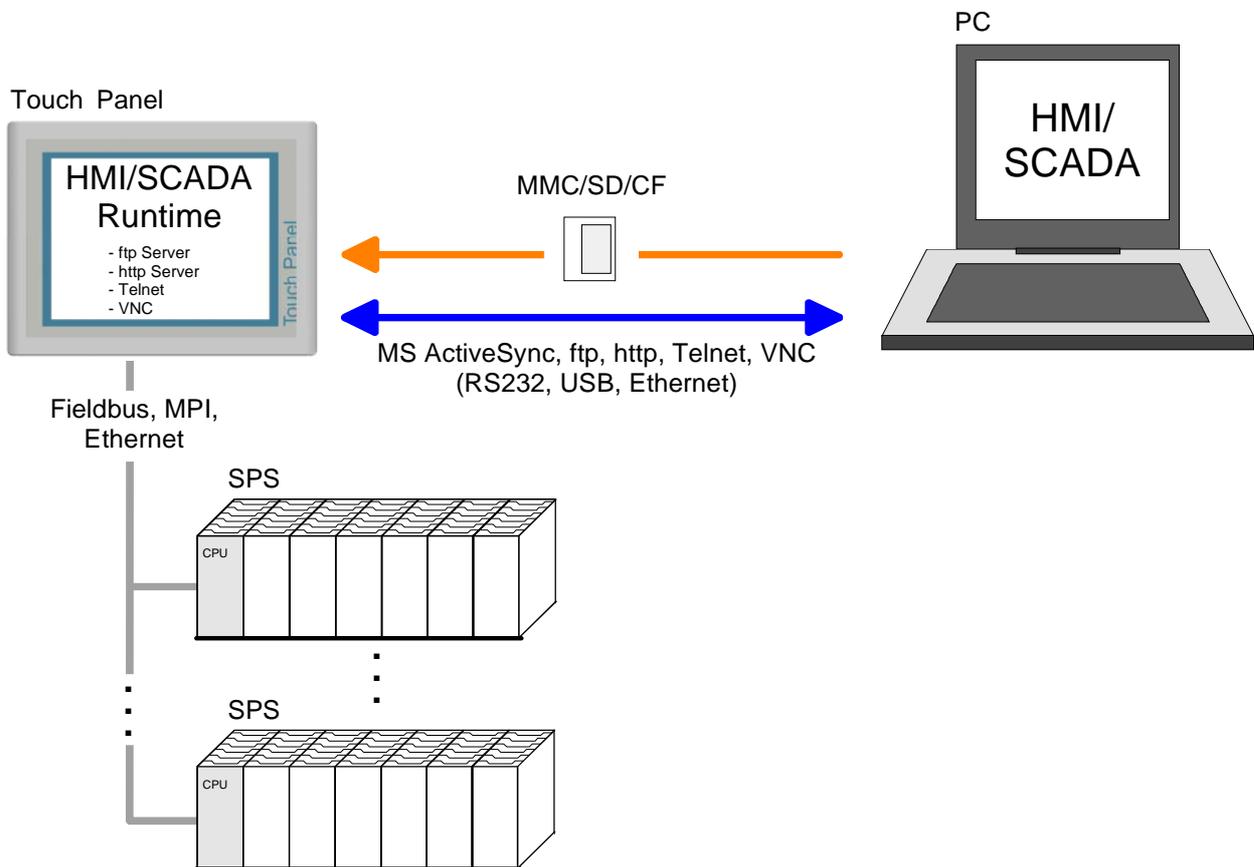
Operating system Windows CE

Windows CE

Within the consignment of the Touch Panel is the operating system Microsoft Windows CE V5.0. It is an OEM licensed English version.

Windows CE is an open, scalable platform for a multiplicity of communication and data processing devices. Windows CE is a Windows operating system reduced to the absolute essentials with mouse operation (touch screen) that requires only small hardware resources.

The newly developed standard Windows CE allows devices that are communicating with each other to exchange information with Windows based devices and to establish connections to the Internet.

Windows CE is a 32Bit operating system with functions like multi-tasking and multi-threading that has an open architecture and supports a wide range of devices.

Differences to the standard Windows operation

Please regard that for the deployment of Windows CE a thorough knowledge of operating Windows are assumed. Here are only shown the differences to a "standard" Windows operating system.

Pen entry

You're operating the Touch Panel by means of a pencil res. with the finger. When touching an area at the touch screen this area is recognized and the program reacts accordingly. The following types of entry are differentiated:

Double click

A double click has to be executed like mouse operation by touching the area at the screen twice. A double click on an object open res. executes this.

Drag

By tapping on an object and then dragging you may move the object on the screen. If no object is selected, a frame is created by the dragging that selects the touched objects.

Navigation within the dialog window

The windows may be moved via the head bar. Here you may also find the [OK] button to confirm entries and the [X] button for exiting the dialog.

Exit Windows (shut down)
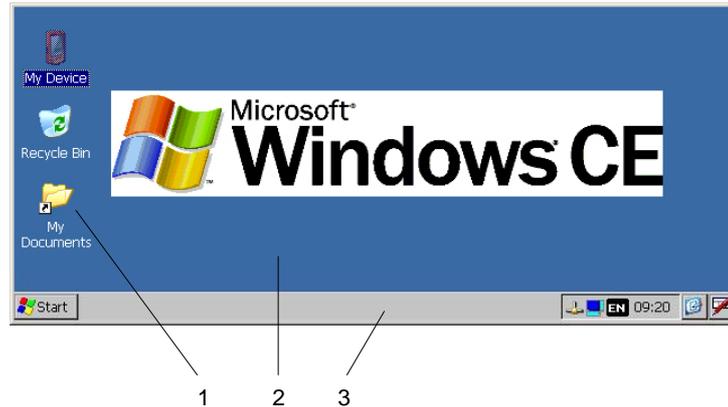
You may not exit Windows. By switching the power supply off and on again you may restart Windows. Before a reboot you should always save your data res. close all running applications to avoid data loss.

Note!

Please regard that made changes are set back after PowerOFF-PowerON and are only stored via *Save Registry* which is to be found at **Start** > *Programs* > *KuK Tools*.

Structure

1	*Icon*	Via icons on the desktop you gain direct access to the application related to the icon.
2	*Desktop*	The desktop is the screen that is shown after login at Windows CE. It contains e.g. links to the mostly used applications res. system components.
3	*Task bar*	The task bar is part of the desktop. When opening an application, a document or a window, every running object is displayed as button on the task bar. Via this buttons you may easily change between the open windows.

Task bar   Basically the task bar has the following structure:
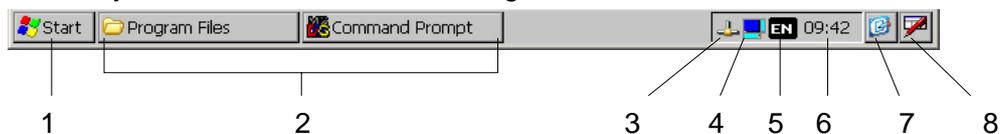
1	*Start button*	This button offers you access to all components of your Touch Panel like e.g. applications, system settings, file browser etc.
2	*Open applications*	For every open application a button is to be found in the task bar. There is no button for minimizing. The switch between the applications happens via this buttons.
3	*Network connection*	As soon as your Touch Panel is connected via Ethernet you may here display the Ethernet address. If there is no connection via Ethernet, the symbol is displayed crossed out.
4	*Desktop direction*	This symbol allows you to switch between 2 desktop directions. The position setting happens in steps of 90° and can be set via double click in a dialog window.
5	*Keyboard layout*	If you've connected a keyboard you may choose the wanted language layout via this button.
6	*Time*	This area shows the time that you may change via double click.
7	*Show desktop*	All windows are minimized and the desktop is shown.
8	*Software keyboard*	This button displays a keyboard at the screen. "Hide Input Panel" hides the keyboard again.

Software keyboard

The button ![icon] allows you to select one of the available software keyboards. At the moment the following standard keyboards are implemented:

Software keyboard
Keyboard

Normal: At pushed SHIFT key:

At pushed [a´ü] key:

Note!

Please regard that the umlauts äöü may exclusively entered via the software keyboard *Keyboard*.

Software keyboard
Large KB

Normal:

At pushed SHIFT key:

Meaning:

Home Position 1

End End

BS Backspace

up ↑

dn ↓

lt ←

rt →

pgup Page ↑

pgdn Page ↓

ins Insert

del Delete

Tab Tabulator

Shift

Caps/Lock

Hide keyboard

The software keyboard allows you to enter key entries without connecting an external keyboard. As soon as an entry is required the software keyboard is automatically shown.

Hide Input Panel hides the keyboard again.

System setting (Control Panel)

Due to the fact that many components of the *Control Panel* are concurring with the s*ystem control* of Windows, most of the description is here dispensed. The description of the control panel components relevant for operating the Touch Panel is to be found in the following:

Set display

Via **Start** > *Settings* > *Control Panel* > *Display* the dialog windows for the display properties opens. Here you may change the settings for the monitor options.

For example you may adjust the brightness and contrast via the register *Settings*.

Calibrate touch screen

If your touch screen does not always react on a double click or recognizes the position of an entry not precisely, you may call the dialog *Stylus* via **Start** > *Settings* > *Control Panel*.

In the register *Double-Tap* you may use the grid pattern to preset a double click velocity and test this on the symbol below. OK takes over the set value. The calibration of the touch screens happens via the register *Calibration* by following the instructions.

Set Ethernet parameters

The dialog field for pre-setting an Ethernet address is to be found at **Start** > *Settings* > *Network and Dial-up Connections*

The default setting is address assignment via DHCP.

System properties (System)

Here you receive information about the version of the current Windows operating system, the memory load and sharing (alterations here are not taken over into the registry) and about the copyright.

