

EM | Manual

HB100E_EM | RE_123-4Ex | Rev. 13/04 January 2013



Copyright © VIPA GmbH. All Rights Reserved.

This document contains proprietary information of VIPA and is not to be disclosed or used except in accordance with applicable agreements.

This material is protected by the copyright laws. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to VIPA), except in accordance with applicable agreements, contracts or licensing, without the express written consent of VIPA and the business management owner of the material.

For permission to reproduce or distribute, please contact: VIPA, Gesellschaft für Visualisierung und Prozessautomatisierung mbH

Ohmstraße 4, D-91074 Herzogenaurach, Germany

Tel.: +49 (91 32) 744 -0 Fax.: +49 9132 744 1864 EMail: info@vipa.de http://www.vipa.com

Note

Every effort has been made to ensure that the information contained in this document was complete and accurate at the time of publishing. Nevertheless, the authors retain the right to modify the information. This customer document describes all the hardware units and functions known at the present time. Descriptions may be included for units which are not present at the customer site. The exact scope of delivery is described in the respective purchase contract.

CE Conformity Declaration

Hereby, VIPA GmbH declares that the products and systems are in compliance with the essential requirements and other relevant provisions.

Conformity is indicated by the CE marking affixed to the product.

Conformity Information

For more information regarding CE marking and Declaration of Conformity (DoC), please contact your local VIPA customer service organization.

Trademarks

VIPA, SLIO, System 100V, System 200V, System 300V, System 300S, System 400V, System 500S and Commander Compact are registered trademarks of VIPA Gesellschaft für Visualisierung und Prozessautomatisierung mbH.

SPEED7 is a registered trademark of profichip GmbH.

SIMATIC, STEP, SINEC, TIA Portal, S7-300 and S7-400 are registered trademarks of Siemens AG.

Microsoft und Windows are registered trademarks of Microsoft Inc., USA.

Portable Document Format (PDF) and Postscript are registered trademarks of Adobe Systems, Inc.

All other trademarks, logos and service or product marks specified herein are owned by their respective companies.

Information product support

Contact your local VIPA Customer Service Organization representative if you wish to report errors or questions regarding the contents of this document. If you are unable to locate a customer service center, contact VIPA as follows:

VIPA GmbH, Ohmstraße 4, 91074 Herzogenaurach, Germany

Telefax:+49 9132 744 1204 EMail: documentation@vipa.de

Technical support

Contact your local VIPA Customer Service Organization representative if you encounter problems with the product or have questions regarding the product. If you are unable to locate a customer service center, contact VIPA as follows:

VIPA GmbH, Ohmstraße 4, 91074 Herzogenaurach, Germany

Telephone: +49 9132 744 1150 (Hotline)

EMail: support@vipa.de

Contents

About this	manual	1
Safety infor	rmation	2
Chapter 1	Basics	1-1
Safety info	ormation for Users	1-2
	System 100V	
General D	Description of the System 100V	1-4
Assembly	dimensions	1-5
Installation	n Guidelines	1-7
Chapter 2	Hardware description and deployment	2-1
System ov	/erview	2-2
Assembly		2-3
Project en	gineering	2-5
123-4EH0	11 - DI 8xDC 24V / DO 8xDC 24V 0.5A	2-6
123-4EJ0	1 - DI 16xDC 24V / DO 8xDC 24V 0.5A	2-9
123-4EJ1	1 - DI 16xDC 24V / DO 8xRelay	2-12
123-4EJ2	0 - DI 16xAC/DC 60230V / DO 8xRelay	2-15
123-4EL0	1 - DI 16xDC 24V / DO 16xDC 24V 0.5A	2-18

About this Manual

This manual describes the digital expansion modules EM 123 of the System 100V from VIPA.

Here you may find every information for commissioning and operation.

Overview

Chapter 1: Basics

These basics include recommendations on the handling of the modules of the VIPA System 100V as central resp. decentral automation system.

Besides a system overview you will find general information of the System 100V like assembly dimensions, installation and environmental conditions.

The chapter is finished by the installation guidelines to ensure the EMC during installation.

Chapter 2: Hardware description and deployment

This chapter contains every information for the deployment of the digital expansion modules of the System 100V.

Every Micro-PLC CPU has an interface for backplane bus connectors. This allows to connect System 100V expansion modules and modules of the System 200V family.

Objective and contents

This manual describes the System 100V Expansion modules EM 123 from VIPA. It contains a description of the construction, project implementation and usage.

This manual is part of the documentation package with order number HB100E EM and relevant for:

Product	Order number	as of state: HW
EM 123	VIPA 123-4Ex	01

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:

- an overall table of contents at the beginning of the manual
- · an overview of the topics for every chapter

Availability

The manual is available in:

- 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 100V is constructed and manufactured for

- · 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:

- Hardware modifications to the process control system should only be carried out when the system has been disconnected from power!
- Installation and hardware modification 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

These basics include recommendations on the handling of the modules of the VIPA System 100V as central resp. decentral automation system. Besides a system overview you will find general information of the System 100V like assembly dimensions, installation and environmental conditions. The chapter is finished by the installation guidelines to ensure the EMC during installation.

Content

Topic	Page
Chapter 1 Basics	
Safety information for Users	1-2
Overview System 100V	1-3
General Description of the System 100	V1-4
Assembly dimensions	1-5
Installation guidelines	1-7

Safety information for Users

Handling of electrostatic sensitive modules VIPA modules make use of highly integrated components in MOStechnology. 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 electrostatic 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 electrostatic sensitive modules.

Shipping of electrostatic sensitive modules

Modules have to be shipped in the original packing material.

Measurements and alterations on electrostatic sensitive modules When you are conducting measurements on electrostatic sensitive modules you should take the following precautions:

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

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



Attention!

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

Overview System 100V

General

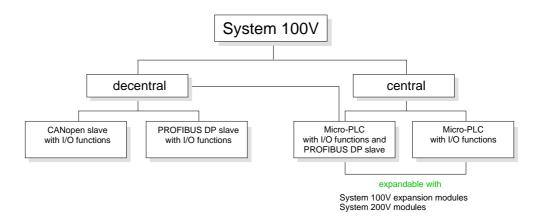
The System 100V from VIPA is a compact central and decentral usable automation system from VIPA. The system is recommended for lower and middle performance needs.

