



Handbücher/Manuals



VIPA
Gesellschaft für Visualisierung
und Prozessautomatisierung mbH

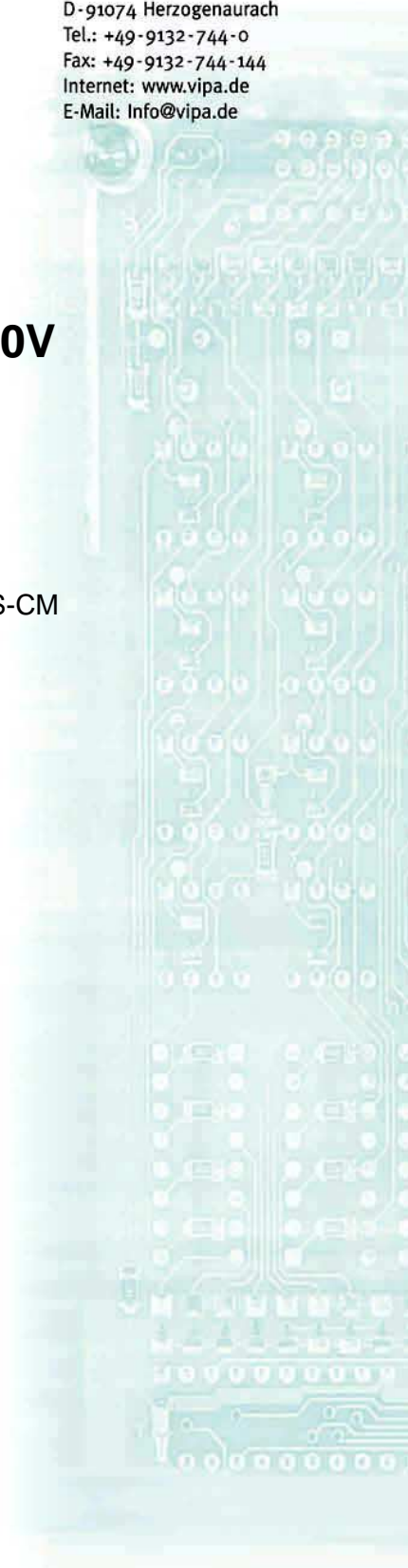
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Manual

VIPA System 200V

PS-CM

Order No.: VIPA HB97E_PS-CM
Rev. 06/29



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Suggestions for improvement are always welcome.

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About this manual

This manual describes the System 200V PS/CM modules that are available from VIPA. In addition to the product summary it contains detailed descriptions of the different modules. You are provided with information on the connection and the utilization of the System 200V PS/CM modules. Every chapter is concluded with the technical data of the respective module.

Overview

Chapter 1: Basics

This introduction presents the VIPA System 200V as a centralized as well as decentralized automation system.

The chapter also contains general information about the System 200V, i.e. dimensions, installation and operating conditions.

Chapter 2: Assembly and installation guidelines

This chapter provides all the information required for the installation and the hook-up of a controller using the components of the System 200V.

Chapter 3: Power supplies - PS

This chapter deals with external power supplies for the System 200V. Here you find a comprehensive set of safety related hints and information as well as details on the construction, the installation and commissioning of the module.




Chapter 4: System expansion modules - CM

This chapter deals with the system expansion modules that are available for the System 200V. These include the mini switch CM 240 and terminal modules required for the expansion of the available number of connections.

Contents

User considerations	1
Safety information	2
Chapter 1 Basics	1-1
Safety information for Users	1-2
Overview	1-3
Components	1-4
General description System 200V	1-5
Chapter 2 Assembly and installation guidelines.....	2-1
Overview	2-2
Assembly.....	2-5
Wiring.....	2-8
Assembly dimensions.....	2-10
Installation guidelines	2-12
Chapter 3 Power supplies - PS.....	3-1
Safety precautions	3-2
System overview	3-3
PS 207/2 - Power supply - Structure	3-4
PS 207/2CM - Power supply with Clamps - Structure.....	3-6
Installation	3-8
Wiring.....	3-9
Technical data.....	3-10
Chapter 4 System expansion modules - CM	4-1
System overview	4-2
CM 240 - 4port mini switch	4-3
CM 201 - Terminal modules	4-5
Appendix	A-1
Index	A-1

User considerations

Objective and contents	This manual describes the modules that are suitable for use in the System 200V. It contains a description of the construction, project implementation and the technical data.
Target audience	The manual is targeted at users who have a background in automation technology.
Structure of the manual	The manual consists of chapters. Every chapter provides a self-contained description of a specific topic.
Guide to the document	The following guides are available in the manual: <ul style="list-style-type: none">• an overall table of contents at the beginning of the manual• an overview of the topics for every chapter• an index at the end of the manual.
Availability	The manual is available in: <ul style="list-style-type: none">• printed form, on paper• in electronic form as PDF-file (Adobe Acrobat Reader)
Icons Headings	Important passages in the text are highlighted by following icons and headings:
	Danger! Immediate or likely danger. Personal injury is possible.
	Attention! Damages to property is likely if these warnings are not heeded.
	Note! Supplementary information and useful tips.

Safety information

Applications conforming with specifications

The System 200V is constructed and produced for:

- all VIPA System 200V components
- communication and process control
- general control and automation applications
- industrial applications
- operation within the environmental conditions specified in the technical data
- installation into a cubicle



Danger!

This device is not certified for applications in

- in explosive environments (EX-zone)

Documentation

The manual must be available to all personnel in the

- project design department
- installation department
- commissioning
- operation



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

- Modification to the process control system should only be carried out when the system has been disconnected from power!
- Installation and modifications only by properly trained personnel
- The national rules and regulations of the respective country must be satisfied (installation, safety, EMC ...)

Disposal

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

Chapter 1 Basics

Overview

The focus of this chapter is on the introduction of the VIPA System 200V. Various options of configuring central and decentral systems are presented in a summary.

The chapter also contains the general specifications of the System 200V, i.e. dimensions, installation and environmental conditions.

Below follows a description of:

- Introduction of the System 200V
- General information, i.e. installation, operational safety and environmental conditions

Content

Topic	Page
Chapter 1 Basics	1-1
Safety information for Users	1-2
Overview	1-3
Components	1-4
General description System 200V	1-5

Safety information for Users

Handling of electrostatically sensitive modules

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

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



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

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

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

Shipping of electrostatically sensitive modules

Modules have to be shipped in the original packing material.

Measurements and alterations on electrostatically sensitive modules

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

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

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

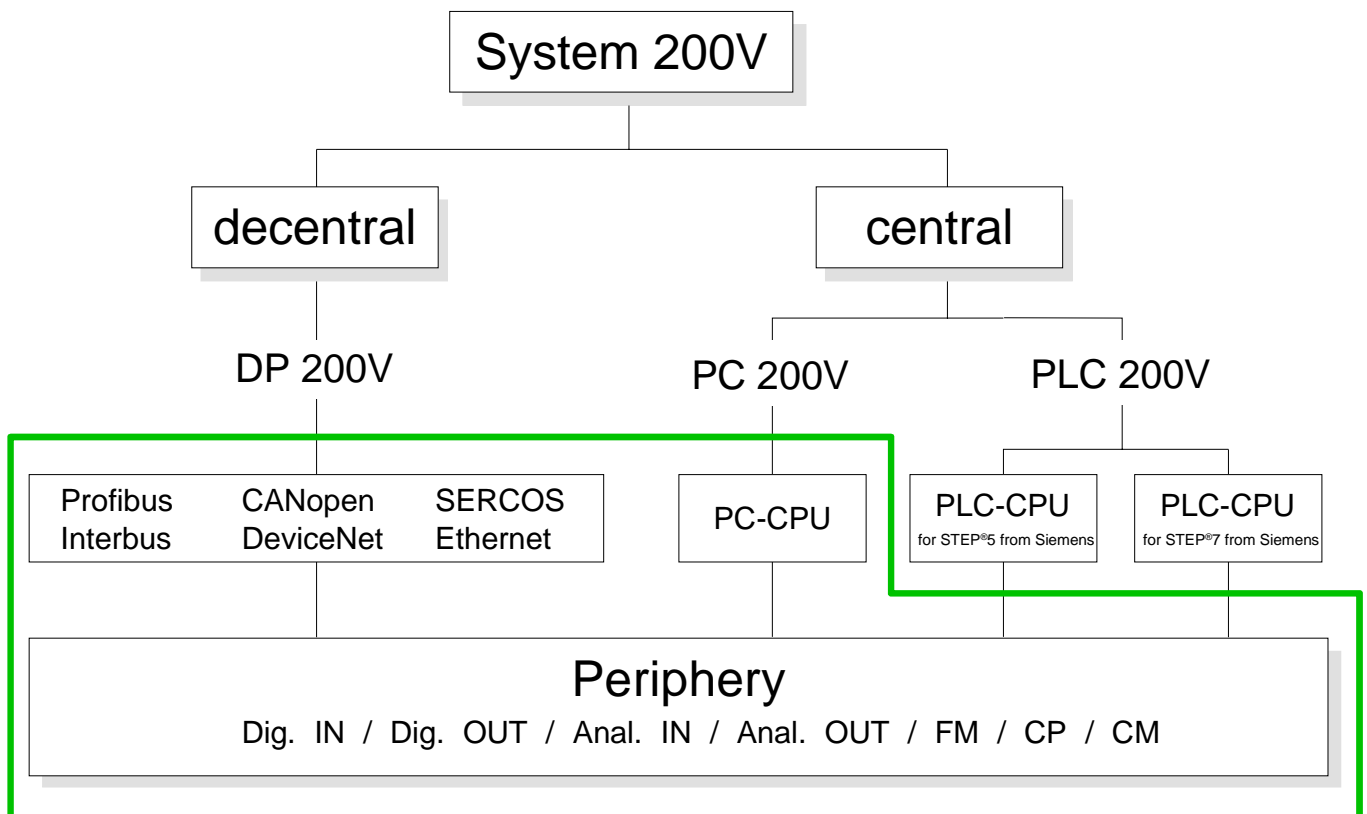


Attention!