The register *Device Name* allows you to change the device name that is e.g. shown during Ethernet communication.

Note!

All alterations made here are cleared after PowerOFF-PowerON. To store them permanently into the registry file you have to store them explicitly. For this, call "Save Registry" at **Start** > *Programs* > *KuK Tools*. Use [OK] to store the data in the registry file.

Set MPI parameters   The dialog window where to configure the integrated MPI interface is to be found at **Start** > *Settings* > Control *Panel* > *MPI Configuration*.

HSA

Here you set the highest MPI address (**h**ighest **s**tation **a**ddress). Within a MPI network the highest MPI address must be identical!

TS

With TS (**t**his **s**tation) you set the local MPI address for the Touch Panel.

Baud rate

Enter here the transfer velocity of your MPI net. The baud rate has to be identical for every MPI participant within the network. According to the *baud rate* the network parameters are set.

Default Net Parameters

It is recommended not to alter the *Default Net Parameters* that are set by the baud rate.

Status

The status of the MPI interface is monitored via *Status* as "Offline", "Online" or "Error".

Note!

Here made changes are also not saved after PowerOFF-PowerON. Save the data permanently in the current registry file via *Save Registry* at **Start** > *Programs* > *KuK Tools.*

Communication via ActiveSync

Outline

ActiveSync is a communication platform developed by Microsoft especially for mobile computers to synchronize data between a mobile device and a PC via USB res. Ethernet. Many developer tools res. SCADA project-engineering tools use ActiveSync for the data transfer.

Before you may access the Touch Panel from the PC via ActiveSync you have to install it at the PC.

ActiveSync is freeware and may be downloaded from www.microsoft.de.

Installation

- Download the ActiveSync from the Microsoft website and start the file MSASYNC.EXE.

  The following dialog window appears:

- Start the installation with [Next].
- Choose an installation directory and click on [Next]. → ActiveSync is installed.

Establish connection

After the installation the dialog window "establish connection" is opened. If your Touch Panel shall be available via Ethernet you have to install a point-to-point connection first.

- Start the search run with [Next]:
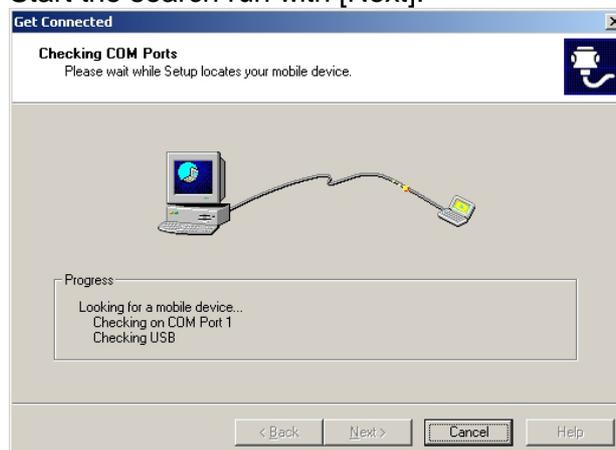
Install partnership for USB communication

Now you may install a "partnership" via an USB connection with the following approach:

- Connect your Touch Panel via the "Device"-USB-B jack with your PC and turn on the Touch Panel → the USB device (Touch Panel) is recognized and the dialog window "new partnership" opens.

- Choose "yes" that you want to fix a partnership and push [Next].
- In the now opening window, de-activate all synchronization settings and click on [Next]:
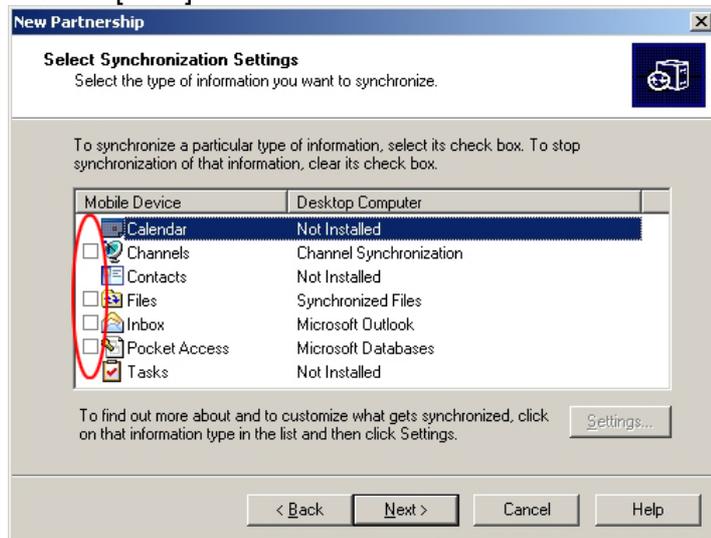
- [Finish] establishes the partnership.

Now you may access the Touch Panel with ActiveSync via USB.

Note!

To keep the settings also after power on, you have to store them to the registry with **START** > *Programs > KuK Tools > Save Registry*.

Install partnership
via Ethernet

If your Touch Panel shall be available via Ethernet you have to install a *partnership for USB communication* first like shown above. Afterwards you may configure a *partnership for Ethernet communication* after the following approach:

- To enable the Touch Panel to be accessed via Ethernet you have to activate the option "enable network connection" in ActiveSync via **File** > *Connection Settings*:
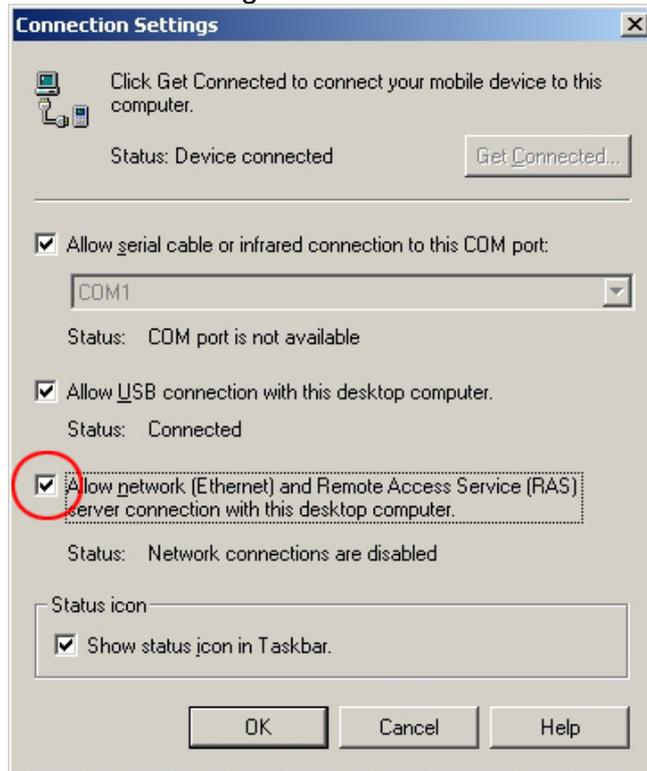
- Disconnect the USB cable of the Touch Panel.
- Confirm the message that the device could not be found.
- Start the communication program required for ActiveSync at the Touch Panel via **START** > *Programs* > *Communication* > *Act.Sync Netw* and click on [Connect].

Now you may access the Touch Panel with ActiveSync via Ethernet.

Note!
To keep the settings also after power on, you have to store them to the registry with **START** > *Programs* > *KuK Tools* > *Save Registry*.

Integrated Server

Login data

The Touch Panel has several integrated server that enable a remote maintenance within a network. Some servers only allow access by means of entering *User name* and *Password*. Per default the following login data are used:

User name: **wince**

Password: **vipatp**

Change password

You must not change the user name. But you may change the password via the registry.

For this, start the editor via **START** > *Programs* > *Registry Editor*. The entry for the password is to be found at: HKEY_LOCAL_MACHINE/KUKINIT/DefaultPasswd

Please remember to store the changes to the registry via **START** > *Programs* > *KuK Tools* before switching off.

Overview

Per default the following server are integrated:

- ftp server (activated)
- http server (activated)
- Telnet (activated)
- VNC (not activated)

Phrases

Phrases that are used in the description of the server:

Client

A client is an application that uses the service of a server within a network. For example, a web browser is a client because at every call of a website it sends a request to a web server and receives an answer.

Server

A server is an application that waits for the contact request of a client application and exchanges messages with it after contact start. This communication type is called Client-Server communication.

Host

Computer within a network where at least one server is running.

Download

Data transfer Server → Client

Upload

Data transfer Client → Server

ftp server

By means of an ftp server data between client and server can be exchanged. Here you may copy, delete or create files and directories.

For in the meanwhile an ftp client (Internet Explorer) is integrated in Windows, this is the easiest method for remote maintenance of the Touch Panel.

Conditions for ftp access

Depending on the ftp client your PC has to fulfill the following conditions for an ftp connection. If there are still problems with the ftp access ask your system administrator.

Internet Explorer

- ftp access possible with version 5.5 or higher
- use passive ftp mode
- activate directory view for ftp sites

For the adjustment choose in the Internet Explorer **Options** > *Internet options*, register "extended" in the area "Browsing" and set the following settings:

- activate: "activate directory view for ftp sites"

- activate: "use passive ftp..."