At a System 100V module, CPU res. bus coupler are integrated together with in-/output functions in one case.

System 100V modules are installed directly to a 35mm norm profile rail.

You may expand the number of I/Os of the Micro-PLC by means of expansion modules res. connect System 200V modules via bus couplers.

The following picture shows the performance range of the System 100V:



Central system

The central system is built of one CPU and integrated I/O-functions. The CPU is instruction compatible to the S7-300 from Siemens and may be programmed and projected by means of S7 programming tools from Siemens and VIPA via MPI.

By means of bus couplers you may connect modules of the System 200V family res. enlarge the number of I/Os by installing System 100V expansion modules

The CPUs are available in different variants.

Central system with DP slave

At the central system besides the CPU and I/O functions, a PROFIBUS DP slave is included that acknowledges itself within the address range of the CPU.

Decentral system

This system contains a PROFIBUS DP res. CANopen slave with I/O functions instead of the CPU. The system is not expandable.

General Description of the System 100V

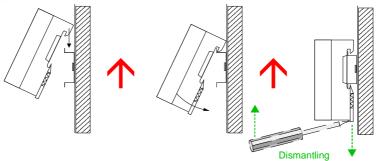
Structure and dimensions

- Norm profile head rail 35mm
- Dimensions basic module:

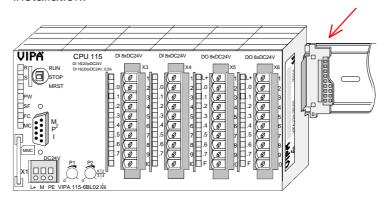
4tier width: (WxHxD) in mm: 101.6x76x48 / in inches: 4x3x1.9 6tier width: (WxHxD) in mm: 152.4x76x48 / in Inches: 6x3x1.9

Installation

The installation of a System 100V module works via snapping on a norm profile head rail.



When using expansion modules, you have to clip the included 1tier bus connector at the right side to the module from behind before the installation.



Operation security

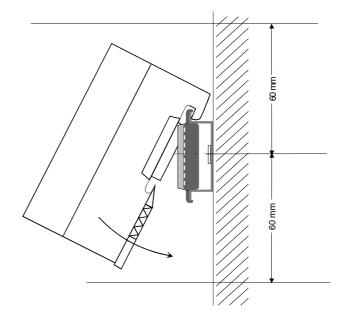
- Plug in via CageClamps, core cross-section 0.08...2.5mm²
- Total isolation of the cables during module changes
- EMV resistance ESD/Burst acc. IEC 61000-4-2 / IEC 61000-4-4 (to level 3)
- Shock resistance acc. IEC 60068-2-6 / IEC 60068-2-27 (1G/12G)

Environmental conditions

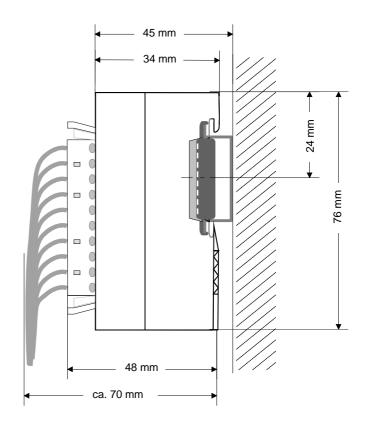
- Operating temperature: 0... + 60°C
- Storage temperature: -25... + 70°C
- Relative humidity: 5 ... 95% without condensation
- fan-less operation

Assembly dimensions

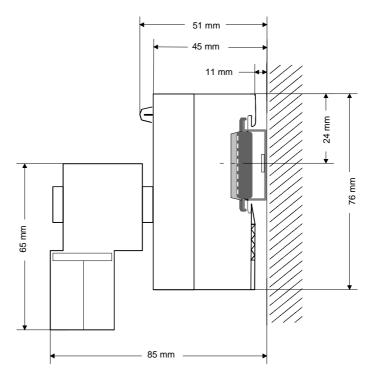
Installation dimensions



Installed and wired dimensions



CPU 11x with EasyConn from VIPA



Installation guidelines

General

The installation guidelines contain information about the interference free deployment of System 100V. There is the description of the ways, interference may occur in your control, how you can make sure the electromagnetic digestibility (EMC), and how you manage the isolation.

What means EMC?

Electromagnetic digestibility (EMC) means the ability of an electrical device, to function error free in an electromagnetic environment without being interferenced res. without interferencing the environment.

All System 100V components are developed for the deployment in industrial environments and fulfill high demands on the EMC. Nevertheless you should project an EMC planning before installing the components and take conceivable interference causes into account.

Possible interference causes

Electromagnetic interferences may interfere your control via different ways:

- Electromagnetic fields (RF coupling)
- · Magnetic fields with power frequency
- I/O signal conductors
- · Bus system
- Current supply
- · Protected earth conductor

Depending on the spreading medium (lead bound or lead free) and the distance to the interference cause, interferences to your control occur by means of different coupling mechanisms.

One differs:

- galvanic coupling
- · capacitive coupling
- inductive coupling
- radiant coupling

Basic rules for EMC

In the most times it is enough to take care of some elementary rules to guarantee the EMC. Please regard the following basic rules when installing your PLC.