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

Overview

The System 200V The System 200V is a modular automation system for centralized and decentralized applications requiring low to medium performance specifications. The modules are installed directly on a 35mm DIN rail. Bus connectors inserted into the DIN rail provide the interconnecting bus. The following figure illustrates the capabilities of the System 200V:



Components

Centralized system	<p>The System 200V series consists of a number of PLC-CPU's. These are programmed in STEP[®]5 or STEP[®]7 from Siemens.</p> <p>CPU's with integrated Ethernet interfaces or additional serial interfaces simplify the integration of the PLC into an existing network or the connection of additional peripheral equipment.</p> <p>The application program is saved in Flash or an additional plug-in memory module.</p> <p>The PC based CPU 288 can be used to implement operating/monitoring tasks, control applications or other file processing applications.</p> <p>The modules are programmed in C++ or Pascal.</p> <p>The PC 288-CPU provides an active interface to the backplane bus and can therefore be employed as central controller for all peripheral and function modules of the VIPA System 200V.</p> <p>With the appropriate expansion interface the System 200V can support up to 4 rows.</p>
Decentralized system	<p>In combination with a Profibus DP master and slave the PLC-CPU's or the PC-CPU form the basis for a Profibus-DP network in accordance with DIN 19245-3. The DP network can be configured with WinNCS VIPA configuration tool res. Siemens SIMATIC Manager.</p> <p>Other fieldbus systems may be connected by means of slaves for Interbus, CANopen, DeviceNet, SERCOS and Ethernet.</p>
Peripheral modules	<p>A large number of peripheral modules are available from VIPA, for example digital as well as analog inputs/outputs, counter functions, displacement sensors, positioners and serial communication modules.</p> <p>These peripheral modules can be used in centralized as well as decentralized mode.</p>
Integration over GSD File	<p>The functionality of all VIPA system components are available via different GSD-files.</p> <p>For the Profibus interface is software standardized, we are able to guarantee the full functionality by including a GSD-file using the Siemens SIMATIC Manager.</p> <p>For every system family there is an own GSD-file. Actual GSD files can be found at ftp.vipa.de/support.</p>

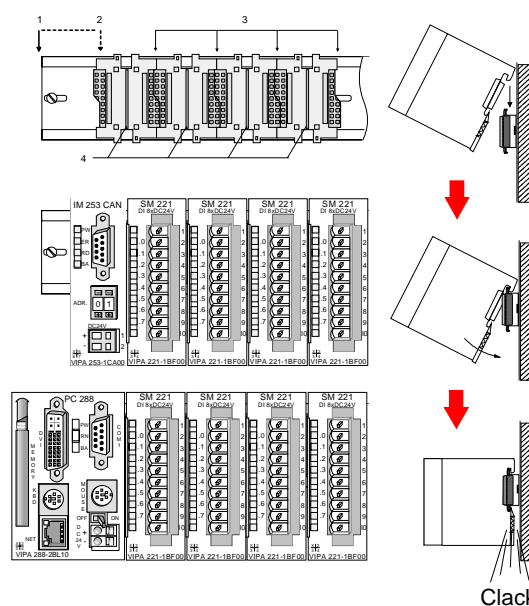
General description System 200V

Structure/ dimensions

- Standard 35mm DIN rail
- Peripheral modules with recessed labelling
- Dimensions of the basic enclosure:
 - 1tier width: (HxWxD) in mm: 76x25.4x74 in inches: 3x1x3
 - 2tier width: (HxWxD) in mm: 76x50.8x74 in inches: 3x2x3

Installation

Please note that you can only install header modules, like the CPU, the PC and couplers into plug-in location 1 or 1 and 2 (for double width modules).



- [1] Header modules, like PC, CPU, bus couplers (double width)
- [2] Header module (single width)
- [3] Peripheral module
- [4] Guide rails

Note

A maximum of 32 modules can be connected at the back plane bus. Take attention that here the **maximum sum current** of **3.5A** is not exceeded.

Please install modules with a high current consumption directly beside the header module.

Reliability

- Wiring by means of spring pressure connections (CageClamps) at the front-facing connector, core cross-section 0.08...2.5mm² or 1.5 mm² (18pole plug)
- Complete isolation of the wiring when modules are exchanged
- Every module is isolated from the backplane bus
- ESD/Burst acc. IEC 61000-4-2 / IEC 61000-4-4 (to level 3)
- Shock resistance acc. IEC 60068-2-6 / IEC 60068-2-27 (1G/12G)

Environmental conditions

- Operating temperature: 0 ... +60°C
- Storage temperature: -25 ... +70°C
- Relative humidity: 5 ... 95% without condensation
- Ventilation by means of a fan is not required

Chapter 2 Assembly and installation guidelines

Overview

This chapter contains the information required to assemble and wire a controller consisting of Systems 200V components.

Below follows a description of:

- a general summary of the components
- steps required for the assembly and for wiring
- EMC guidelines for assembling the System 200V

Content

Topic	Page
Chapter 2 Assembly and installation guidelines.....	2-1
Overview	2-2
Assembly.....	2-5
Wiring.....	2-8
Assembly dimensions.....	2-10
Installation guidelines	2-12

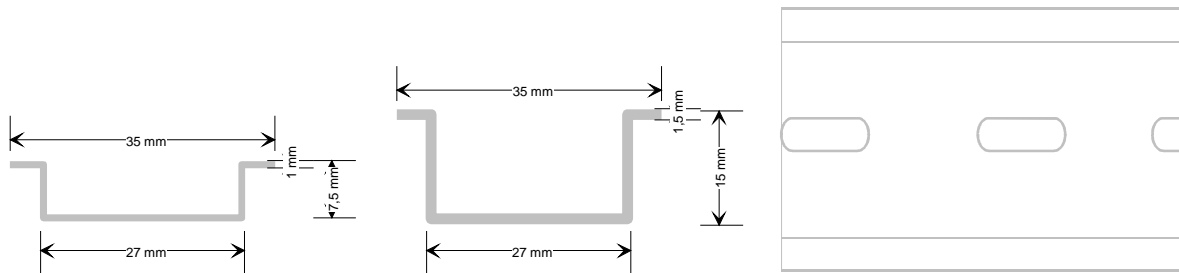
Overview

General

The modules are installed on a carrier rail. A bus connector provides interconnections between the modules. This bus connector links the modules via the backplane bus of the modules and it is placed into the profile rail that carries the modules.

Profile rail

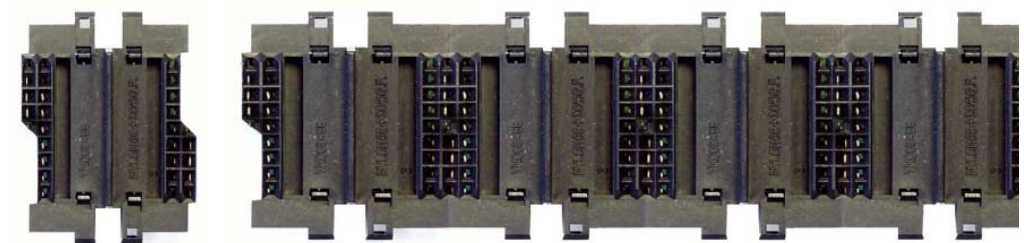
You may use the following standard 35mm profile rail to mount the System 200V modules:



Bus connector

System 200V modules communicate via a backplane bus connector. The backplane bus connector is isolated and available from VIPA in of 1-, 2-, 4- or 8tier width.

The following figure shows a 1tier connector and a 4tier connector bus:

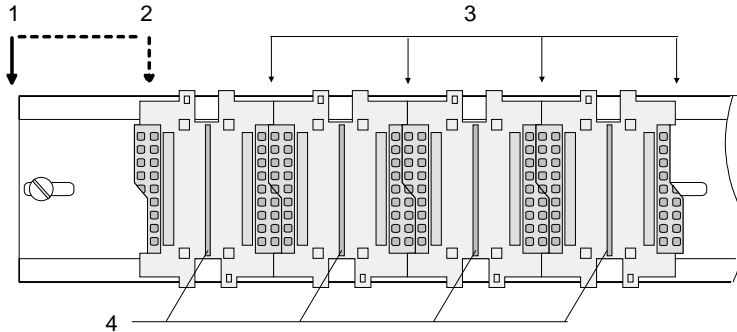


The bus connector is isolated and has to be inserted into the profile rail until it clips in its place and the bus connections protrude from the rail.