The settings are taken over when re-starting the Internet Explorer.
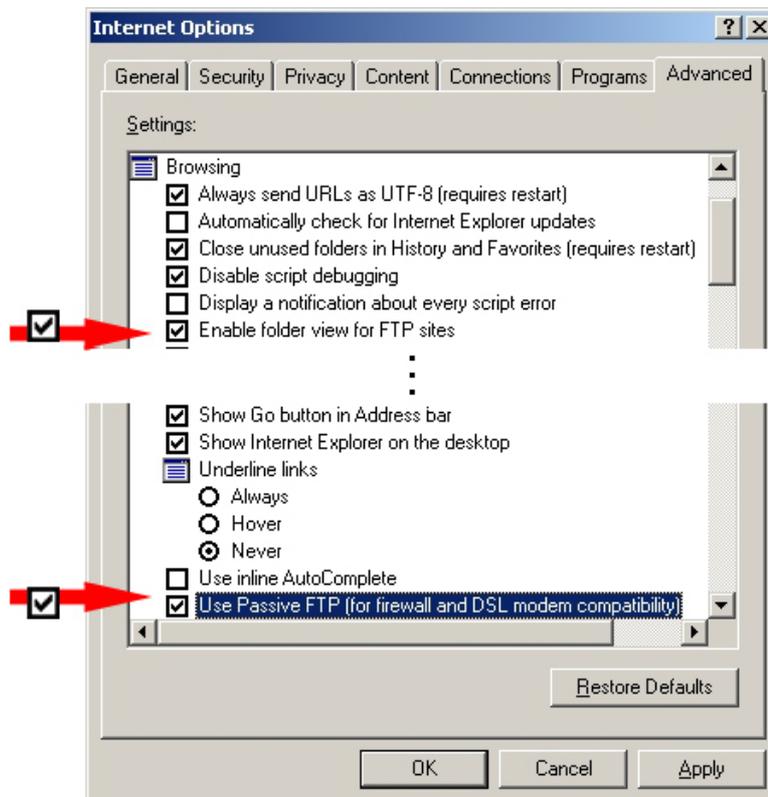
Netscape

- Ftp access only possible with version 6.0 or higher, you need no further settings.

Establishing a ftp connection

In the following the establishing of an ftp connection between a Windows based PC (here Windows 2000) with Internet Explorer as ftp client and your Touch Panel is shown.

- Connect your Touch Panel with the network where your PC is a member via an Ethernet cable.
- Switch on your Touch Panel.

As soon as your Touch Panel is connected via Ethernet, you may monitor the IP address data via .
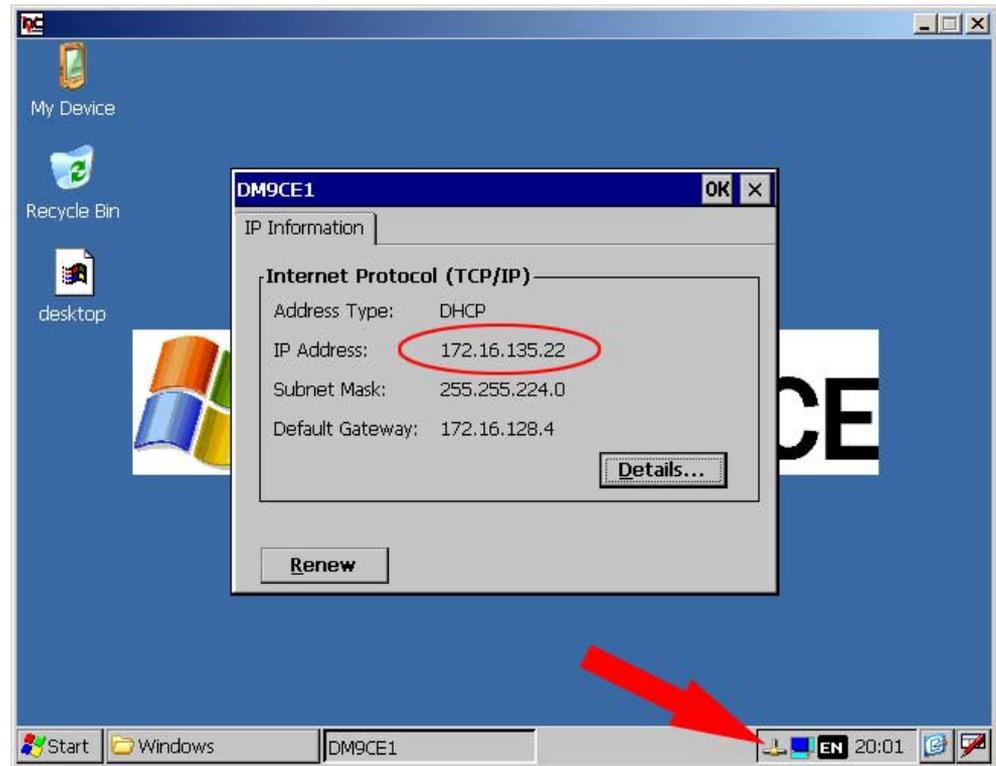
- After you've confirmed the pre-settings, start your ftp client and enter the following text into the "address bar":
- `ftp://wince:vipatp@IP-Adresse`

The following window appears:
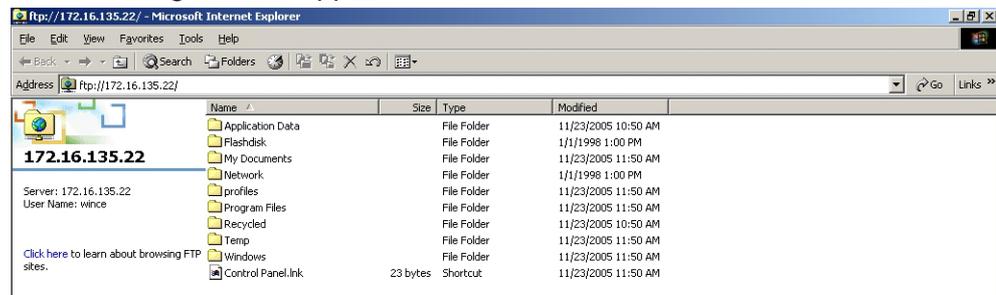
Here you may execute the wanted file operations.

http server

The Touch Panel has an integrated http server (web server) that allows depending on the access the administration of the Touch Panel res. of websites in the Touch Panel. The administrative access to the http server happens via Ethernet from the PC by setting the IP address of the Touch Panel with attached "Admin" type.

By means of websites you may e.g. publish online documentations for a connected PC or go online with applications at the PC.

Web admin

As web admin you have access to all functions that are required for uploading and administrating of websites at the Touch Panel. Additionally you may set the access rights for user and create user groups. More detailed information about creating and administrating of websites at the Touch Panel is to be found in the online documentation of the web servers.

The login as web admin requires the following steps:

• Start the web browser at your PC and enter the following into the address bar: `IP address/webadmin`

• Enter the following into the authentification:

User name: **wince**

Password: **vipatp**

Remember to store your changes permanently in the registry via Start > *Programs > KuK Tools > Save Registry*!

Sys admin

Sys admin provides you with system administration rights for the administration of the Touch Panel. Here you may see system information and may administrate files, processes and registry entries.

The login as sys admin requires the following steps:

• Start the web browser at your PC and enter the following into the address bar: `IP address/sysadmin`

• Enter the following into the authentification:

User name: **admin**

Password: **vipatp**

Functions

As sys admin you have access to the following functions:

Group	Area	Description
System Tools	System Info	System information about hardware, memory sharing and date/time.
	Processes	Shows all running processes. Via "Kill" these can be terminated singularly res. be started with the field "Launch process".
File Browser	Drives	File manager that offers all relevant functions for administration of files and directories.
Registry Editor	Registry key	Registry editor for deleting, altering and creating of registry entries.

Telnet server   Telnet is a text based client-server protocol on TCP level. By means of a
                          Telnet client like e.g. the "MS-DOS console" in your Windows operating
                          system you may execute text based all file remote functions at your Touch
                          Panel like copy, delete and create files and directories. You may also start
                          applications. Terminating an application is not possible.

Establishing a   The establishing of a Telnet connection is password protected and has the
Telnet connection   following approach:

- Start a Telnet client like for example "MS-DOS console" at your PC and
  enter the following into the address bar: `telnet IP address`
  When the connection is established, the Touch Panel asks for the user
  name and the password.

  ```
  Eingabeaufforderung - telnet 172.16.135.22                          _ □ x
  Welcome to the Windows CE Telnet Service on VIPATP

  login:
  ```
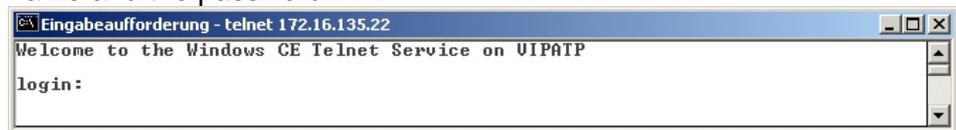
- Enter the following:
  Login: **wince**
  Password: **vipatp**   (entry is hidden)
  After entering valid user data a command line for entries appears:

  ```
  Eingabeaufforderung - telnet 172.16.135.22                          _ □ x
  Welcome to the Windows CE Telnet Service on VIPATP

  login: wince
  Password:

  Pocket CMD v 5.0
  \>
  ```
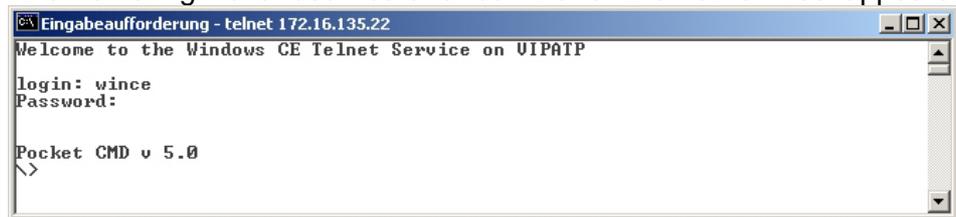
By entering `Exit` res. closing the window you may terminate the Telnet
connection at any time.

Commands   After establishment of a Telnet connection the Touch Panel provides you with commands. A list of possible commands with a short description is available via the command `help`.

