

Device description visio-terminal and visio-control



elrest Automationssysteme GmbH
Leibnizstraße 10
73230 Kirchheim unter Teck
Germany
Telefon: +49 (0) 7021 / 92025-0
www.elrest.de

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1 Introduction

This manual contains text, figures and explanations regarding the correct installation and operation of the control panel. You must read and understand this manual before installing and operating the devices.

If you have any questions regarding the installation, application and operation of the panel, please contact the elrest customer hotline:

▲ Tel.:07021/92025-33

▲ Fax:07021/92025-59

▲ E-Mail: hotline@elrest.de

or your responsible agent.

This manual is subject to change. Changes may be made without notice.

1.1 Safety Guidelines and Protection Measures

This manual was written to be used by trained and competent personnel. The qualification is defined by the European directives for machinery, low voltage and EMC. At voltages above the safety extra-low voltage, the visio control panel may only be connected and installed by an electrical technician.

All national directives and relevant applicable safety regulations must be observed. Tampering with or modifying the device will invalidate the warranty.

This manual contains different symbols which draw attention to specific kinds of information. They are used to provide the operating personnel with the necessary information relating to the safety and protection measures. Each time the symbol appears, the relevant notice must be read.



Indicates an immediate danger that could cause physical injury and damage to property.



Indicates a possible danger that could cause physical injury and damage to property.



Called notes, so that the handling is easier.

Under no circumstances will **elrest Automationssysteme GmbH** be liable or responsible for any consequential damage that may arise as a result of the improper installation or use of the devices or the accessories.

All the examples and illustrations included in this manual are intended solely as aids to understanding the text. Responsibility cannot be accepted for the accuracy of the operating procedures shown. elrest Automationssysteme GmbH accepts no responsibility for product applications based on the illustrative examples (e.g. in eStudio Demo).

Due to the large variety of possible applications for these devices, the user is responsible for carrying out all adjustments to suit his or her specific application.

In the event of failure of circuit components, appropriate safety systems must be used to ensure that peripheral equipment connected is stopped.

Do not attempt to repair the visio control panel yourself, or to replace electrical components. To carry out this kind of work, always contact the elrest service department – which you can contact from the elrest hotline.

When installing and operating the visio system, always observe the local and national standards and regulations.

1.2 Warranty

Expert assembly and commissioning in accordance with the installation, commissioning and operating instructions applicable to the device are prerequisites for all warranty claims. The necessary installation, commissioning and maintenance works must only be carried out by authorized expert personnel.

Manufacturer

elrest Automationssysteme
GmbH
D-73230 Kirchheim unter Teck

Leibnizstraße 10
Phone: +49 (0) 7021/92025-0
Fax: +49 (0) 7021/92025-29

Trade Mark



Country of Origin

Germany

1.3 Electrical Installation

The devices in the series are suitable for use in the area of control and automation engineering. Its possible application ranges from residential and commercial areas to the industrial sector. In all applications involving the activation of inductive loads (motors and relays etc.), care must be taken to ensure that the voltage peaks do not exceed the maximum input voltages of the I/O specified in the technical data. If necessary, install external protective circuits.

1.4 Installation

1.4.1 *Notes Regarding Occupational Safety*

Prior to installation and commissioning, the installation, commissioning and operating instructions must be carefully read and followed. The relevant EN and VDE regulations also apply.

1.4.2 *Space Requirement*

The mounting location of the devices must provide sufficient access to the operator and facilitate maintenance work.

When mounting the equipment, care must be taken to ensure adequate air circulation.

1.4.3 *Mounting*

The applicable local and, in particular, electrical safety regulations must be complied with. Notes on work safety prior to the installation and commissioning are the assembly, commissioning and operator's manual to read carefully and to note. In addition, the EN, and VDE, provisions.

Required space

The installation of the devices must be sufficiently accessible to the operator and repairs. When installing, ensure sufficient air circulation.

Refitting

The applicable local and, in particular the electrical safety requirements are to be observed.

For more information

The devices are designed for installation in control cabinets (in general in control cabinet doors made of sheet steel) designed

1.5 Safety Instructions

1.5.1 General Hazard Warnings

The relevant legislation (VDE etc.) When dealing with electrical equipment, such as unlock, ensure that it cannot be turned back on, it is de-energized, the earth, and short-circuit, no ground loops, adjacent, live cover or establish barriers between parts.

1.6 Advice to the device

1.6.1 Before you start

Before switching on the supply voltage, it is essential that you check the following:

- Wiring
- interference suppression measures
- dimensioning of the heat sink and free air circulation.

1.6.2 Mounting location and conditions

The control panels are suitable for mounting on front panels of control cabinets and consoles.

A mounting cutout must be present in the front panels prior to installation. The thickness of the front panel must not exceed 6 mm. Additional mounting holes are not required due to the gripping mechanism used.

Details regarding the mounting depth and the mounting cutout are provided in the description for the respective control panel..

1.6.3 Degree of Protection

The Visio control assemblies are suitable for installation in control cabinets. The Visio control assemblies must be mounted so that the minimum degree of protection IP20 is guaranteed.



Caution:

Prior to commissioning, allow the control panel to adjust to room temperature. If condensation is present, the device must only be switched on when completely dry.

To prevent the control panel from overheating during operation,

- the inclination angle in relation to the vertical mounting position is not to exceed 35°,
- do not expose the device to direct sunlight,
- do not cover the ventilation slots in the casing as a result of the installation,
- adequate air circulation must be provided.

1.6.4 *Damaged device*

The Visio control assembly undergo before delivery. Still, should a fault occur, so please insert the return an exact description of the malfunction.

1.7 **Electrical Installation**

1.7.1 *Electrical Connections*

The control panel requires electrical connections

- to the power supply,
- to the configuration computer,
- to additional equipment on the field bus line,
- to additional elrest devices.

1.7.2 *EMC-related Design*

A system hardware configuration compliant with EMC requirements and the use of cables that are resistant to interference are preconditions for error-free operation. The guidelines on interference-free design of your system apply equally to the installation of the control panel.



Caution

- Only shielded cables are permitted for all signal connections.
- All plug-in connections must be screwed or locked.
- Do not install signal lines in the same cable ducts as power cables.
- No liability can be accepted for malfunctions and damage arising from the use of unsuitable cables.
- Unused signals (e.g. unused interfaces, battery terminals, ..) must be suitabl covered to prevent electrostatic influences (ESD).

1.7.3 Supply Voltage

Go in the commissioning generally as follows:

1. Close the control module(s) to the power supply. The power supply for the control assemblies is provided for the purpose of the header of the device. Detailed information, please see the description of the respective assembly.
2. Turn on the power supply.



Reverse polarity

-the supply voltage of the assemblies of the combo is Steuerungsteils Side polarised.

-The load voltage is switched by a inverse parallel diode protected. This means, in the case of a reverse polarity triggers the internal fuse. The device must be sent in for repair.

-If there are several connection points for the same identical potential exists, and that no difference between these may be present. Otherwise the resulting currents can cause irreversible damage to the assembly.



CAUTION

-the 24 V-supply is on a secure electrical separation of the low-voltage to make sure. Use only according to IEC 364-4-41 or HD 384.04.41 (VDE 0100, part 410) produced power supplies!

-Use only power supplies to the SELV-PELV-Standard suffice!

-The voltage of the power supply must only within the specified voltage range. Otherwise, the device failures cannot be ruled out. The requirements of the supply voltage please refer to the technical data of the respective device.



CAUTION

Respect for high-frequency radiation, such as from a mobile phone, can cause unwanted situations.

1.8 Quality Characteristics

The compliance of the product described with the provisions of guideline 89/336 EEC is substantiated by its compliance with the following standards.

1.8.1 Immunity to interference EN 61000-6-2:2001

Generic Standard - Immunity for industrial environments

Static discharge (contact discharge/air discharge)	EN 61000-4-2 4 kV / 8 kV
Radiated, radio-frequency, electromagnetic field immunity test Prüfung der Störfestigkeit gegen hochfrequente elektromagnetische Felder	EN 61000-4-3 AM 80% 1kHz 80 MHz - 1 GHz mit 10 V/m 1.4 - 2.0 GHz mit 3 V/m 2.0 - 2.7 GHz mit 1 V/m; Verweilzeit 1s
Immunity to conducted disturbances, induced by radio-frequency fields	EN 61000-4-6 150 kHz - 80 MHz 10 V, 80% AM, 1 kHz
Burst coupling - Supply lines - Process data lines - Signal lines	EN 61000-4-4 2 kV 2 kV 1 kV
Surge coupling - Supply lines (subject to use of suitable power supply unit or balLoad)	EN 61000-4-5 500 V
Magnetic fields	EN 61000-4-8 30A/m 50/60 Hz

1.8.2 Emitted interference EN 61000-6-4:2001

Generic Standard - Emission standard for industrial environments

Radio interference level according to EN	Class A 55011
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1.8.3 *Determination employment*

The units of the series visio are for use in the field of regulatory, control and automation suitable. The commitment extends over the area of living and industrial parks and the industrial sector. In all cases, the control of inductive loads (motors and relays etc.) is to make sure the emerging spikes not that in the technical data that max. input voltage of I/O crossing. Where are external protection schematic affixed.

1.8.4 *Storing, Transport und Package*

The mission is to preserve on completeness to check. Any identified of freight forwarding damage are the manufacturer promptly. In a possible storage is recommended that the original package material is used. The location must be clean and dry. The transfer of risk a purchased goods, according to the CIVIL CODE section 446 and SECTION 448 from billing on the buyer. For the elrest transport risk assumes no liability. If the transport legal liability of transporter ware volume covers not, is subject to the buyer, an additional insurance.

Observe the ESD regulations

Specific devices may require external measures (e.g. a suitable power supply unit) to achieve the required level of immunity from surge voltages. If this is the case, this is indicated on the relevant device.

If external measures are required to minimize noise emission, this is indicated on the relevant device. Furthermore, the environment in which the device is installed may influence the noise emissions.

Where a device complies with "higher quality" standards (e.g. EN 61000-6-4:2001 Generic Standard - Emission standard for residential, commercial and light industrial environments) this is indicated on the relevant device.

The devices are intended exclusively for mounting in machinery and systems. Do not put the product into service until the end product into which it is to be incorporated has been declared in conformity with the provisions of 98/37/EC "Machinery Directive".

1.9 ESD Guidelines

1.9.1 *What is ESD?*

Virtually all modern modules are fitted with highly integrated units or components that feature MOS technology. By virtue of the technology used, these electronic components are inherently extremely sensitive to overvoltage and, therefore, also to electrostatic discharge:

The internationally convention used to describe these kinds of modules is:

ESD - Electrostatic Sensitive Device.

The following symbol on labels on the cabinets, subracks and packing indicates that electrostatically sensitive components have been used and that the modules concerned are susceptible to touch:



ESDs can be destroyed by voltage and energy levels which are far below the level perceptible to human beings. Such voltages already occur when a component or a module is touched by a person who has not been electrostatically discharged. Components which have been subjected to such overvoltages cannot, in most cases, be immediately detected as faulty; the fault occurs only after a long period in operation.

1.9.2 *Protective measures against static charge*

Most plastic materials are highly susceptible to static charge and must therefore be kept as far away as possible from ESDs! Personnel who handle ESDs, the workplace and the packing must all be carefully grounded!

1.9.3 *Handling ESD Modules*

One basic rule to be observed is that electronic modules should be touched by hand only if this is absolutely necessary for any work required to be done on them. Do not touch the component pins or the printed conductors of printed-circuit boards.

Touch components only if you are grounded at all times by means of an ESD wrist strap or are wearing ESD shoes or ESD shoe grounding strips and are standing on an ESD floor.

Before touching an electronic module, you must ensure that you are not carrying any static charge. The simplest way is to touch a conductive, grounded item of equipment (e.g. a blank metallic cabinet part, water pipe, etc.) before touching the module.

Modules should not be brought into contact with materials which take up a static charge or with highly insulating materials, e.g. pLoadic film, insulating table tops, synthetic clothing, etc. Modules should only be placed on conductive surfaces (table with anti-static table top, conductive foam material, anti-static pLoadic bag, anti-static transport container).

Modules should not be placed in the vicinity of visual display units, monitors, TV sets (minimum distance from screen > 10 cm).

Ensure that the packing does not touch or short-circuit the battery terminals. If necessary cover the terminals with insulating tape or insulating material.

1.10 Servicing / maintenance

1.10.1 Scope

The combo assemblies are designed for low-maintenance operation. Maintenance is limited to the replacement of the battery.

1.10.2 Battery change

Function of the battery

In the combo Master assemblies is a battery. The battery ensures that the interruption of power internal hardware hours continue and the battery-buffered RAM preserved. Battery life the typical under normal operating conditions refer to the specifications of the combo assembly.

Source of supply

You can order the battery by elrest GmbH



Caution:

- the battery replacement may only of qualified personnel.
- Note before the battery ETUC-/ESD-directives

This device has internally about the buffering a battery ensures that the battery-buffered preserved, without the power supply the device signals.

precondition

The battery is made within 2 minutes and the battery had a sufficiently high to the cache residual charge accordingly.

proceeding

The way to change the battery refers to the associated description of each combo assembly.

general notes

Note the following safety tips for proper treatment and disposal of Lithium batteries:

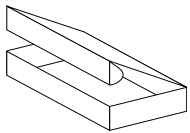


Caution:

In improper handling of the batteries is risk of explosion:

- never recharge
- not open
- not short-circuiting
- not wrong polarity
- not about 100°C warm
- before direct sunlight protect
- To batteries must be no moisture condensation
- a necessary transport is for each modes critical ware systematic arranging respect (labelling)
- spent Lithium batteries belong in the hazardous waste. They are for disposal individually in a thick plastic bag to pack.

1.11 Packaging



The devices are packaged in a folding carton.

The packing unit is 1 item.

1.12 Storage and Transportation

All shipments received must be checked to ensure that the contents are complete. The forwarding company and the manufacturer must be notified immediately of any transport damage. If the equipment is temporarily stored, we recommend that the original packaging is used. The storage location must be clean and dry. All risks associated with purchased goods are transferred to the purchaser at the time of invoicing in accordance with German Civil Code § 446 and § 448. elrest accepts no liability for transportation risks. If the value of the goods is not covered by the carrier's liability of the forwarding company, the purchaser shall be responsible for securing additional transportation insurance.

2 Overview to all visio devices

In general, in:

- visio-terminal
- visio-control

devices differences. The following interfaces are on these devices of elrest offered:

2.1 visio-terminal

In the Visio terminal is not programmable devices. We distinguish in:

- T0xx devices with CAN – interface
- T7xx devices with DVI, VGA and USB interface

2.2 Interfaces

Folgende Schnittstellen werden bei visio Geräten unterstützt:



Digital Interface to Terminals

VGA

Analoges Interface zu Terminals



Analog interface terminals to interface to all peripherals, such as USB stick, keyboard, mouse, printer, and other.



Serial interfaces RS232 and/or RS485. This can be with any UART protocols or the prepared protocol Modbus RTU-powered.

CAN

Open fieldbus interface to any CAN protocols, such as for example Truck-Norm J1939-based.

CANopen

CANopen is a widespread Layer7 protocol for automation.

ESB

Elrest system bus, a CAN based self configure system bus.

Ethernet

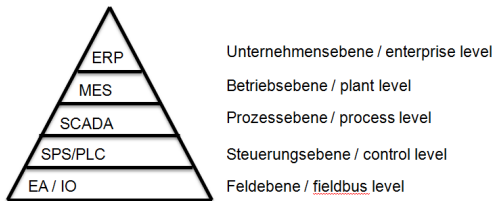
Under Ethernet can be TCP-Modbus as UDP or TCP will be used. Continue on the basis of socket functions can be added further protocols.

2.3 Visio- T070

- 3,5" monochrome display 128 x 64 Pixel
- OS μ E
- Keyboard operation
- onboard interfaces
 - 1 x CAN0 according to ISO11898 with galv. Isolation (ESB or CANopen)

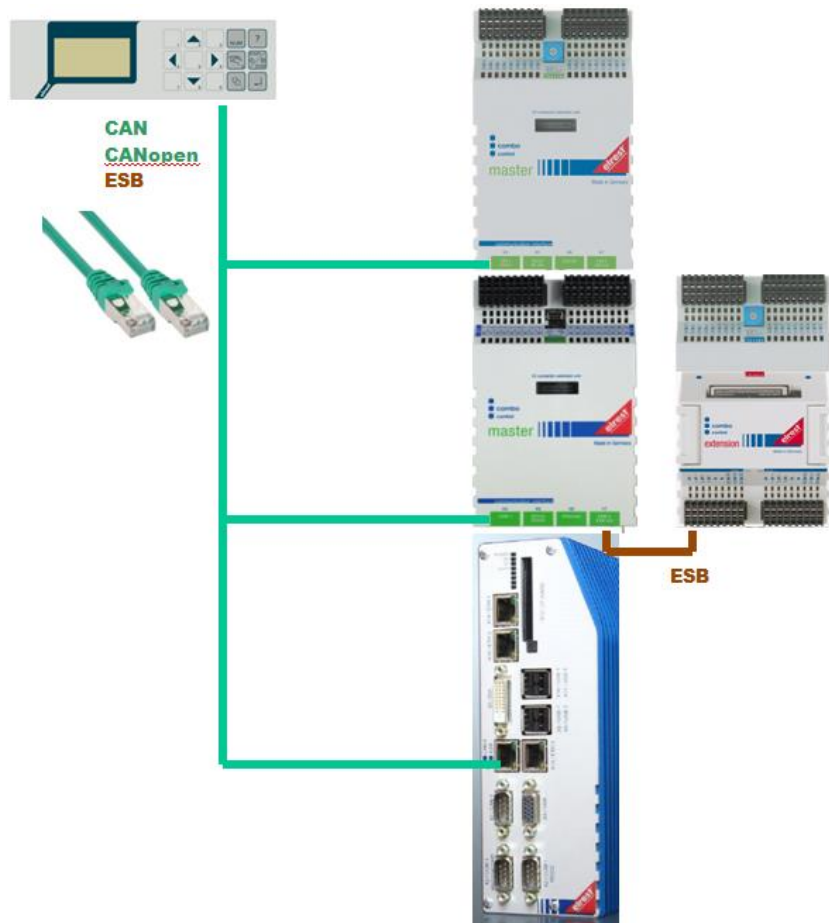


2.3.1 Use for



The communication of the field bus level to other EA units can CAN/CANopen/ESB.

This can-interface the terminal can both as an ESB or CANopen with the combo-series CM1xx and CM2xx will be connected.




2.3.2 Communication interfaces

The T070 is a remote terminal for CAN based Embedded Controller with 24V supply for the industrial use. The implemented embedded 32-bit ARM7 controller ensures sustainability and vendor independency.

One or more embedded controller lead from a user program, regardless of the Remote Terminal or a parent control expires. The communication between all participants occurs via CAN. The Remote Panel has 15 buttons and a graphics LC-display. The functions are only used by embedded controller remotely.

The state of the buttons, in the printed condition all 100ms or on request by the embedded controller. The display will be at each desired change from Embedded Controller refreshed. DAST070 therefore requires no special user program. The embedded controller on the graphics commands are Remote Panel State Machine before. The subordinate CAN and CANopen protocol corresponds to. This will essentially the functions of the existing device "visio-P101" as a Remote Panel met.



ACHTUNG
Handhabungsvorschriften beachten
Elektrostatisch gefährdete Bauteile

ATTENTION
Electrostatic sensitive device
Observe precautions for handling


Battery
CR 2032
3V Lithium
Nur/Only P090

Serienetikett

Vor Inbetriebnahme Gerätebeschreibung beachten!
Check instruction book before starting!

elrest Automationssysteme GmbH
73230 Kirchheim/Teck, Germany
www.elrest.de

Service



Made in Germany

X1		
Power		
24VDC	GND	PE

X5	X4	X3	X2	P090
RS232	Ethernet	CAN 1	CAN 0	T090
Unused	Unused	CAN 0 / IN	CAN 0 / OUT	

2.3.3 Keyboard



Note

From the FW-version - 1.72 -8 of the connected clients affects only the NUM LOCK key is still to numeric digit by digit input fields without input from.

	62h		12h		64h		Num 31h		Help 41h
	42h		66h		32h		Hand 61h		Start/Stop 11h
	67h		22h		68h		Parameter 51h		Enter 52h

Operation

The operation of the elements in window is via 7 buttons of the panel. These are the keys to ▲, from ▼, left ◀, right ▶, parameters, enter and Start/Stop.

To do this, a special operating mode in ElaDesign introduced, the over an item in the Firmware-Struktur can be set. This operation mode is set; there are two modes within the operation. The Navigiermodus and the editing mode.

After the start is located in the Navigiermodus the device. Here you can use the keys to ▲, from ▼, left ◀, right ▶ be navigated by the controls. Except that the elements are button and press the function key.

The keys to ▲, from ▼, left ◀, right ▶ from each have the same function. With the ENTER key one changes in the editing mode. With ENTER The edit mode is with the acquisition of the change, with parameters without taking over the change again.



In the Edit mode is visually identified the individual controls.

In the Edit mode, the arrow keys to select the following function:




- input field
left ◀, right ▶ movement of the cursor to the left or right (for character wise input).
to ▲, from ▼ increment or decrement the value, or of the corresponding body
- Combobox
left ◀, right ▶ without function,
to ▲, from ▼ selection of the entry. Scroll down if the entry is not visible.
- Listbox
left ◀, right ▶ without function,
to ▲, from ▼ selection of the entry. Scroll down if the entry is not visible.
- List
left ◀, right ▶ without function,
to ▲, from ▼ selection of the entry. Scroll down if the entry is not visible.
- In all the fields
ENTER acquisition of the change and exit the editing mode


- PARAMETER leave the editing mode without changing
- numeric
input with the keys to▲, from▼ can the value from each incremented or decremented by 1. The sign can be changed, that the first digit beyond 0 is decremented by 1. About the NUM LOCK key in the numeric input mode can be switched. Here you can directly via the keys 0...9 a positive whole number be entered. The decimal point is entered on the I button. After the input has the numeric input mode can operate again after the Num button with the keys in to▲, from▼ and between negative and positive sign be changed. The keys 0..9 are planned but not in ElaDesign are fixed. After the reboot of the device is located it is not in the numeric input mode. Whether this is turned on belongs to an item in the firmware-struct.
- Alphanumeric
entry with left◀, right▶ of the cursor can select the desired location. With the keys to▲, from▼ from a character can then be selected from the following sequence: A-Z, a-z, special characters, spaces, 0-9. Is the end of the sequence is reached again started from the beginning.





2.3.4 Service menuue

In the Service mode by pressing a key combination  +  to the buttons is selected, you can select the following parameters:

Contrast:	-15 to 15
Baud rate:	50 / 100 / 123 / 125 / 250 / 500 / 1,000 Kbps
Channel selection:	not active, 1 to 4
Modul-Nr :	1 to 63 Channel
Channel Number:	0 to 2 (only active if channel active)
Push time:	1 to 10

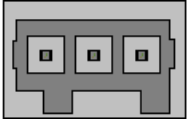

The switchover between the parameters is done with the  key. The change of the value is done with the  and  button. Afterwards the parameters are stored remanet.

The service mode is by  pressing the Exit key. The function of each of the buttons can directly after leaving the service mode be checked by within 1 second, the first button, then in each case within 1 second, the other keys are pressed. After the successful pressing all buttons will appear in the display "buttons OK". Exit the test mode is automatically, if longer than a second no button is pressed.

With the  key, the channel switching or the switching of the module number be activated. The switchover between the parameters is back with the  key, then with the buttons  and  is changing the value. After the time set in the Parameter Push time button action, without further back in the normal operation.

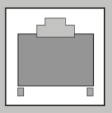
2.3.5 X1 : power supply

This connector is the control panel with the power. The port is protected against reverse polarity.