Profile rail installation

The following figure shows the installation of a 4tier width bus connector in a profile rail and the plug-in locations for the modules.

The different plug-in locations are defined by guide rails.

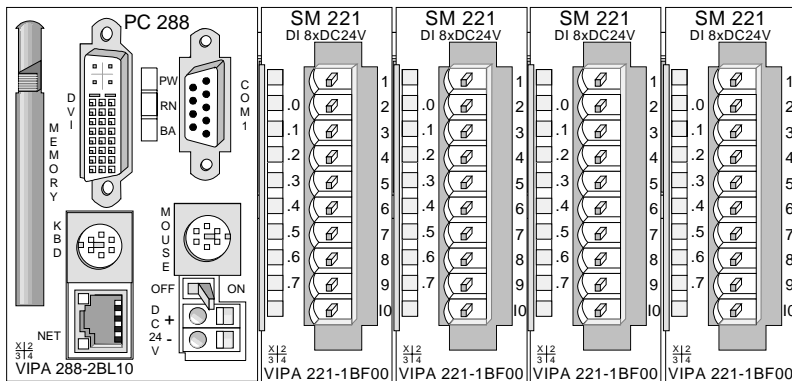
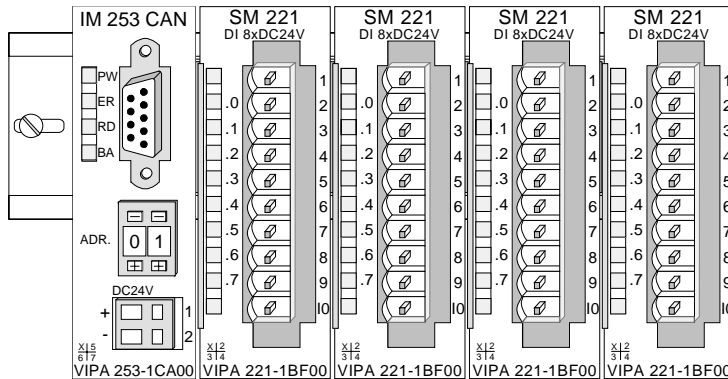


- [1] Header module, like PC, CPU, bus coupler, if double width
- [2] Header module (single width)
- [3] Peripheral module
- [4] Guide rails

Note

A maximum of 32 modules can be connected at the back plane bus.

Take attention that here the **maximum sum current of 3.5A** is not exceeded.



Assembly regarding the current consumption

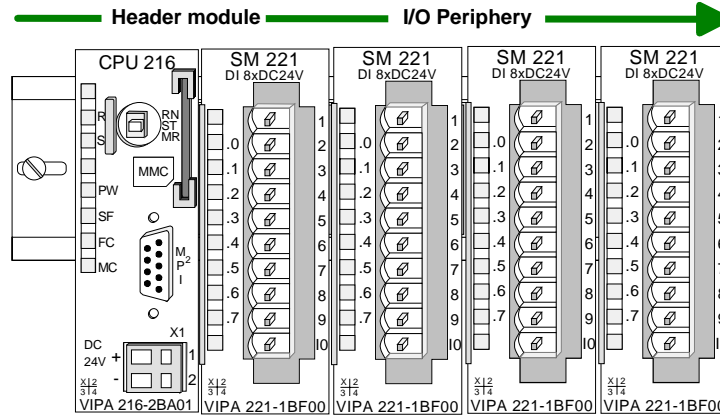
- Use bus connectors as long as possible.
- Sort the modules with a high current consumption right beside the header module. At ftp.vipa.de/manuals/system200v a list of current consumption of every System 200V module can be found.

Assembly horizontal respectively vertical

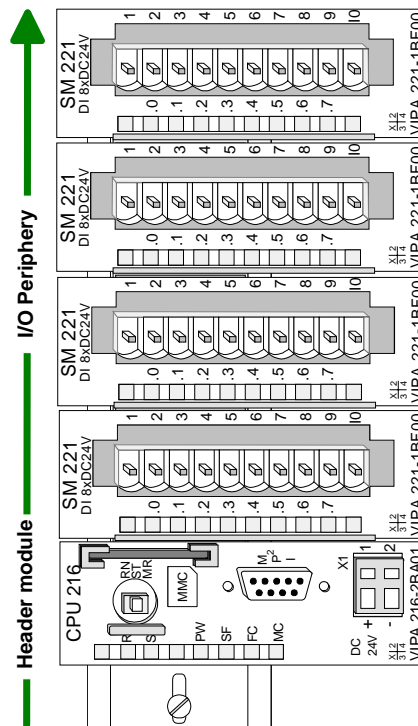
You may install the System 200V as well horizontal as vertical. Please regard the allowed environment temperatures:

- horizontal structure: from 0 to 60°
- vertical structure: from 0 to 40°

The horizontal structure always starts at the left side with a header module (CPU, bus coupler, PC), then you plug-in the peripheral modules beside to the right. You may plug-in maximum 32 peripheral modules.



The vertical structure is turned for 90° against the clock.

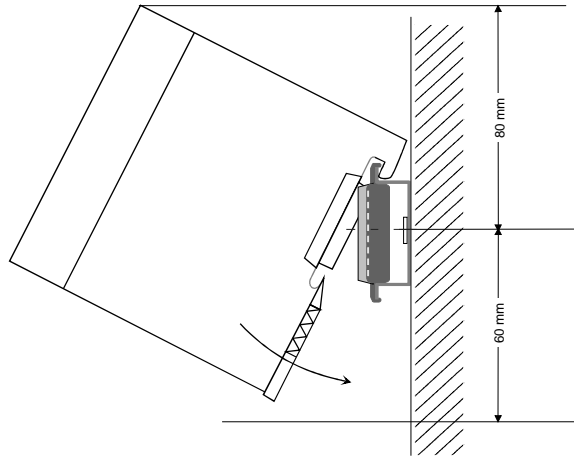


Assembly

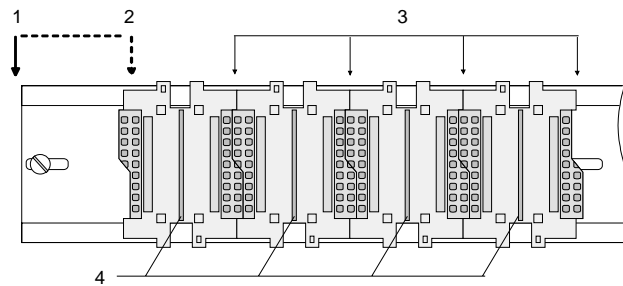


Please follow these rules during the assembly!

- Turn off the power supply before you insert or remove any modules!
- Make sure that a clearance of at least 60mm exists above and 80mm below the middle of the bus rail.



- Every row must be completed from left to right and it has to start with a header module (PC, CPU, and bus coupler).



- [1] Header module, like PC, CPU, bus coupler, if double width
- [2] Header module (single width)
- [3] Peripheral module
- [4] Guide rails

- Modules are to install adjacent to each other. Gaps are not permitted between the modules since this would interrupt the backplane bus.
- A module is only installed properly and connected electrically when it has clicked into place with an audible click.
- Plug-in locations after the last module may remain unoccupied.

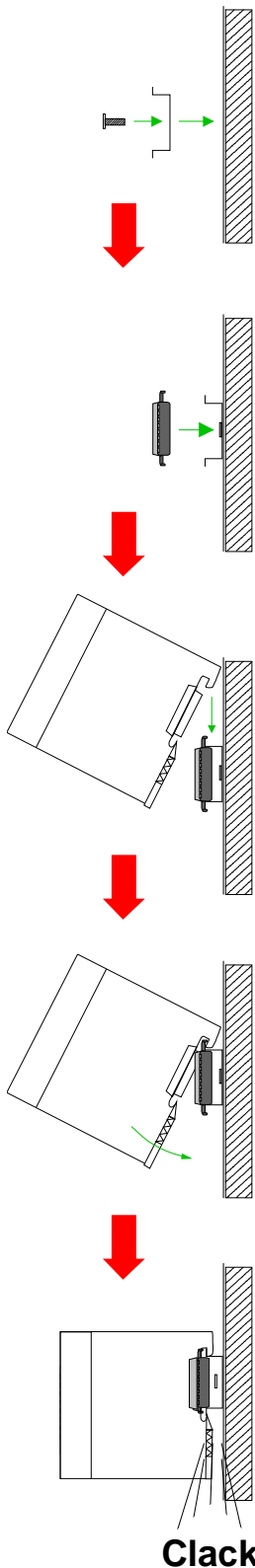


Note!

A maximum of 32 modules can be connected at the back plane bus. Take attention that here the maximum **sum current** of **3.5A** is not exceeded.