By beginning with "help" before a command you receive help to this command.
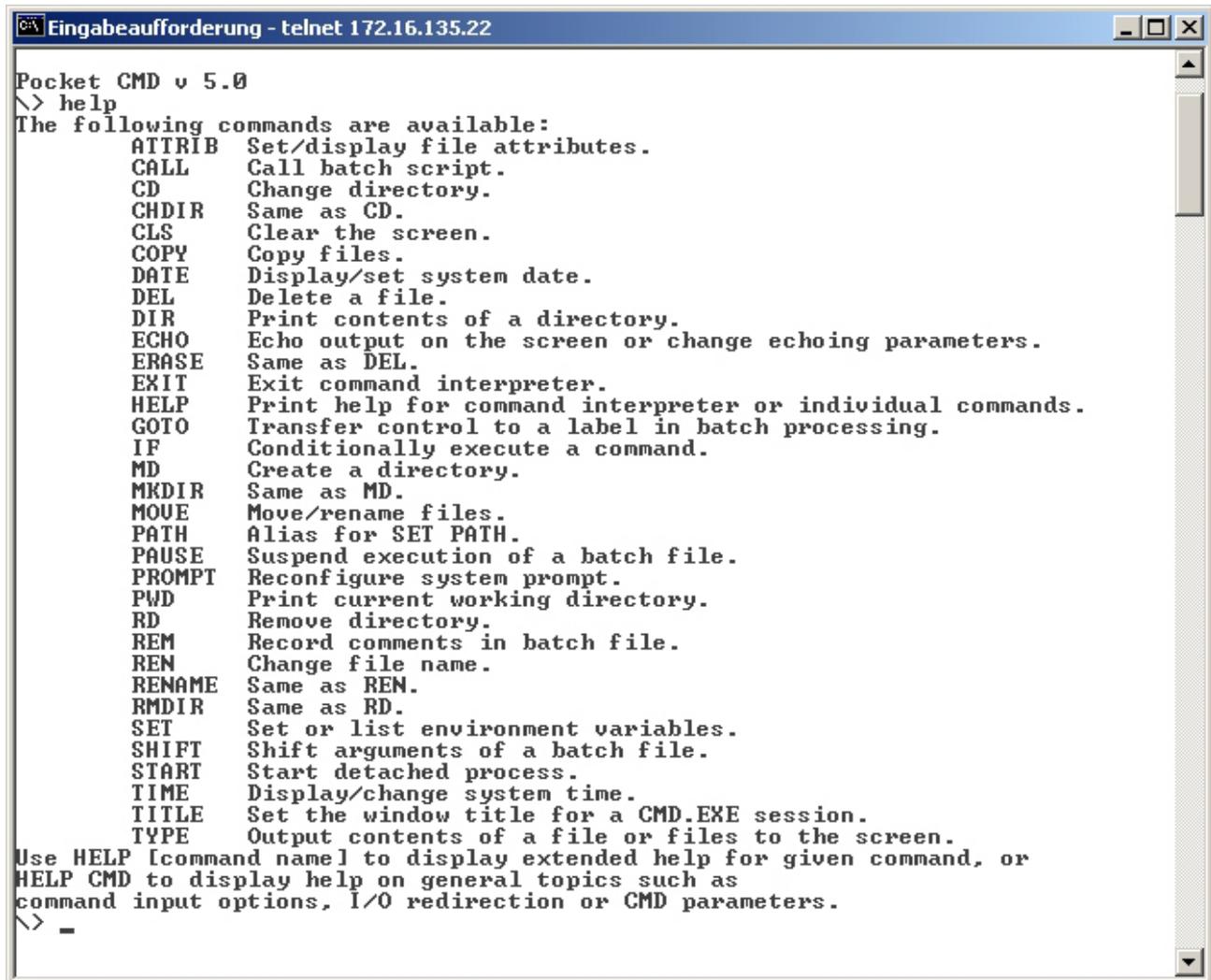
```
Eingabeaufforderung - telnet 172.16.135.22                    _ □ X

Pocket CMD v 5.0
\> help
The following commands are available:
        ATTRIB  Set/display file attributes.
        CALL    Call batch script.
        CD      Change directory.
        CHDIR   Same as CD.
        CLS     Clear the screen.
        COPY    Copy files.
        DATE    Display/set system date.
        DEL     Delete a file.
        DIR     Print contents of a directory.
        ECHO    Echo output on the screen or change echoing parameters.
        ERASE   Same as DEL.
        EXIT    Exit command interpreter.
        HELP    Print help for command interpreter or individual commands.
        GOTO    Transfer control to a label in batch processing.
        IF      Conditionally execute a command.
        MD      Create a directory.
        MKDIR   Same as MD.
        MOVE    Move/rename files.
        PATH    Alias for SET PATH.
        PAUSE   Suspend execution of a batch file.
        PROMPT  Reconfigure system prompt.
        PWD     Print current working directory.
        RD      Remove directory.
        REM     Record comments in batch file.
        REN     Change file name.
        RENAME  Same as REN.
        RMDIR   Same as RD.
        SET     Set or list environment variables.
        SHIFT   Shift arguments of a batch file.
        START   Start detached process.
        TIME    Display/change system time.
        TITLE   Set the window title for a CMD.EXE session.
        TYPE    Output contents of a file or files to the screen.
Use HELP [command name] to display extended help for given command, or
HELP CMD to display help on general topics such as
command input options, I/O redirection or CMD parameters.
\> _
```

VNC server

The Touch Panel has an integrated VNC server (**v**irtual **n**etwork **c**ontrol) that allows the total control of the Touch Panel with a PC via network. For this, a window displays the current Touch Panel content for remote control. The operating happens via PC keyboard and mouse. Using VNC the context menu functions are available via the right mouse button.

Condition for the VNC communication is that the VNC server is started at the Touch Panel and a VNC client at the PC.

Note!

Since with the VNC server all safety attitudes can be gone around, you should use these exclusively for start-up! For this reason the VNC server is on delivery deactivated.

Establishing a VNC connection

The VNC connection establishment has the following approach:

- Click on **My Device** at the Touch Panel and start Windows\CEVncSvr.exe. Please regard that there is no message that the server has been started!
  You may also start the VNC server at the Touch Panel via a Telnet connection by entering the command `cevncsvr` in the command console with an active Telnet connection.

- Now start the VNC client vncviewer.exe at your PC.

- Click on [Options] and de-activate the field "Emulate 3 Buttons..." like shown at *Mouse*.
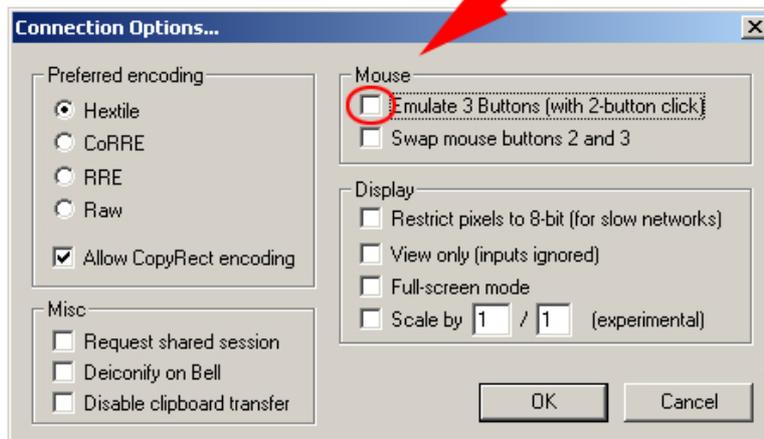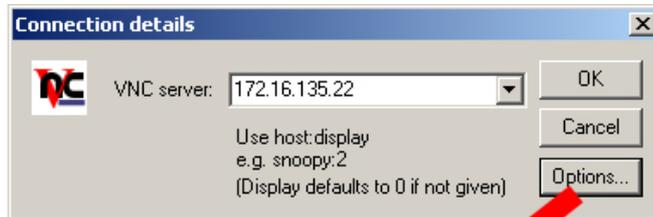
- Enter the IP address of the Touch Panel at *VNC server*. With [OK] a VNC connection is established and the screen content of the Touch Panel is monitored within a window.

Closing the VNC window terminates the VNC connection, the server keeps running.

Access to the network resources

Outline

The Touch Panel allows you to access shared resources in a Microsoft network like drives and printer. Here you may assign existing public directories or printer in the network to local directories or printer in the Touch Panel.

Condition for this is that you login at the network with your user name and password.

The assignment of a network resource happens in the Touch Panel via the command console "Command Prompt". Start the command console with **START** > *Programs* > *Command Prompt.*

The access to the network resource happens with the commands *Net view* and *Net use*.

List released resources

Shared resources of a network PC can be listed with the command: \> **net view** *PC-Name*

For example **net view testserver** lists all shared resources of the network PC "test server". To test the physical connection a PING to the IP address of the network PC may be executed if there are problems while contacting the network PC.

```
\> net view testserver
Shared resources on \\testserver:

Share name       Type   Used as        Comment
------------------------------------------------------------
Archive          Disk   (null)         Process data
KyoEDV           Print  (null)         Kyocera FS-680 Printer
Command completed successfully
\> █
```

Connect net drive

The connection of a local name at the Touch Panel with a shared drive of the network PC happens with the following approach:

- Enter the following in the command prompt:
  \> **net use** *local_name* *network drive* **/user:***User name*

- Enter *user name, password* and where app. *user group.*

After the successful login the following message appears:
Successfully mapped to *network name*.

The connected network drive is then available at the Touch Panel with the *local name* via *My Device* at *Network.*

Example:

Local_Name: data, network drive: testserver\archive, User name:gast

Entry: \> **net use data** **testserver****archive** **/user:gast**

The connected network drive is then available via \network\data at the Touch Panel.