1	2	3	PIN	Occupancy
			1	+24 V DC power supply
			2	0 V DC (GND – Reference)
			3	FE
				

2.3.6 X2 : CAN-0 interface

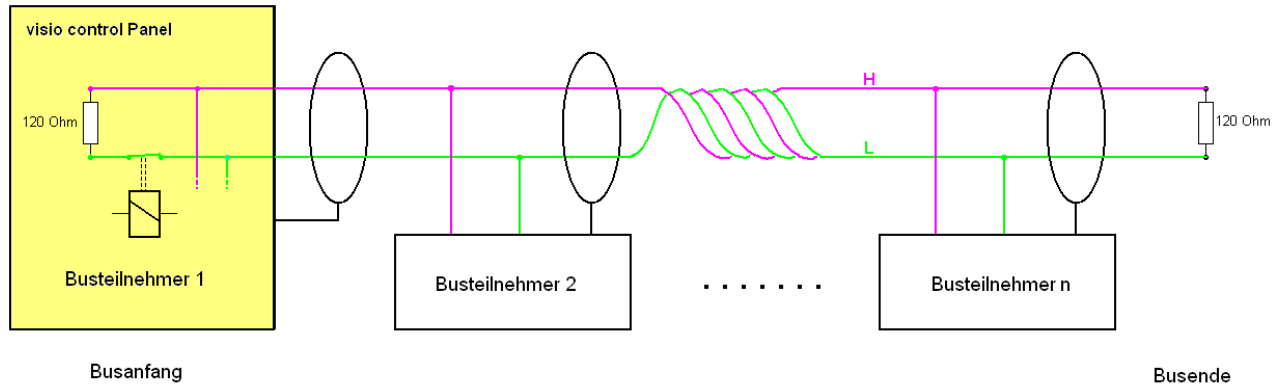
This interface is an RJ-45 connector with galvanic separation in accordance with ISO 11898 standard with running. The CAN - terminator can be engaged when necessary. To do this, the termination switch on the back to the "ON" (on) or SW (resistance by software switchable) be made.

	PIN	Occupancy
 Pin1	1	CAN data low dominant (B_LA)
	2	CAN data high dominant (B_HA)
	3	GND5Vext1 (Signal Ground external 1)
	4	open
	5	do not use
	6	do not use
	7	open
	8	open



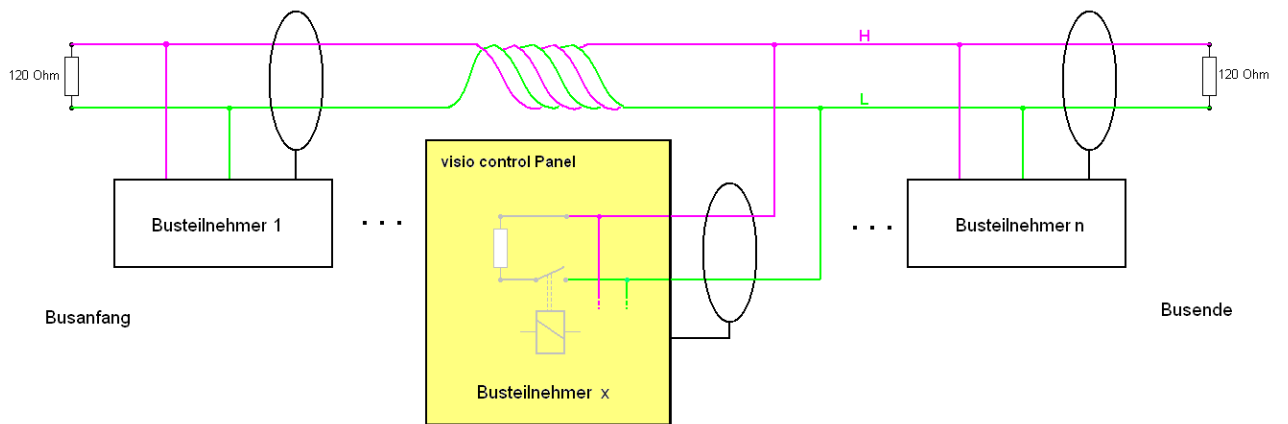
On each Bus is needed a terminator.

Typical bus structure can with Visio control panel on a bus and while the integrated terminator:



Integrated CAN – termination resistor **activated**

Typical bus structure can with Visio control panel on the bus route or with external terminator:

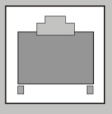


Integrated CAN – termination resistor **deactivated**

2.3.7 X2 : used as ESB interface

This interface is as a RJ-45 connector. It is used for communication with elrest - assemblies. The ESB-interface consists of the CAN-interface with a configure signal (CFG) and is running with galvanic separation. The ESB - terminator can be engaged when necessary.

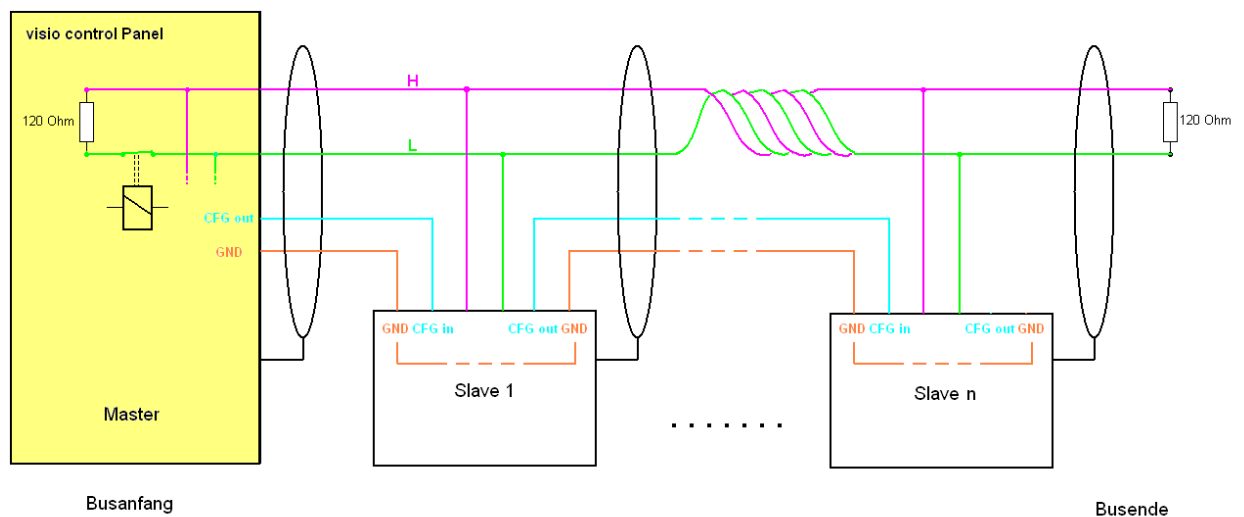
To do this, the termination switch on the back to the "ON" (on) or SW (resistance by software switchable) be made.

PIN	Occupancy	
 Pin1	1	CAN data low dominant (B_LA)
	2	CAN data high dominant (B_HA)
	3	GND5Vext1 (Signal Ground extern 1)
	4	open
	5	GND5V (Signal Ground)
	6	CFG
	7	open
	8	open



The data cable must be shielded.
 On each Bus is needed a terminator.

Typical bus structure can with Visio control panel on a bus and while the integrated terminator:

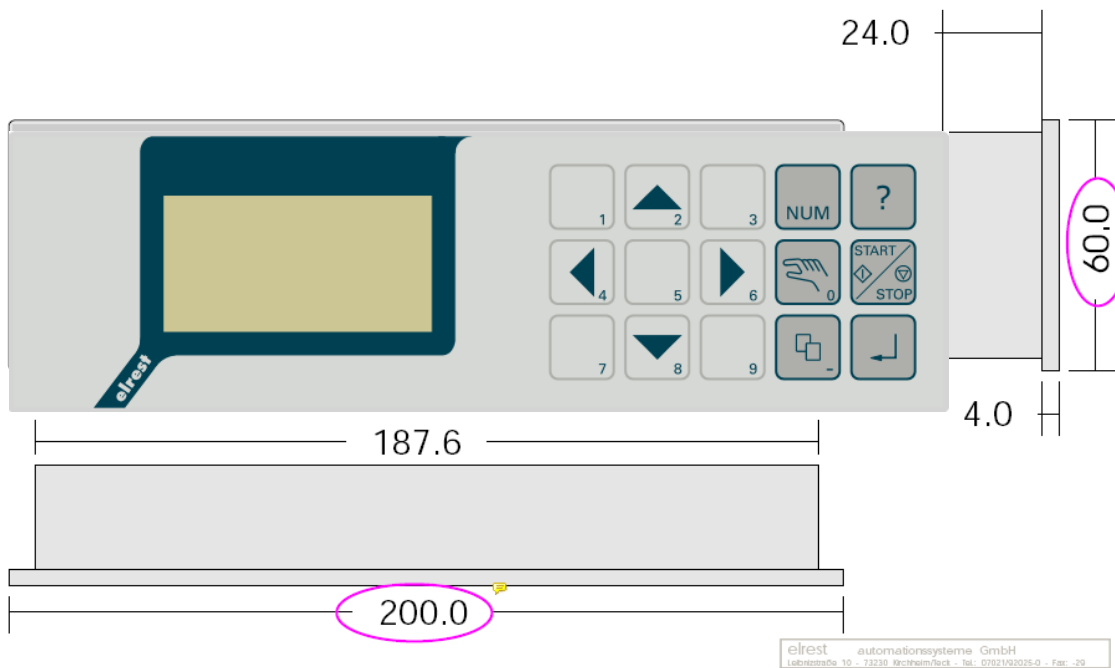


Integrated CAN – termination resistor **activated**

2.3.8 Mechanical

The front panel is in the plastic front panel flush-mounted. The rear part of the housing is made of plastic.

Dimension drawings:



All dimensions in mm

2.3.9 Assembly



Place the system in a secure, idle state, before you with the assembly, disassembly or wiring of the Assembly begin.

The front panel is flush-mounted in a plastic case. For mounting the panel are provided in the housing 4 steel springs, using which the panel can be engaged in the panel cutout.

Higher demands placed on the mechanical mounting, the housing can by means of 4 clamping bolts from the rear to the carrier plate be pressed (elrest type. -No 240030001). Holes can therefore be omitted.



Only the use of locking studs can seal the projected IP65 rating (front) to be achieved.

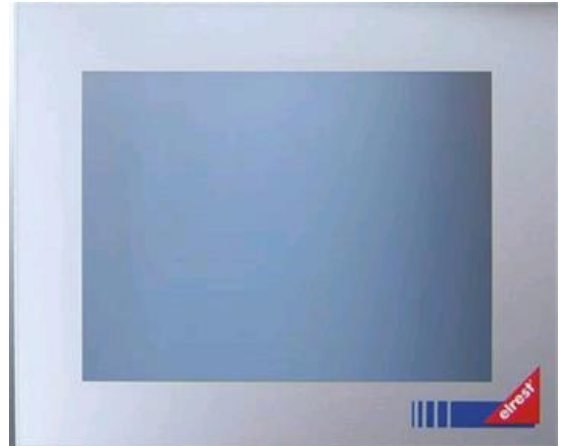
The disassembly is in the reverse order to the assembly.

2.3.10 Maintenance

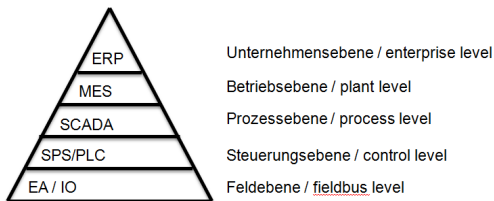
There is no maintenance necessary.

2.4 Visio- T710, 712, 715

- Graphic colored TFT LC Display with 1024 x 768 Pixel (T715), 800 x 600 Pixel (T712), 640 x 480 Pixel (T710)
- Display signal over DVI or VGA
- operation of the connected controller via integrated touchscreen
- 2 external USB-Host-Ports for Mouse, Keyboard, etc.
- Monitor settings with menu-driven OSD
- simple panel or a mounting arm system



2.4.1 Einsatzbereich

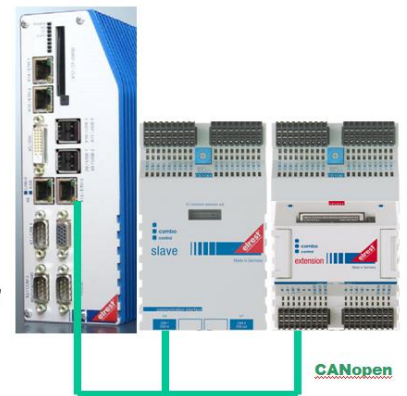
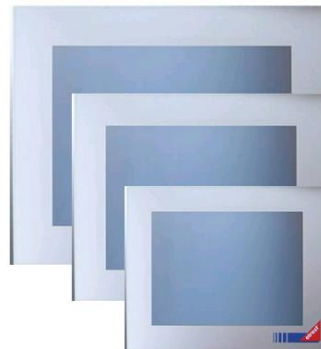


Display:

The Terminals T710, T712 and T715 offers many are characterized by illuminated graphics TFT VGA LC-display with 640 x 480, 800 x 600 and 1024 x 768. This allows a fast and good representation of graphs and values shown.

Input:

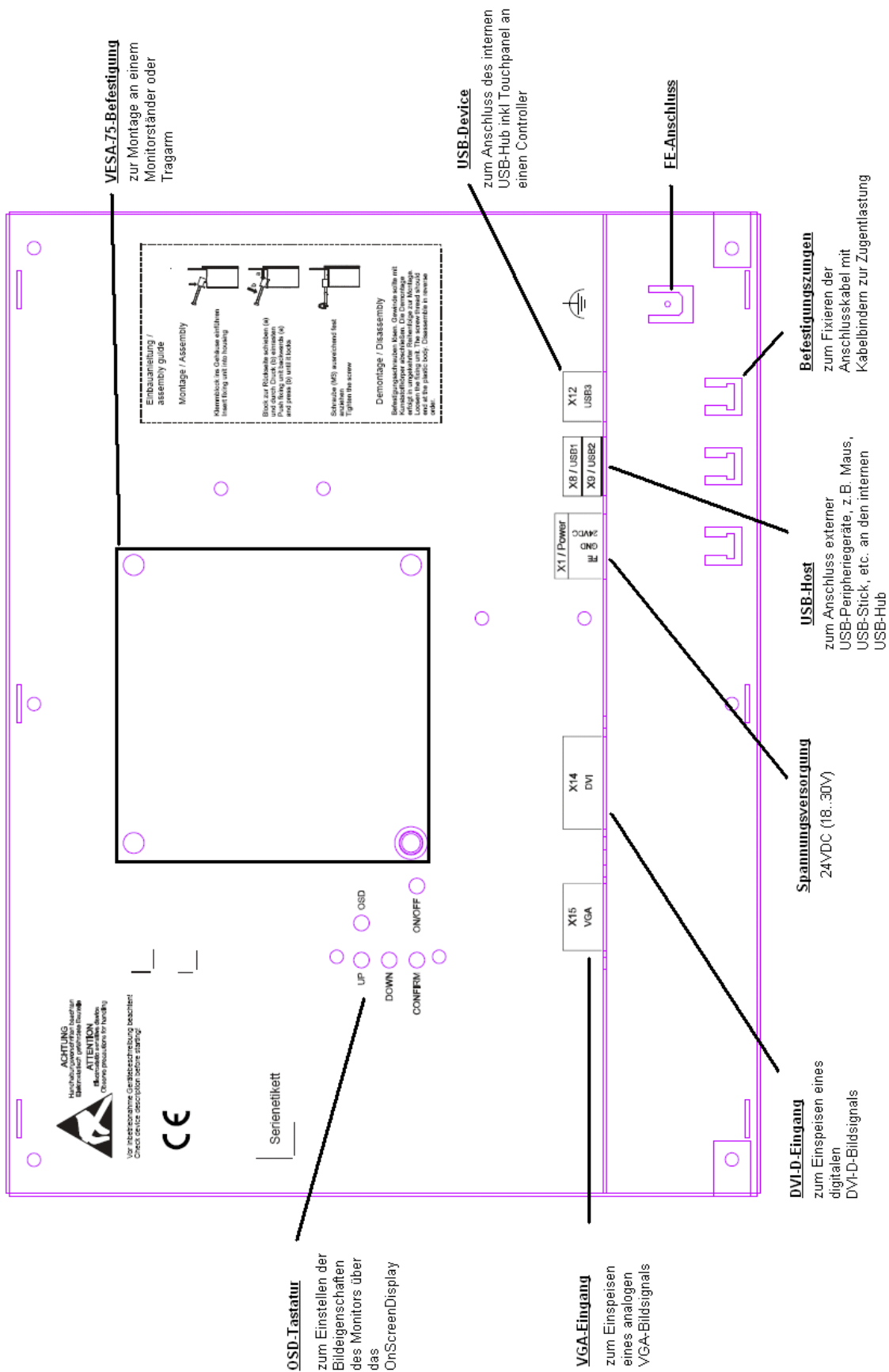
external touch input device, e.g. USB
- mouse, USB keyboard



2.4.2 *Communication interfaces*

Interfaces:

- The DVI interface allows for a high-quality connection of a digital video signals.
- With the analog VGA - interface can also over longer distances, depending on cable quality and environment, a good signal connected to the terminal.
- The included USB - device - interface allows the connection of the integrated touchscreen and the connected USB devices to the host - Controller.
- The USB - host - interfaces allow the connection of external input devices such as mouse, keyboard, and card readers, etc. - to the connected controller



2.4.3 Touch



Caution should be exercised when Visio touch control panel is always just a point of the screen. Do not touch several Touch-Elements simultaneously.

Otherwise, you can be triggered unintended actions.



CAUTION

Use Visio to operate the control panel no pointed or sharp objects, so that the surface of the touch screen is not damaged.

To use the touch screen must be able to the terminal via the USB-device interface X12 with the USB-host of the controller are connected. The Touch screen driver is operating system dependent. To the touch screen to control of the controller to use for the operating system to be used must be on the Internet suitable drivers are downloaded. Under http://www.microchip.com/stellent/idcplg?IdcService=SS_GET_PAGE&nodeId=2830, drivers and manuals for driver for:

- Windows 7, Vista, XP, 2000, Windows XP Embedded, ME, 98, 95, 3.1x, NT 5.0 , CE 6.0 , 5.0 . 4.2 ., 3.x
- Linux
- MacOS

available. The selected driver must support USB. The associated manuals are to be observed.

2.4.4 Supported Video-Modes

For optimal display on your terminal please use the following settings:

T710: VGA (640x480 resolution, 60Hz)

T712: SVGA (800x600. , 60Hz)

T715: XGA (1024x768 pixel, 60Hz)

at other settings, the image possibly poor or not displayed.

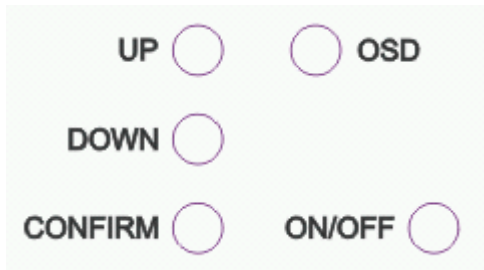
The display shows the message "Invalid Mode"

2.4.5 Service menu OSD

The on-screen Display (OSD) is an on-screen menu, with the the display to its ambient and operating conditions can be adjusted.

With the settings of the display the OSD can be changed.

The control buttons are located on the back of the terminal.



ON/OFF: By pressing the ON/OFF button is the display on or off. OSD:

By pressing the "OSD" button is the OSD-launch menu. Tab select: the cursor with the "up" and "down" on the desired tab and the selection with "OSD" to confirm. The tab will "Exit" by pressing the "Confirm" button is confirmed, the OSD closed.

TAB-menu: select the desired field by pressing the "OSD" button. The value can now with the "up" and "down" be changed. About the "Exit" -field you get back to Tab-selection (the "OSD" button).

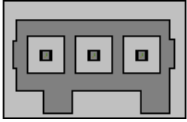

Caution: the modified values are stored only if in the end, "Exit" in the OSD with the "Confirm" button is confirmed. If not, go the values when you turn off the device will be lost

Input Select

Function	Key	Description
Select VGA	Press „OSD“	Select VGA-input
Select DVI	Press „OSD“	Select DVI- input
Exit	Press „OSD“	Exit menu

2.4.6 X1 : power supply

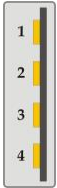
This connector is the control panel with the power. The port is protected against reverse polarity.

1	2	3	PIN	Occupancy
			1	+24 V DC power supply
			2	0 V DC (GND – Reference)
			3	FE
				

2.4.7 X8, X9 : USB Host interface

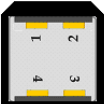
USB 2.0 interface with 4x USB Type-A-socket.

Power maximum 500mA per port cable length without stroke max 5m.

	PIN	Occupancy	Function
	1	+5V (max. 500mA)	Power supply
	2	Data-	
	3	Data+	
	4	GND5V (Signal Ground)	Power supply

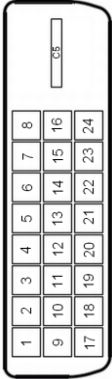
2.4.8 X12 : USB Device interface

USB 2.0 device interface with USB-type-B-jack. Cable length without stroke max 5m.

	PIN	Occupancy	Function
	1	+5V (max. 500mA)	Power supply
	2	Data-	
	3	Data+	
	4	GND5V (Signal Ground)	Power supply

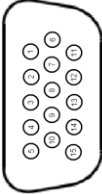
2.4.9 X14 : DVI-D interface

Connect for DVI-D compatible graphic cards.

	PIN	Occupancy	PIN	Occupancy	PIN	Occupancy
	1	RX2-	9	RX1-	17	RX0-
	2	RX2+	10	RX1+	18	RX0+
	3	Shield 2,4	11	Shield 1,3	19	GND 0,5
	4	NC	12	NC	20	NC
	5	NC	13	NC	21	NC
	6	SCL	14	+5V in	22	GND C
	7	SDA	15	GND +5V	23	RXC+
	8	NC	16	Hot Plug detect	24	RXC-

2.4.10 X15 : VGA interface

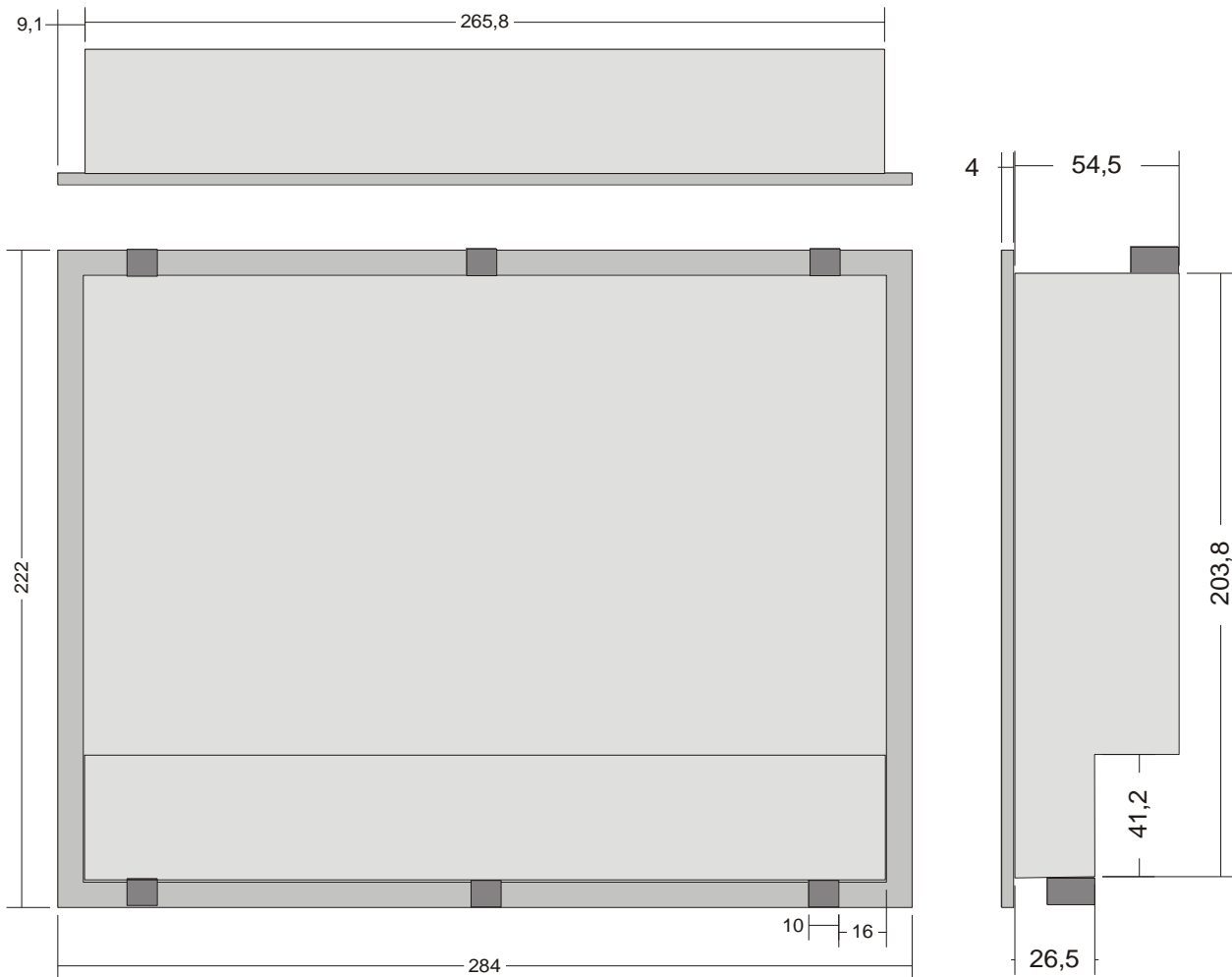
Connect for VGA compatible graphic cards.