Assembly procedure

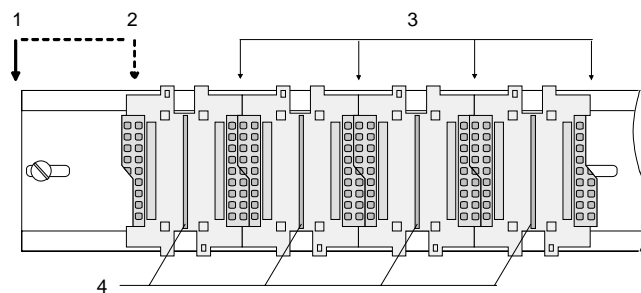
The following sequence represents the assembly procedure as viewed from the side.



- Install the profile rail. Make sure that a clearance of at least 60mm exists above and 80mm below the middle of the bus rail.

- Press the bus connector into the rail until it clips securely into place and the bus-connectors protrude from the profile rail. This provides the basis for the installation of your modules.

- Start at the outer left location with the installation of your header module like CPU, PC or bus coupler and install the peripheral modules to the right of this.



- [1] Header module like PC, CPU, bus coupler
- [2] Header module when this is a double width or a peripheral module
- [3] Peripheral module
- [4] Guide rails

- Insert the module that you are installing into the profile rail at an angle of 45 degrees from the top and rotate the module into place until it clicks into the profile rail with an audible click. The proper connection to the backplane bus can only be guaranteed when the module has properly clicked into place.

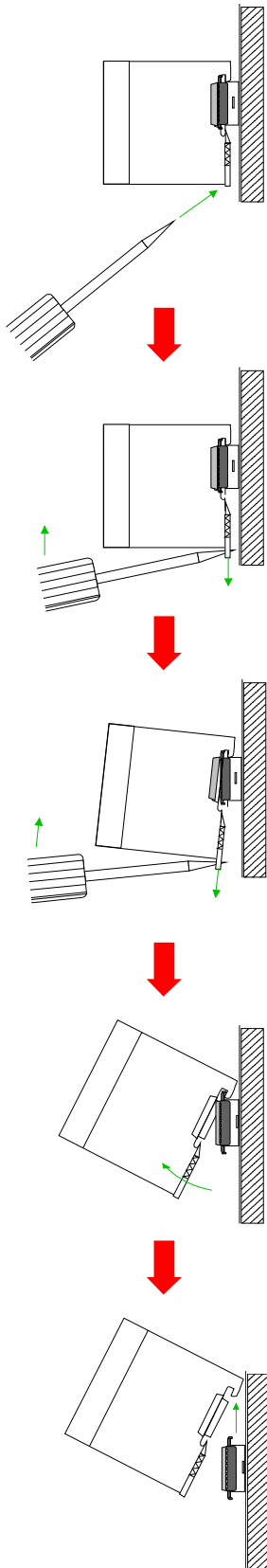


Attention!

Power must be turned off before modules are installed or removed!

Removal procedure

The following sequence shows the steps required for the removal of modules in a side view.



- The enclosure of the module has a spring-loaded clip at the bottom by which the module can be removed from the rail.
- Insert a screwdriver into the slot as shown.

- The clip is unlocked by pressing the screwdriver in an upward direction.

- Withdraw the module with a slight rotation to the top.

**Attention!**

Power must be turned off before modules are installed or removed!

Please remember that the backplane bus is interrupted at the point where the module was removed!

Wiring

Outline

Most peripheral modules are equipped with a 10pole or an 18pole connector. This connector provides the electrical interface for the signaling and supply lines of the modules.

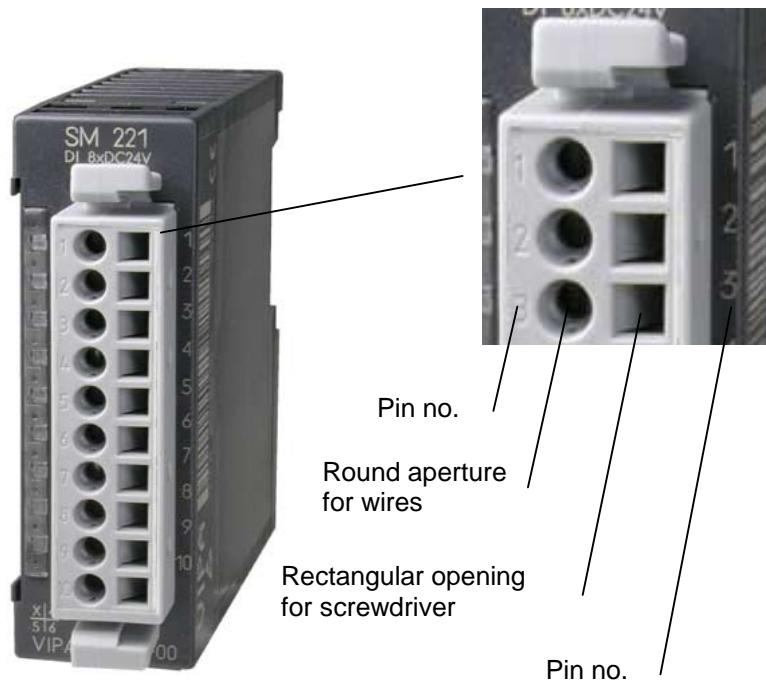
The modules carry spring-clip connectors for the interconnections and wiring.

The spring-clip connector technology simplifies the wiring requirements for signaling and power cables.

In contrast to screw terminal connections, spring-clip wiring is vibration proof. The assignment of the terminals is contained in the description of the respective modules.

You may connect conductors with a diameter from 0.08mm² up to 2.5mm² (max. 1.5mm² for 18pole connectors).

The following figure shows a module with a 10pole connector.

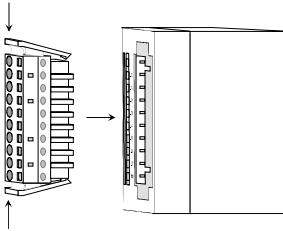


Note!

The spring-clip is destroyed if you insert the screwdriver into the opening for the hook-up wire!

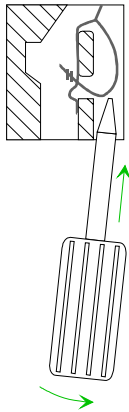
Make sure that you only insert the screwdriver into the square hole of the connector!

Wiring procedure

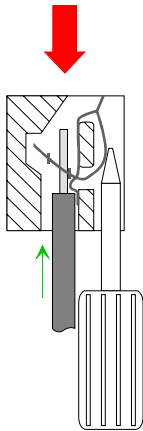


- Install the connector on the module until it locks with an audible click. For this purpose you press the two clips together as shown. The connector is now in a permanent position and can easily be wired.

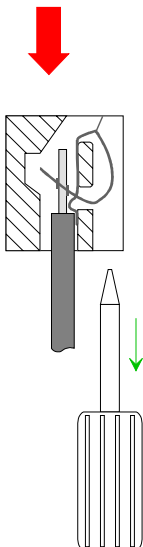
The following section shows the wiring procedure from above.



- Insert a screwdriver at an angle into the square opening as shown.
- Press and hold the screwdriver in the opposite direction to open the contact spring.



- Insert the stripped end of the hook-up wire into the round opening. You can use wires with a diameter of 0.08mm² to 2.5mm² (1.5mm² for 18pole connectors).



- When you remove the screwdriver, the wire is clipped securely.



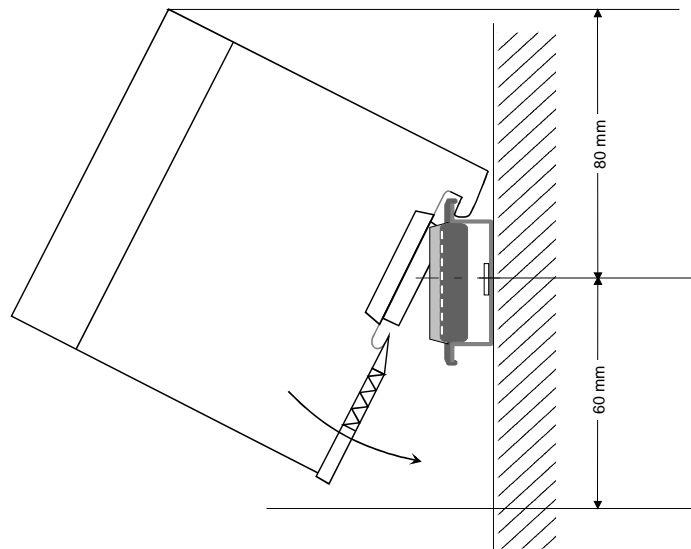
Wire the power supply connections first followed by the signal cables (inputs and outputs).

Assembly dimensions

Overview Here follow all the important dimensions of the System 200V.