Configure network printer   The configuration of a network printer happens with the following approach:

- Enter the following into the command prompt:
  \> **net use** *printer name network printer*

  Example:
  Printer name: Printer, network printer: \\testserver\printer
  Entry: \> **net use printer \\testserver\printer**

- Enter *user name, password* and where app. *user group*.

  After the successful login the following message appears
  `Successfully mapped to network printer`
  The printer may now be accessed as "network\printer".

Test print   For example you may print the content of the current directory with \> **dir > network\printer**.

List network connections   The listing of all network connections of your Touch Panel happens via
\> **net use**

```
\> net use
Connected resources:


Status         Local Name              Remote Name
--------------------------------------------------------------
Connected    data                     \\testserver\archiv
Connected    printer                  \\testserver\printer
Command completed successfully
\> █
```

Terminate network connections   You may terminate already assigned network resources via
\> **net use local_name /d**

Example: \> **net use data /d** deletes the network connection to the drive "archive" of "test server".

Note!
To keep the settings also after power on, you have to store them to the registry with **START** > *Programs > KuK Tools > Save Registry*.

Chapter 1   Hardware description

Overview   The Touch Panels are available in different variants that are described in this chapter.

During this introduction you get hints for deployment of the Touch Panels from VIPA.

Besides of a description of the single components of the Touch Panels, you will also find the dimensions that are required for the installation. The chapter closes with the technical data.

The following text describes:
- Safety hints for deployment
- Operating elements and slots
- Dimensions for the installation
- Technical data

Safety information for Users

Handling of electrostatically sensitive modules

VIPA modules make use of highly integrated components in MOS-technology. These components are extremely sensitive to over-voltages that can occur during electrostatic discharges.

The following symbol is attached to modules that can be destroyed by electrostatic discharges:

The symbol is located on the module, the module rack or on packing material and it indicates the presence of electrostatic sensitive equipment.

It is possible that electrostatic sensitive equipment is destroyed by energies and voltages that are far less than the human threshold of perception. These voltages can occur where persons do not discharge themselves before handling electrostatically sensitive modules and they can damage components thereby, causing the module to become inoperable or unusable. Modules that have been damaged by electrostatic discharges may fail after a temperature change, mechanical shock or changes in the electrical load.

Only the consequent implementation of protection devices and meticulous attention to the applicable rules and regulations for handling the respective equipment can prevent failures of electrostatically sensitive modules.

Shipping of electrostatically sensitive modules

Modules have to be shipped in the original packing material.

Measurements and alterations on electrostatically sensitive modules

When you are conducting measurements on electrostatically sensitive modules you should take the following precautions:

- Floating instruments must be discharged before use.
- Instruments must be grounded.

Modifying electrostatically sensitive modules you should only use soldering irons with grounded tips.

Attention!

Personnel and instruments should be grounded when working on electrostatically sensitive modules.

System overview

General   The here shown Touch Panels allow you e.g. to visualize and alter operating states and recent process values of a connected PLC.

Order data

Type	Order number	Description
TP 605LQS	VIPA 605-1BL00	5.7" QVGA, LCD monochrome, MPI/Profibus DP/RS485, USB-B
TP 605LQE	VIPA 605-1BL30	5.7" QVGA, LCD monochrome, Ethernet RJ45, USB-B
TP 605MQ	VIPA 605-1BM00	5.7" QVGA, LCD monochrome, MPI/Profibus DP/RS485, RS232, RS422/485, USB-A, USB-B, Ethernet RJ45
TP 605CQ	VIPA 605-1BC00	5.7" QVGA, TFT color, MPI/Profibus DP/RS485, RS232, RS422/485, USB-A, USB-B, Ethernet RJ45
TP 605CQ CAN	VIPA 605-1BC40	5.7" QVGA, TFT color, CAN interface, RS232, RS422/485, USB-A, USB-B, Ethernet RJ45
TP 606C	VIPA 606-1BC00	6.5" VGA, TFT color, MPI/Profibus DP/RS485, RS232, RS422/485, USB-A, USB-B, Ethernet RJ45
TP 606C CAN	VIPA 606-1BC40	6,5" VGA, TFT color, CAN interface, RS232, RS422/485, USB-A, USB-B, Ethernet RJ45
TP 608C	VIPA 608-1BC00	8.4" SVGA TFT color, MPI/Profibus DP/RS485, RS232, RS422/485, USB-A, USB-B, 2xEthernet RJ 45 (switch)
TP 608C CAN	VIPA 608-1BC40	8.4" SVGA TFT color, CAN interface, RS232, RS422/485, USB-A, USB-B, 2xEthernet RJ 45 (switch)
TP 610C	VIPA 610-1BC00	10.4" SVGA TFT color, MPI/Profibus DP/RS485, RS232, RS422/485, 2xUSB-A, USB-B, 2xEthernet RJ 45 (switch)
TP 610C CAN	VIPA 610-1BC40	10.4" SVGA TFT color, CAN interface, RS232, RS422/485, 2xUSB-A, USB-B, 2xEthernet RJ 45 (switch)
TP 612C	VIPA 612-1BC00	12.1" SVGA TFT color, MPI/Profibus-DP/RS485, 2x RS232, RS422/485, 2xUSB-A, USB-B, 2xEthernet RJ45 (switch)

Properties   The VIPA Touch Panel is a compact and modular embedded PC based on
                          Windows CE. Besides of the extensive Windows CE functions the Touch
                          Panel offers varied communication possibilities.

                          Here the Touch Panel can simply be configured, controlled and remoted.

                          By including a selectable HMI/SCADA runtime the Touch Panel is parti-
   cularly suitable for monitoring and controlling of process cycles.

- Microsoft Windows CE V. 5.0 (full version as option)
- different HMI/SCADA-Runtime selectable
- about 6MByte memory for user data on Board
- CF-Card II and MMC/SD card slot
- horizontal and vertical display selectable in 90° steps
- RS232, RS485, RS422, MPI, Profibus DP slave, CAN, Ethernet,
  USB-A und USB-B interface on board (depending upon variant)
- robust aluminium die casting case
- continuous concept from 5.7" to 12.1"
- display resolution up to 800x600 (64k colors)
- battery backed clock
- resistive touch screen
- easy mounting via integrated pivoted lever
- protection class IP65 (frontal)

Note!

Please regard RS485 at COM 2 is only supported starting with hardware
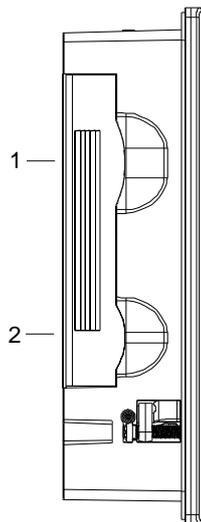release 2.

Construction

Front view
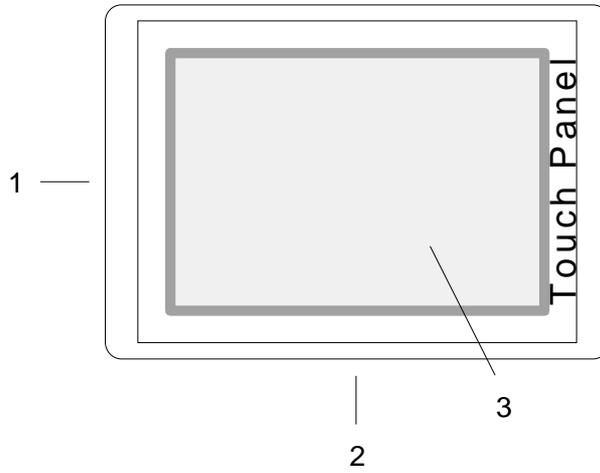
[1]   Slot for storage medium
       (CF, SD/MMC)
[2]   Connection for interfaces
       and power supply
[3]   Display with touch
       sensitive area
       (touch screen)
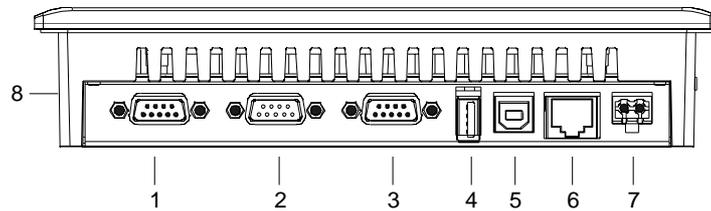
Side view

[1]   Compact Flash
[2]   MMC / SD

Note!
Please regard that the Touch Panel always has to be supplied with external voltage!