	PIN	Occupancy	PIN	Occupancy	PIN	Occupancy
	1	RED	6	AGND RED	11	NC
	2	BLUE	7	AGND GREEN	12	DDC_SDA
	3	GREEN	8	AGND BLUE	13	HSYNC
	4	NC	9	DDC +5V	14	VSYNC
	5	AGND	10	AGND	15	DDC_SCL

2.4.11 Mechanical

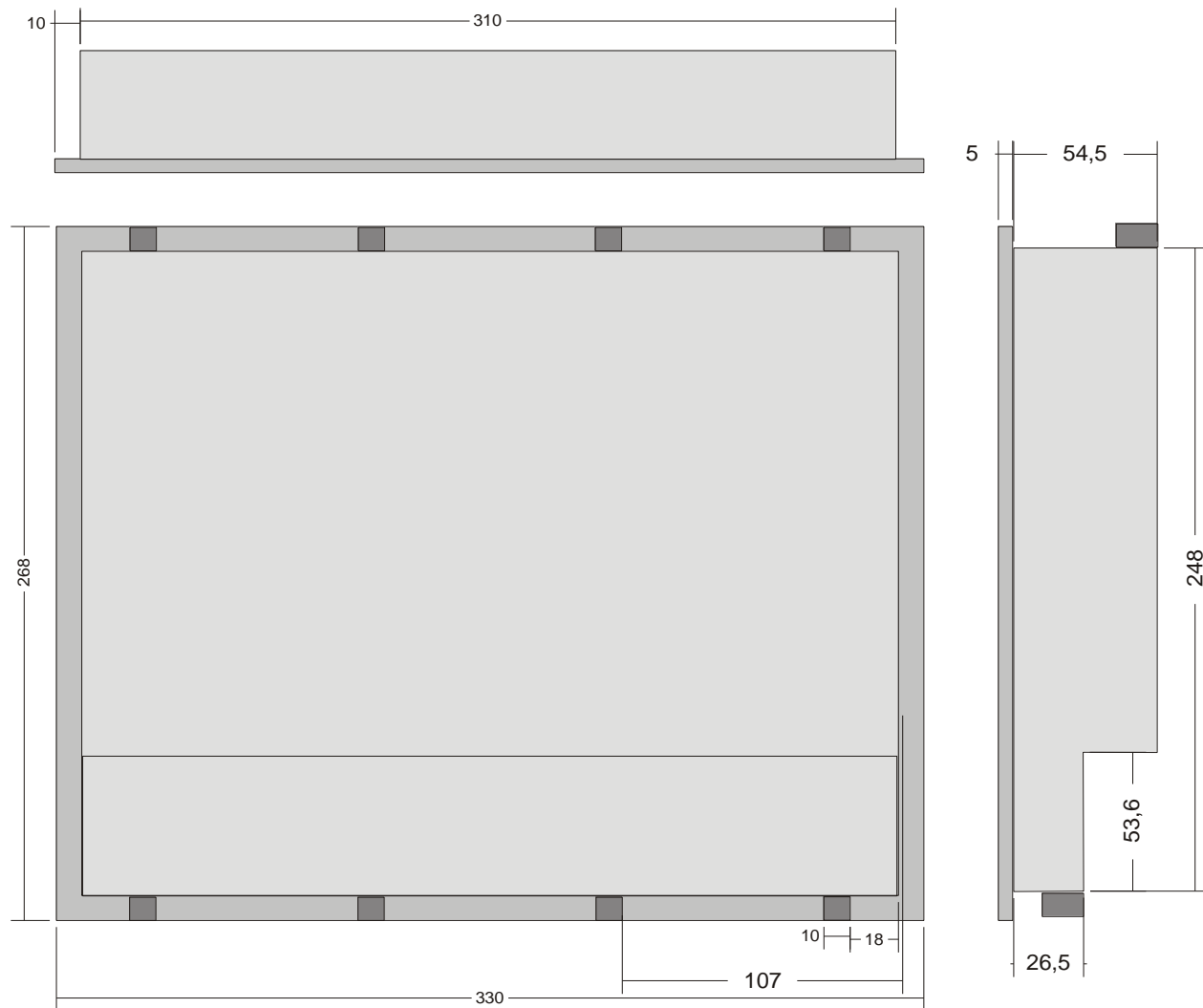
The front panel is in the front panel made of anodized aluminum flush-mounted. The rear part of the housing is made of powder-coated sheet steel..

Dimension drawings T710:



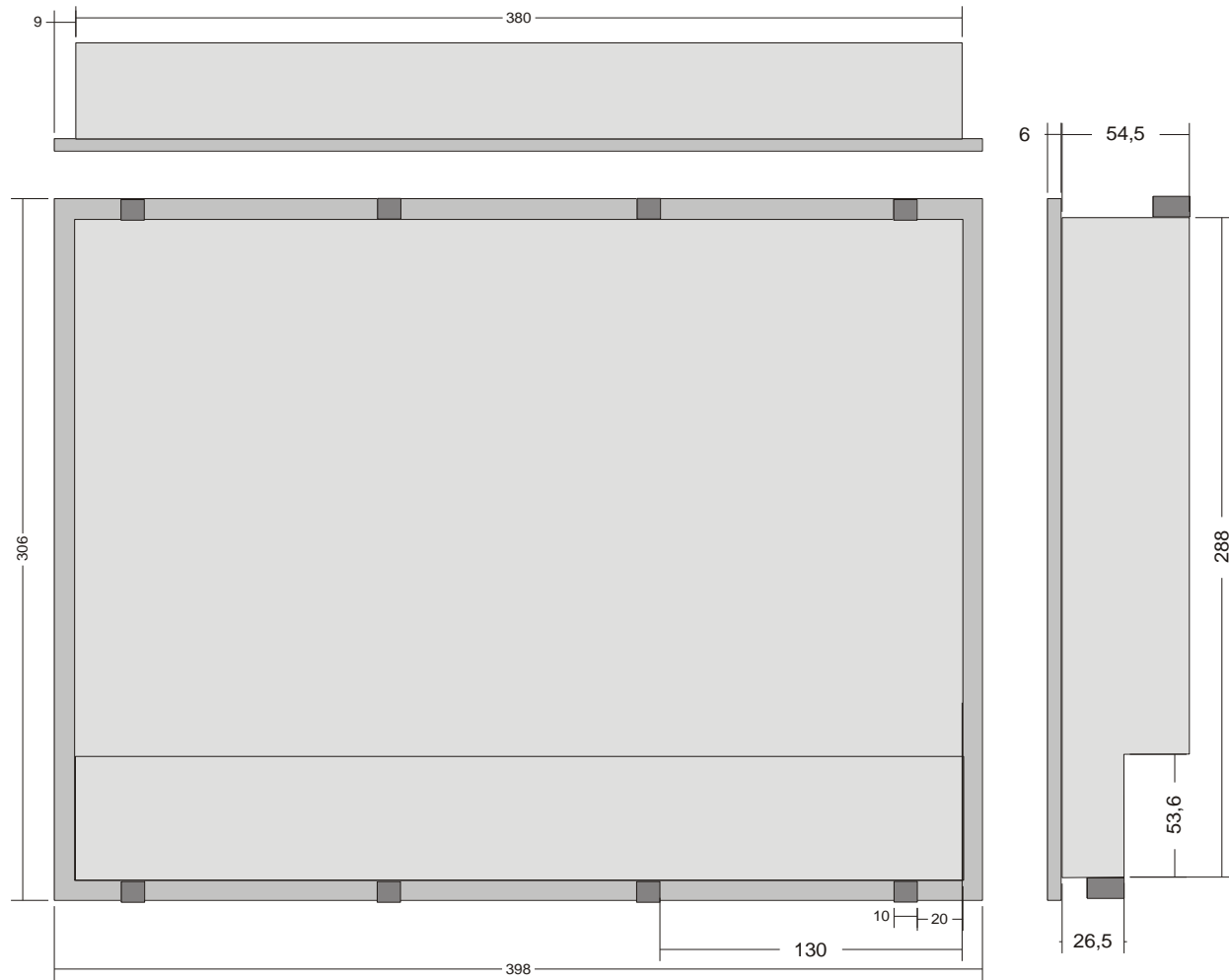
All dimensions in mm

Dimension drawings T712:



All dimensions in mm

Dimension drawings T715:



All dimensions in mm

2.4.12 Assembly



Place the system in a secure, idle state, before you with the assembly, disassembly or wiring of the Assembly begin.

Prior to the installation, the panel cutout for the terminal from the mounting plate (e.g. , control cabinet front) be worked out. The details for the mounting depth and the mounting cut-out are in the chapters "Technical data" and "Housing" for the respective terminals.

For mounting the terminal can using 6 (T710) or 8 (T712, T715) clamping bolts from the rear with the damp cloth. Holes can therefore be omitted. In the terminals, the longer bolts to the top of the housing, the shorter to the bottom:



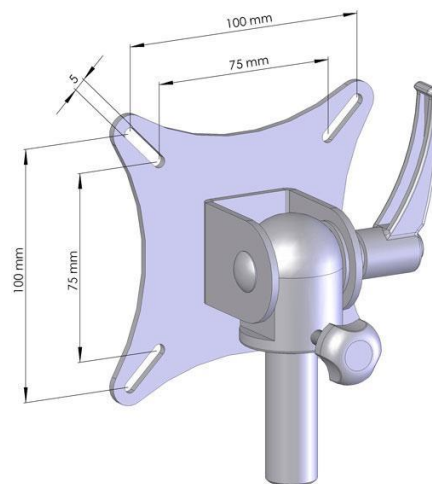
Only the use of locking studs can seal the projected IP65 rating (front) to be achieved.

The installation instructions for the assembly with the locking studs are located on the housing cover. Tighten the bolts just so that the seal between the front and installation instructions whole fully is compressed, and sealing. To strong and/or uneven tightening of the screws can damage the device!

VESA - Mounting

The terminal can over M5 – screw thread adaption VESA 75 standard on the back to a support arm, a wall bracket or be mounted a monitor stand.

It is important to make sure that the buttons of the OSD are not trapped and that the terminal is operated in a vertical position.

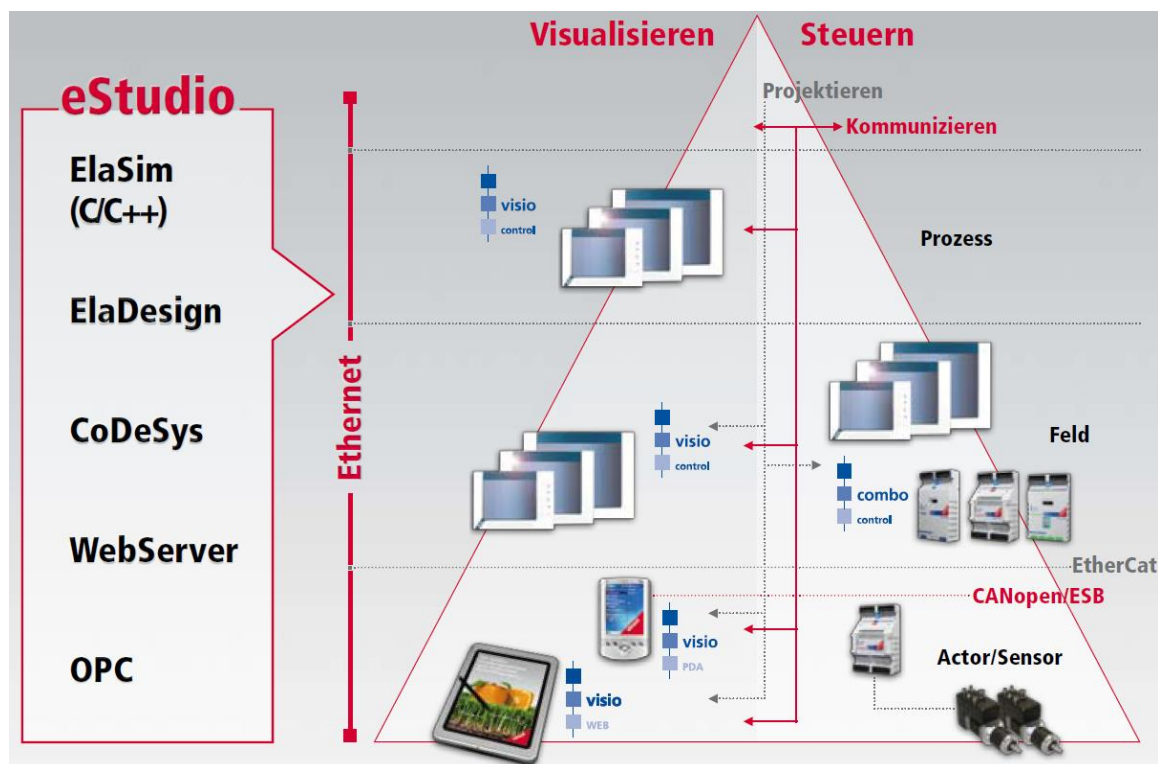


The disassembly is in the reverse order to the assembly.

2.4.13 Maintenance

There is no maintenance necessary.

3 visio-control



With the integrated eStudio programming environment is available to you a range of different program modules is available. Applications can be programd under the following development environments:

- ▲ **ElaDesign**
Designing development tool for the control and menu structures using referred, graphical user interface. Can in the shortest possible time various display and input masks are created.
- ▲ **CoDeSys**
control system for vendor-independent programming according to IEC 61131-3. The programs can run on different platforms. There are very powerful features for programming (AWL, ST, KOP, FUP, AS, CFC) and diagnostics are available.
- ▲ **ElaSim**
development tool for the development in C/C++ under the Microsoft Visual Studio 2005 / 2008.
- ▲ **Web server**
built-in web server for the visualization and programming via a web browser. With Visio-WEB can the operation and monitoring via WLAN with a PDA or mobile phone be carried out. OPC the integrated
- ▲ **OPC-server**
allows the coupling to all well-known SCADA systems.

Overview of the possible combinations in the Software

visio	P090, P101	P2xx CM2xx	P3xx T290+ CM1xx	P4xx	T7xx+ CM7xx
eStudio with ElaDesign V2	☑	☑* ¹	☑	☑	☒* ²
eStudio with ElaDesign V3	☒	☑	☒	☑	☑
CoDeSys V2.3.x PLC	☑	☑	☑	☑	☒
CoDeSys V2.3 Target-Visu	☒	☑* ¹	☒	☑	☒
CoDeSys V3.5 PLC	☒	☑	☒	☑	☑
CoDeSys V3.5 Target-Visu	☒* ³	☑* ³	☒* ³	☑* ³	☑* ³
CoDeSys V3.5 Softmotion	☒	☒	☒	☑* ³	☑* ³
ElaSim (C/C++)	☒	☑	☒	☑	☑
Webserver (visioWEB)	☑	☑	☑	☑	☑
OPC-Server	☑	☑	☑	☑	☑

- ☑ combination possible
 ☒ combination impossible
 *¹ with eStudio V2.91
 *² without eStudio
 *³ with CoDeSys V3.5

Overview

The visio control-system is a modular control and regulation system. There is in the smallest stage from a Visio control-assembly.

In the maximum configuration, the Visio control-assembly up to 16 combo Slave-Baugruppen control. The maximum capacity per visio control-system is of limited the performance of the application.

All assemblies can, without damage to the hardware, be changed in the current operation. The application program can stop the application, if a module fails or is changed.

Scope

The visio-system is for Industrial Ethernet standards under the use of the TCP/IP designed. The Visio control-assembly handles the traffic over Industrial Ethernet independently. It will be the international standards (RFCs) for TCP/IP and DHCP supported. There are communications with programrs, computers, HMI devices, as well as other visio-systems.

In the Visio-system implemented synthesis of PLC and control engineering and display extends the area of application in almost all areas of the control and control with feedback engineering, as well as in the climate, and automation technology.

Building

the connection of the units will be on the External-System -Bus (ESB) manufactured (typical patch cables).

Construction of the Visio-assemblies:

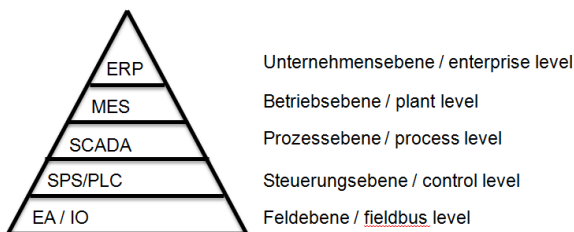
- ▲ housing of plastic / metal
- ▲ front IP65 rated / rear IP20
- ▲ fanless operation
- ▲ easy assembly on locking studs.
- ▲ USB, Ethernet and serial ports on the back

3.1 Visio- P203

- 3,5" TFT Display 320 x 240 Pixel
- OS Microsoft Windows CE 6
- Touch operation
- Onboard interfaces
 - 1 x Ethernet 10/100 BaseT,
 - 1 x CAN0 according to ISO11898 with galv. Isolation (ESB or CANopen)
 - 1 x UART RS485
 - 1 x USB 2.0 Host



3.1.1 Use for

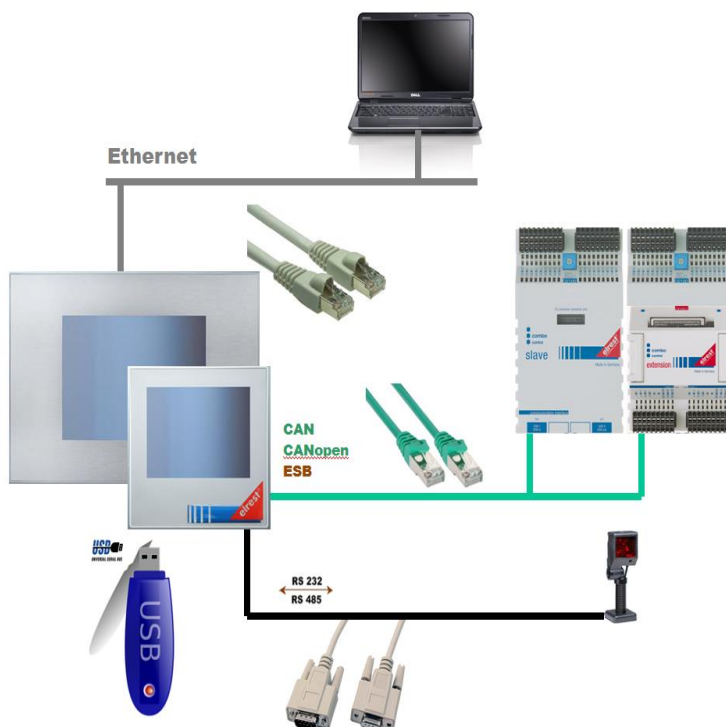


The communication of the process level to the central computer is via OPC.

The communication of the control plane to other Automatisierungsrechnern can over TCP-Modbus.

The communication from the field bus level to other EA units can CAN/CANopen/ESB or RS232/RS485 converter.

The software update is ideally with the USB-stick.



3.1.2 Communication interfaces



Interface to all peripheral devices like Stick, Keyboard, Mouse.



The RS485 data communication interface is used as a communication interface to other devices.

CAN

Open fieldbus interface to any CAN protocols, such as for example Truck-Norm J1939-based.

The CAN-interface with galvanic separation can as CAN-interface be configured.

Configured as can the possibility with ElaCAN-assemblies to communicate, the realization of customer-specific protocols, as well as CANopen / Slave is possible.

With a Visio remote terminal is also possible to communicate.

Configured as the ESB, the possibility with all ESB-enabled elrest-I/O-modules (analog and digital) to communicate.

CANopen

CANopen is a widespread Layer7 protocol for automation.

ESB

Elrest system bus, a CAN based self configure system bus.

Ethernet

Under Ethernet can be TCP-Modbus as UDP or TCP will be used. Continue on the basis of socket functions can be added further protocols.

backside interfaces

X6: Ethernet interface:

107100 BaseT Ethernet interface.

RJ45 to communication and programming.

LEDs to display Duplex/100MB/Link

green LED: Link

yellow LED: Mode

CAN interface

X2- COM2-RS485

X5- CAN0

Terminal resistor adjustable with galvanic Isolation.

Connect to

CANopen devices programmed by CoDeSys

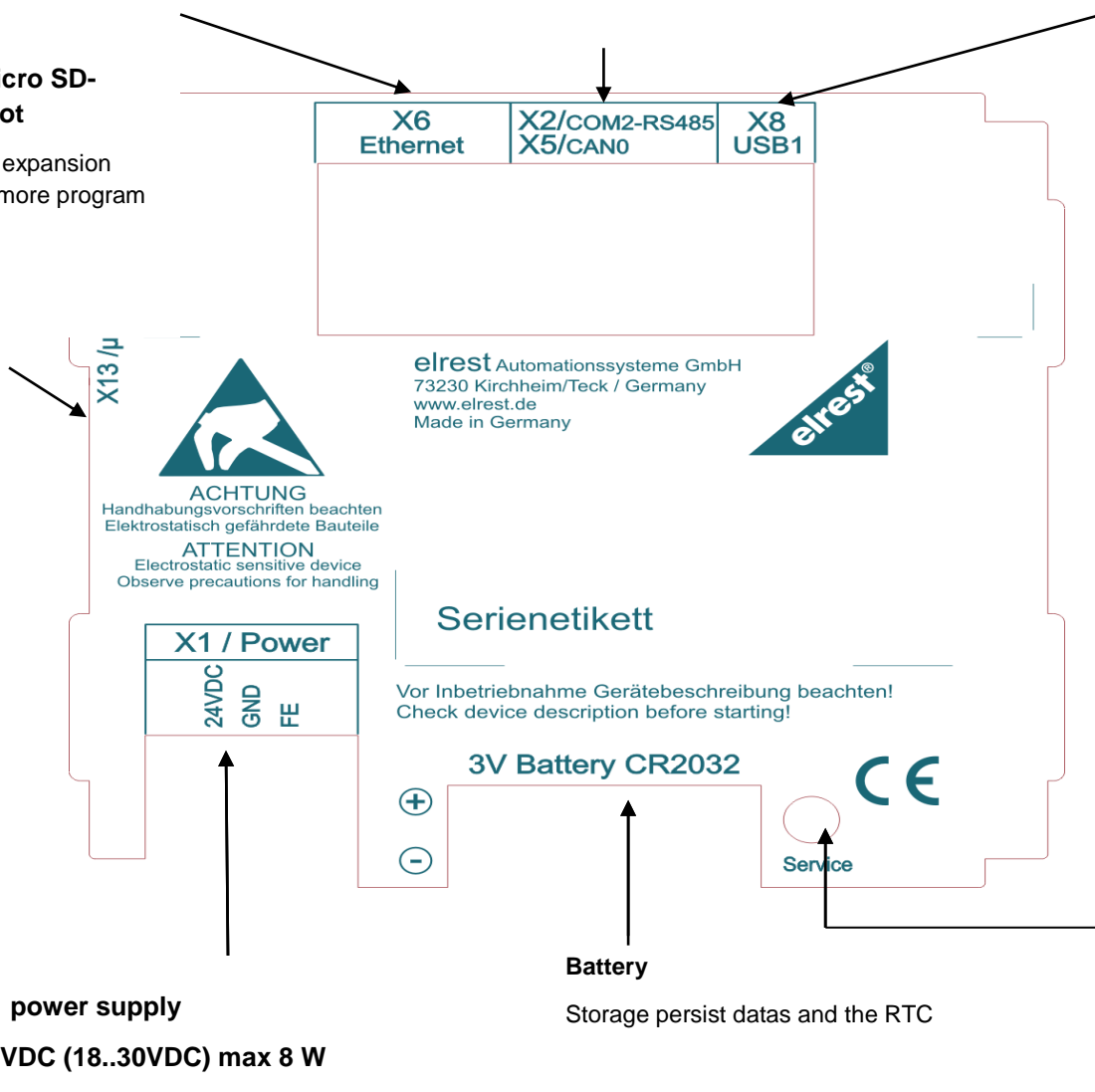
Without ESB

X8 USB interface

USB1.1 Host for USB Stick, Mouse, Keyboard.

X13/ micro SD-Card slot

memory expansion to store more program or datas



X1 power supply

24VDC (18..30VDC) max 8 W

Battery

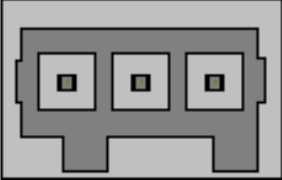
Storage persist datas and the RTC

Service Key

To open the service menu and the CE Shell

3.1.3 X1 : power supply

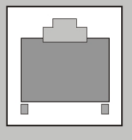
This connector is the control panel with the power. The port is protected against reverse polarity.