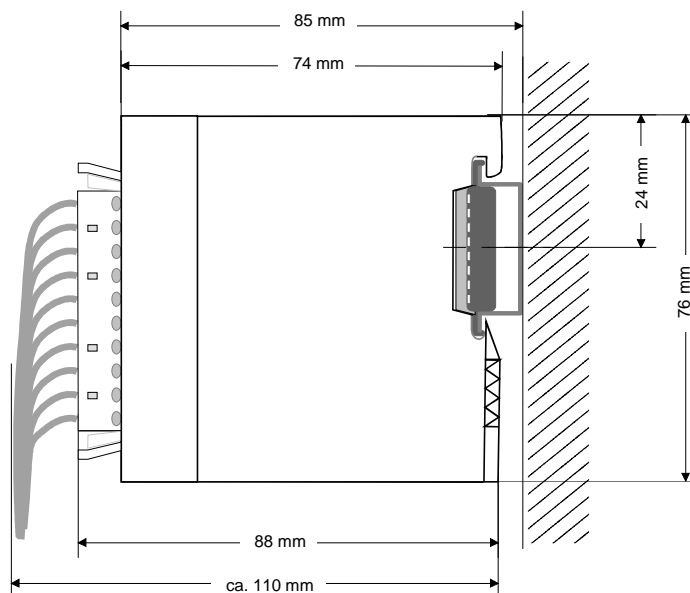
Dimensions
Basic enclosure 1tier width (HxWxD) in mm: 76 x 25.4 x 74
 2tier width (HxWxD) in mm: 76 x 50.8 x 74

Installation dimensions

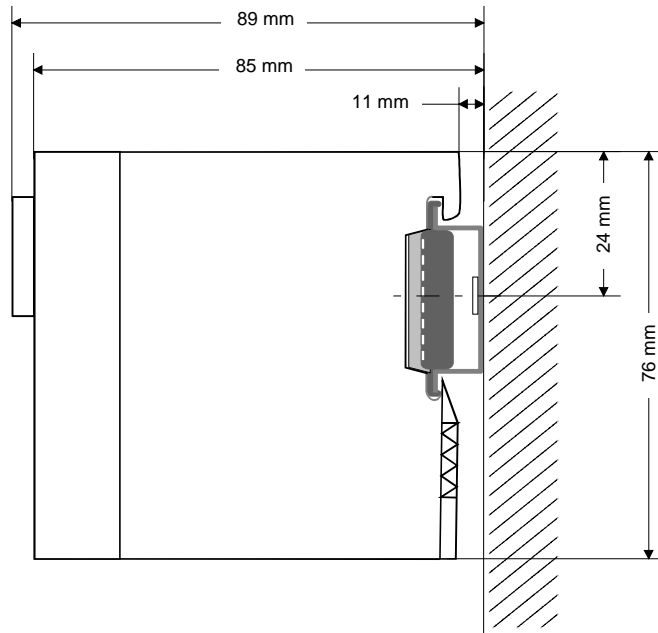


Installed and wired dimensions

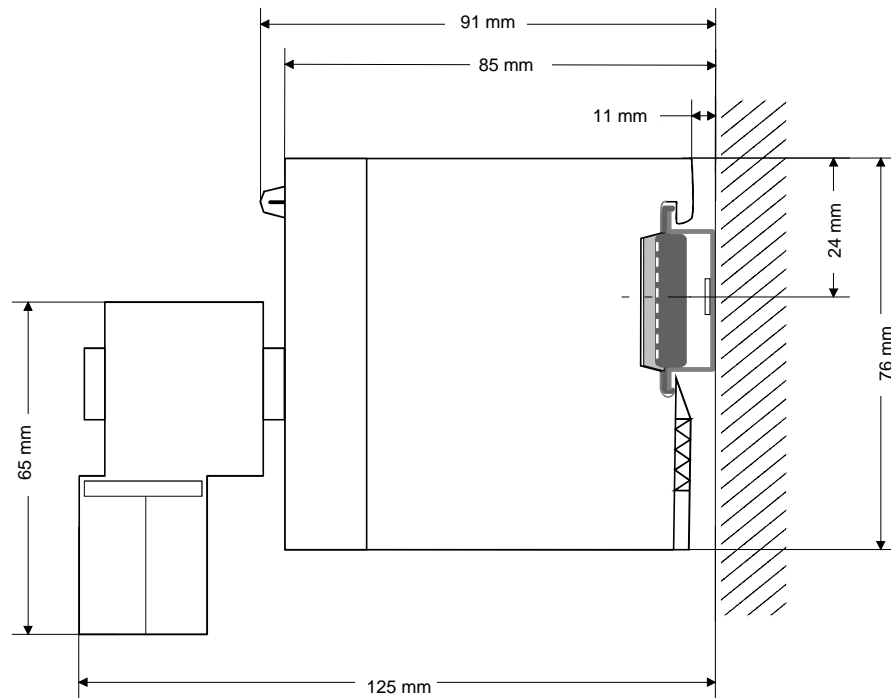
In- / Output modules



Function modules



CPUs here with EasyConn from VIPA



Installation guidelines

General The installation guidelines contain information on the proper assembly of System 200V. Here we describe possible ways of interference that may disturb the controlling system and how you have to approach shielding and screening issues to ensure the electromagnetic compatibility (EMC).

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

All System 200V components were developed for applications in harsh industrial environments and they comply with EMC requirements to a large degree. In spite of this you should implement an EMC strategy before installing any components which should include any possible source of interference.

Possible sources for disturbances

Electromagnetic interference can enter your system in many different ways:

- Fields
- I/O signal lines
- Bus system
- Power supply
- Protective conductor

Interference is coupled into your system in different ways, depending in the propagation medium (conducted or not) and the distance to the source of the interference.

We differentiate between:

- galvanic coupling
- capacitive coupling
- inductive coupling
- radiated power coupling

The most important rules for ensuring EMC

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

- During the installation of your components you have to ensure that any inactive metal components are grounded via a proper large-surface earth.
 - Install a central connection between the chassis ground and the earthing/protection system.
 - Interconnect any inactive metal components via low-impedance conductors with a large cross-sectional area.
 - Avoid aluminum components. Aluminum oxidizes easily and is therefore not suitable for grounding purposes.
- Ensure that wiring is routed properly during installation.
 - Divide the cabling into different types of cable. (Heavy current, power supply, signal and data lines).
 - Install heavy current lines and signal or data lines in separate channeling or cabling trusses.
 - Install signaling and data lines as close as possible to any metallic ground surfaces (e.g. frames, metal rails, sheet metal).
- Ensure that the screening of lines is grounded properly.
 - Data lines must be screened.
 - Analog lines must be screened. Where low-amplitude signals are transferred, it may be advisable to connect the screen on one side of the cable only.
 - Attach the screening of cables to the ground rail by means of large surface connectors located as close as possible to the point of entry. Clamp cables mechanically by means of cable clamps.
 - Ensure that the ground rail has a low-impedance connection to the cabinet/cubicle.
 - Use only metallic or metallized covers for the plugs of screened data lines.
- In critical cases you should implement special EMC measures.
 - Connect snubber networks to all inductive loads that are controlled by System 200V modules.
 - Use incandescent lamps for illumination purposes inside cabinets or cubicles, do not use fluorescent lamps.
- Create a single reference potential and ensure that all electrical equipment is grounded wherever possible.
 - Ensure that earthing measures are implemented effectively. The controllers are earthed to provide protection and for functional reasons.
 - Provide a star-shaped connection between the plant, cabinets/cubicles of the System 200V and the earthing/protection system. In this way you avoid ground loops.
 - Where potential differences exist you must install sufficiently large equipotential bonding conductors between the different parts of the plant.

Screening of cables

The screening of cables reduces the influence of electrical, magnetic or electromagnetic fields; we talk of attenuation.

The earthing rail that is connected conductively to the cabinet diverts interfering currents from screen conductors to ground. It is essential that the connection to the protective conductor is of low-impedance as the interfering currents could otherwise become a source of trouble in themselves.

The following should be noted when cables are screened:

- Use cables with braided screens wherever possible.
- The coverage of the screen should exceed 80%.
- Screens should always be grounded at both ends of cables. High frequency interference can only be suppressed by grounding cables on both ends.

Grounding at one end may become necessary under exceptional circumstances. However, this only provides attenuation to low frequency interference. One-sided earthing may be of advantage where:

- it is not possible to install equipotential bonding conductors.
- analog signals (in the mV or μ A range) are transferred.
- foil-type shields (static shields) are used.
- Always use metallic or metallized covers for the plugs on data lines for serial links. Connect the screen of the data line to the cover. Do **not** connect the screen to PIN 1 of the plug!
- In a stationary environment it is recommended that the insulation is stripped from the screened cable interruption-free and to attach the screen to the screening/protective ground rail.
- Connect screening braids by means of metallic cable clamps. These clamps need a good electrical and large surface contact with the screen.
- Attach the screen of a cable to the grounding rail directly where the cable enters the cabinet/cubicle. Continue the screen right up to the System 200V module but do **not** connect the screen to ground at this point!



Please heed the following when you assemble the system!

Where potential differences exist between earthing connections it is possible that an equalizing current could be established where the screen of a cable is connected at both ends.

Remedy: install equipotential bonding conductors

Chapter 3 Power supplies - PS

Overview This chapter contains descriptions of the System 200V power supplies.

Below follows a description of the:

- Power supply 2A
- Power supply 2A with terminal module
- Installation and wiring
- Technical data

Contents	Topic	Page
	Chapter 3 Power supplies - PS	3-1
	Safety precautions	3-2
	System overview	3-3
	PS 207/2 - Power supply - Structure	3-4
	PS 207/2CM - Power supply with Clamps - Structure.....	3-6
	Installation.....	3-8
	Wiring.....	3-9
	Technical data.....	3-10

Safety precautions

Appropriate use

The power supplies were designed and constructed:

- to supply DC 24V to the System 200V components
- to be installed on a t-rail along with System 200V components
- to operate as DC 24V stand-alone power supply
- for installation in a cabinet with sufficient ventilation
- for industrial applications

The following precautions apply to applications employing the System 200V power supplies.