- Take care of a correct area-wide grounding of the inactive metal parts when installing your components.
 - Install a central connection between the ground and the protected earth conductor system.
 - Connect all inactive metal extensive and impedance-low.
 - Please try not to use aluminum parts. Aluminum is easily oxidizing and is therefore less suitable for grounding.
- When cabling, take care of the correct line routing.
 - Organize your cabling in line groups (high voltage, current supply, signal and data lines).
 - Always lay your high voltage lines and signal res. data lines in separate channels or bundles.
 - Route the signal and data lines as near as possible beside ground areas (e.g. suspension bars, metal rails, tin cabinet).
- · Proof the correct fixing of the lead isolation.
 - Data lines must be laid isolated (for details see below).
 - Analog lines must be laid isolated. When transmitting signals with small amplitudes the one sided laying of the isolation may be favorable.
 - Lay the line isolation extensively on an isolation/protected earth conductor rail directly after the cabinet entry and fix the isolation with cable clamps.
 - Make sure that the isolation/protected earth conductor rail is connected impedance-low with the cabinet.
 - Use metallic or metalized plug cases for isolated data lines.
- In special use cases you should appoint special EMC actions.
 - Wire all inductivities with erase links, which are not addressed by the System 100V modules.
 - For lightening cabinets you should avoid luminescent lamps.
- Create a homogeneous reference potential and ground all electrical operating supplies when possible.
 - Please take care for the targeted employment of the grounding actions. The grounding of the PLC is a protection and functionality activity.
 - Connect installation parts and cabinets with the System 100V in star topology with the isolation/protected earth conductor system. So you avoid ground loops.
 - If potential differences between installation parts and cabinets occur, lay sufficiently dimensioned potential compensation lines.

Isolation of conductors

Electrical, magnetically and electromagnetic interference fields are weakened by means of an isolation, one talks of absorption.

Via the isolation rail, that is connected conductive with the rack, interference currents are shunt via cable isolation to the ground. Hereby you have to make sure, that the connection to the protected earth conductor is impedance-low, because otherwise the interference currents may appear as interference cause.

When isolating cables you have to regard the following:

- If possible, use only cables with isolation tangle.
- The hiding power of the isolation should be higher than 80%.
- Normally you should always lay the isolation of cables on both sides.
 Only by means of the both-sided connection of the isolation you achieve high quality interference suppression in the higher frequency area.

Only as exception you may also lay the isolation one-sided. Then you only achieve the absorption of the lower frequencies. A one-sided isolation connection may be convenient, if:

- the conduction of a potential compensating line is not possible
- analog signals (some mV res. µA) are transferred
- foil isolations (static isolations) are used.
- With data lines always use metallic or metalized plugs for serial couplings. Fix the isolation of the data line at the plug rack.
- At stationary operation it is convenient to strip the insulated cable interruption free and lay it on the isolation/protected earth conductor line.
- To fix the isolation tangles use cable clamps out of metal. The clamps must clasp the isolation extensively and have well contact.
- Lay the isolation on an isolation rail directly after the entry of the cable in the cabinet. Lead the isolation further on to the module and don't lay it on there again!



Please regard at installation!

At potential differences between the grounding points, there may be a compensation current via the isolation connected at both sides.

Remedy: Potential compensation line

Chapter 2 Hardware description and deployment

Overview

This chapter contains every information for the deployment of the digital expansion modules of the System 100V.

Every Micro-PLC CPU has an interface for backplane bus connectors. This allows to connect System 100V expansion modules and modules of the System 200V family.

Content	Topic		Page
	Chapter 2	Hardware description and deployment	2-1
		erview	
	Assembly.		2-3
	Project en	gineering	2-5
	123-4EH0	1 - DI 8xDC 24V / DO 8xDC 24V 0.5A	2-6
	123-4EJ01	- DI 16xDC 24V / DO 8xDC 24V 0.5A	2-9
	123-4EJ11	- DI 16xDC 24V / DO 8xRelay	2-12
	123-4EJ20	- DI 16xAC/DC 60230V / DO 8xRelay	2-15
		- DI 16xDC 24V / DO 16xDC 24V 0.5A	

System overview

Properties

- For expansion of the I/O periphery of the CPU 11x
- Coupling of up to 4 modules (max 7 modules at VIPA 115-6BL72)
- Combination of System 100V expansion and System 200V modules is possible, the limit you may connect are max. 4 respectively 7 modules.
- Voltage supply via backplane bus

System 100V expansion modules

With the help of the expansion modules you have the possibility to enlarge the I/O areas of your CPU 114/115. Expansion modules may exclusively be coupled with System 100V CPUs.

The coupling takes place at the I/O components of the CPU by means of the included 1tier bus coupler.



Order number	Туре	Description
VIPA 123-4EH01	EM123	DI 8xDC 24V / DO 8xDC 24V 0.5A
VIPA 123-4EJ01	EM123	DI 16xDC 24V / DO 8xDC 24V 0.5A
VIPA 123-4EJ11	EM123	DI 16xDC 24V / DO 8xRelay
VIPA 123-4EJ20	EM123	DI 16xAC/DC 60230V / DO 8xRelay
VIPA 123-4EL01	EM123	DI 16xDC 24V / DO 16xDC 24V 0.5A



Note!

The distributed block periphery of the System 100V is not expandable.

Possibility to combine

The 1tier bus coupler is identical with the bus coupler of the System 200V family.

For expanding your Micro-PLC you may connect up to 4 expansion modules. You may also connect up to 4 modules of the System 200V family. A combination of expansion and System 200V modules, which results to the sum 4, is likewise possible.

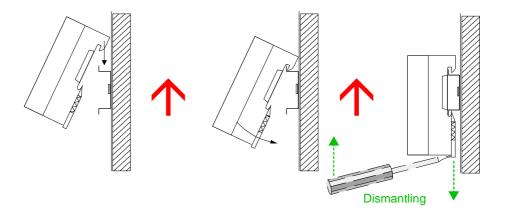
At the Micro-SPS CPU with order-no. VIPA 115-6BL72 maximum 7 modules may be connected.

Please consider the maximum current of the expansion slot may amount to maximally 0.9A!

Assembly

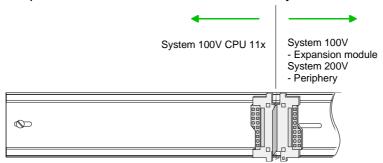
General things to assembly and dismantling

System 100V modules are clipped at a 35mm standard norm profile rail. For dismantling, you have to pull the locker downwards with a screwdriver and lift the module up from the head rail.