	PIN	Belegung
1		
2		
3		
	1	24 V DC power supply
	2	0V DC (GND – Reference)
	3	FE

3.1.4 X5 : CAN0 interface

This interface is as a RJ-45 connector. It is used for communication with elrest - assemblies

The CAN-interface is running with galvanic separation against power supply.

	PIN	Belegung
		
PIN1	1	CAN-L
	2	CAN-H
	3	GND5Vext1 (Signal Ground extern 1)
	4	RS485-B
	5	RS485-A
	6	NC
	7	NC
	8	NC



Information for female connector on the cable: Connect to only the necessary for your application pins.

Check, whether due to the whole bus structure a terminator is required. These are normally resistor terminator at the beginning and at the end of the bus wire. The resistance value is typically 120 ohms



The data cable must be shielded.

On each Bus is needed a terminator



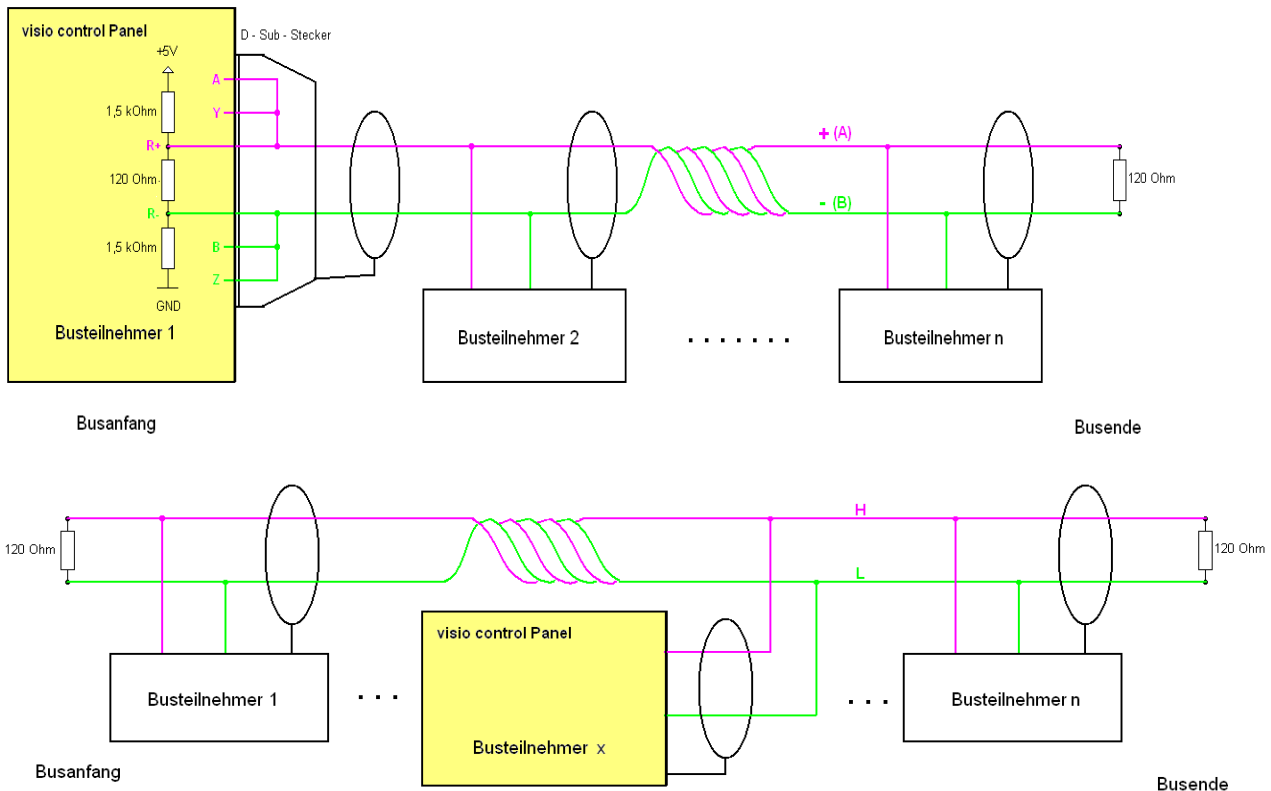
The CAN interface is electrically isolated and can be used in the operation mode CANopen be fully.

In ESB operation, a special cable is used. Be it on the P203 ,page only the pins 1.2 and 3. On the other Party must be a bridge between Pin3 and Pin5.

3.1.5 X2 : COM2 RS485 interface

In the RS485 mode on each bus is a terminating resistor required.

The device is at the beginning or the end of the end resistor placed, so is the integrated terminator to use!

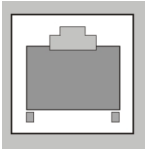


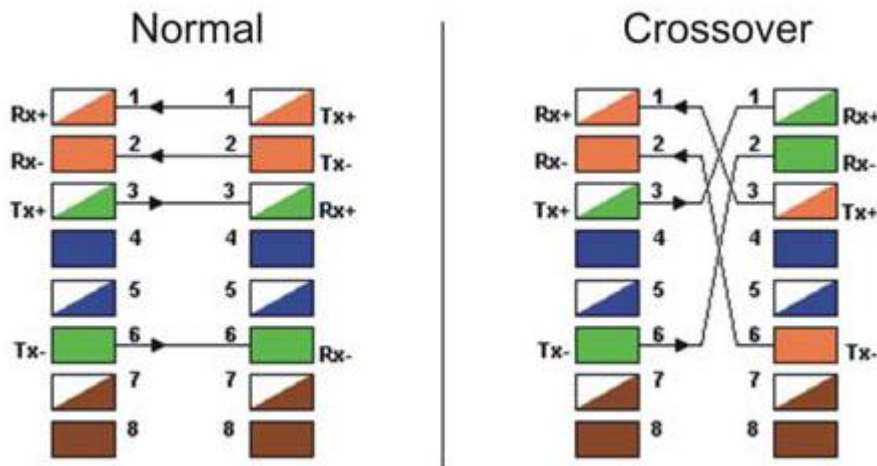
The data cable must be shielded.

On each Bus is needed a terminator

3.1.6 X6 : Ethernet interface

This interface is run as a RJ-45 connector. The connectors and lines must, depending on the speed of data transfer at least CAT.5 and the guidelines for Ethernet - interfaces are identical

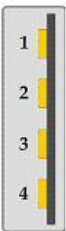
 PIN1	PIN	Belegung	Funktion
	1	TX+	Transmit Data +
	2	TX-	Transmit Data -
	3	RX+	Receive Data +
	4	offen	keine
	5	offen	keine
	6	RX-	Receive Data -
	7	offen	keine
	8	offen	keine



3.1.7 X8 : USB 1.1 Host interface

USB 2.0 interface with 4x USB Type-A-socket.

Power maximum 500mA per port cable length without stroke max 5m.

	PIN	Belegung	Funktion
	1	+5V (max. 500mA)	Power supply
	2	Data-	
	3	Data+	
	4	GND5V (Signal Ground)	Power supply

3.1.8 X13 : SD card

The device offers many are with a μ SD slot for memory cards elrest equipped. This can of elrest tested μ SD-tickets.

Should other μ SD memory cards as such as of elrest released can be used no guarantee on function and performance, as well as on defective be given..

3.1.9 Touch



Caution should be exercised when Visio touch control panel is always just a point of the screen. Do not touch several Touch-Elements simultaneously.

Otherwise, you can be triggered unintended actions.

CAUTION

Use Visio to operate the control panel no pointed or sharp objects, so that the surface of the touch screen is not damaged.

3.1.10 Service Key

Can the service through a hole in the rear wall below the battery be operated.

Using a non-metallic object use.

Has been in the Panel Configuration Utility "Don't start Windows CE shell" is selected, this opens the Panel the programs defined in the autostart, without the Windows - start to surface.

To go back to Windows to be able to switch back and the service button must be pressed.

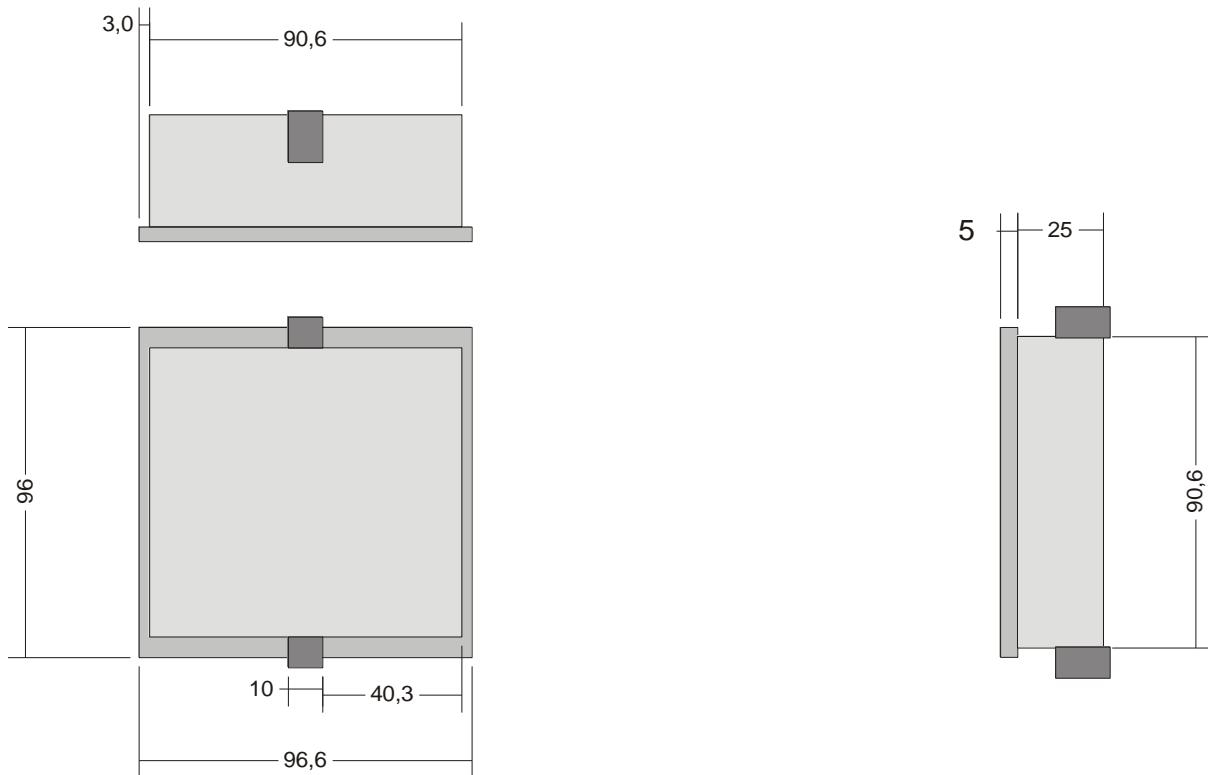
For more information, see the description "Platform_CE".

Mechanical

The front panel is in the front panel made of anodized aluminum flush-mounted.

The rear part of the housing is made of powder-coated steel sheet.

Dimension drawings P203:



dimensions in mm

all

3.1.11 Assembly





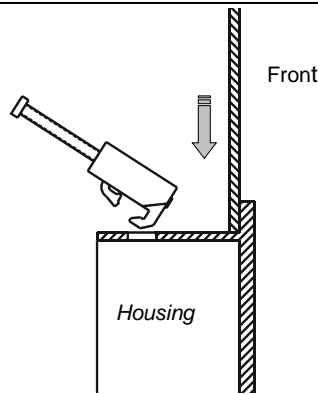
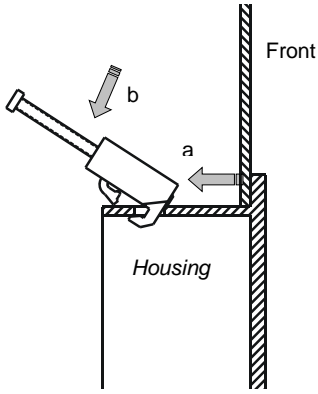
Place the system in a secure, idle state, before you with the assembly, disassembly or wiring of the Assembly begin.

Before the installation, the panel cutout for the Visio control panel from the mounting plate (e.g. , control cabinet front) be worked out.

The details for the mounting depth and the mounting cut-out are in the chapters "Technical data" and "housing" to find.

Mounting must be to the terminal by 8 clamping bolts from the rear to the carrier plate be pressed. Holes can therefore be omitted.

The longer studs come to the top of the housing, the shorter to the bottom of the case: The installation instructions for the assembly with the locking studs is located on the housing cover.

1. <i>Content</i>	2x		 The screw thread should end at plastic body.
2. Montage / Assembly Instruction			
<i>Feed fixing unit into housing</i>			
<i>Push fixing unit backward (a) and press (b) until it locks</i>			

3.2 Visio-P205

- **5,7"**
TFT Display 640 x 480 Pixel or
TFT Display 320x240 Pixel or
STN Display 320x240 Pixel
- **OS Microsoft Windows CE 6**
- **Touch operation**
- **Onboard interfaces**
1 x Ethernet 10/100 BaseT,
1 x CAN0 according to ISO11898 with galv. Isolation
(ESB or CANopen)
 1. USB 2.0-Host, 2. USB 2.0-Host (optional),
 - 1 x USB 2.0-Slave (optional)
 1. UART RS232
 2. UART RS232/485/422 with galv. Isolation (optional)



3.2.1 Communication interfaces

(Availability depending on the version, visualisation)

The RS232 to the programming of the Visio can devices and be used for diagnosis. Various software tools enable the connection for: modem operation, remote maintenance, etc.

The RS485 data communication interface is used as a communication interface to other devices.

With the CAN1-interface with galvanic separation there is the possibility with ElaCAN assemblies to communicate. In addition, customer-specific protocols, as well as CANopen / slave can be realized. Also, there is the possibility with a Visio remote terminal to communicate.

The CAN0/ESB-interface with galvanic separation can as CAN or ESB-interface be configured. Configured as can the possibility with ElaCAN-assemblies to communicate, the realization of customer-specific protocols, as well as CANopen / Slave is possible. With a Visio remote terminal is also possible to communicate. Configured as the ESB, the possibility with all ESB-enabled elrest-I/O-modules (analog and digital) to communicate.

The Ethernet interface enables a limitless networking of equipment, the world can communicate via the Internet.

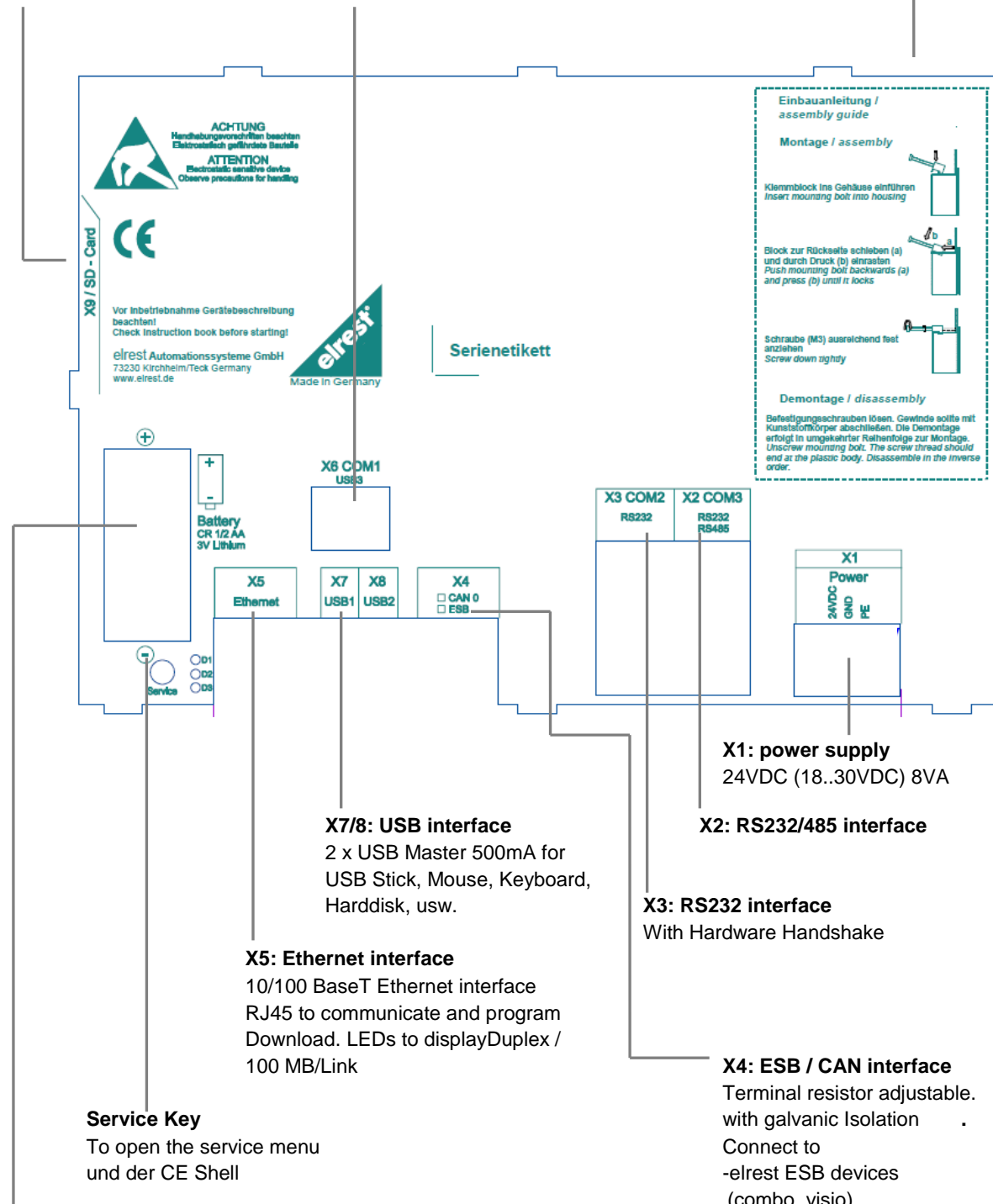
Via the USB device interface can connect via ActiveSync, and Visual Studio are produced.

To the USB Master interfaces can keyboard, mouse or USB Stick be connected. Since on the market a wide variety of USB devices, there is, it is not guarantee for the function of the individual devices will be given. The devices are mounted on the side with a flash memory slot. Depending on the device will be CF or SD cards supported. Also here is various memories available on the market. Elrest Automation Systems GmbH can therefore not guarantee the function of the individual memory. When the available memory elrest Automation Systems GmbH are checked for function.

X9: SD card slot
memory expansion
to store more program or datas.

X6: USB Device
1x USB Device (COM1)
for ActiveSync
communication

Potentiometer
Adjust the contrast
from STN and CSTN (mono)
displays



Battery
Storage persist datas and
the RTC.

X7/8: USB interface
2 x USB Master 500mA for
USB Stick, Mouse, Keyboard,
Harddisk, usw.

X5: Ethernet interface
10/100 BaseT Ethernet interface
RJ45 to communicate and program
Download. LEDs to display Duplex /
100 MB/Link

X1: power supply
24VDC (18..30VDC) 8VA

X2: RS232/485 interface

X3: RS232 interface
With Hardware Handshake

X4: ESB / CAN interface
Terminal resistor adjustable.
with galvanic Isolation
Connect to
-elrest ESB devices
(combo, visio)
-CANopen devices
- programmed by CoDeSys

3.2.2 Service Key

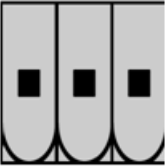

Can the service through a hole in the rear wall below the battery be operated.
Using a non-metallic object use.

Has been in the Panel Configuration Utility "Don't start Windows CE shell" is selected, this opens the Panel the programs defined in the autostart, without the Windows - start to surface.

To go back to Windows to be able to switch back and the service button must be pressed.
For more information, see the description "Platform_CE".

3.2.3 X1 : power supply

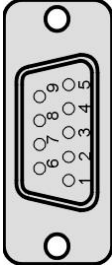
This connector is the control panel with the power. The port is protected against reverse polarity.

1	2	3	PIN	Occupancy
			1	+24 V DC power supply
			2	0 V DC (GND – Reference)
			3	FE
				

3.2.4 X2 : COM2 RS485 interface

These interfaces are on a 9-pin D-sub - plug brought out.

They are not isolated from the supply voltage of the device disconnected.

PIN	Occupancy
	1 Y (Tx+)
	2 RxD (Receive Data)
	3 TxD (Transmit Data)
	4 Z (Tx-)
	5 GND5V (Signal Ground)
	6 R- (terminal resistor RS485 -)
	7 B (Rx-)
	8 A (Rx+)
	9 R+ (terminal resistor RS485 +)



Caution the data cable must be shielded.

Surge voltages via a 15nF capacitor against the FE Track to X1 derived.

3.2.5 X3 : RS232 interface COM2

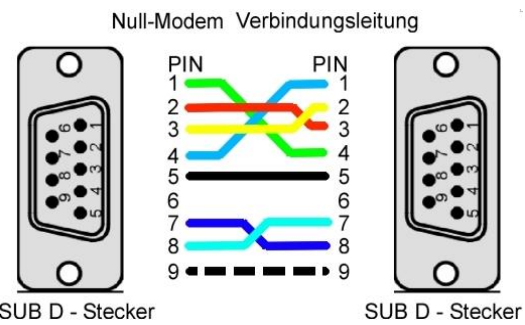
This interface is designed as a 9-pin Sub-D connector. It is isolated with the Ver-VSEC coupled the module. It is used in general of the communication (service units, modem, etc.).

PIN	Occupancy
1	DCD (Data Carrier Detect)
2	RxD (Receive Data)
3	TxD (Transmit Data)
4	DTR (Data Terminal Ready)
5	GND5V (Signal Ground)
6	DSRData (Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	RI (Ring Indicator)



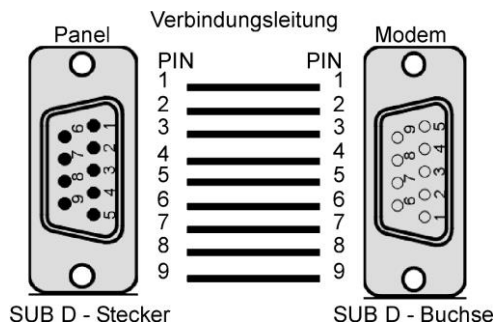
Caution cabling or never operate more than one of the interfaces on the X2 at a time!
It may cause malfunction and could damage the unit.

RS232 interface
Connection control Panel – Null Modem (PC direkt)



RS232 interface

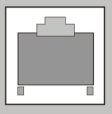
Connection control Panel – Modem



3.2.6 X4 : CAN / ESB interface

This interface is as a RJ-45 connector. It is used for communication with elrest - assemblies. The ESB-interface consists of the CAN-interface with a configure signal (CFG) and is running with galvanic separation. The ESB - terminator can be engaged when necessary.

To do this, the termination switch on the back to the "ON" (on) or SW (resistance by software switchable) be made.

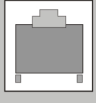
	PIN	Occupancy
 Pin1	1	CAN data low dominant (B_LA)
	2	CAN data high dominant (B_HA)
	3	GND5Vext1 (Signal Ground extern 1)
	4	open
	5	GND5V (Signal Ground)
	6	CFG
	7	open
	8	open



The data cable must be shielded.
On each Bus is needed a terminator.

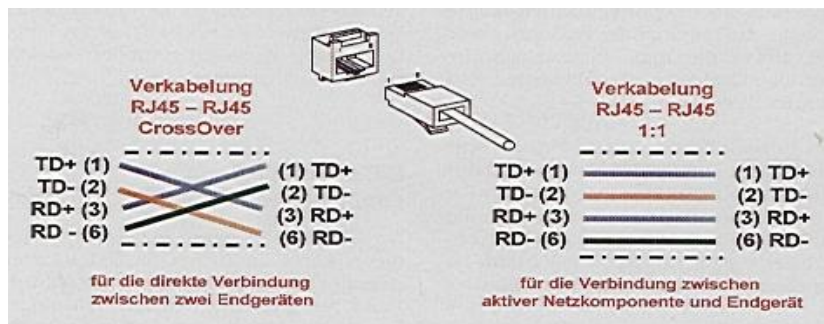
3.2.7 X5 : Ethernet interface

This interface is run as a RJ-45 connector. The connectors and lines must, depending on the speed of data transfer at least CAT.5 and the guidelines for Ethernet - interfaces are identical.

	PIN	Occupancy	Function
 PIN1	1	MDI0+	Transmit Data +
	2	MDI0-	Transmit Data -
	3	MDI1+	Receive Data +
	4	MDI2+	keine
	5	MDI2-	keine
	6	MDI1-	Receive Data -
	7	MDI3+	keine
	8	MDI3-	keine

The integrated 10 / 100 megabits - Ethernet - PHY supports Auto - MDI(X), i.e. it is automatically between crossover and patch cords differences.