Danger!

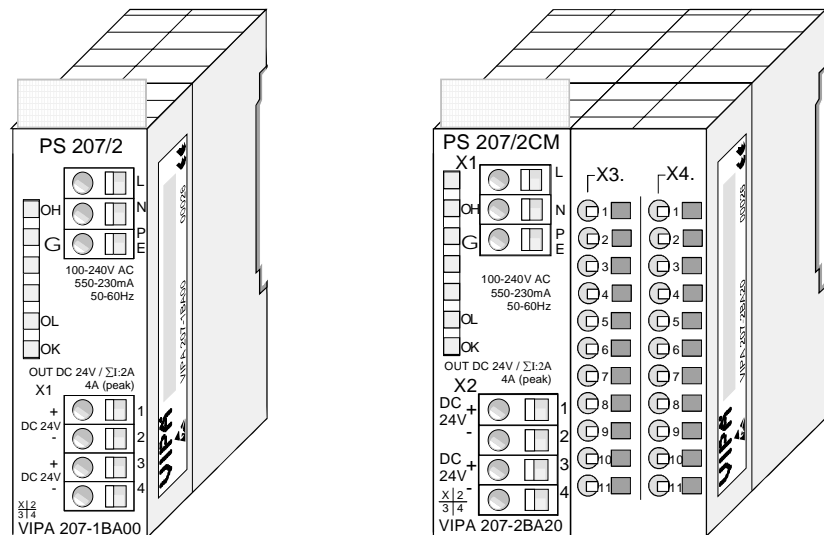
- The power supplies must be installed in protected environments that are only accessible to properly qualified maintenance staff!
- The power supplies are not certified for applications in explosive environments (EX-zone)!
- You have to disconnect the power supply from the main power source before commencing installation or maintenance work, i.e. before you start to work on a power supply or the supply cable the main supply line must be disconnected (disconnect plugs, on permanent installations the respective fuse has to be turned off)!
- Only properly qualified electrical staff is allowed to install, connect and/or modify electrical equipment!
- To provide a sufficient level of ventilation and cooling to the power supply components whilst maintaining the compact construction it was not possible to protect the unit from incorrect handling and a proper level of fire protection. For this reason the required level of fire protection must be provided by the environment where the power supply is installed (e.g. installation in a switchboard that satisfies the fire protection rules and regulations)!
- Please adhere to the national rules and regulations of the location and/or country where the units are installed (installation, safety precautions, EMC ...).

System overview

The System 200V power supplies are provided with a wide-range input that is connectable to AC 100 ... 240V. The output voltage is DC 24V at 2A/48W.

Since all inputs and outputs are located on the front of the unit and since the enclosure is isolated from the backplane bus you may install the power supply along with the System 200V on the same t-rail or you can use it as a separate external power supply.

The following power supplies are currently available:



Order data

Order number	Description
VIPA 207-1BA00	Power supply PS 207/2 primary AC 100...240V, secondary DC 24V, 2A, 48W
VIPA 207-2BA20	Power supply PS 207/2CM primary AC 100...240V, secondary DC 24V, 2A, 48W with terminal module 2x11 clamps

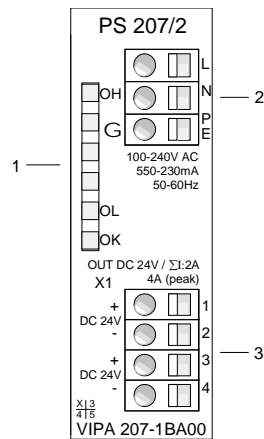
PS 207/2 - Power supply - Structure

Properties

The power supply is distinguished by the following properties:

- Wide-range input AC 100 ... 240V without manual intervention
- Output voltage DC 24V, 2A, 48W
- Can be installed on a t-rail together with other System 200V components or as stand-alone device
- Protection from short-circuits, overload and open circuits
- Typically 90% efficiency at I_{rated}

Structure



- [1] LED status indicator
- [2] AC IN 100 ... 240V
- [3] DC OUT 24V, 2A, 48W

LEDs

The front of the power supply carries 3 LEDs for troubleshooting purposes. The following table lists the significance and the respective color.

Name	Color	Description
OH	red	Overheat: turned on by excessive temperatures
OL	yellow	Overload: turned on when the total current exceeds the maximum capacity of app. 3A.
OK	green	Turned on when the power supply operates properly and supplies DC 24V power.



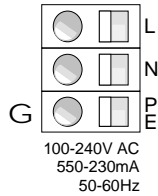
Note!

Only one LED is on at unit operation.

When all the LEDs are extinguished while the power supply is operational, a short circuit is present or the power supply has failed.

Connector wiring

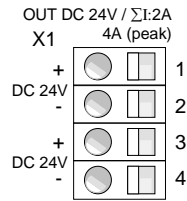
Input voltage INPUT AC 100...240V



The power supply must be connected to a source of AC power via the input connector.

A fuse protects the input from overloads.

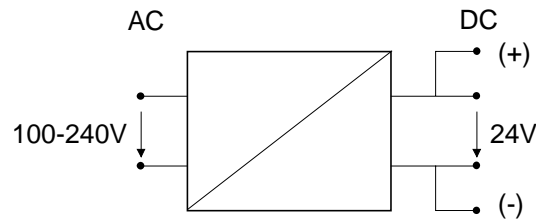
Output voltage OUTPUT DC 24V, 2A



Two connectors are provided for connection to System 200V modules that require an external source of DC 24V .

Both outputs are protected against short circuits and have an output voltage of DC 24V with a total current of 2A max.

Block diagram



Danger!

- You need to disconnect the power supply from the main power source before commencing installation or maintenance work, i.e. before you start to work on a power supply or the supply cable, the main supply line must be disconnected (disconnect plugs, on permanent installations, the respective fuse has to be turned off)!
- Only properly qualified electrical staff is allowed to install, connect and/or modify electrical equipment!

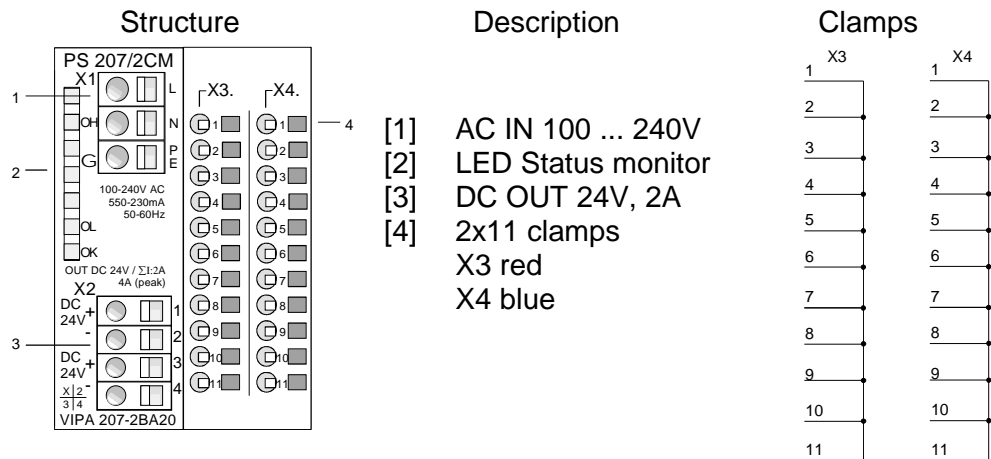
PS 207/2CM - Power supply with Clamps - Structure

Properties

The power supply is distinguished by the following properties:

- Wide-range input AC 100 ... 240V without manual intervention
- Output voltage DC 24V, 2A, 48W
- Installable on a t-rail together with other System 200V components or as stand-alone device
- Protection from short-circuits, overload and open circuits
- Typically 90% efficiency at I_{rated}
- Terminal module with 2x11 clamps

Structure



LEDs

The front of the power supply carries 3 LEDs for troubleshooting purposes. The following table lists the significance and the respective color.

Name	Color	Description
OH	red	Overheat: turned on by excessive temperatures
OL	yellow	Overload: turned on when the total current exceeds the maximum capacity of app. 3A.
OK	green	Turned on when the power supply operates properly and supplies DC 24V power.



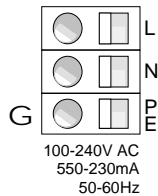
Note!

Only one LED is on at unit operation.

When all the LEDs are extinguished while the power supply is operational, a short circuit is present or the power supply has failed.

Connector wiring

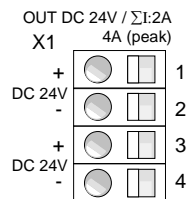
Input voltage INPUT AC 100...240V



The power supply has to be connected to a source of AC power via the input connector.

A fuse protects the input from overloads.