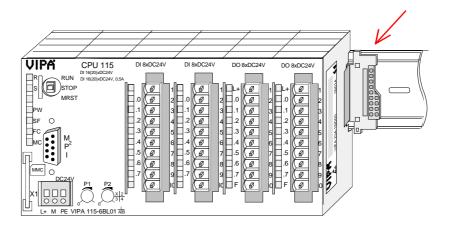


Assembly of expansion modules

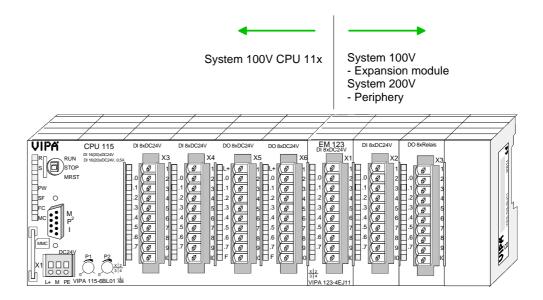
At deployment of expansion modules you have to fix the delivered bus coupler at the head rail before the assembly.



Plug in your System 100V CPU 11x until it snaps into position at the right side of the bus coupler.



Now you plug your System 100V expansion modules res. your peripheral modules of the System 200V family to the left side.

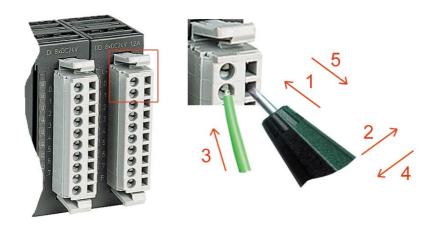


Repeat this procedure with further expansion modules by connecting them via a bus coupler to the right side.

Cabling

Take a fitting screwdriver and push the cage clamp in the <u>rectangular</u> opening to the back, then insert the cable into the <u>round</u> opening.

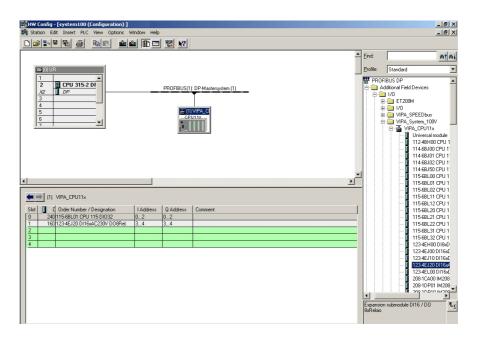
The cage clamp locks securely by removing the screwdriver.



Project engineering

Approach

The project engineering of the expansion modules takes place in the hardware configurator from Siemens by means of choosing the according expansion module from the hardware catalog and dropping it on the slot below the CPU.



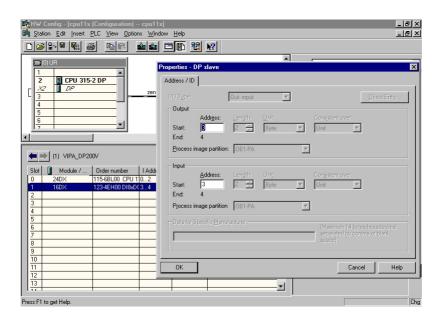


Note!

Every expansion module occupies one slot! Maximum 4 expansion modules may be connected (max 7 modules at VIPA 115-6BL72).

Addressing

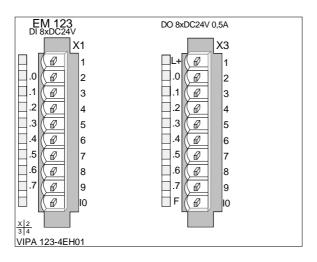
The addressing is accessible via double click on the expansion module. Here you predefine start addresses for each module.



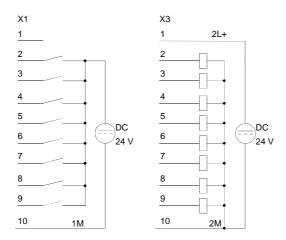
123-4EH01 - DI 8xDC 24V / DO 8xDC 24V 0.5A

Structure

Position X1	Position X2	Position X3	Position X4
DI 8xDC 24V	not used	DO 8xDC 24V 0.5A	not used