There are more than 2 stations in an Ethernet network, then they must have a "HUB" or "SWITCH" are connected to each other. For devices without a car - MDI(X) must be here, a "1:1" - cable be used. If only 2 devices connected to each other directly, it can be done with 2 devices without a car - MDI(X) with only a "crossover" cable.



D1

Ethernet status LED for full duplex.

D2

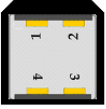
Ethernet status LED for 100 Mbit/s.

D3

Ethernet status LED for Link & Act.

3.2.8 X6 : USB Device interface

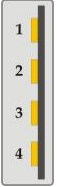
USB 2.0 device interface with USB-type-B-jack. Cable length without stroke max 5m.

	PIN	Occupancy	Function
	1	+5V (max. 500mA)	Power supply
	2	Data-	
	3	Data+	
	4	GND5V (Signal Ground)	Power supply

3.2.9 X7, X8 : USB Host interface

USB 2.0 interface with 4x USB Type-A-socket.

Power maximum 500mA per port cable length without stroke max 5m.

	PIN	Occupancy	Function
	1	+5V (max. 500mA)	Power supply
	2	Data-	
	3	Data+	
	4	GND5V (Signal Ground)	Power supply



When the system boots is a bootable USB - medium, it will boot from this. This is undesirable, so the function can be disabled in the BIOS.

3.2.10 X9 : SD-card

Are the P205 with a SD slot for memory cards elrest equipped.

This can of elrest tested SD-cards be purchased. Should other SD memory cards as such as of elrest released can be used no guarantee on function and performance, as well as on defective be given.

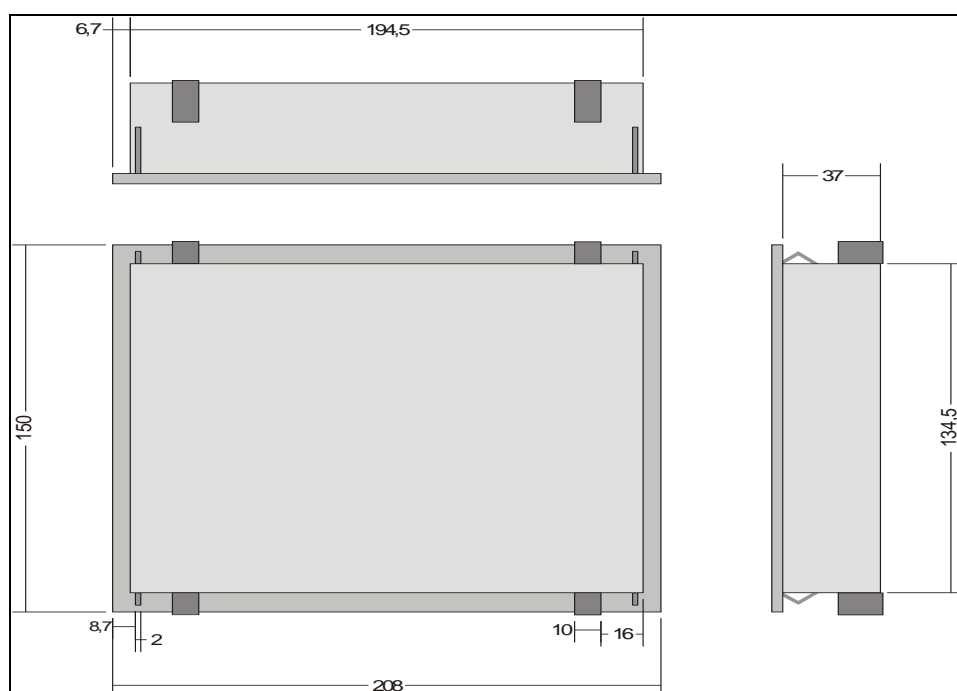
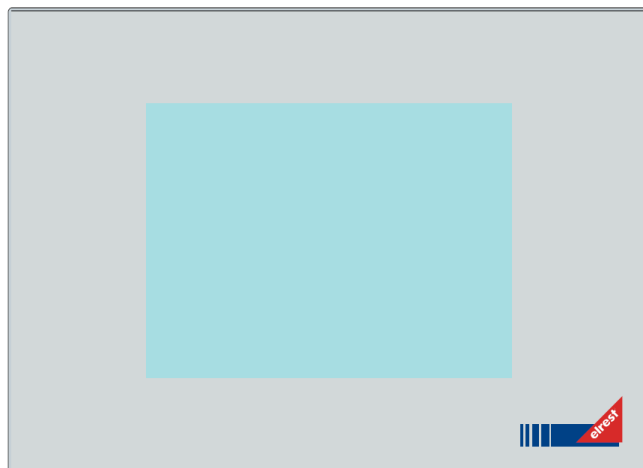
3.2.11 Mechanical

Dimensions

all dimensions in mm.

Depth on everything: 41

excerpt: 198 x 138



3.2.12 Assembly

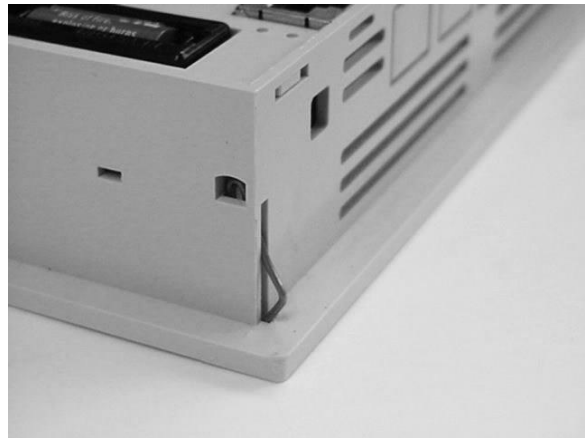


Place the system in a secure, idle state, before you with the assembly, disassembly or wiring of the Assembly begin.

P205m, P205s in a plastic housing

The front panel is flush-mounted in a plastic case. For mounting the panels are provided in the housing 4 steel springs, using which the panel can be engaged in the panel cutout. Higher demands placed on the mechanical mounting, the housing can by means of 4 clamping bolts from the rear to the carrier plate be pressed. Holes can therefore be omitted.

Each **serial number** sticker elrest device is provided with a unique serial number sticker to a unique identification of the device to allow. For support inquiries please keep this number handy.

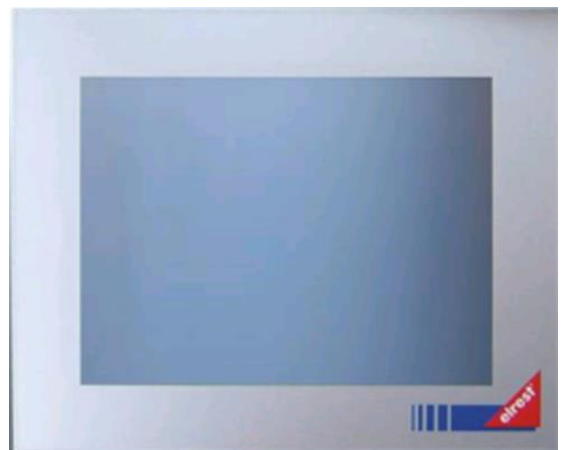
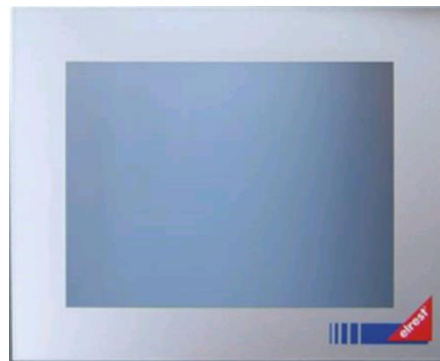
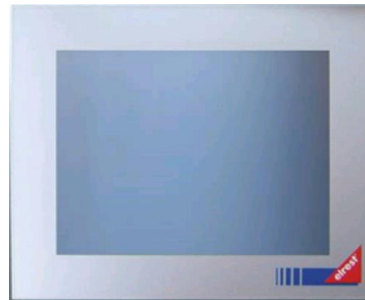
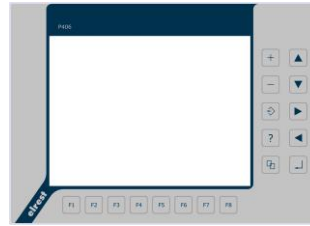


Only the use of 4 locking studs can seal the projected IP65 rating (front) to be achieved.

The disassembly is in the reverse order to the assembly.

3.3 Visio-P406, 408, 410, 412

- **6,5" TFT LC Display 640 x 480 Pixel**
- **OS Microsoft Windows CE 5**
- **Touch operation**
- **Onboard interfaces**
 - 1 x Ethernet 10/100 BaseT,
 - 1 x CAN nach ISO11898 with galv. Isolation (CANopen),
 - 1 x CAN0 according to ISO11898 with galv. Isolation (ESB or CANopen)
 - 2 x USB 2.0-Host, 1x USB 2.0-Slave (optional)
 - 1 x RS232,
 - 1 x RS232 + RS485/422
- **8,4" TFT LC Display 640 x 480 Pixel**
- **10,4" TFT LC Display 640 x 480 Pixel**
- **12,1" TFT LC Display 800 x 600 Pixel**



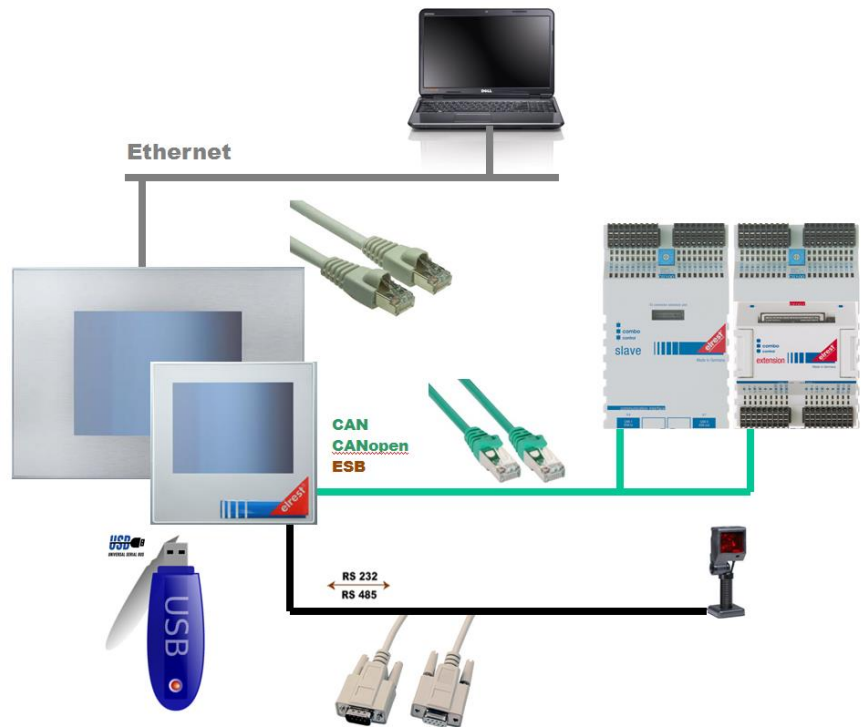
3.3.1 Use for



The communication of the process level to master computer is via OPC.
 The communication of the control level to other Automation PLC can over TCP-Modbus.

The communication of the field bus level to other IO units can CAN/CANopen/ESB or RS232/RS485 converter.

The updater is ideally with USB-stick.



3.3.2 *Communication interfaces*

Display:

- The elrest visio control panel P4xx offers many are characterized by an illuminated graphic TFT VGA LC-display. This allows a fast and good readability of the displayed values and graphics.

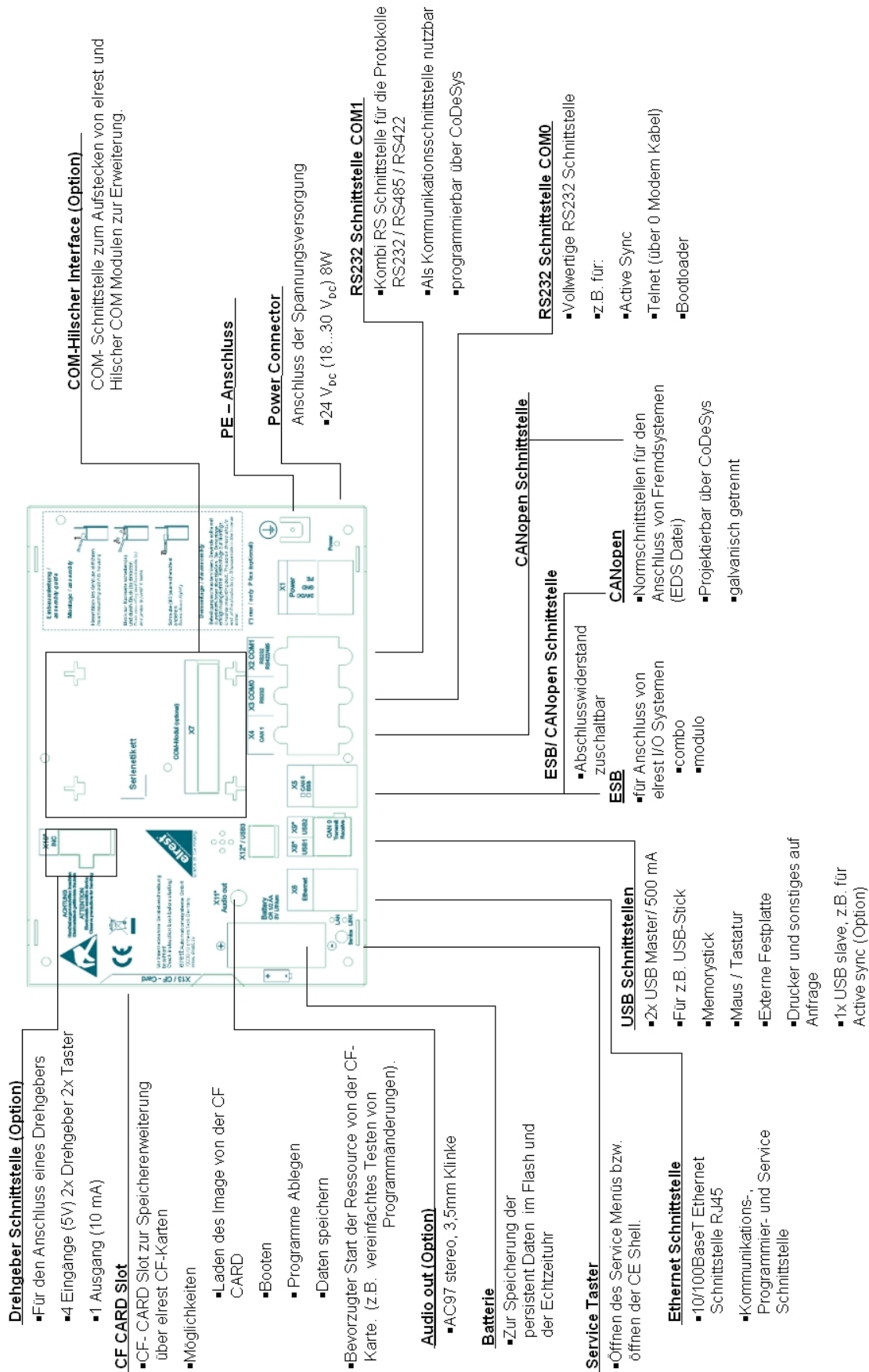
Input:

- external touch input device, such as a USB mouse, USB - Keyboard

Interfaces:

- The RS232/422/485 interfaces can for the programming of the Control Panels and are used for diagnosis. Various software tools enable the connection using a modem, remote maintenance, etc.
- The CAN0/ESB interface (optional)and galvanic separation can be as a CAN, or ESB-interface be configured. Configured as CAN, with the option to communicate ElaCAN assemblies as well as to the implementation of customer-specific protocols. Configured as the ESB is the communication with all current elrest - I/O-modules (analog and digital) possible.
- With the CAN1 interface (optional) with galvanic separation, with the option to communicate ElaCAN assemblies. In addition, customer-specific protocols, as well as CANopen / slave can be realized.
- The included ethernet interface allows a networking of equipment, the world can communicate via the Internet.
- The USB - interfaces allow the connection of external input devices such as mouse, keyboard, and readers, as well as the use of USB - sticks and hard drives as an additional data store

Rückansicht und Schnittstellen



3.3.3 Touch



Caution should be exercised when Visio touch control panel is always just a point of the screen. Do not touch several Touch-Elements simultaneously.

Otherwise, you can be triggered unintended actions.



CAUTION

Use Visio to operate the control panel no pointed or sharp objects, so that the surface of the touch screen is not damaged.

3.3.4 Service Key

Can the service through a hole in the rear wall below the battery be operated.

Using a non-metallic object use.

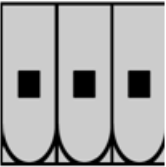

Has been in the Panel Configuration Utility "Don't start Windows CE shell" is selected, this opens the Panel the programs defined in the autostart, without the Windows - start to surface.

To go back to Windows to be able to switch back and the service button must be pressed.

For more information, see the description "Platform_CE".

3.3.5 X1 : power supply

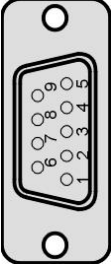
This connector is the control panel with the power. The port is protected against reverse polarity.

1	2	3	PIN	Occupancy
			1	+24 V DC power supply
			2	0 V DC (GND – Reference)
			3	FE
				

3.3.6 X2 : COM2 RS 232/RS422/RS485 interface

These interfaces are on a 9-pin D-sub - plug brought out.

They are not isolated from the supply voltage of the device disconnected.

PIN	Occupancy
	1 Y (Tx+)
	2 RxD (Receive Data)
	3 TxD (Transmit Data)
	4 Z (Tx-)
	5 GND5V (Signal Ground)
	6 R- (terminal resistor RS485 -)
	7 B (Rx-)
	8 A (Rx+)
	9 R+ (terminal resistor RS485 +)



Caution

- the data cable must be shielded.
- cabling or never operate more than one of the interfaces on the X2 at a time! It may cause malfunction and could damage the unit.



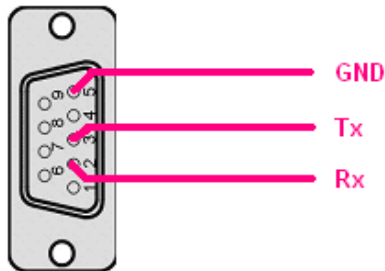
Information for female connector on the cable:

Connect to only the necessary for your application pins. Check, whether due to the total bus structure a terminator is required. These are normally conclusion-/ terminal resistor at the beginning and at the end of the bus wire. The resistance value is typically 120 ohms.

X2 : RS 232/RS422/RS485 interface

In the operation mode RS232 terminal resistor are not allowed.

The position of the RS422 / RS485 – Mode switching plays no role in this mode.

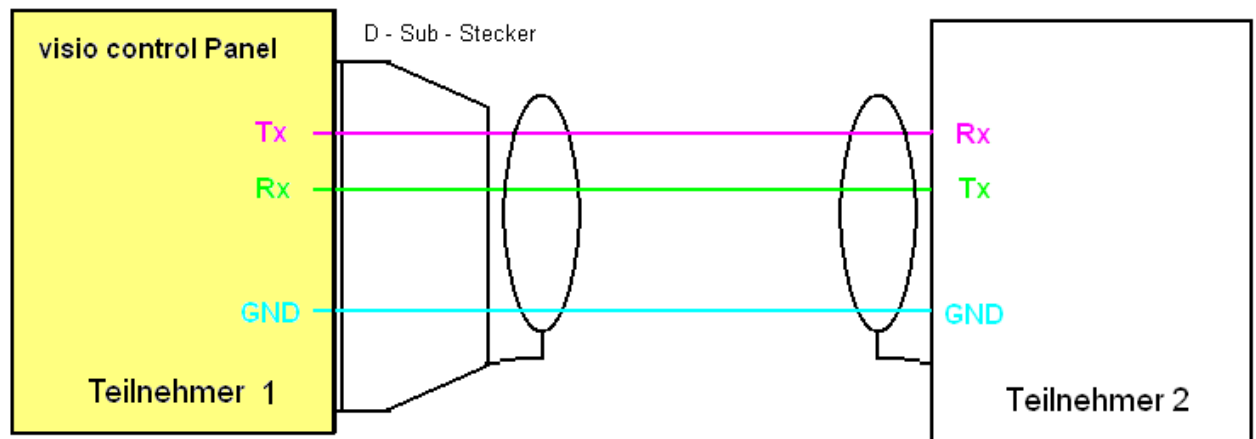


Rx: Pin 2, connect to Tx of the other device

Tx: Pin 3, connect to Rx of the other device

GND: Pin5

Typische Struktur RS232:



X2 : **RS 232/RS422/RS485** interface (optional)

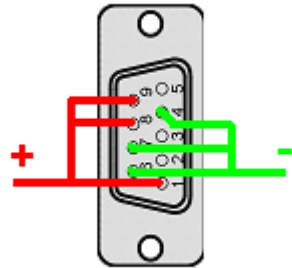
The RS485 – interface is not integrated in the standard!

In the RS485 mode on each bus is a terminating resistor required.

The device is at the beginning or the end of the end resistor placed, so is the integrated terminator to use!

The mode switch on the rear panel is in the position "RS485" to slide.

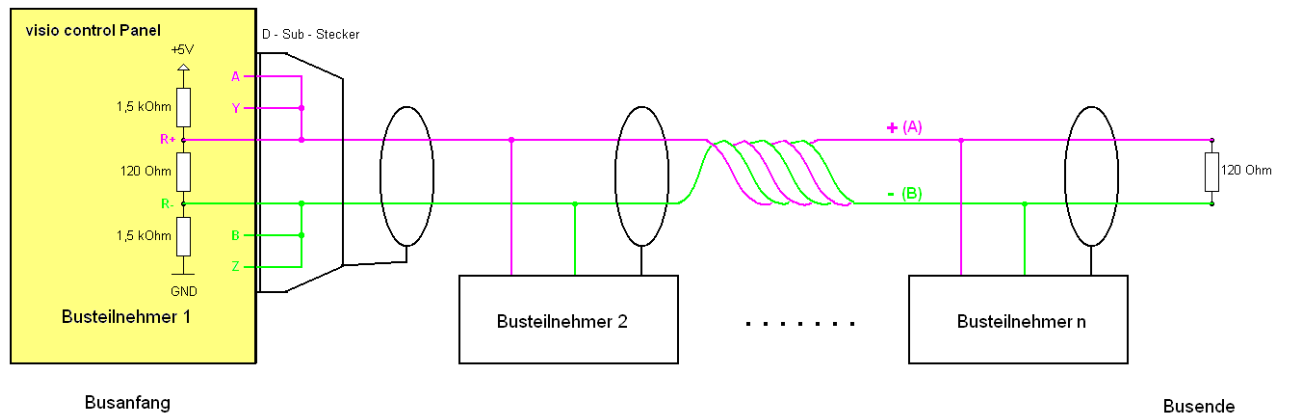
RS485-communication card with integrated terminator (at the end of the bus does):



Signal +: Pin 1, 8 and 9 must be connected together.

Signal -: Pin 4, 6 and 7 must be connected together.

Typical bus RS485-communication card with Visio control panel on a bus:



Mode switch in position RS485-communication card

X2 : **RS 232/RS422/RS485** interface

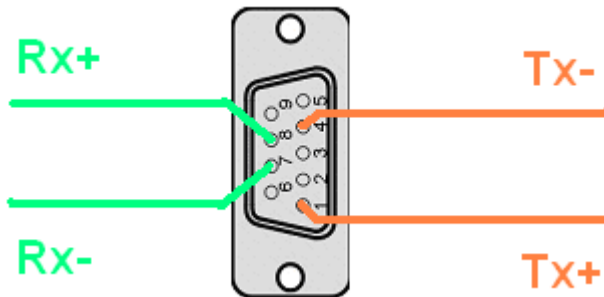
In the RS422 port mode must be completed in the required two-resistors per device (one per pair) are used.

CAUTION

Do not use the built-in RS485-communication card - Terminator!

The mode switch on the rear panel is in the position "RS422" to slide.