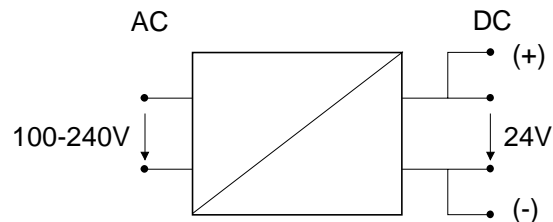
Output voltage OUTPUT DC 24V, 4A



Two connectors are provided for connection to System 200V modules that require an external source of DC 24V.

Both outputs are protected against short circuits protected and have an output voltage of DC 24V with a total current of max. 2A.

Block diagram



Danger!

- You need to disconnect the power supply from the main power source before commencing installation or maintenance work, i.e. before you start to work on a power supply or the supply cable the main supply line has to be disconnected (disconnect plugs, on permanent installations the respective fuse must be turned off)!
- Only properly qualified electrical staff is allowed to install, connect and/or modify electrical equipment!

Installation

Installation

The power supplies may be installed by two different methods:

- You may install the power supply along with System 200V modules on the same T-rail. In this case the power supply can only be installed at one end of your System 200V since the backplane bus would otherwise be interrupted.
The power supplies are not connected to the backplane bus.
- Installed as stand-alone power supply on a T-rail.

Please ensure proper and sufficient ventilation for the power supply when you select the installation location.



Danger!

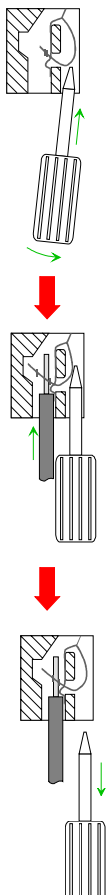
- The power supplies have to be installed in protected environments that are only accessible to properly qualified maintenance staff!
- You need to disconnect the power supply from the main power source before commencing installation or maintenance work, i.e. before you start to work on a power supply or the supply cable, the main supply line must be disconnected (disconnect plugs, on permanent installations, the respective fuse must be turned off)!
- Only properly qualified electrical staff is allowed to install, connect and/or modify electrical equipment!
- To provide a sufficient level of ventilation and cooling to the power supply components whilst maintaining the compact construction, it was not possible to protect the unit from incorrect handling and a proper level of fire protection. For this reason the required level of fire protection must be provided by the environment where the power supply is installed (e.g. installation in a switchboard that satisfies the fire protection rules and regulations)!
- Please adhere to the national rules and regulations of the location and/or country where the units are installed (installation, safety precautions, EMC ...).

Wiring

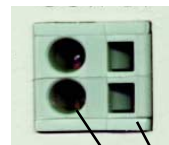
Wiring

The connections to the power supply are provided by spring-clip terminals. The terminals are able to accommodate wires of a diameter from 0.08mm^2 to 2.5mm^2 . You may use flexible multi-strand wires as well as solid conductors.

Wiring by means of spring-clip terminals



Connect cables to the spring-clip contacts as follows:



Square opening for screwdriver

Round opening for wires

The sequence shown on the left explains the steps that you have to follow to wire the power supply.

- Insert a suitable screwdriver at a slight angle into the square hole as shown.
- Push and hold the screwdriver in the opposite direction to open the spring contact.
- Insert the stripped end of the interconnecting wire into the round hole. You may use wires of a diameter of 0.08mm^2 to 2.5mm^2 .
- When you remove the screwdriver the inserted wire is clamped and connected securely by the spring-clip contact.



Danger!

- You have to disconnect the power supply from the main power source before commencing installation or maintenance work, i.e. before you start to work on a power supply or the supply cable, the main supply line has to be disconnected (disconnect plugs, on permanent installations, the respective fuse must be turned off)!
- Only properly qualified electrical staff is allowed to install, connect and/or modify electrical equipment!

Technical data

Power supply PS 207/2, 2A, 48W

Electrical data	VIPA 207-1BA00
Rated input voltage	AC 100 ... 240V
Frequency	50Hz / 60Hz
Rated input current	0.24A / AC 230V
- power on surge	max. 30A
Buffer time (at a mains voltage AC $\geq 150V$)	min. 10 ms
Rated output voltage	DC 24V \pm 5 %
- residual ripple	< 100 mV _{ss} incl. spikes
- open-circuit protection	yes
Rated output current	2A (48W); 4A (peak)
Efficiency	typ. 90% at I _{rated}
Power dissipation	5W at nominal load
No load power	1.5W
Status indicators (LED)	via LEDs located on the front
Operating conditions	
Operating temperature	0°C...55°C (linear derating from 40°C to 55°C with 1.3W/°C)
Storage	- 25°C...+ 85°C
EMC	DIN EN 61000 / Part 4-8
Certification/CE	yes
General protection	Short circuit; overload; over temperature
Installation	IP 20
Terminals	DIN rail Spring-clip Input L, N, PE Output 2xDC 24V in parallel
Dimensions and Weight	
Dimensions (WxHxD)	25.4x76x78mm
Weight	250g
Order data	
AC 100V-240V	VIPA 207-1BA00
DC 24V / 2A	

Power supply
PS 207/2CM,
2A, 48W

Electrical data	VIPA 207-2BA20
Rated input voltage	AC 100 ... 240V
Frequency	50Hz / 60Hz
Rated input current	0.24A / AC 230V
- power on surge	max. 30A
Buffer time (at a mains voltage AC $\geq 150V$)	min.10ms
Rated output voltage	DC 24V \pm 5 %
- residual ripple	< 100 mV _{ss} incl. spikes
- open circuit protection	yes
Rated output current	2A (48W);3A (peak)
Efficiency	typ. 90% at I _{rated}
Power dissipation	5W at the nominal load
No load power	1.5W
Status indicators (LED)	via LEDs located on the front
Operating conditions	
Operating temperature	0°C...55°C (linear derating from 40°C to 55°C with 1.2W/°C)
Storage	- 25°C...+ 85°C
EMC	DIN EN 61000 / Part 4-8
Certification/CE	yes
General protection	Short circuit; overload; over temperature IP 20
Installation	DIN-rail
Terminals	Spring-clip Input L, N, PE Output 2xDC 24V in parallel
Terminal module	
Number of rows	2
Number of clamps per row	11
Maximum clamp current	10A
Dimensions and Weight	
Dimensions (WxHxD)	50.8x76x78mm
Weight	300g
Ordering details	
AC 100V - 240V DC 24V / 2A	VIPA 207-2BA20

Chapter 4 System expansion modules - CM

Overview

The chapter contains a description of additional components that are available from VIPA for the System 200V.

The general overview is followed by the description of the 4port fast Ethernet mini switch. This module completes the System 200V network technology.

The chapter concludes with the terminal modules. These modules provide connection facilities for signaling cables as well as supply voltages for your System 200V.

Below follows a description of:

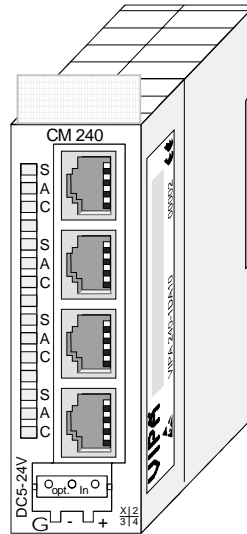
- System overview of additional components
- 4port mini switch CM 240
- Terminal module CM 201

Contents

Topic	Page
Chapter 4 System expansion modules - CM	4-1
Overview	4-2
CM 240 - 4port mini switch	4-3
CM 201 - Terminal module	4-5

System overview

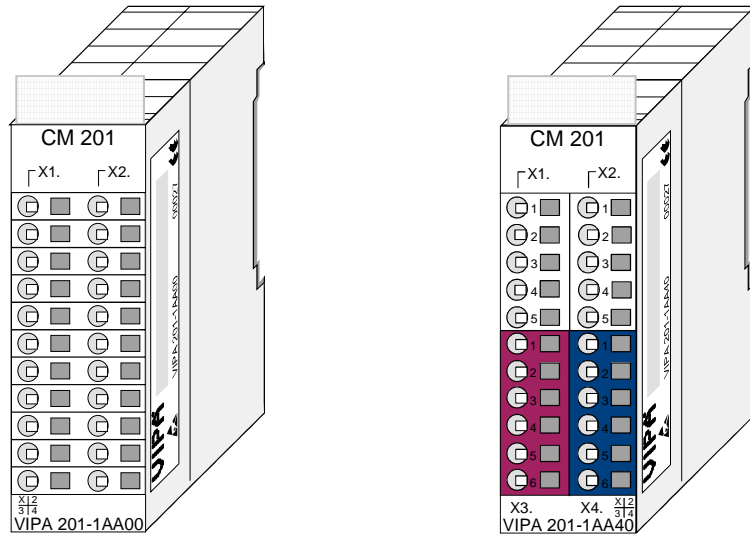
4port mini switch



Ordering data 4port mini switch

Type	Order number	Description
CM 240	VIPA 240-1DA10	4port mini switch
	VIPA 970-0CM00	optional front-facing connector at external power supply DC 5-24V

Terminal module



Ordering data terminal modules

Type	Order number	Description
CM 201	VIPA 201-1AA00	Dual terminals gray/gray
CM 201	VIPA 201-1AA10	Dual terminals green-yellow/gray
CM 201	VIPA 201-1AA20	Dual terminals red/blue
CM 201	VIPA 201-1AA40	Quad terminals gray/red/blue

CM 240 - 4port mini switch

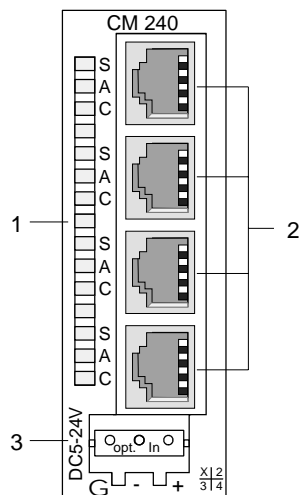
Ordering data 4port mini switch CM 240 VIPA 240-1DA10
Attention: the 4port mini switch had the order no. 243-1DA10 before!