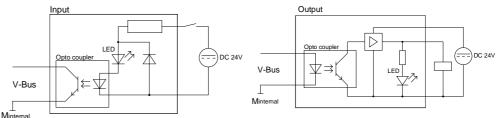
Circuit diagram



Schematic diagram

Input section

Output section



Technical data

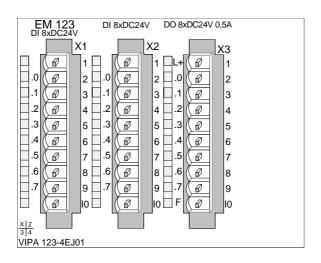
Order number 123-4EH01 Type EM 123 Current consumption/power loss Current consumption from backplane bus 60 mA Power loss 3 W Technical data digital inputs Number of inputs 8 Cable length, shielded 1000 m Cable length, unshielded 600 m Rated load voltage - Current consumption from load voltage L+ (without load) Rated value DC 24 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis - Frequency range - Input current for signal "1" 7 mA
Current consumption/power loss Current consumption from backplane bus 60 mA Power loss 3 W Technical data digital inputs Number of inputs 8 Cable length, shielded 1000 m Cable length, unshielded 600 m Rated load voltage - Current consumption from load voltage L+ (without load) Rated value DC 24 V Input voltage for signal "0" DC 05 V Input voltage hysteresis - Frequency range Input resistance -
Current consumption/power loss Current consumption from backplane bus Fower loss Technical data digital inputs Number of inputs Salvable length, shielded Cable length, unshielded Cable length, unshielded Rated load voltage Current consumption from load voltage L+ (without load) Rated value DC 24 V Input voltage for signal "0" DC 05 V Input voltage hysteresis Frequency range Input resistance 60 mA 600 m 600
Current consumption from backplane bus Power loss Technical data digital inputs Number of inputs Cable length, shielded Cable length, unshielded Rated load voltage Current consumption from load voltage L+ (without load) Rated value Input voltage for signal "0" Input voltage hysteresis Frequency range Input resistance O MA B M
Power loss Technical data digital inputs Number of inputs Cable length, shielded Cable length, unshielded Rated load voltage Current consumption from load voltage L+ (without load) Rated value Input voltage for signal "0" Input voltage hysteresis Frequency range Input resistance 8 Curon Marcological "0" DC 05 V DC 1528.8 V DC 1528.8 V Input voltage hysteresis
Number of inputs Cable length, shielded Cable length, unshielded Rated load voltage Current consumption from load voltage L+ (without load) Rated value Input voltage for signal "0" Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis Frequency range Input resistance
Number of inputs Cable length, shielded Cable length, unshielded Rated load voltage Current consumption from load voltage L+ (without load) Rated value Input voltage for signal "0" Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis Frequency range Input resistance
Cable length, shielded 600 m Rated load voltage - Current consumption from load voltage L+ (without load) Rated value DC 24 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis - Frequency range - Input resistance -
Cable length, unshielded 600 m Rated load voltage - Current consumption from load voltage L+ (without load) Rated value DC 24 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis - Frequency range - Input resistance -
Rated load voltage - Current consumption from load voltage L+ (without load) Rated value DC 24 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis - Frequency range - Input resistance -
Current consumption from load voltage L+ (without load) Rated value Input voltage for signal "0" Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis Frequency range Input resistance
load) Rated value DC 24 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis Frequency range Input resistance -
Rated value DC 24 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis - Frequency range - Input resistance -
Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis - Frequency range - Input resistance -
Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis - Frequency range - Input resistance -
Input voltage hysteresis - Frequency range - Input resistance -
Frequency range - Input resistance -
Input resistance -
Connection of Two-Wire-BEROs possible
Max. permissible BERO quiescent current 1.5 mA
Input delay of "0" to "1" 3 ms
Input delay of "1" to "0" 3 ms
Number of simultaneously utilizable inputs 8
horizontal configuration
Number of simultaneously utilizable inputs vertical 8
configuration
configuration IEC 61131-2, type 1
Input characteristic curve IEC 61131-2, type 1
Input characteristic curve IEC 61131-2, type 1 Initial data size 1 Byte
Input characteristic curve IEC 61131-2, type 1 Initial data size 1 Byte Technical data digital outputs
Input characteristic curve IEC 61131-2, type 1 Initial data size 1 Byte Technical data digital outputs Number of outputs 8
Input characteristic curve IEC 61131-2, type 1 Initial data size 1 Byte Technical data digital outputs Number of outputs 8 Cable length, shielded 1000 m
Input characteristic curve IEC 61131-2, type 1 Initial data size 1 Byte Technical data digital outputs Number of outputs 8 Cable length, shielded 1000 m Cable length, unshielded 600 m
Input characteristic curve Initial data size Initial data size Itechnical data digital outputs Number of outputs Solution of Cable length, shielded Cable length, unshielded Rated load voltage IEC 61131-2, type 1 1 Byte 1 Byte 1 Byte 1 Byte 600 m Cable length, unshielded Cable length, unshielded DC 24 V
Input characteristic curve Initial data size Initial data size Itechnical data digital outputs Initial data digital outputs Itechnical data digital outputs Initial data digital outputs Itechnical data digital outputs Item
Input characteristic curve Initial data size Initial data size Itechnical data digital outputs Number of outputs Cable length, shielded Cable length, unshielded Rated load voltage Reverse polarity protection of rated load voltage IEC 61131-2, type 1 1 Byte 1 Byte 1 000 m 600 m Cable length, unshielded
Input characteristic curve Initial data size Technical data digital outputs Number of outputs Cable length, shielded Cable length, unshielded Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without IEC 61131-2, type 1 1 Byte 1 Byte 1 000 m 600 m Cable length, unshielded 600 m Rated load voltage