RS422 port without terminators:



the pins 6 and 9 must be unoccupied

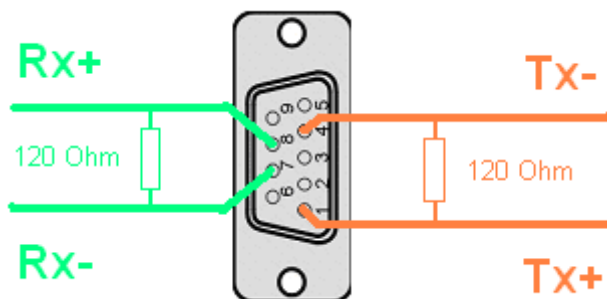
Pin 1 (Tx - signal +)

Pin 4 (Tx - signal -)

Pin 8 (Rx - signal +)

Pin 7 (Rx - signal -)

RS422 with external terminal resistor:



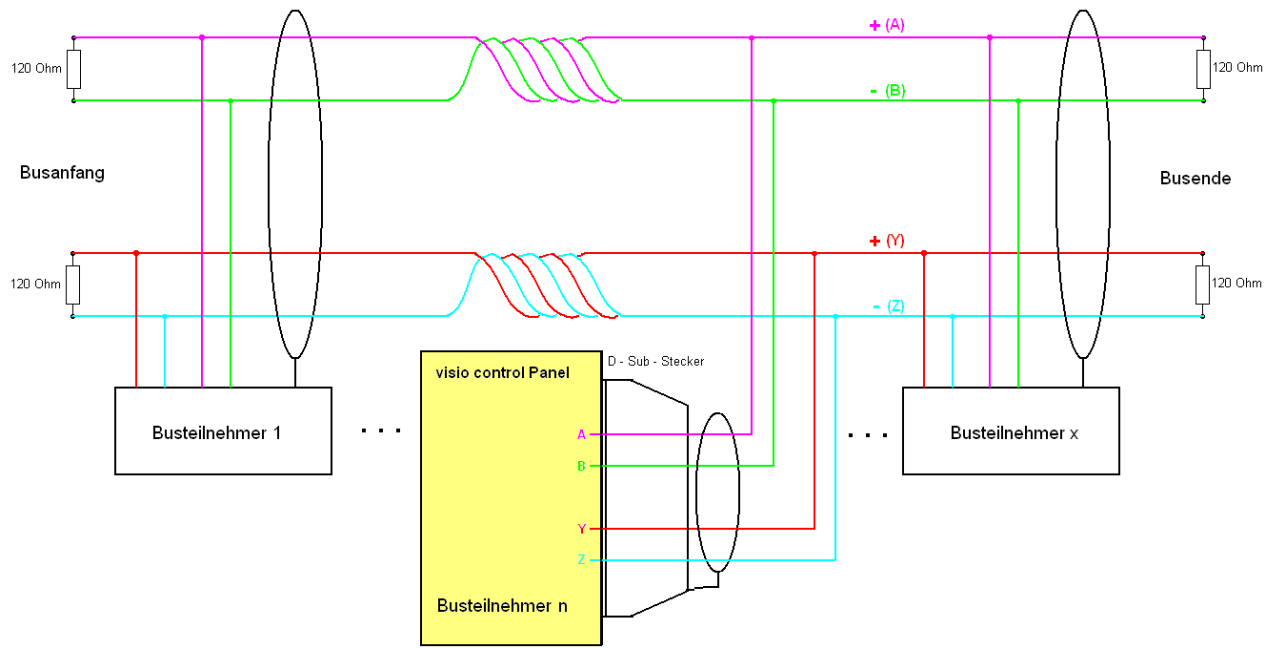
the pins 6 and 9 must be unoccupied

terminal resistor between pin 1 (Tx - signal +) and pin 4 (Tx - signal -)

terminal resistor between pin 8 (Rx - signal +) and pin 7 (Rx - signal -)

Typical bus structure

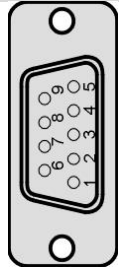
RS422:



3.3.7 X3 : RS 232 interface

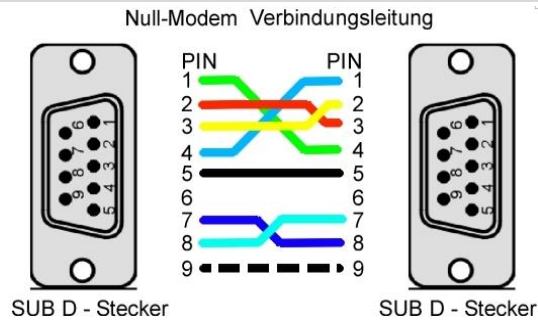
This interface is designed as a 9-pin Sub-D connector.
It can also be used for service units (optional for a modem).

PIN	Occupancy
1	DCD (Data Carrier Detect)
2	RxD (Receive Data)
3	TxD (Transmit Data)
4	DTR (Data Terminal Ready)
5	GND5V (Signal Ground)
6	DSRData (Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	RI (Ring Indicator)

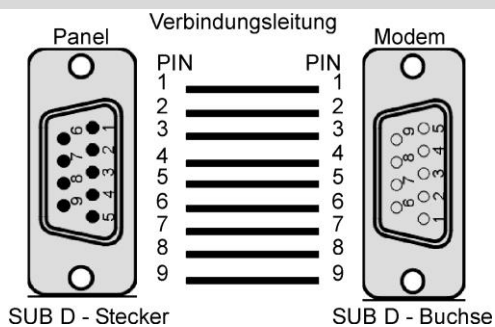


It is isolated with the supply voltage of the module coupled and is used for programming of the module.

Connection visio control Panel - Null Modem (PC direct)



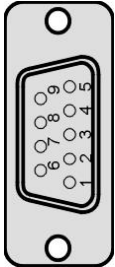
Connection visio control Panel – Modem



3.3.8 X4 : CAN-1 interface

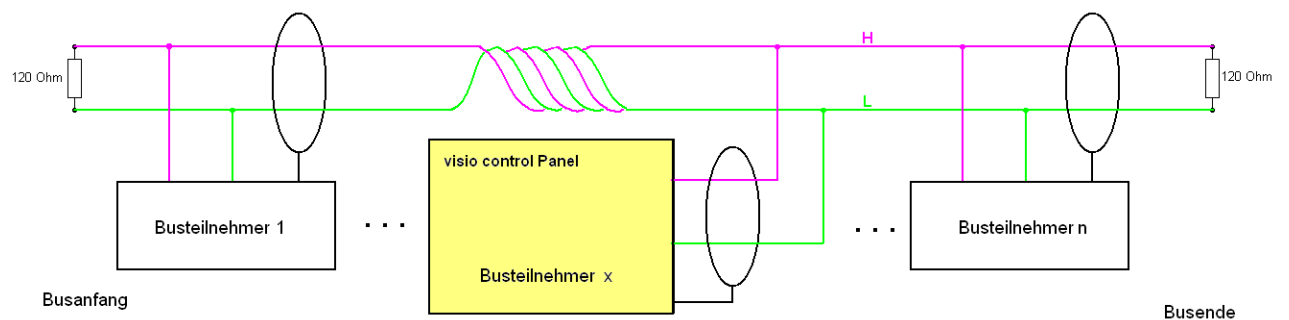
This interface is an 9 pole Sub-D9 connector with galvanic separation in accordance with ISO 11898 standard.

PIN	Occupancy
1	open
2	CAN data low dominant (B_LB)
3	GND5Vext2 (Signal Ground external 2)
4	open
5	GND5Vext2 (Signal Ground external 2)
6	GND5Vext2 (Signal Ground external 2)
7	CAN data high dominant (B_HB)
8	open
9	open



On each Bus is needed a terminator.

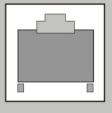
Typical bus structure can with Visio control panel on the bus route or with external terminator:



Integrated CAN – termination resistor **deactivated**

3.3.9 X5 : CAN-0 interface

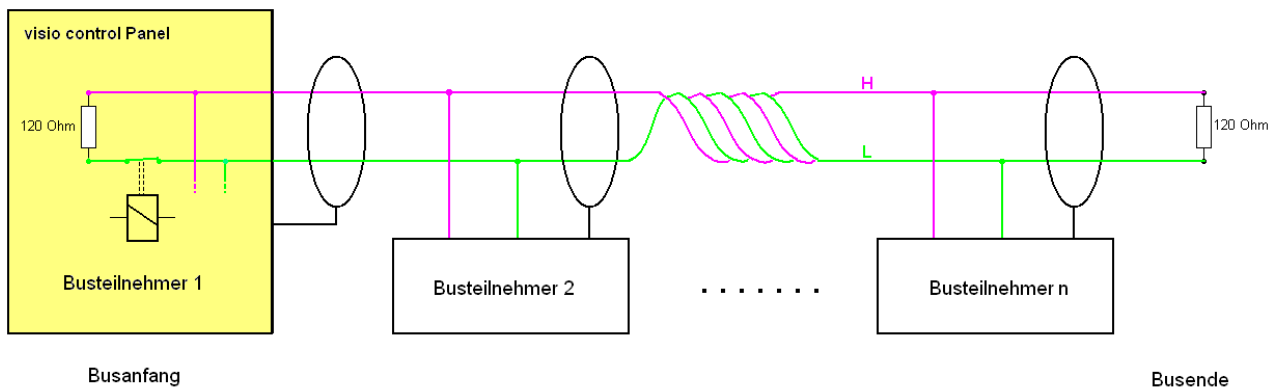
This interface is an RJ-45 connector with galvanic separation in accordance with ISO 11898 standard with running. The CAN - terminator can be engaged when necessary. To do this, the termination switch on the back to the "ON" (on) or SW (resistance by software switchable) be made.

PIN	Occupancy
 Pin1	1 CAN data low dominant (B_LA)
	2 CAN data high dominant (B_HA)
	3 GND5Vext1 (Signal Ground external 1)
	4 open
	5 do not use
	6 do not use
	7 open
	8 open



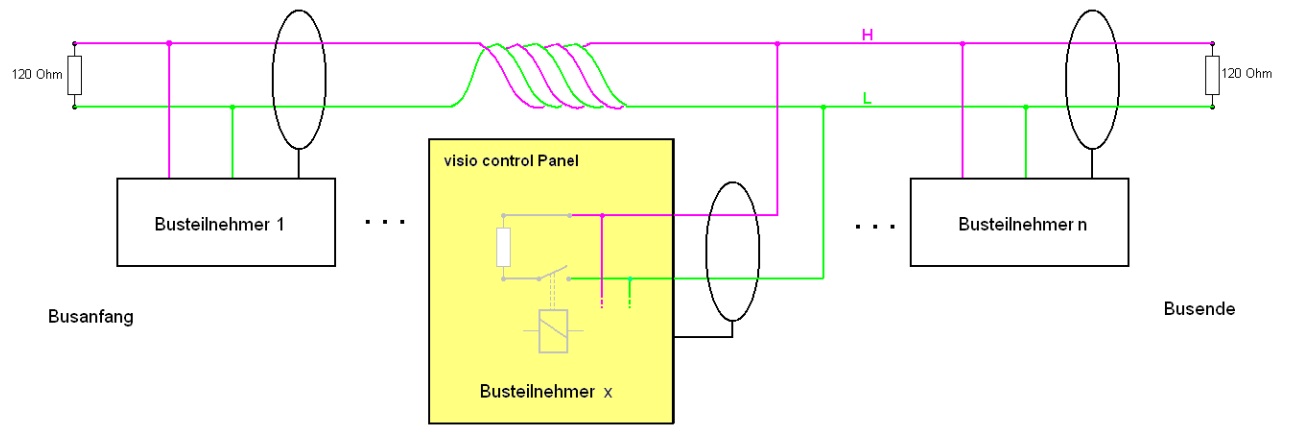
On each Bus is needed a terminator.

Typical bus structure can with Visio control panel on a bus and while the integrated terminator:



Integrated CAN – termination resistor **activated**

Typical bus structure can with Visio control panel on the bus route or with external terminator:

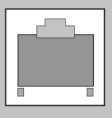


Integrated CAN – termination resistor **deactivated**

3.3.10 X5 : used as ESB interface

This interface is as a RJ-45 connector. It is used for communication with elrest - assemblies. The ESB-interface consists of the CAN-interface with a configure signal (CFG) and is running with galvanic separation. The ESB - terminator can be engaged when necessary.

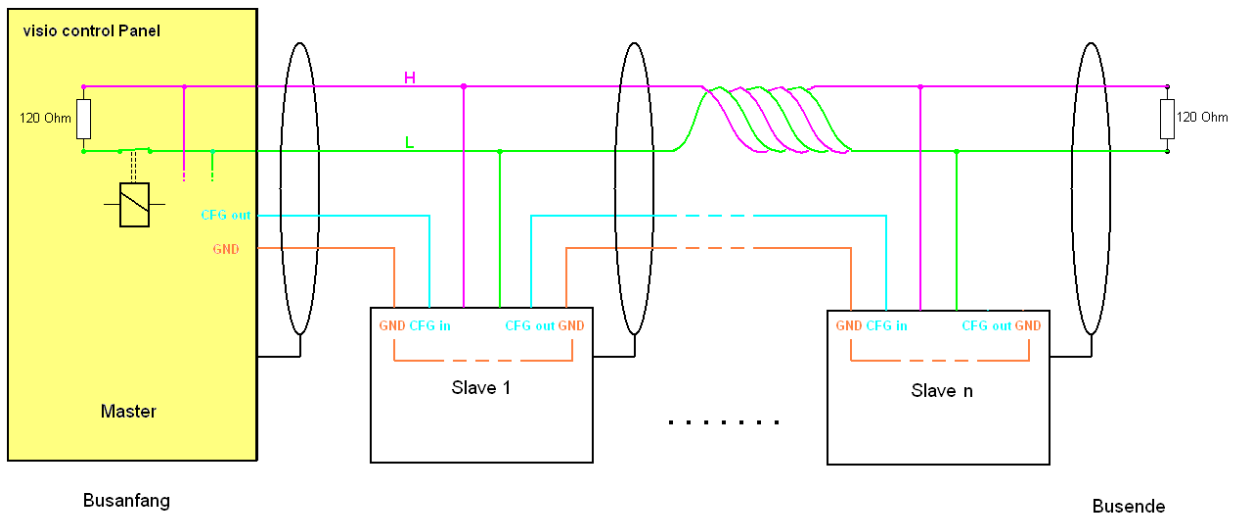
To do this, the termination switch on the back to the "ON" (on) or SW (resistance by software switchable) be made.

PIN	Occupancy
 1	CAN data low dominant (B_LA)
2	CAN data high dominant (B_HA)
Pin1 3	GND5Vext1 (Signal Ground extern 1)
4	open
5	GND5V (Signal Ground)
6	CFG
7	open
8	open



The data cable must be shielded.
On each Bus is needed a terminator.


Typical bus structure can with Visio control panel on a bus and while the integrated terminator:



Integrated CAN – termination resistor **activated**

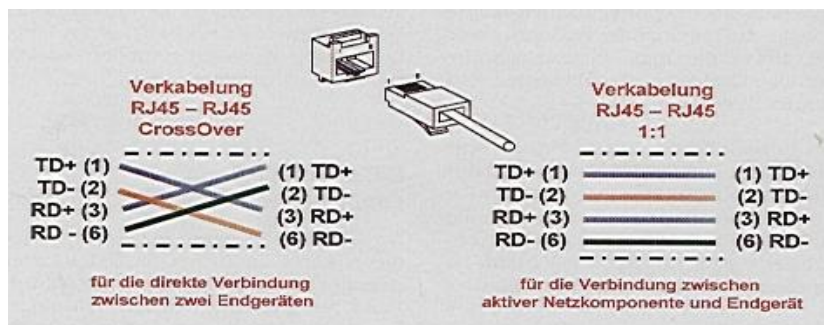
3.3.11 X6 : Ethernet interface

This interface is run as a RJ-45 connector. The connectors and lines must, depending on the speed of data transfer at least CAT.5 and the guidelines for Ethernet - interfaces are identical.

	PIN	Occupancy	Function
 PIN1	1	MDI0+	Transmit Data +
	2	MDI0-	Transmit Data -
	3	MDI1+	Receive Data +
	4	MDI2+	keine
	5	MDI2-	keine
	6	MDI1-	Receive Data -
	7	MDI3+	keine
	8	MDI3-	keine

The integrated 10 / 100 megabits - Ethernet - PHY supports Auto - MDI(X), i.e. it is automatically between crossover and patch cords differences.

There are more than 2 stations in an Ethernet network, then they must have a "HUB" or "SWITCH" are connected to each other. For devices without a car - MDI(X) must be here, a "1:1" -cable be used. If only 2 devices connected to each other directly, it can be done with 2 devices without a car - MDI(X) with only a "crossover" cable.



D1

Ethernet status LED for full duplex.

D2

Ethernet status LED for 100 Mbit/s.

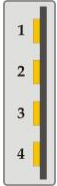
D3

Ethernet status LED for Link & Act.

3.3.12 X8, X9 : USB Host interface

USB 2.0 interface with 4x USB Type-A-socket.

Power maximum 500mA per port cable length without stroke max 5m.

	PIN	Occupancy	Function
	1	+5V (max. 500mA)	Power supply
	2	Data-	
	3	Data+	
	4	GND5V (Signal Ground)	Power supply



When the system boots is a bootable USB - medium, it will boot from this. This is undesirable, so the function can be disabled in the BIOS.

3.3.13 X13 : CF card

The device offers many are with a CF slot for memory cards elrest equipped. This can of elrest tested CF-tickets.

Should other CF memory cards as such as of elrest released can be used no guarantee on function and performance, as well as on defective be given.

3.3.14 X16 : INC interface

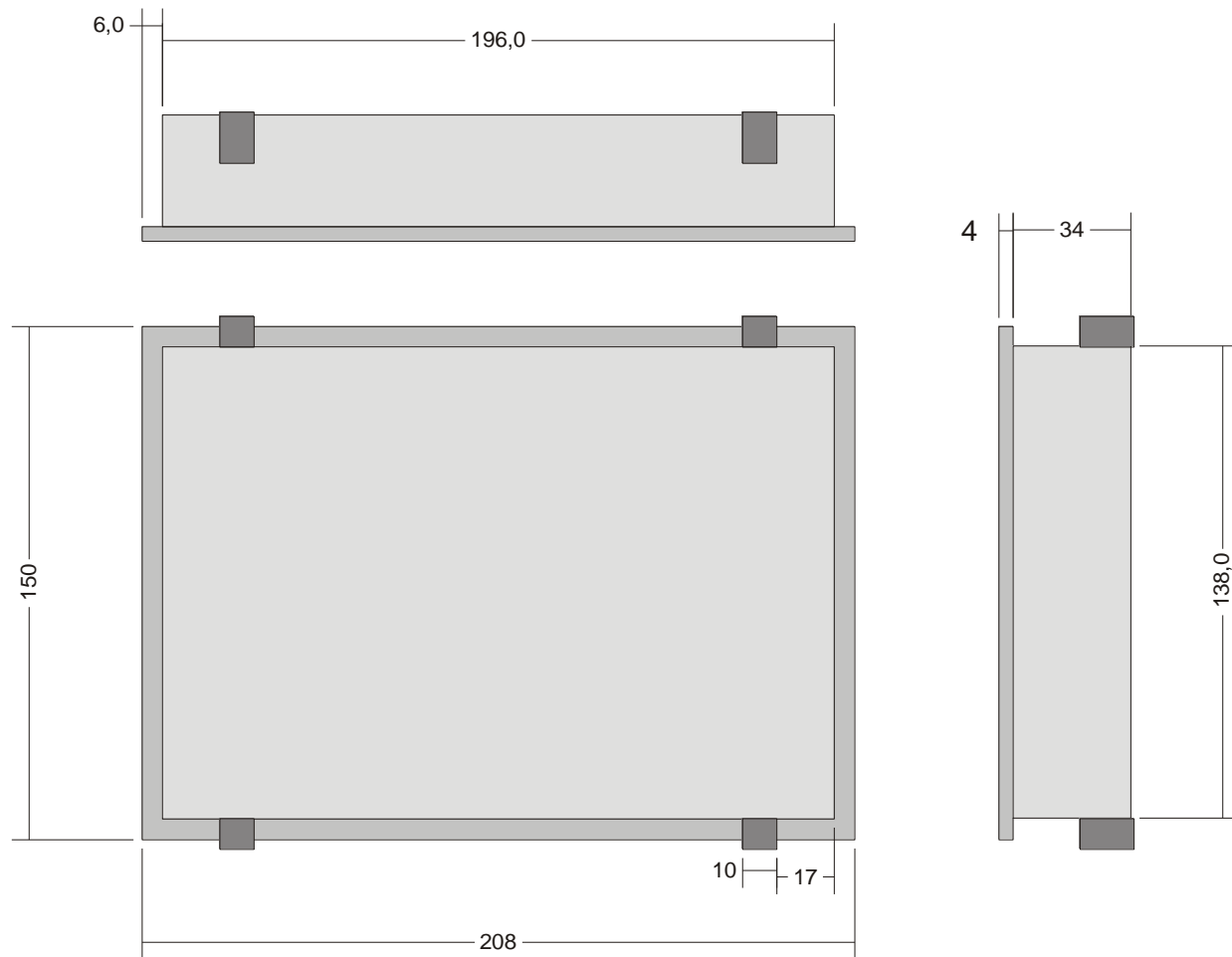
For the connection of external gear levers have is this interface.

3.3.15 Mechanical

The front panel is in the front panel made of anodized aluminum flush-mounted.

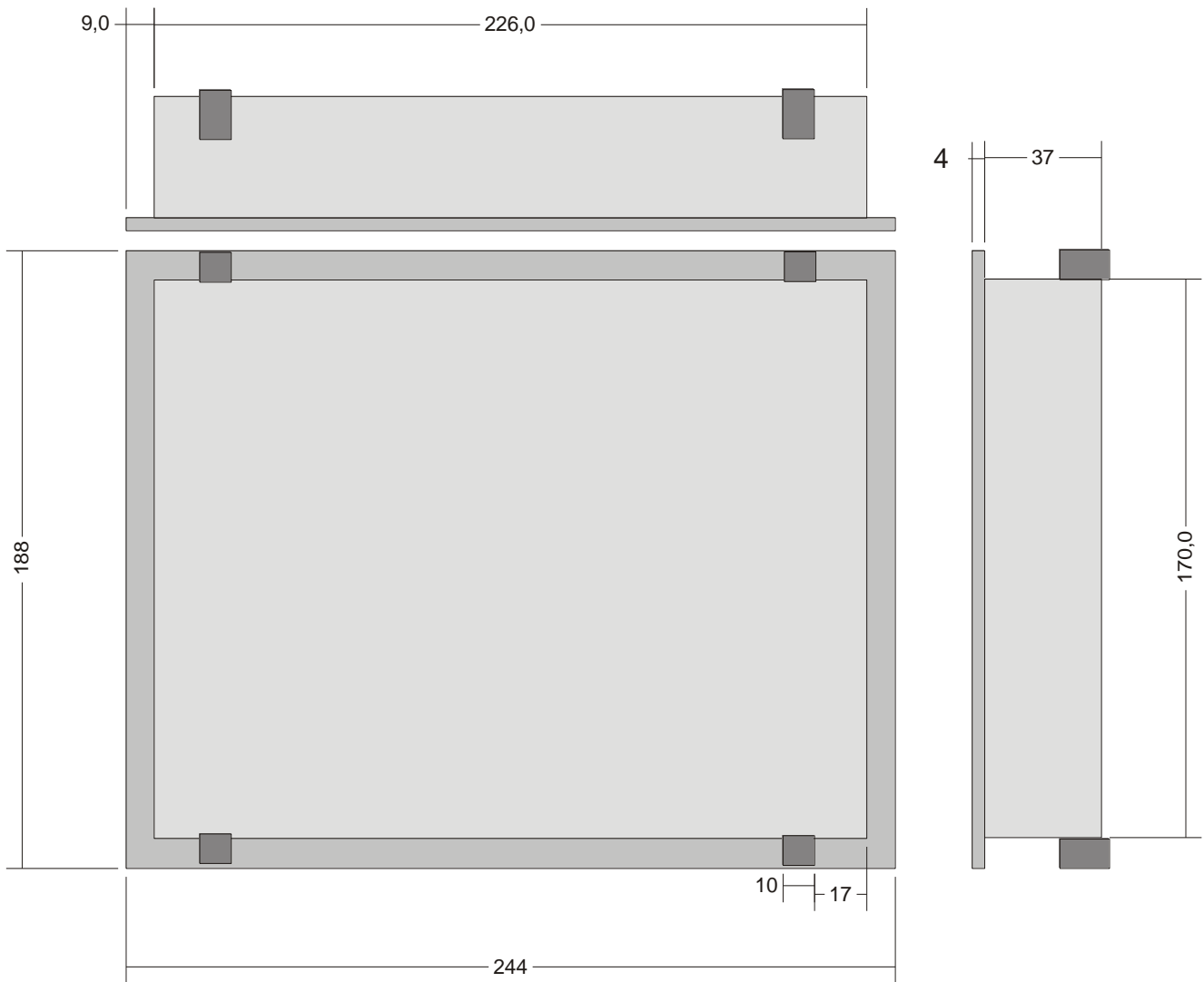
The rear part of the housing is made of powder-coated steel sheet.