**Bottom view
(Interfaces)**

TP 605xx 5.7"
605-1BLxx
605-1BMxx
605-1BCxx

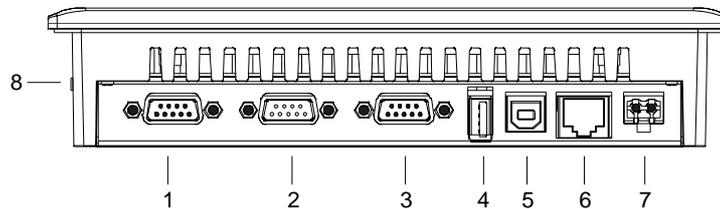**Components**

[1]   RS422/485 interface COM 2 (not 605-1BLxx)

[2]   RS232 interface COM 1 (not 605-1BLxx)

[3]   MPI/Profibus DP/RS485 interface (not 605-1BL30, 605-1BC40)

CAN interface (only 605-1BC40)

[4]   "Host"-USB-A interface (not 605-1BLxx)

[5]   "Slave"-USB-B interface

[6]   RJ45 jack for Ethernet communication (not 605-1BL00)

[7]   Slot for DC 24V voltage supply

[8]   Slot for CF/SD/MMC storage medium

TP 606C 6.5"
606-1BCxx

Components

[1]   RS422/485 interface COM 2

[2]   RS232 interface COM 1

[3]   MPI/Profibus DP/RS485 interface (606-1BC00)

CAN interface (606-1BC40)

[4]   "Host"-USB-A interface

[5]   "Slave"-USB-B interface

[6]   RJ45-Buchse for Ethernet communication

[7]   Slot for DC 24V voltage supply

[8]   Slot for CF/SD/MMC storage medium

TP 608C 8.4"

608-1BCxx

Components

[1]   RS422/485 interface COM 2

[2]   RS232 interface COM 1

[3]   MPI/Profibus DP/RS485 interface (608-1BC00)

      CAN interface (608-1BC40)

[4]   "Host"-USB-A interface

[5]   "Slave"-USB-B interface

[6]   RJ45 jack for Ethernet communication

[7]   RJ45 jack for Ethernet communication

[8]   Slot for DC 24V voltage supply

[9]   Slot for CF/SD/MMC storage medium

TP 610C 10.4"
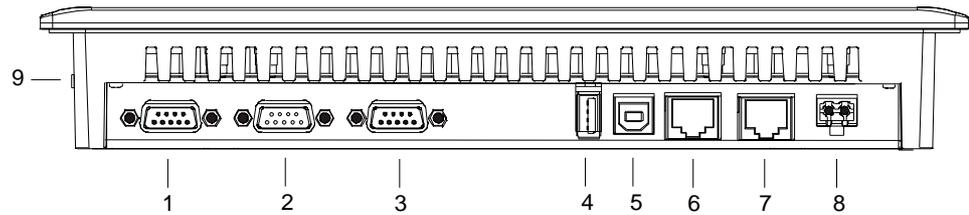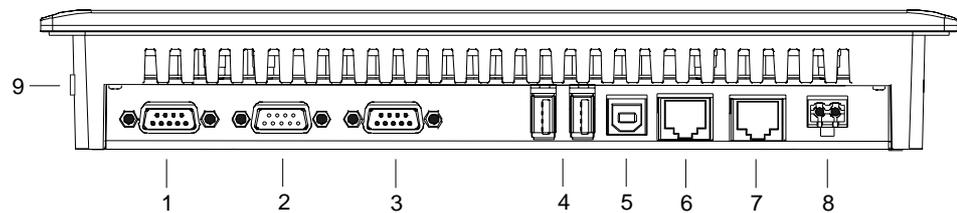
610-1BCxx

Components
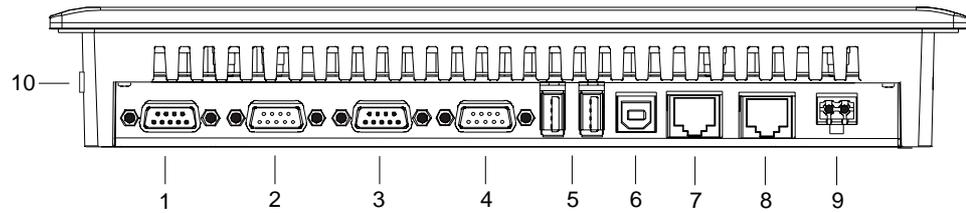
[1]   RS422/485 interface COM 2

[2]   RS232 interface COM 1

[3]   MPI/Profibus DP/RS485 interface (610-1BC00)

      CAN interface (610-1BC40)

[4]   2x "Host"-USB-A interface

[5]   "Slave"-USB-B interface

[6]   RJ45 jack for Ethernet Communication

[7]   RJ45 jack for Ethernet Communication

[8]   Slot for DC 24V voltage supply

[9]   Slot for CF/SD/MMC storage medium

TP 612C 12.1"

612-1BCxx

Components	[1]	RS422/485 interface COM 2
	[2]	RS232 interface COM 1
	[3]	MPI/Profibus DP/RS485 interface
	[4]	RS232 interface COM 3
	[5]	2x "Host"-USB-A interface
	[6]	"Slave"-USB-B interface
	[7]	RJ45 jack for Ethernet Communication
	[8]	RJ45 jack for Ethernet Communication
	[9]	Slot for DC 24V voltage supply
	[10]	Slot for CF/SD/MMC storage medium

Components

Memory management

The following memory systems are available for every Touch Panel:
- 64MByte work memory
- 32MByte Flash-Disk (6MByte for user data)
- USB storage media using "Host"-USB-A interface
- Slot for CF (Type II)
- Slot for MMC/SD

Work memory

Every Touch Panel has a work memory with a size of 64MByte. The work memory is not buffered and is deleted after shut down. Please regard that also registry entries are stored in the work memory that are set back to default settings after the next re-boot. You may save them permanently by means of the *KuK Tools* (within consignment).

Flash disc

As internal permanent storage medium every Touch Panel has a flash disc with a size of 32MByte (6MByte user data). After the start of Windows CE this memory is listed as *Flashdisk* at *My Device*.

USB storage media

The connection of USB sticks and USB drives by use of the "Host"-USB-A interface is supported by the Touch Panel. After connection the storage media is listed as *Hard Disk* at *My Device*.

Slot for CF
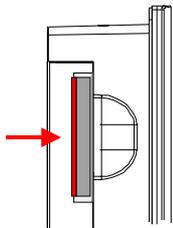
Here you may plug a **C**ompact**F**lash® type II. The card may be plugged and removed during runtime and is immediately listed as *Storage Card* at *My Device*.

Every CompactFlash® storage module has a pulling edge. Hold the CompactFlash in the way that the pulling edge points to the left side. Push the storage module without much power into the slot until the impact. To remove the card touch it at the pulling edge and pull.

Slot for SD/MMC

At this slot you may plug storage modules of the type SD or MMC. The card may be plugged and removed during runtime and is immediately listed as *SDMMC Card* at *My Device*.

Please take care to plug the according card as shown at the back side of the Touch Panel.

Security flap for memory cards
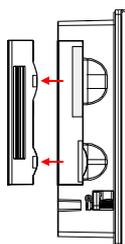
At the left side of the Touch Panel are the card slots for memory cards. The cards are visibly covered by a security flap and are thus secured from slipping out.

Please take care to pull the security flap back before plugging or pulling a memory card like shown in the illustration and put it back again afterwards.

When plugging, the security flap additionally snaps into position above the plugged memory card.

Interfaces

**RS422/485
interface**

- Logical states represented by voltage differences between the 4 cores
- Serial bus connection in 4-wire technology using full duplex mode
- Data communications up to a max. distance of 500m
- Data communication rate up to 115.2kBaud

**Connection
RS422/485**
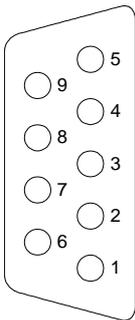
9pin jack

Pin	RS422/485
1	n.c.
2	n.c.
3	TxD+ (Line A)
4	RxD+ (Line A)
5	M5V
6	P5V
7	n.c.
8	TxD- (Line B)
9	RxD- (Line B)

Connection RS422 (isolated)
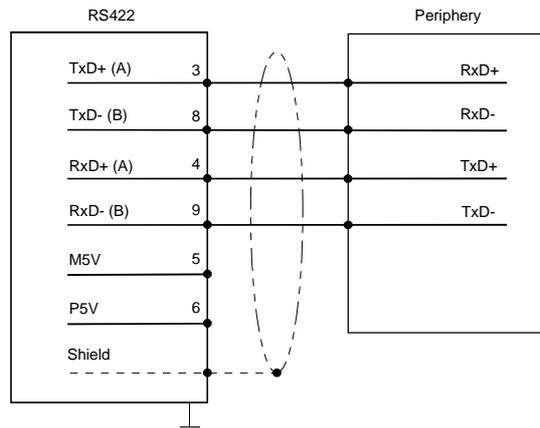
Connection RS485 (isolated)
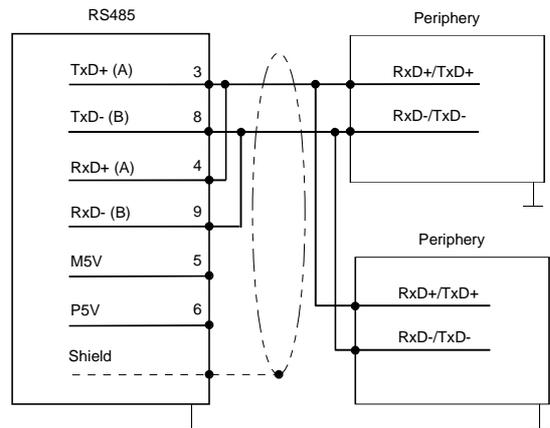
**Profibus-DP /
MPI interface
(RS485)**
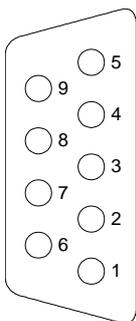
9pin jack

Pin	RS485
1	n.c.
2	M24V
3	RxD/TxD-P (Line B)
4	RTS
5	M5V
6	P5V
7	P24V
8	RxD/TxD-N (Line A)
9	n.c.