Input characteristic curve Initial data size Technical data digital outputs Number of outputs Cable length, shielded Cable length, unshielded Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value I Byte 1 Byte 8 600 m CD00 m CD00 m CD00 m CO00
Input characteristic curve Initial data size Initial data size Initial data size Input characteristic curve Initial data size Input characteristic curve IEC 61131-2, type 1 Initial data size Input characteristic curve IEC 61131-2, type 1 Input characteristic curve Input characteristic curv
Input characteristic curve Initial data size Technical data digital outputs Number of outputs Cable length, shielded Cable length, unshielded Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" I Byte 8 600 m Routput current at signal "1", rated value 0.5 A Output delay of "0" to "1" I Byte 1 Byte 1 Byte 1 DO0 m 20 m 600 m Rated load voltage - Current consumption from load voltage - Current consumption from load voltage - Current at signal "1", rated value
Input characteristic curve Initial data size Technical data digital outputs Number of outputs Cable length, shielded Cable length, unshielded Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "0" to "1" max. 100 µs Output delay of "1" to "0" I Byte 1 Byte 1 Byte 1 Byte 1 Byte 1 Byte 1 D00 m 600 m Reverse polarity protection of rated load voltage - Current consumption from load voltage - Output delay of "1" max. 100 µs Output delay of "1" to "0" max. 350 µs
Input characteristic curve Initial data size Technical data digital outputs Number of outputs Cable length, shielded Cable length, unshielded Rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load I Byte 1 Byt
Input characteristic curve Initial data size Technical data digital outputs Number of outputs Cable length, shielded Cable length, unshielded Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load I Byte 1 D00 m 8 Outpu max. 350 m 8 Output delay of "1" to "0" Max. 350 m - Lamp load
Input characteristic curve Initial data size Technical data digital outputs Number of outputs Cable length, shielded Cable length, unshielded Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control I Byte 1 D00 m 600 m Rated loa0 woltage - Current consumption from load voltage - Current consumption from load voltage - Current consumption from load voltage L+ (without load) Output delay of "0" to "1" Max. 350 µs Minimum load current - Lamp load - Parallel switching of outputs for redundant control
Input characteristic curve Initial data size Technical data digital outputs Number of outputs Cable length, shielded Cable length, unshielded Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Max. 350 µs Minimum load current Lamp load Parallel switching of outputs for redundant control of a load
Input characteristic curve Initial data size Technical data digital outputs Number of outputs Cable length, shielded Cable length, unshielded Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for increased power Actuation of digital input I Byte 1
Input characteristic curve Initial data size Technical data digital outputs Number of outputs Cable length, shielded Cable length, unshielded Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "0" to "1" Minimum load current Lamp load Parallel switching of outputs for increased power Actuation of digital input I Byte 1 By
Input characteristic curve Initial data size Technical data digital outputs Number of outputs Cable length, shielded Cable length, unshielded Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load I Byte 1 Bot 1 Byte 1 Byte 1 Byte 1 Bot 1 Byte 1 Bot 1 Byte 1 Bot 1 Bot 1 Byte 1 Bot 1 Bot 1 Bot 1 Bot 1 Bot 1 Bot 1 B
Input characteristic curve Initial data size Initial data size Technical data digital outputs Number of outputs Cable length, shielded Cable length, unshielded Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with inductive load I Dutput load Indicate the second second support of the signal and the second se
Input characteristic curve Initial data size Technical data digital outputs Number of outputs Cable length, shielded Cable length, unshielded Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load I 1000 m R8 Cable length, when the selection of max and the selection of the selection of the selection of max and
Input characteristic curve Initial data size Technical data digital outputs Number of outputs Cable length, shielded Cable length, unshielded Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "0" to "1" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Internal limitation of inductive shut-off voltage I Byte 1 Byt
Input characteristic curve Initial data size Technical data digital outputs Number of outputs Cable length, shielded Cable length, unshielded Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Internal limitation of inductive shut-off voltage Trigger level I Byte 1
Input characteristic curve Initial data size Technical data digital outputs Number of outputs Cable length, shielded Cable length, unshielded Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Trigger level I Byte 1 Bota 1 Byte 1 Bota 1 Byte 1 Byte 1 Byte 1 Bota 1 Byte 1 Bota 1 Byte 1 Bota 1 Bota 1 Bota 1
Input characteristic curve Initial data size Technical data digital outputs Number of outputs Cable length, shielded Cable length, unshielded Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Internal limitation of inductive shut-off voltage Trigger level Number of operating cycle of relay outputs IEC 61131-2, type 1 Byte 1 A
Input characteristic curve Initial data size Technical data digital outputs Number of outputs Cable length, shielded Cable length, unshielded Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Internal limitation of outputs Trigger level Number of operating cycle of relay outputs Switching capacity of contacts I Byte 1 Day 1 1 Byte 1 Day 1 2 Byte 1 Boot and boot and boot and boon and boot and
Input characteristic curve Initial data size Initial data size Initial data size Initial data size Internal data digital outputs Number of outputs South Individual size Initial data size Initial data digital outputs Number of outputs South Initial data size Initial size Initia
Input characteristic curve Initial data size Initial data size Initial data size Initial data size Internal data digital outputs Initial data size Initial