Dimension drawings P406:



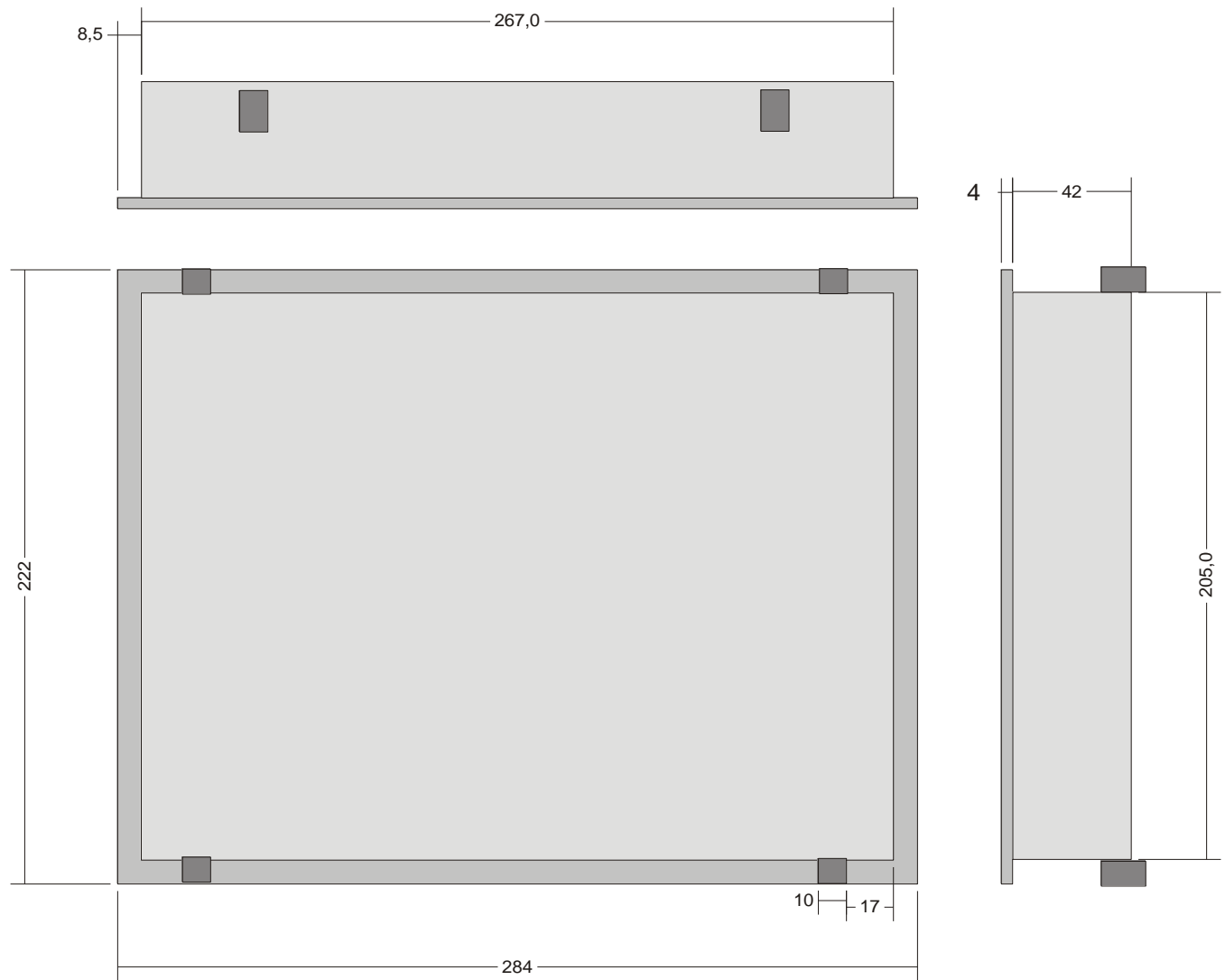
All dimensions in mm

Dimension drawings P408:



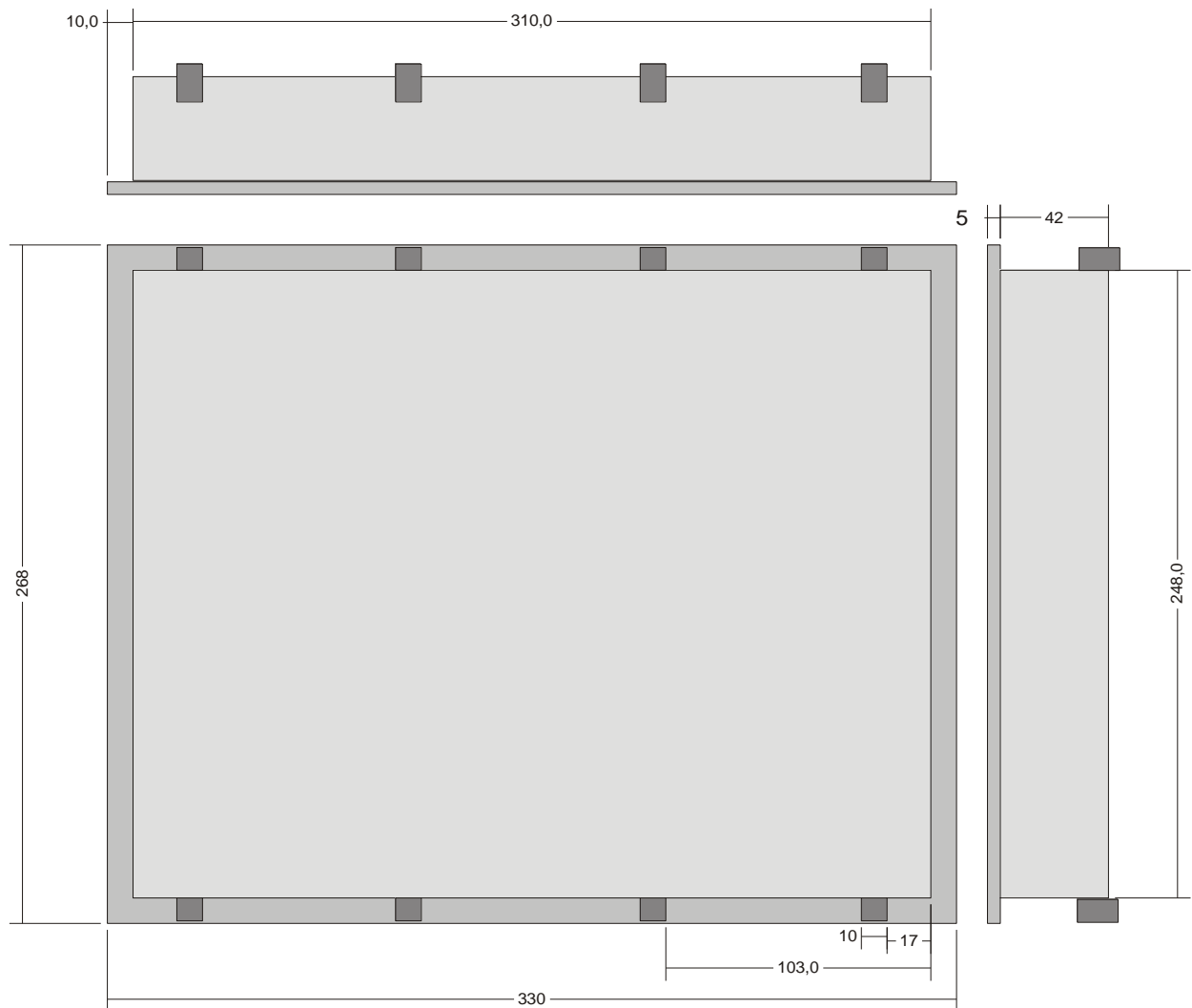
All dimensions in mm

Dimension drawings P410:



All dimensions in mm

Dimension drawings P412:



All dimensions in mm

3.3.16 Assembly



Place the system in a secure, idle state, before you with the assembly, disassembly or wiring of the Assembly begin.

Before the installation, the panel cutout for the Visio control panel from the mounting plate (e.g. , control cabinet front) be worked out.

The details for the mounting depth and the mounting cut-out are in the chapters "Technical data" and "housing" to find.

Mounting must be to the terminal by 8 clamping bolts from the rear to the carrier plate be pressed. Holes can therefore be omitted.

The longer studs come to the top of the housing, the shorter to the bottom of the case: The installation instructions for the assembly with the locking studs is located on the housing cover.



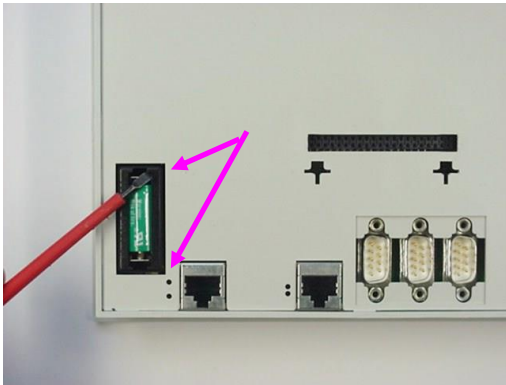
Only the use of locking 8 studs can seal the projected IP65 rating (front) to be achieved.

Tighten the bolts just so that the seal between the front and mounting whole fully is compressed, and sealing. To strong and/or uneven tightening of the screws can damage the device!

The disassembly is in the reverse order to the assembly.

3.3.17 Maintenance

The battery buffers only the RTC and is designed so that during the life of the equipment not normally must be replaced. (T > 10 years) however, should a change be necessary to send the device one or proceed as follows:

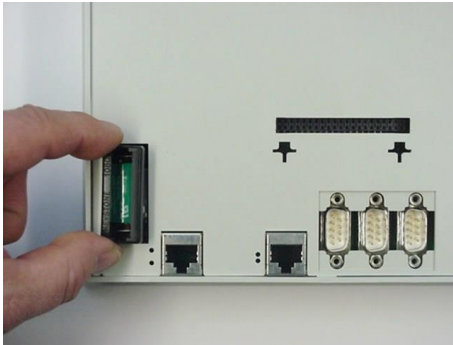


The battery is located on the back of the unit. In order to change them to observe the following points are: unclip the battery cover.



CAUTION:
should the data in the RAM of the device will remain, the device must be the battery with a 24 V DC power supply will be! It is essential The ETUC- /ESD-regulations.

Remove the battery cover.



Removing the battery. For easy removal is located on your strap, to the battery can be pulled out



Place the new battery, observing the polarity (see icon on the battery socket). Now the battery cover back hangs up and clips it in place.

Note: If the supply voltage when the battery is turned off, the clock time and date must be updated

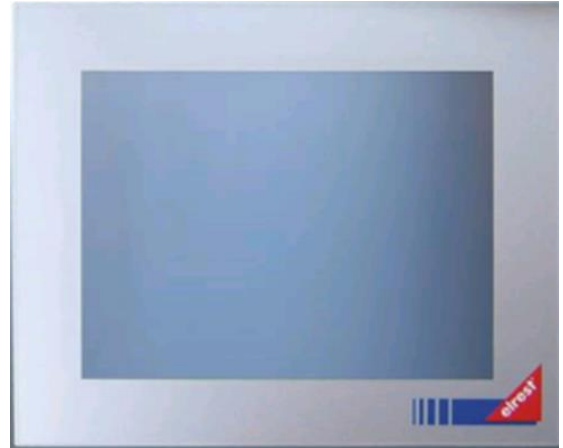


The new battery, taking the polarity. It must be overcome felt a pressure point.

Then the battery to check the tightness.

3.4 Visio-P715

- **15,0" TFT LC Display 1024 x 768 Pixel**
- **OS Microsoft Windows CE 6**
- **Touch operation**
- **Onboard interfaces**
 - 1 x Ethernet 10/100/1000 BaseT,
 - 4 x USB 2.0-Host Typ A,
 - 1 x RS232 SUB-D 9pol.,
 - 1 x RS232+RS422 SUB-D 9pol. with RS485 optional
- **Optional interfaces**
 - 1 x CAN nach ISO11898 with galv. Isolation (CANopen),
 - 2 x CAN nach ISO11898 with galv. Isolation (CANopen)



3.4.1 Communication interfaces

Display:

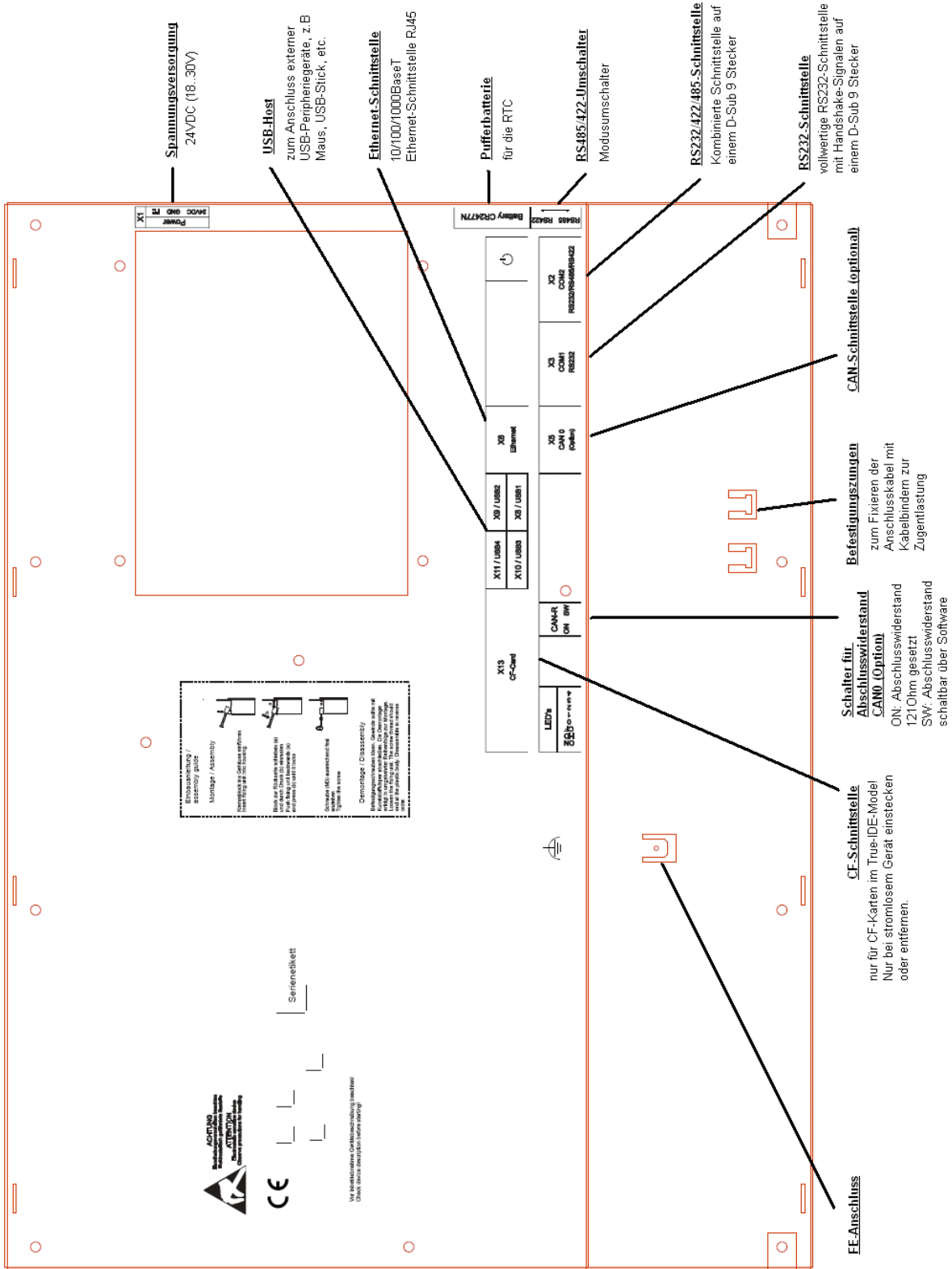
- The elrest visio control panel P715 offers many is characterized by an illuminated graphic TFT VGA LC-display with 1024 x 768. This allows a fast and good readability of the displayed values and graphics.

Input:

- external touch input device, such as a USB mouse, USB - Keyboard

Interfaces:

- The RS232/422/485 interfaces can for the programming of the Control Panels and are used for diagnosis. Various software tools enable the connection using a modem, remote maintenance, etc.
- The CAN0/ESB interface (optional)and galvanic separation can be as a CAN, or ESB-interface be configured. Configured as CAN, with the option to communicate ElaCAN assemblies as well as to the implementation of customer-specific protocols. Configured as the ESB is the communication with all current elrest - I/O-modules (analog and digital) possible.
- With the CAN1 interface (optional) with galvanic separation, with the option to communicate ElaCAN assemblies. In addition, customer-specific protocols, as well as CANopen / slave can be realized.
- The included ethernet interface allows a networking of equipment, the world can communicate via the Internet.
- The USB - interfaces allow the connection of external input devices such as mouse, keyboard, and readers, as well as the use of USB - sticks and hard drives as an additional data store



Einbauanleitung /
assembly guide

Montage / Assembly

Informationen zur Software-
Installation

Bitte beachten Sie, dass die
Anschlüsse für die externen
Geräte nur bei Stromfluss
funktionieren (z.B. USB).
Bitte beachten Sie, dass die
Anschlüsse für die externen
Geräte nur bei Stromfluss
funktionieren (z.B. USB).
Bitte beachten Sie, dass die
Anschlüsse für die externen
Geräte nur bei Stromfluss
funktionieren (z.B. USB).

Druckversion: (Characterist)

Einbaueigenschaften über Geräte wie im
Handbucheintrag beschrieben. Die
Anschlüsse sind für die externen
Geräte nur bei Stromfluss
funktionieren (z.B. USB).
Bitte beachten Sie, dass die
Anschlüsse für die externen
Geräte nur bei Stromfluss
funktionieren (z.B. USB).

ACUTECH
Automationssysteme
GmbH
AT-VERTEILUNG
GmbH

CE

Serienkennz.

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3.4.2 Touch



Caution should be exercised when Visio touch control panel is always just a point of the screen. Do not touch several Touch-Elements simultaneously.

Otherwise, you can be triggered unintended actions.



CAUTION

Use Visio to operate the control panel no pointed or sharp objects, so that the surface of the touch screen is not damaged.

3.4.3 BIOS

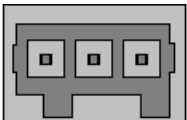

The BIOS (basic input/output system") is the firmware of the Visio Control Panels and is run directly after booting to the basic configuration of the system. For most of the applications is the BIOS optimally preset. Should you nevertheless need changes, so please contact our support to you!



Be careful changes to the BIOS settings - can the system inoperative, or inoperable.

3.4.4 X1 : power supply

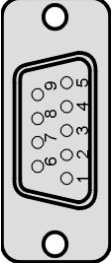
This connector is the control panel with the power. The port is protected against reverse polarity.

1	2	3	PIN	Occupancy
			1	+24 V DC power supply
			2	0 V DC (GND – Reference)
			3	FE
				

3.4.5 X2 : COM2 RS 232/RS422/RS485 interface

These interfaces are on a 9-pin D-sub - plug brought out.

They are not isolated from the supply voltage of the device disconnected.

PIN	Occupancy
	1 Y (Tx+)
	2 RxD (Receive Data)
	3 TxD (Transmit Data)
	4 Z (Tx-)
	5 GND5V (Signal Ground)
	6 R- (terminal resistor RS485 -)
	7 B (Rx-)
	8 A (Rx+)
	9 R+ (terminal resistor RS485 +)



Caution

- the data cable must be shielded.
- cabling or never operate more than one of the interfaces on the X2 at a time!
It may cause malfunction and could damage the unit.



Tipp

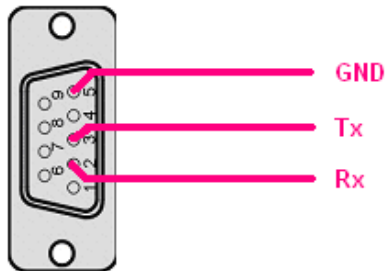
Information for female connector on the cable:

Connect to only the necessary for your application pins. Check, whether due to the total bus structure a terminator is required. These are normally conclusion-/ terminal resistor at the beginning and at the end of the bus wire. The resistance value is typically 120 ohms.

X2 : RS 232/RS422/RS485 interface

In the operation mode RS232 terminal resistor are not allowed.

The position of the RS422 / RS485 – Mode switching plays no role in this mode.

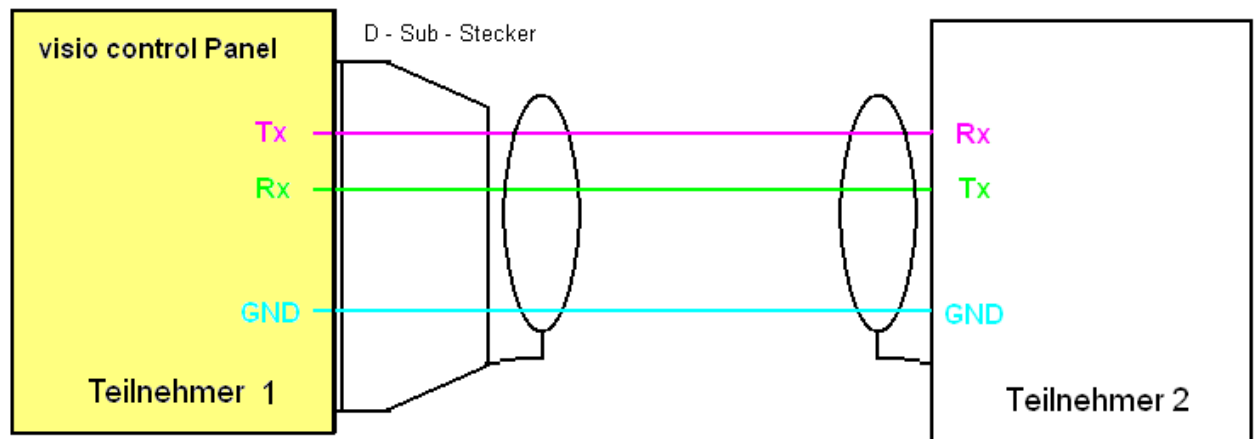


Rx: Pin 2, connect to Tx of the other device

Tx: Pin 3, connect to Rx of the other device

GND: Pin5

Typische Struktur RS232:



X2 : **RS 232/RS422/RS485** interface (optional)

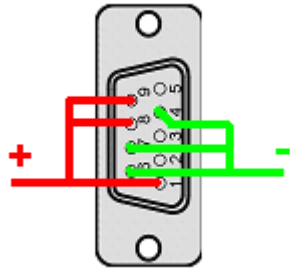
The RS485 – interface is not integrated in the standard!

In the RS485 mode on each bus is a terminating resistor required.

The device is at the beginning or the end of the end resistor placed, so is the integrated terminator to use!

The mode switch on the rear panel is in the position "RS485" to slide.

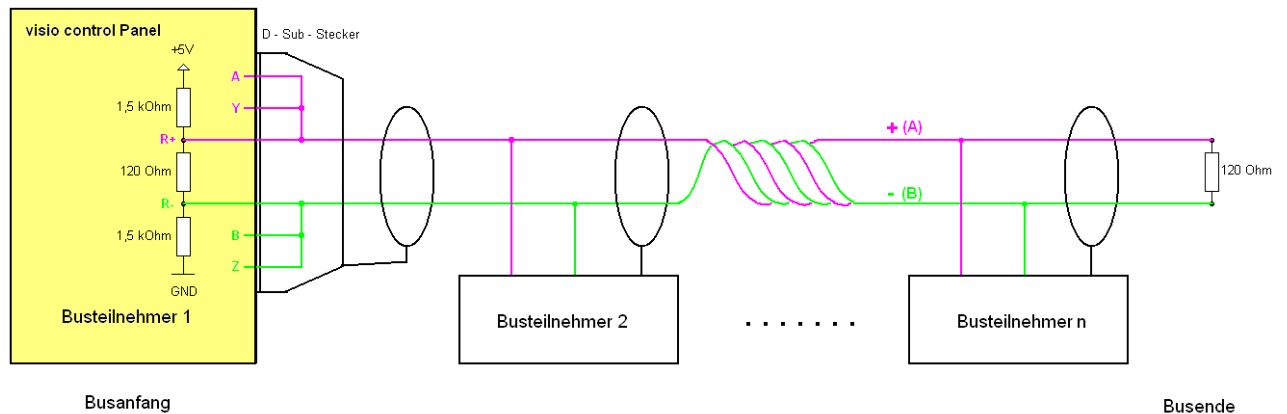
RS485-communication card with integrated terminator (at the end of the bus does):



Signal +: Pin 1, 8 and 9 must be connected together.

Signal -: Pin 4, 6 and 7 must be connected together.