Overview The 4port mini switch completes the System 200V network technology. Auto-Negotiation, Speed-Auto-Sensing and the Auto-MDI/MDIX-Crossover for every port enable the module for "plug & play". The module is provided with the needed operating voltage via the backplane bus. Alternatively you may supply the module via the front. The status indication of the 4 ports happens via LEDs on the front side.

Properties

- 4 ports for 10 res. 100MBit/s,
- "plug and play" through Auto-MDI/MDIX-crossover for 100BASE-TX and 10BASE-T,
- Auto-Negotiation and Speed-Auto-Sensing
- for every port automatic switch between 10 and 100MBit/s res. half- and full-duplex operation
- LEDs for activity, speed and collision
- Supports IEEE 802.3, IEEE 802.3u and IEEE 802.3x
- Extra high performance up to 150m at UTP (unscreened twisted-pair cable)
- Back-pressure-based flow control at half-duplex operation
- Pause-frame-based flow control at full-duplex operation
- Store-and-forward switching mode
- Shared memory based switch

Front view CM 240



- [1] LED Status monitoring
 [2] twisted-pair Ports for Ethernet
 [3] Power supply external

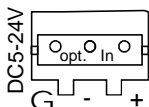
Components

LEDs For every twisted-pair jack there are 3 LEDs at the front side. The LEDs have the following function:

Name	Color	Function	Description
S	green	Speed	on: 100MBit, off: 10MBit
A	yellow	Activity	on: physically connected, off: no physical connection blinking: shows bus activity
C	yellow	Collision	on: full-duplex operation active, off: half-duplex operation active blinking: Collision detected

Power supply

The power supply takes place via the backplane bus of the System 200V. You may also deploy the switch as stand-alone device. Here you have to provide it with external DC 5...24V.



The plug for connecting an external power supply is under a flap that you have to break out.

For connecting an external power supply there is a connection jack available from VIPA under the order number VIPA 970-0CM00.



Attention!

The power supply has to take place either internal via backplane bus or external. **A simultaneous supply must be avoided!**

Twisted-pair ports

The twisted-pair jacks are used to build-up a twisted-pair network in star topology. This allows you to connect up to 4 Ethernet components, where 1 connection has to be deployed as uplink port to the ongoing network. The uplink port is detected automatically.

Technical data

Electrical Data	VIPA 240-1DA10
Number of ports	4
Current consumption via backplane bus	450mA
Power supply (intern)	DC 5V, via backplane bus
Power supply (extern)	optional connection jack VIPA 970-0CM00 DC 5...24V
Status monitor	via LEDs at the front side
Interface	
	RJ45 twisted-pair, UTP, S/FTP
Dimensions and Weight	
Dimensions (WxHxD) in mm	25.4x76x74
Weight	50g

CM 201 - Terminal modules

2 x 11 pole

The terminal module is available under order no.: VIPA 201-1AAxx.

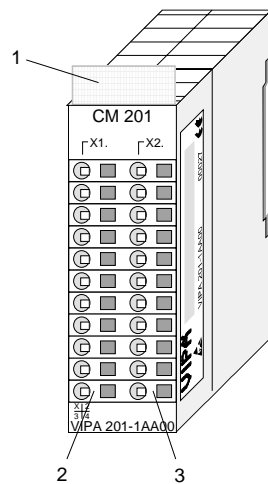
This module is a complementary module providing 2- or 3wire connection facilities. The module is not connected to the system bus.

Properties

- 2 separate rows of 11 electrically interconnected terminals.
- No connection to the system bus.
- Maximum terminal current 10A.

Construction and schematic diagram

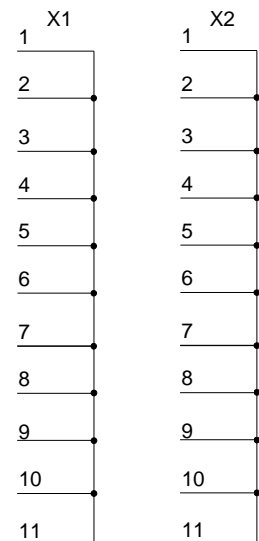
Construction



Description

- [1] Label
- [2] 1st terminal strip
- [3] 2nd terminal strip

Schematic diagram



Technical data

Electrical data	VIPA 201-1AA00	VIPA 201-1AA10	VIPA 201-1AA20
Number of rows	2	2	2
Number of terminals per row	11	11	11
Maximum terminal current	10A	10A	10A
Terminal color	gray/gray	green-yellow/gray	red/blue
Dimensions and weight			
Dimensions (WxHxD) in mm	25.4x76x74	25.4x76x74	25.4x76x74
Weight	50g	50g	50g

2 x 5 pole
2 x 6 pole

The terminal module has the order no: VIPA 201-1AA40.

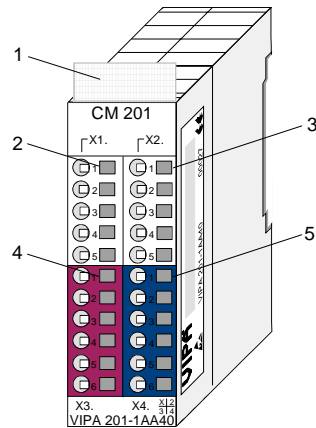
This module is a complementary module providing 2- or 3wire connection facilities. The module is not connected to the system bus.

Properties

- 4 separate rows with 2 x 5 and 2 x 6 electrically interconnected terminals
- No connection to the system bus
- Maximum terminal current 10A

Construction and schematic diagram

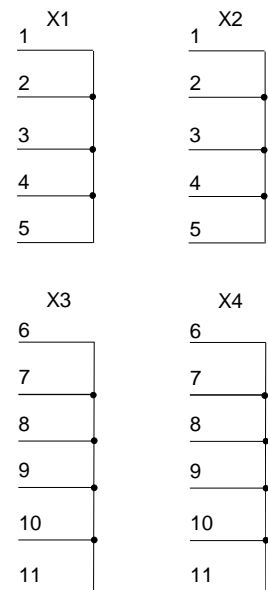
Construction



Description

- [1] Label
- [2] 1st terminal strip
- [3] 2nd terminal strip
- [4] 3rd terminal strip
- [5] 4th terminal strip

Schematic diagram



Technical data

Electrical data	VIPA 201-1AA40
Number of rows	2
Number of terminals per row	5 + 6
Maximum terminal current	10A
Terminal color	gray/red/blue
Dimensions and weight	
Dimensions (WxHxD) in mm	25.4x76x74
Weight	50g

Appendix

A Index

<i>L</i>		System 200V	
LEDs		Assembly.....	2-1, 2-5
CM 240	4-4	dimensions.....	2-10
PS 207	3-4	Basics.....	1-1
<i>M</i>		Bus connector	2-2
Mini switch CM 240.....	4-3	Centralized system	1-4
<i>P</i>		Components	1-4
Pin assignment		Decentralized system	1-4
CM 201	4-5	Disturbances	2-12
CM 240	4-4	EMC	2-12
PS 207/2.....	3-5	Basic rules	2-13
PS 207/2CM	3-7	Environmental conditions	1-5
Power supply PS 207.....	3-1	Installation guidelines	2-12
Installation.....	3-8	Overview.....	1-3, 1-5
PS 207/2	3-4	Peripheral modules	1-4
PS 207/2CM	3-6	Profile rail	2-2
Safety precautions.....	3-2	Project engineering	1-4
Technical data	3-10	Reliability	1-5
Wiring	3-9	Removal	2-7
Properties		Safety Information	1-2
CM 201	4-5	Screening of cables.....	2-14
CM 240	4-3	Wiring.....	2-8
PS 207/2	3-4	System expansion modules CM...	4-1
PS 207/2CM	3-6	System overview	
<i>S</i>		Expansion modules CM	4-2
Schematic diagram		Power supply PS 207	3-3
CM 201	4-5	<i>T</i>	
PS 207/2.....	3-5	Technical data	
PS 207/2CM	3-7	CM 201	4-5
Structure		CM 240.....	4-4
CM 201	4-5	PS 207.....	3-10
CM 240	4-3	Terminal modules CM 201	4-5
PS 207/2.....	3-4	<i>W</i>	
PS 207/2CM	3-6	Wide-range input.....	3-3