Order number 123-4EH01 Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out none Supply voltage display none Group error display none Channel error display none Isolation - Between channels - Between channels of groups to 8 Between channels and backplane bus ✓ Insulation tested with DC 500 V Datasizes Input bytes Input bytes 2 Output bytes 2 Parameter bytes 0 Diagnostic bytes 0 Housing Profile rail 35 mm Material PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) Weight 222 g Environmental conditions 0 °C to 60 °C Operating temperature -25 °C to 70 °C Certifications UL508 certification UL508 certification yes			
Diagnostic functions Diagnostics information read-out None Supply voltage display Group error display Channel error display Retween channels Between channels of groups to Between channels and backplane bus Insulation tested with DC 500 V Datasizes Input bytes Qutput bytes Qutput bytes Quarter bytes Quincy Diagnostic bytes Housing Material PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) Descriptions Diagnostic bytes Questions Quarter bytes Quincy Retween channels and backplane bus Figure 10 to 500 V Diagnostic bytes Quarter bytes		123-4EH01	
Diagnostics information read-out none Supply voltage display none Group error display none Channel error display none Isolation - Between channels - Between channels of groups to 8 Between channels and backplane bus ✓ Insulation tested with DC 500 V Datasizes 2 Input bytes 2 Output bytes 2 Parameter bytes 0 Diagnostic bytes 0 Housing PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 222 g Environmental conditions O °C to 60 °C Storage temperature -25 °C to 70 °C Certifications -25 °C to 70 °C		no	
Supply voltage display none Group error display none Channel error display none Isolation - Between channels - Between channels of groups to 8 Between channels and backplane bus ✓ Insulation tested with DC 500 V Datasizes 2 Input bytes 2 Output bytes 2 Parameter bytes 0 Diagnostic bytes 0 Housing PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 222 g Environmental conditions 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications		no	
Group error display none Channel error display none Isolation Between channels Between channels of groups to Between channels and backplane bus Insulation tested with DC 500 V Datasizes Input bytes 2 Output bytes 2 Parameter bytes 0 Diagnostic bytes Housing Material PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) D°C to 60 °C Storage temperature O°C to 70 °C Certifications	Diagnostics information read-out	none	
Channel error displaynoneIsolation-Between channels-Between channels of groups to8Between channels and backplane bus✓Insulation tested withDC 500 VDatasizesDC 500 VInput bytes2Output bytes2Parameter bytes0Diagnostic bytes0HousingPPE / PA 6.6MountingProfile rail 35 mmMechanical dataDimensions (WxHxD)Uinensions (WxHxD)101.6 x 76 x 48 mmWeight222 gEnvironmental conditions0 °C to 60 °COperating temperature0 °C to 70 °CCertifications-25 °C to 70 °C	Supply voltage display	none	
IsolationBetween channels-Between channels of groups to8Between channels and backplane bus✓Insulation tested withDC 500 VDatasizesInput bytesInput bytes2Output bytes2Parameter bytes0Diagnostic bytes0HousingPPE / PA 6.6MountingProfile rail 35 mmMechanical dataProfile rail 35 mmDimensions (WxHxD)101.6 x 76 x 48 mmWeight222 gEnvironmental conditionsO °C to 60 °COperating temperature0 °C to 60 °CCertifications-25 °C to 70 °C	Group error display	none	
Between channels Between channels of groups to Between channels and backplane bus Insulation tested with DC 500 V Datasizes Input bytes 2 Output bytes 2 Parameter bytes 0 Diagnostic bytes 0 Housing Material PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 222 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Channel error display	none	
Between channels of groups to Between channels and backplane bus Insulation tested with DC 500 V Datasizes Input bytes Qutput bytes Parameter bytes Diagnostic bytes Housing Material PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) Total Cartifications Between channels of groups to Baseline PC 500 V DC 500 V DC 500 V DC 500 V PO 500 V DC 500 V	Isolation		
Between channels and backplane bus Insulation tested with DC 500 V Datasizes Input bytes 2 Output bytes 2 Parameter bytes 0 Diagnostic bytes 0 Housing Material PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 222 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C	Between channels	-	
Insulation tested with DC 500 V Datasizes Input bytes 2 Output bytes 2 Parameter bytes 0 Diagnostic bytes 0 Housing PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 222 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications		8	
DatasizesInput bytes2Output bytes2Parameter bytes0Diagnostic bytes0HousingPPE / PA 6.6MountingProfile rail 35 mmMechanical dataProfile rail 35 mmDimensions (WxHxD)101.6 x 76 x 48 mmWeight222 gEnvironmental conditions222 gOperating temperature0 °C to 60 °CStorage temperature-25 °C to 70 °CCertifications-25 °C to 70 °C	Between channels and backplane bus	✓	
Input bytes 2 Output bytes 2 Parameter bytes 0 Diagnostic bytes 0 Housing PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 222 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Insulation tested with	DC 500 V	
Output bytes Parameter bytes Diagnostic bytes Housing Material PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 222 g Environmental conditions Operating temperature O °C to 60 °C Storage temperature -25 °C to 70 °C	Datasizes		
Parameter bytes Diagnostic bytes O Housing Material PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 222 g Environmental conditions Operating temperature O °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Input bytes	2	
Diagnostic bytes Housing Material PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 222 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Output bytes	2	
Housing Material PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 222 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Parameter bytes	0	
MaterialPPE / PA 6.6MountingProfile rail 35 mmMechanical data101.6 x 76 x 48 mmDimensions (WxHxD)101.6 x 76 x 48 mmWeight222 gEnvironmental conditions222 gOperating temperature0 °C to 60 °CStorage temperature-25 °C to 70 °CCertifications-25 °C to 70 °C	Diagnostic bytes	0	
Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 222 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Housing		
Mechanical data101.6 x 76 x 48 mmDimensions (WxHxD)101.6 x 76 x 48 mmWeight222 gEnvironmental conditions0 °C to 60 °COperating temperature0 °C to 60 °CStorage temperature-25 °C to 70 °CCertifications-25 °C to 70 °C	Material	PPE / PA 6.6	
Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 222 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Mounting	Profile rail 35 mm	
Weight 222 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Mechanical data		
Environmental conditions Operating temperature O °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Dimensions (WxHxD)	101.6 x 76 x 48 mm	
Environmental conditions Operating temperature O °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Weight	222 g	
Storage temperature -25 °C to 70 °C Certifications	Environmental conditions	_	
Storage temperature -25 °C to 70 °C Certifications	Operating temperature	0 °C to 60 °C	
Certifications		-25 °C to 70 °C	
UL508 certification yes			
	UL508 certification	yes	