Typical bus RS485-communication card with Visio control panel on a bus:



Mode switch in position RS485-communication card

X2 : **RS 232/RS422/RS485** interface

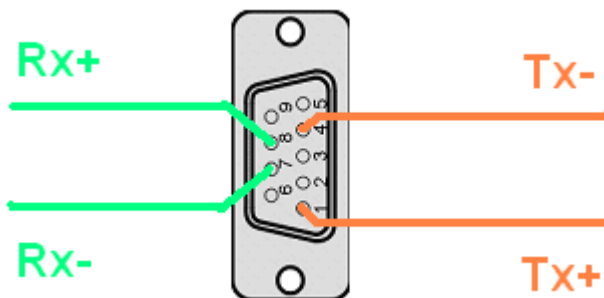
In the RS422 port mode must be completed in the required two-resistors per device (one per pair) are used.

CAUTION

Do not use the built-in RS485-communication card - Terminator!

The mode switch on the rear panel is in the position "RS422" to slide.

RS422 port without terminators:



the pins 6 and 9 must be unoccupied

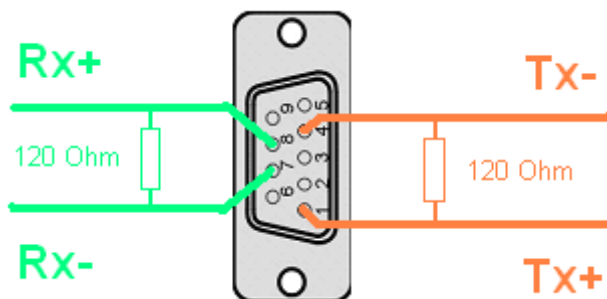
Pin 1 (Tx - signal +)

Pin 4 (Tx - signal -)

Pin 8 (Rx - signal +)

Pin 7 (Rx - signal -)

RS422 with external terminal resistor:



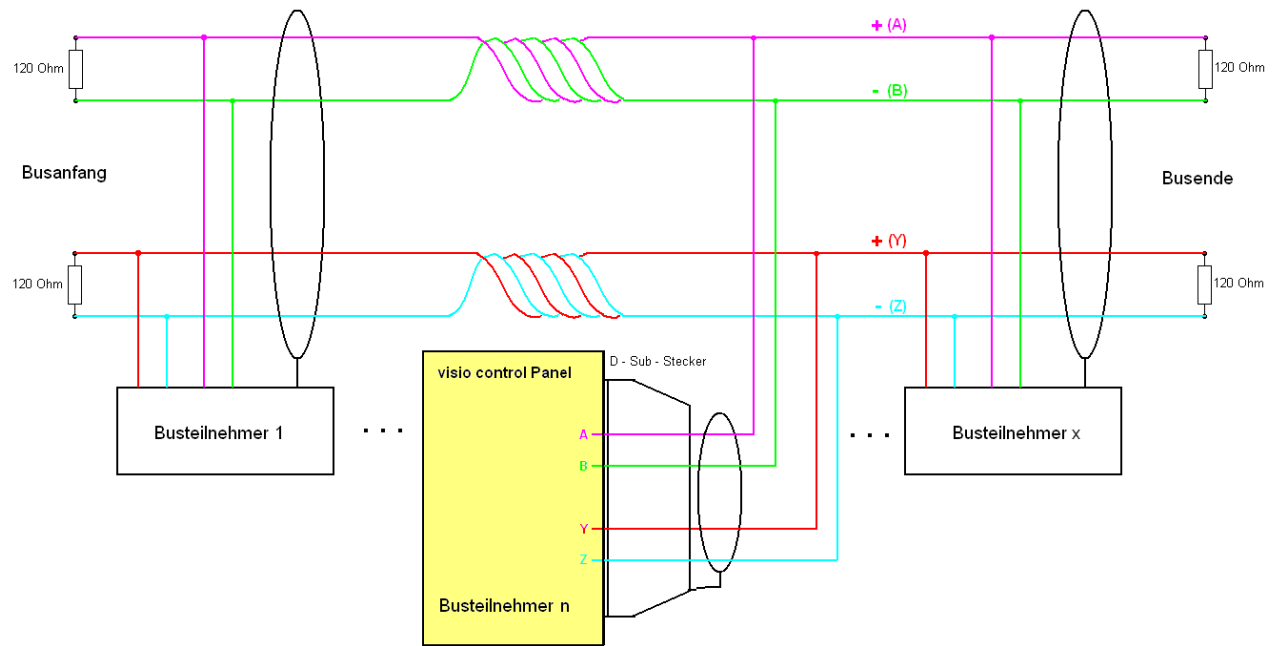
the pins 6 and 9 must be unoccupied

terminal resistor between pin 1 (Tx - signal +) and pin 4 (Tx - signal -)

terminal resistor between pin 8 (Rx - signal +) and pin 7 (Rx - signal -)

Typical bus structure

RS422:



3.4.6 X3 : RS 232 interface

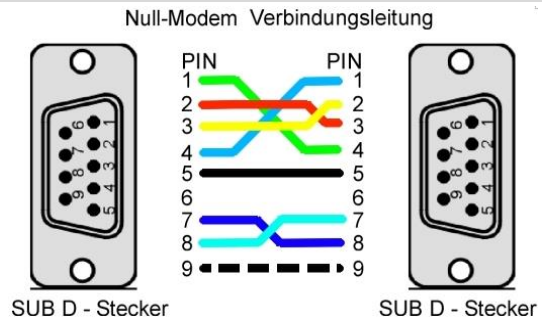
This interface is designed as a 9-pin Sub-D connector.
It can also be used for service units (optional for a modem).

PIN	Occupancy
1	DCD (Data Carrier Detect)
2	RxD (Receive Data)
3	TxD (Transmit Data)
4	DTR (Data Terminal Ready)
5	GND5V (Signal Ground)
6	DSRData (Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	RI (Ring Indicator)

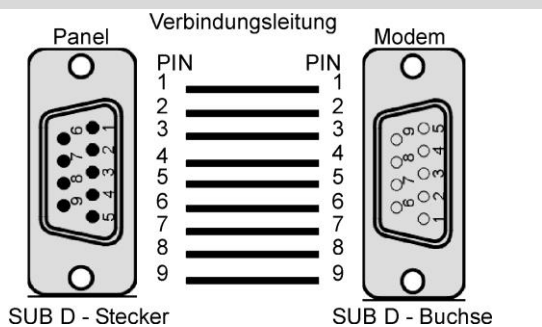


It is isolated with the supply voltage of the module coupled and is used for programming of the module.

Connection visio control Panel - Null Modem (PC direct)



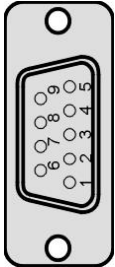
Connection visio control Panel – Modem



3.4.7 X4 : CAN-1 interface

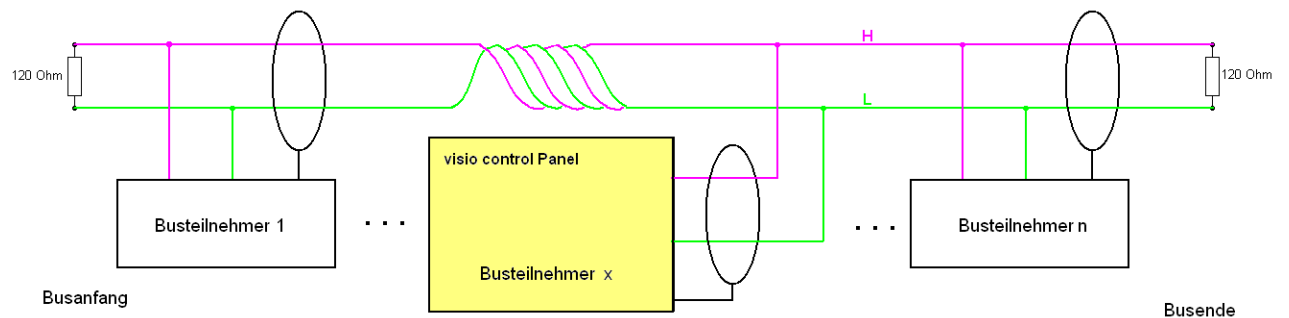
This interface is an 9 pole Sub-D9 connector with galvanic separation in accordance with ISO 11898 standard.

PIN	Occupancy
1	open
2	CAN data low dominant (B_LB)
3	GND5Vext2 (Signal Ground external 2)
4	open
5	GND5Vext2 (Signal Ground external 2)
6	GND5Vext2 (Signal Ground external 2)
7	CAN data high dominant (B_HB)
8	open
9	open



On each Bus is needed a terminator.

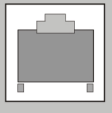
Typical bus structure can with Visio control panel on the bus route or with external terminator:



Integrated CAN – termination resistor **deactivated**

3.4.8 X5 : CAN-0 interface

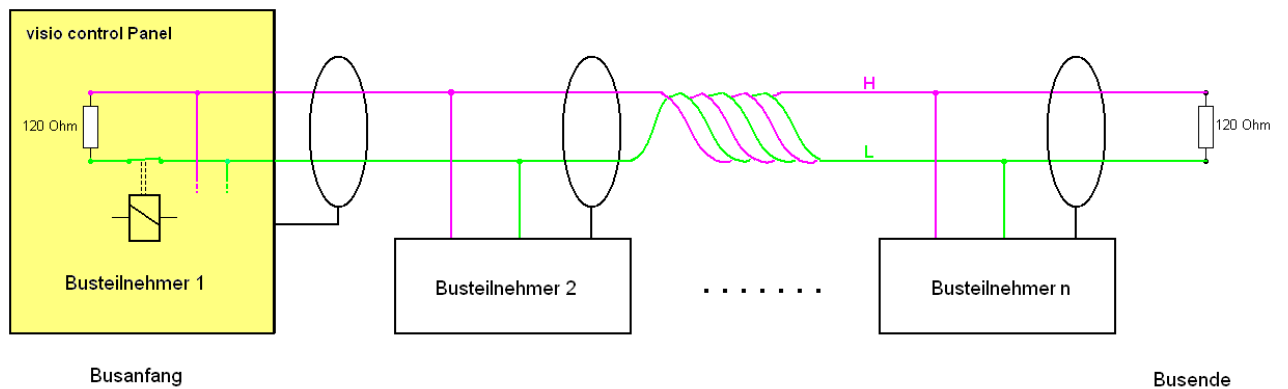
This interface is an RJ-45 connector with galvanic separation in accordance with ISO 11898 standard with running. The CAN - terminator can be engaged when necessary. To do this, the termination switch on the back to the "ON" (on) or SW (resistance by software switchable) be made.

PIN	Occupancy
 Pin1	1 CAN data low dominant (B_LA)
	2 CAN data high dominant (B_HA)
	3 GND5Vext1 (Signal Ground external 1)
	4 open
	5 do not use
	6 do not use
	7 open
	8 open



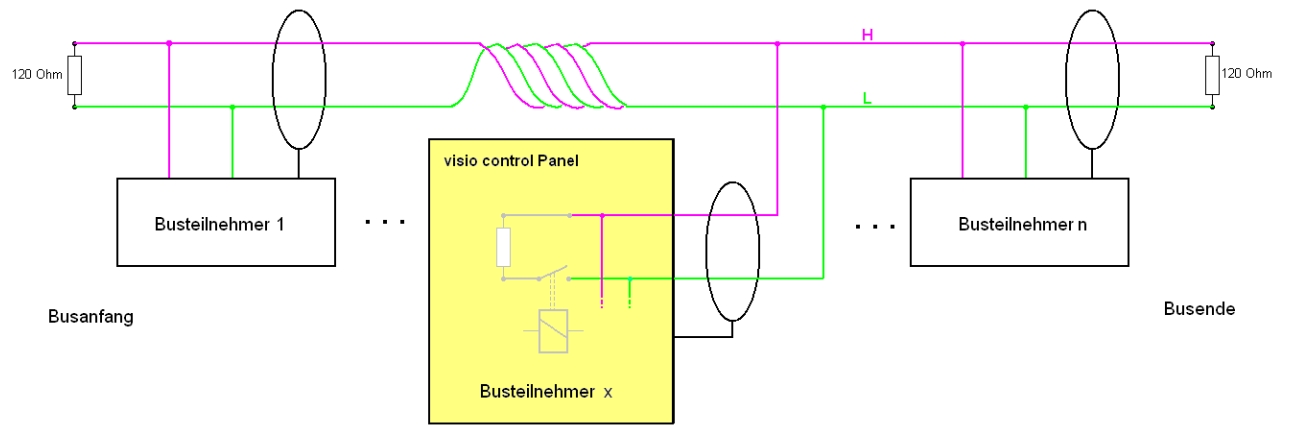
On each Bus is needed a terminator.

Typical bus structure can with Visio control panel on a bus and while the integrated terminator:



Integrated CAN – termination resistor **activated**

Typical bus structure can with Visio control panel on the bus route or with external terminator:

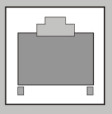


Integrated CAN – termination resistor **deactivated**

3.4.9 X5 : used as ESB interface

This interface is as a RJ-45 connector. It is used for communication with elrest - assemblies. The ESB-interface consists of the CAN-interface with a configure signal (CFG) and is running with galvanic separation. The ESB - terminator can be engaged when necessary.

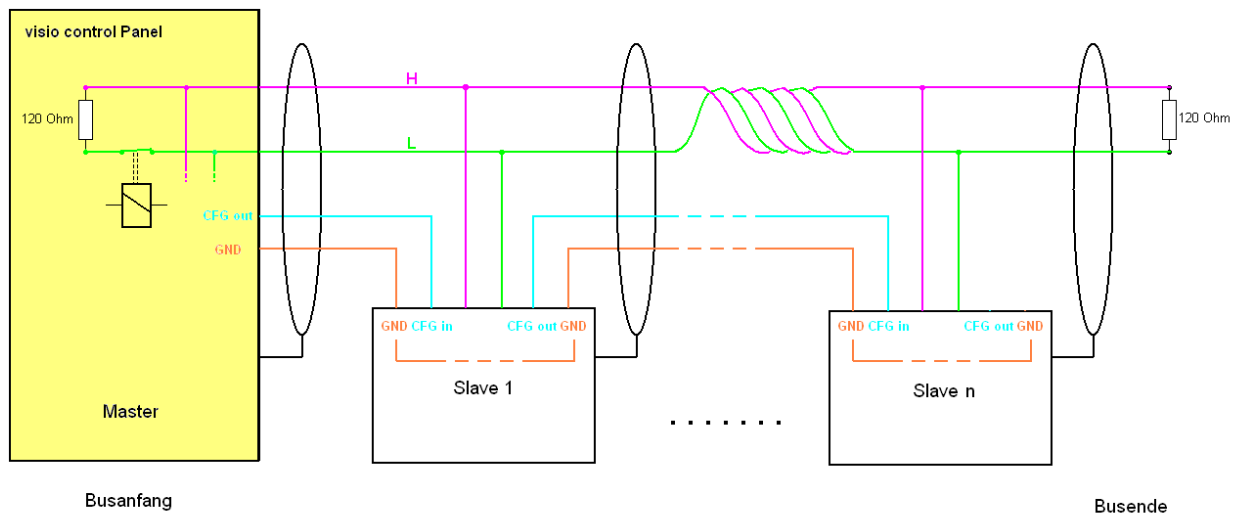
To do this, the termination switch on the back to the "ON" (on) or SW (resistance by software switchable) be made.

PIN	Occupancy	
 Pin1	1	CAN data low dominant (B_LA)
	2	CAN data high dominant (B_HA)
	3	GND5Vext1 (Signal Ground extern 1)
	4	open
	5	GND5V (Signal Ground)
	6	CFG
	7	open
	8	open



The data cable must be shielded.
On each Bus is needed a terminator.


Typical bus structure can with Visio control panel on a bus and while the integrated terminator:



Integrated CAN – termination resistor **activated**

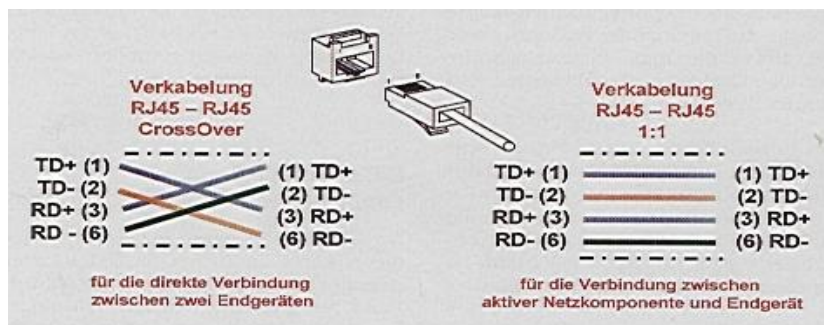
3.4.10 X6 : Ethernet interface

This interface is run as a RJ-45 connector. The connectors and lines must, depending on the speed of data transfer at least CAT.6 and the guidelines for Ethernet - interfaces are identical.

	PIN	Occupancy	Function
 PIN1	1	MDI0+	Transmit Data +
	2	MDI0-	Transmit Data -
	3	MDI1+	Receive Data +
	4	MDI2+	keine
	5	MDI2-	keine
	6	MDI1-	Receive Data -
	7	MDI3+	keine
	8	MDI3-	keine

The integrated gigabit - Ethernet - PHY supports Auto - MDI(X), i.e. it is automatically between crossover and patch cords differences.

There are more than 2 stations in an Ethernet network, then they must have a "HUB" or "SWITCH" are connected to each other. For devices without a car - MDI(X) must be here, a "1:1" -cable be used. If only 2 devices connected to each other directly, it can be done with 2 devices without a car - MDI(X) with only a "crossover" cable.



D1
Ethernet status LED for full duplex.

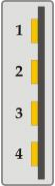
D2
Ethernet status LED for 100 Mbit/s.

D3
Ethernet status LED for Link & Act.

3.4.11 X8, X9, X10, X11 : USB Host interface

USB 2.0 interface with 4x USB Type-A-socket.

Power maximum 500mA per port cable length without stroke max 5m.

	PIN	Occupancy	Function
	1	+5V (max. 500mA)	Power supply
	2	Data-	
	3	Data+	
	4	GND5V (Signal Ground)	Power supply



When the system boots is a bootable USB - medium, it will boot from this. This is undesirable, so the function can be disabled in the BIOS.

3.4.12 X13 : CF card

The device offers many are with a CF slot for memory cards elrest equipped. This can of elrest tested CF-tickets.

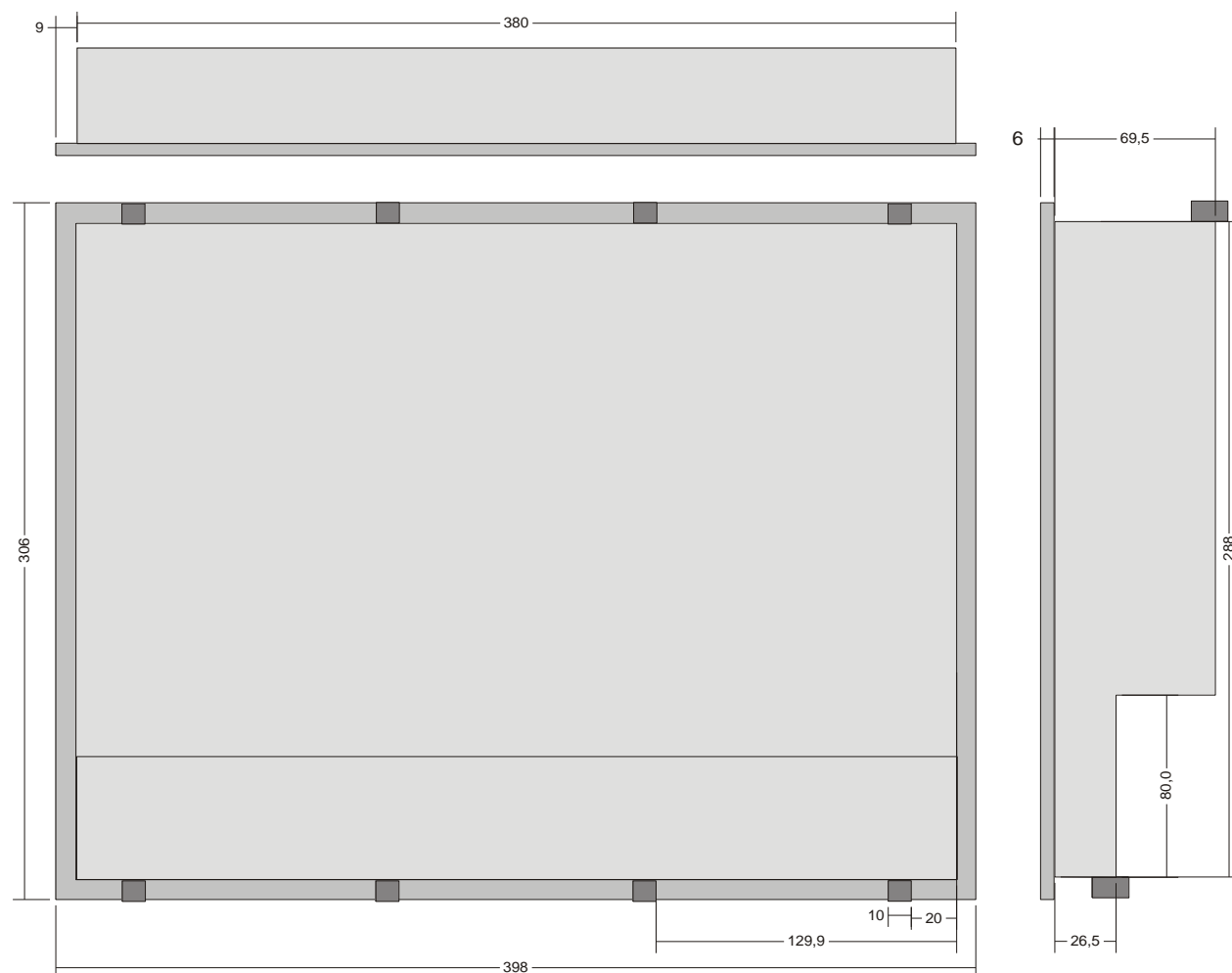
Should other CF memory cards as such as of elrest released can be used no guarantee on function and performance, as well as on defective be given.

3.4.13 Mechanical

The front panel is in the front panel made of anodized aluminum flush-mounted.

The rear part of the housing is made of powder-coated steel sheet.

Dimension drawings:



All dimensions in mm

3.4.14 Assembly



Place the system in a secure, idle state, before you with the assembly, disassembly or wiring of the Assembly begin.

Before the installation, the panel cutout for the Visio control panel from the mounting plate (e.g. , control cabinet front) be worked out.

The details for the mounting depth and the mounting cut-out are in the chapters "Technical data" and "housing" to find. Mounting must be to the terminal by 8 clamping bolts from the rear to the carrier plate be pressed. Holes can therefore be omitted.

The longer studs come to the top of the housing, the shorter to the bottom of the case: The installation instructions for the assembly with the locking studs is located on the housing cover.



Only the use of locking 8 studs can seal the projected IP65 rating (front) to be achieved.

Tighten the bolts just so that the seal between the front and mounting whole fully is compressed, and sealing. To strong and/or uneven tightening of the screws can damage the device!

The disassembly is in the reverse order to the assembly.

3.4.15 Maintenance

The battery buffers only the RTC and is designed so that during the life of the equipment not normally must be replaced. (T > 10 years) however, should a change be necessary to send the device one or proceed as follows:



Tools Needed:

1. Bernese. 1417 I1 circlip pliers, O. a.
2. Heat-shrink tubing, electrical tape, O. a, and the pliers must be isolated such that a short-circuiting the battery, as well as a short circuit of the battery with the cover should be excluded.

As an example in the picture with heat shrink tubes. It can also be used electrical tape O. a.

The clamp is so isolated that even with a yield of the pressurized insulation between the jaws of the pliers is a maximum of one potential contact and cannot cause a short circuit.

Battery access with the pliers and pull it out.



The new battery, taking the polarity. It must be overcome felt a pressure point.
Then the battery to check the tightness.

4 Support

Hotline

For additional information and assistance, you can our hotline at the following times:

Monday - Friday: from 8.00 - 12.00 and 13.00 - 16.30

Outside of these times, you can contact us via e-mail or fax to get:

Telephone: ++49 (0) 7021/92025-33

Fax: ++49 (0) 7021/92025-29

E-mail: hotline@elrest.de

Training and Workshops

We offer training or project based workshops to elrest products.

For further information, please contact our sales department.

Telephone: ++49 (0) 7021/92025-0

Fax: ++49 (0) 7021/92025-29

E-mail: vertrieb@elrest.d

5 History

<i>date</i>	<i>name</i>	<i>chapter</i>	<i>change</i>
15.09.2005	De	P4xx	created
13.12.2011	De	P7xx	created

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