Connection RS485
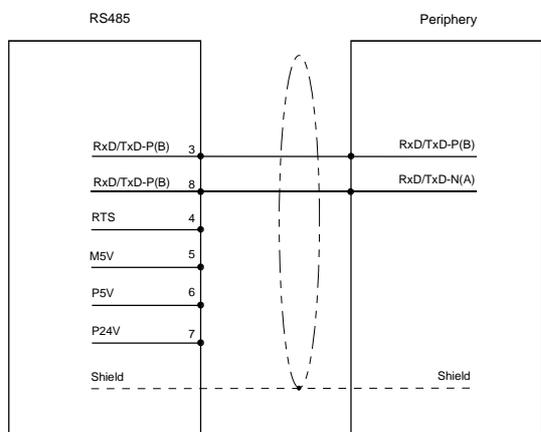
CAN interface   *9pin jack*   *Connection CAN*
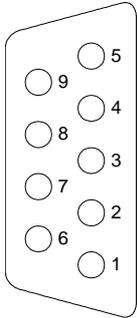
Pin	Assignment
1	reserved
2	CAN low
3	CAN Ground
4	reserved
5	Shield
6	reserved
7	CAN high
8	reserved
9	reserved
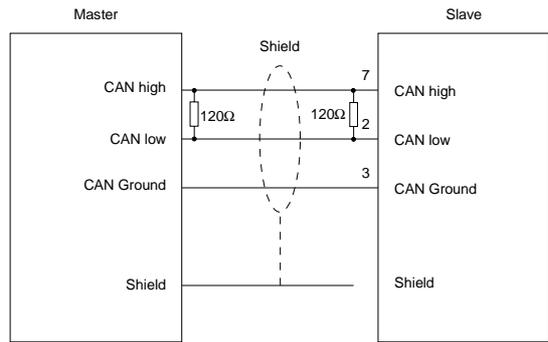
RS232 interface
- Interface is compatible to the COM interface of a PC
- Logical signals as voltage levels
- Point-to-point links with serial full-duplex transfer in two-wire technology up to 15m distance
- Data transfer rate up to 115.2kBaud

Connection RS232   *9pin plug*   *Connection RS232*
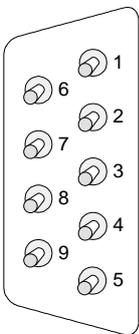
Pin	RS232
1	CD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI
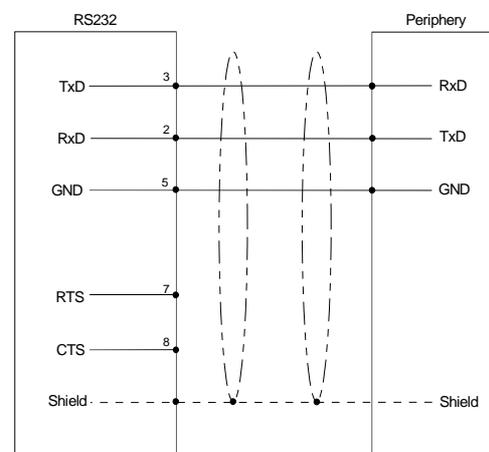
Ethernet-Connection   An RJ45 jack provides the interface to the twisted pair cable, required for Ethernet. The pin assignment of this jack is as follows:

8pin RJ45 jack:
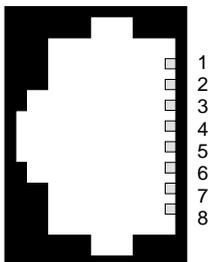
Pin	Signal
1	Transmit +
2	Transmit -
3	Receive +
4	-
5	-
6	Receive -
7	-
8	-

"Host"-USB-A

Using the "Host"-USB-A interface mouse, keyboard, USB stick ore USB hard discs can be connected.
The pin assignment is as follows:
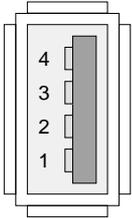
"Host"-USB-A:

Pin	Assignment
1	VCC
2	DM
3	DP
4	GND

"Slave"-USB-B

For project transfer with Microsoft ActiveSync a programming cable can be connected using the "Slave"-USB-B interface.
The pin assignment is as follows:
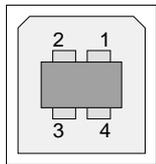
"Slave"-USB-B:

Pin	Assignment
1	VCC
2	DM
3	DP
4	GND

VIPA USB-B
Programming cable

The USB-A interface of your PC can be connected to the "Slave"-USB-B interface of your Touch Panel deploying the USB programming cable. The USB programming cable is delivered by VIPA with order
No. VIPA 670-0KB10.

Power supply

The Touch Panels have got an integrated power supply. The power supply has to be provided with DC 24V (20.4 ... 28.8V). For this you find an according DC 24V slot at the bottom side.
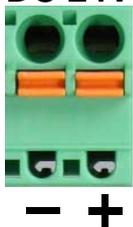
The power supply is protected against inverse polarity and overcurrent.

DC 24V

Dimensions

installation width

width

installation hight

height

installation depth
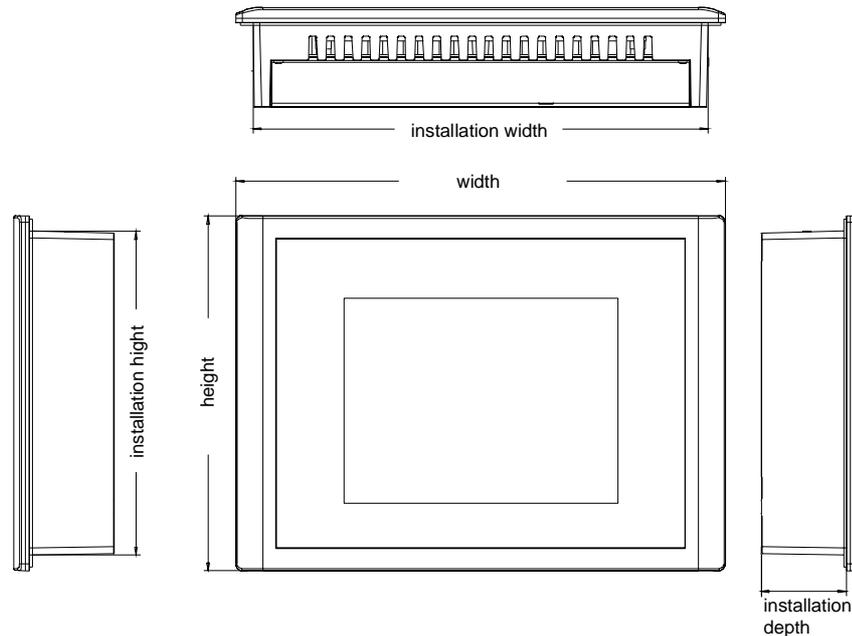
Installation dimensions	For the installation of the Touch Panels in control cabinets and desks are necessary the following dimensions:

5.7" and 6.5"
605-1BLxx
605-1BMxx
605-1BCxx
606-1BCxx

Installation cutting (W x H)	200 x 144mm
Front panel (W x H)	213 x 156mm
Installation depth	37mm

8.4"
608-1BCxx

Installation cutting (W x H)	250 x 175mm
Front panel (W x H)	264 x 189mm
Installation depth	43mm

10.4"
610-1BCxx

Installation cutting (W x H)	287 x 217mm
Front panel (W x H)	304 x 233mm
Installation depth	45mm

12.1"
612-1BCxx

Installation cutting (W x H)	311 x 249mm
Front panel (W x H)	335 x 275mm
Installation depth	45mm

Note!

The degrees of protection are only guaranteed when the following is observed:

- Material thickness at the mounting cut-out: 2 ... 5mm
- the deviation from the plane for the panel cut-out is ≤0.5mm. This condition must be fulfilled for the mounted HMI device
- Permissible surface roughness in the area of the seal: ≤120µm (friction coefficient 120)

Technical Data

Touch Panel

General

Electrical data	
Nominal supply voltage	DC 24V (20.4 ... 28.8V)
ESD/Burst	Acc. IEC 61000-4-2 / IEC 61000-4-4 (up to level 3)
Shock resistance	Acc. IEC 60068-2-6 / IEC 60068-2-27 (1G/12G)
Level of noise suppression	Acc. IEC 61000-6-4
mark of conformity and certification	CE
Clock and housing	
Processor	Xscale 520MHz
Clock	Hardware clock, buffered
Housing - protection class	Solid aluminium case
- Front	IP 65
- Back	IP 20
Environment conditions	
Mounting position	horizontally/vertically
Operating temperature	0 ... +50°C
Relative humidity max.	85%
Storing / Transport temperature	-20 to +60°C

TP 605LQS
TP 605LQE
VIPA 605-1BLxx

Display	
Size	5.7"
Resolution	240 x 320 / 320 x 240
Colors	STN LCD monochrome (16 levels)
MTBF Backlights (25°C)	ca. 75000h
Peripherals	
Touch screen	resistive
external Mouse, Keyboard	-
Memory	
Type	32MB Flash / 64MB RAM
Available memory for user data	ca. 6MByte
CF Card Slot Type II	-
SD/MMC Push-Push-Slot	yes
Interfaces	
MPI (12MBits), Profibus DP, PtP	RS485 isolated (TP 605LQS)
CAN	-
serial	-
serial	-
USB	USB-B
Ethernet	10/100 RJ45 (TP 605LQE)
Electrical Data	
Nominal supply voltage	DC 24V (20.4 ... 28.8V)
Nominal current	0.4A
Housing	
Mounting	via 4 integrated pivoted lever
Dimensions and weight	
Front side (WxH)	212 x 156mm
Back side (WxHxD)	198 x 142 x 37mm
Installation cutting (WxH)	200 x 144mm
Weight	1.2kg

TP 605MQ
VIPA 605-1BMxx

Display	
Size	5.7"
Resolution	240 x 320 / 320 x 240
Colors	STN LCD monochrome (16 levels)
MTBF Backlights (25°C)	ca. 75000h
Peripherals	
Touch screen	resistive
external Mouse, Keyboard	USB
Memory	
Type	32MB Flash / 64MB RAM
Available memory for user data	ca. 6MByte
CF Card Slot Type II	yes
SD/MMC Push-Push-Slot	yes
Interfaces	
MPI (12MBits), Profibus DP, PtP	RS485 isolated
CAN	-
serial	RS232 COM1
serial	RS422/485 isolated COM 2
USB	USB-A, USB-B
Ethernet	10/100 RJ45
Electrical Data	
Nominal supply voltage	DC 24V (20.4 ... 28.8V)
Nominal current	0.4A
Housing	
Mounting	via 4 integrated pivoted lever
Dimensions and weight	
Front side (WxH)	212 x 156mm
Back side (WxHxD)	198 x 142 x 37mm
Installation cutting (WxH)	200 x 144mm
Weight	1.2kg

TP 605CQ
TP 605CQ CAN
VIPA 605-1BCxx

Display	
Size	5.7"
Resolution	240 x 320 / 320 x 240
Colors	TFT color (64K colors)
MTBF Backlights (25°C)	ca. 50000h
Peripherals	
Touch screen	resistive
external Mouse, Keyboard	USB
Memory	
Type	32MB Flash / 64MB RAM
Available memory for user data	ca. 6MByte
CF Card Slot Type II	yes
SD/MMC Push-Push-Slot	yes
Interfaces	
MPI (12MBits), Profibus DP, PtP	RS485 isolated (605-1BC00)
CAN	RS485 isolated (605-1BC40)
serial	RS232 COM 1
serial	RS422/485 isolated COM 2
USB	USB-A, USB-B
Ethernet	10/100 RJ45
Electrical Data	
Nominal supply voltage	DC 24V (20.4 ... 28.8V)
Nominal current	0.45A
Housing	
Mounting	via 4 integrated pivoted lever
Dimensions and weight	
Front side (WxH)	212 x 156mm
Back side (WxHxD)	198 x 142 x 37mm
Installation cutting (WxH)	200 x 144mm
Weight	1.2kg

TP 606C
TP 606C CAN
VIPA 606-1BCxx

Display	
Size	6.5"
Resolution	480 x 640 / 640 x 480
Colors	TFT color (64K colors)
MTBF Backlights (25°C)	ca. 50000h
Peripherals	
Touch screen	resistive
external Mouse, Keyboard	USB
Memory	
Type	32MB Flash / 64MB RAM
Available memory for user data	ca. 6MByte
CF Card Slot Type II	yes
SD/MMC Push-Push-Slot	yes
Interfaces	
MPI (12MBits), Profibus DP, PtP	RS485 isolated (606-1BC00)
CAN	RS485 isolated (606-1BC40)
serial	RS232 COM 1
serial	RS422/485 isolated COM 2
USB	USB-A, USB-B
Ethernet	10/100 RJ45
Electrical Data	
Nominal supply voltage	DC 24V (20.4 ... 28.8V)
Nominal current	0.5A
Housing	
Mounting	via 4 integrated pivoted lever
Dimensions and weight	
Front side (WxH)	212 x 156mm
Back side (WxHxD)	198 x 142 x 37mm
Installation cutting (WxH)	200 x 144mm
Weight	1.3kg

TP 608C
TP 608C CAN
VIPA 608-1BCxx

Display	
Size	8.4"
Resolution	600 x 800 / 800 x 600
Colors	TFT color (64K colors)
MTBF Backlights (25°C)	ca. 50000h
Peripherals	
Touch screen	resistive
external Mouse, Keyboard	USB
Memory	
Type	32MB Flash / 64MB RAM
Available memory for user data	ca. 6MByte
CF Card Slot Type II	yes
SD/MMC Push-Push-Slot	yes
Interfaces	
MPI (12MBits), Profibus-DP, PtP	RS485 isolated (608-1BC00)
CAN	RS485 isolated (608-1BC40)
serial	RS232 COM 1
serial	RS422/485 isolated COM 2
USB	USB-A, USB-B
Ethernet	2x10/100 RJ45 (switch)
Electrical Data	
Nominal supply voltage	DC 24V (20.4 ... 28.8V)
Nominal current	0.6A
Housing	
Mounting	via 8 integrated pivoted lever
Dimensions and weight	
Front side (WxH)	264 x 189mm
Back side (WxHxD)	248 x 173 x 43mm
Installation cutting (WxH)	250 x 175mm
Weight	1.5kg

TP 610C
TP 610C CAN
VIPA 610-1BCxx

Display	
Size	10.4"
Resolution	600 x 800 / 800 x 600
Colors	TFT color (64K colors)
MTBF Backlights (25°C)	ca. 50000h
Peripherals	
Touch screen	resistive
external Mouse, Keyboard	USB
Memory	
Type	32MB Flash / 64MB RAM
Available memory for user data	ca. 6MByte
CF Card Slot Type II	yes
SD/MMC Push-Push-Slot	yes
Interfaces	
MPI (12MBits), Profibus DP, PtP	RS485 isolated (610-1BC00)
CAN	RS485 isolated (610-1BC40)
serial	RS232 COM 1
serial	RS422/485 isoliert COM 2
USB	2xUSB-A, 1xUSB-B
Ethernet	2x10/100 RJ45 (switch)
Electrical Data	
Nominal supply voltage	DC 24V (20.4 ... 28.8V)
Nominal current	0.7A
Box	
Fixing	via 9 integrated pivoted lever
Dimensions and weight	
Front (WxH)	304 x 233mm
Back (WxHxD)	285 x 215 x 45mm
Integration cut-out (WxH)	287 x 217mm
Weight	1.8kg

TP 612C
VIPA 612-1BCxx

Display	
Size	12.1"
Resolution	600 x 800 / 800 x 600
Colors	TFT color (64K colors)
MTBF Backlights (25°C)	ca. 50000h
Peripherals	
Touch screen	resistive
external Mouse, Keyboard	USB
Memory	
Type	32MB Flash / 64MB RAM
Available memory for user data	ca. 6MByte
CF Card Slot Type II	yes
SD/MMC Push-Push-Slot	yes
Interfaces	
MPI (12MBits), Profibus DP, PtP	RS485 isolated
CAN	-
serial	RS232 COM 1
serial	RS422/485 isolated COM 2
serial	RS232 COM 3
USB	2xUSB-A, 1xUSB-B
Ethernet	2x10/100 RJ45 (switch)
Electrical Data	
Nominal supply voltage	DC 24V (20.4 ... 28.8V)
Nominal current	0.8A
Box	
Fixing	via 9 integrated pivoted lever
Dimensions and weight	
Front (WxH)	335 x 275mm
Back (WxHxD)	285 x 215 x 45mm
Integration cut-out (WxH)	311 x 249mm
Weight	2.1kg

The information in this manual is supplied without warranties. Information is subject to change without notice.

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Disclaimer of liability

The content of this manual was carefully examined to ensure that it conforms with the described hardware and software.
However, discrepancies can not be avoided. The specifications in this manual are examined regularly and corrections will be included in subsequent editions.
We gratefully accept suggestions for improvement.

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Any other trademarks referred to in the text are the trademarks of the respective owner and we acknowledge their registration.

About this Manual

The manual describes the Touch Panel TP6x from VIPA. Here you find detailed descriptions of the Touch Panel family beside a product overview. Here you get information about structure, project engineering and operation of the Touch panels from VIPA.

Overview   **Chapter 1:**   **Hardware description**

Besides of safety hints a system overview of VIPA Touch Panels can be found in the context of the introduction.

The chapter is continued by data of structure, connections and dimensions. With the technical data the chapter ends.

Chapter 2:   **Deployment Touch Panel**

This part is concerned with the assembly and the electrical connection of the Touch Panels. A further component is the description of the Microsoft of operating system Windows CE. Here the various communication possibilities concerning the Touch panels are particularly emphasized.

Chapter 3:   **Installation guidelines**

This chapter helps you to install an interference-free automation system. First, possible interference sources and their interaction mechanisms are shown, followed by basic rules for guaranteeing EMC. Afterwards you'll find information about assembly and cabling following EMC rules.

Contents

User considerations

Objective and contents	This manual describes the Touch Panels from VIPA. The manual consists of chapters. Every chapter provides the description of one specific topic.

It describes the installation, project engineering, usage and the technical data.

This Documentation is targeted at users who have a background in automation technology and profound knowledge about Windows operating systems. |

Guide to the document

This manual provides the following guides:
- An overall table of contents at the beginning of the manual
- An overview of the topics for every chapter
- An index at the end of the manual.

Availability

The manual is available in:
- printed form, on paper
- in electronic form as PDF-file (Adobe Acrobat Reader)

Description conventions

[Button]	Buttons are put in brackets e.g. [NEXT] or [OK].
[Key]	Key entry are put in brackets e.g. [STRG]+[A].
`Display output`	Display outputs are illustrated as `Courier` e.g. `\flashdisk>`
`Keyboard entry`	Keyboard entries are illustrated as **`Courier bold`** e.g. `\flashdisk>` **`Dir`**
Terms	Menues, Display elements, terms are *italicised*.

Icons Headings

Important passages in the text are highlighted by following icons and headings:

Danger!
Immediate or likely danger.
Personal injury is possible.

Attention!
Damages to property is likely if these warnings are not heeded.

Note!
Supplementary information and useful tips.

Safety information

Application specifications

The Operation devices are constructed and manufactured for:
- VIPA CPUs 11x, 21x, 31x, 51x and S7-300/400 from Siemens
- communication and process control
- industrial applications
- operation within the environmental conditions specified in the technical data

Danger!
This device is not certified for applications in
- explosive environments (EX-zone)

Documentation

The manual must be available to all personnel in the
- project design department
- installation department
- commissioning
- operation

The following conditions must be met before using or commissioning the components described in this manual:

- Modification to the process control system should only be carried out when the system has been disconnected from power!

- Installation and modifications only by properly trained personnel

- The national rules and regulations of the respective country must be satisfied (installation, safety, EMC ...)

Disposal **National rules and regulations apply to the disposal of the unit!**