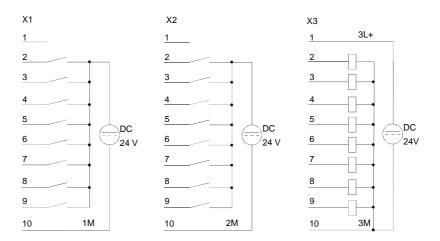
123-4EJ01 - DI 16xDC 24V / DO 8xDC 24V 0.5A

Structure

Position X1	Position X2	Position X3	Position X4
DI 8xDC 24V	DI 8xDC 24V	DO 8xDC 24V 0.5A	not used



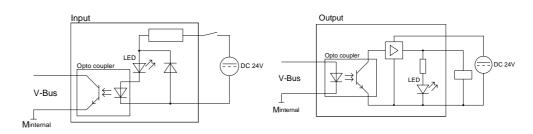
Circuit diagram



Schematic diagram

Input section

Output section



Technical data

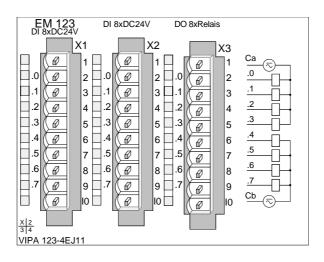
Order number 123-4EJ01 Type EM 123 Current consumption from backplane bus 70 mA Power loss 4.5 W Technical data digital inputs 16 Number of inputs 16 Cable length, unshielded 600 m Rated load voltage - Current consumption from load voltage L+ (without load) - Rated value DC 24 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis - Frequency range - Input current for signal "1" 7 mA Connection of Two-Wire-BEROs possible ✓ Max. permissible BERO quiescent current 1.5 mA Input delay of "0" to "1" 3 ms Input delay of "1" to "0" 3 ms Number of simultaneously utilizable inputs vertical configuration 16 Number of simultaneously utilizable inputs vertical configuration 16 Input characteristic curve IEC 61131-2, type 1 Initial data size 2 Byte		
Current consumption/power loss Current consumption from backplane bus 70 mA Power loss 4.5 W Technical data digital inputs Number of inputs 16 Cable length, shielded 1000 m Cable length, unshielded 600 m Rated load voltage Current consumption from load voltage L+ (without load) Rated value DC 2.5 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis - Frequency range Input resistance - Input current for signal "1" T MA Connection of Two-Wire-BEROs possible V Max. permissible BERO quiescent current 1.5 mA Input delay of "0" to "1" 3 ms Input delay of "0" to "0" 3 ms Input delay of "1" to "0" 3 ms Number of simultaneously utilizable inputs vertical configuration Number of simultaneously utilizable inputs vertical configuration Number of simultaneously utilizable inputs vertical configuration Input characteristic curve IEC 61131-2, type 1 Initial data size 2 Byte Cable length, unshielded 1000 m Cabl		
Current consumption from backplane bus 70 mA Power loss 4.5 W Technical data digital inputs Number of inputs 16 Cable length, shielded 1000 m Rated load voltage - Current consumption from load voltage L+ (without load) Rated value DC 24 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" T		EM 123
Power loss Technical data digital inputs Number of inputs Cable length, shielded Cable length, shielded Cable length, unshielded Rated load voltage Current consumption from load voltage L+ (without load) Rated value Input voltage for signal "0" Input voltage for signal "1" Input resistance Input resistance Input resistance Input resistance Input delay of "0" to "1" Input delay of "1" to "0" Input characteristic curve Initial data size Initial data size Iechnical data digital outputs Initial data size Iechnical data digital outputs Initial data size Iechnical data digital outputs Input characteristic curve Initial data size Iechnical data digital outputs Initial data oligatial outputs Initial data size Iechnical data digital output output delay of "0" to "1" Initial data size Iechnical data		
Technical data digital inputs Number of inputs 16 Cable length, shielded Cable length, shielded Rated load voltage Current consumption from load voltage L+ (without load) Rated value Input voltage for signal "0" Input voltage for signal "1" Input current for signal "1" Input delay of "0" to "1" Input delay of "0" to "1" Input delay of "0" to "1" Input characteristic curve Input characteristic curve Initial data size Input characteristic curve Initial data digital outputs Input characteristic curve Initial data size Input characteristic curve Initial data digital outputs Input characteristic curve Initial data digital outputs Input characteristic curve Initial data digital outputs Internal consumption from load voltage Internal limitation of outputs for increased power Input characteristic curve Internal limitation of inductive shut-off voltage Internal limitation of o	Current consumption from backplane bus	
Number of inputs Cable length, unshielded Cable length, unshielded Rated load voltage Current consumption from load voltage L+ (without load) Rated value DC 24 V Input voltage for signal "0" Input voltage for signal "1" Input voltage for signal "1" Input voltage for signal "1" Input voltage hysteresis	Power loss	4.5 W
Cable length, shielded Cable length, unshielded Cable length, shielded Cable length, unshielded Cable length, unshielded Cable length, unshielded Cable length, shielded Cable length, shielded Cable length, shielded Cable length or "1" to "0" Carrent consumption from load voltage Current at signal "1", rated value Cutput delay of "0" to "1" Cable length, unshielded Cable length, unshielded Cable length or the signal "1", rated value Cutput delay of "0" to "1" Campa Cable length, shielded Cable length, unshielded Cable length, unsh	Technical data digital inputs	
Cable length, unshielded Rated load voltage Current consumption from load voltage L+ (without load) Rated value Input voltage for signal "0" Input voltage for signal "1" Input voltage for signal "1" Input voltage for signal "1" Input voltage hysteresis Frequency range Input current for signal "1" Connection of Two-Wire-BEROs possible Max. permissible BERO quiescent current Input delay of "0" to "1" Input delay of "0" to "0" Input delay of "0" to "1" Input	Number of inputs	16
Rated load voltage Current consumption from load voltage L+ (without load) Rated value Input voltage for signal "0" Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis Frequency range Input resistance Input current for signal "1" Connection of Two-Wire-BEROs possible Max. permissible BERO quiescent current Input delay of "0" to "1" Input delay of "1" to "0" Input characteristic curve Input characteristic curve Intitial data size Input characteristic curve Intitial data digital outputs Intended and voltage Rated load voltage Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for redundant control of a load Switching frequency with inductive load Max. Disput protection of outputs Rate load on the signal "1", rated value Output delay of "0" to "1" Minimum load current Lamp load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with inductive load Max. 0.5 Hz Switching frequency with inductive load Max. 0.5 Hz Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of outputs For lead of the short-off voltage Short-circuit protection of outputs For lead of the short-off voltage Short-circuit protection of outputs For lead of the short-off voltage Short-circuit protection of outputs For lead of the short-off voltage Short-circuit protection of outputs For lead outputs For lamber of perating cycle of relay outputs For lamber of per c	Cable length, shielded	1000 m
Rated load voltage Current consumption from load voltage L+ (without load) Rated value Input voltage for signal "0" Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis Frequency range Input resistance Input current for signal "1" Connection of Two-Wire-BEROs possible Max. permissible BERO quiescent current Input delay of "0" to "1" Input delay of "1" to "0" Input characteristic curve Input characteristic curve Intitial data size Input characteristic curve Intitial data digital outputs Intended and voltage Rated load voltage Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for redundant control of a load Switching frequency with inductive load Max. Disput protection of outputs Rate load on the signal "1", rated value Output delay of "0" to "1" Minimum load current Lamp load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with inductive load Max. 0.5 Hz Switching frequency with inductive load Max. 0.5 Hz Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of outputs For lead of the short-off voltage Short-circuit protection of outputs For lead of the short-off voltage Short-circuit protection of outputs For lead of the short-off voltage Short-circuit protection of outputs For lead of the short-off voltage Short-circuit protection of outputs For lead outputs For lamber of perating cycle of relay outputs For lamber of per c	Cable length, unshielded	600 m
Current consumption from load voltage L+ (without load) Rated value Input voltage for signal "0" Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis - Frequency range Input resistance Input current for signal "1" Connection of Two-Wire-BEROs possible Max. permissible BERO quiescent current Input delay of "0" to "1" Input delay of "0" to "1" Input delay of "1" to "0" Number of simultaneously utilizable inputs vertical configuration Input characteristic curve Initial data size Input delay distal digital outputs Number of simultaneously utilizable inputs vertical configuration Input characteristic curve Initial data size Initial data size Initial data digital outputs Number of outputs Rable length, shielded Ino00 m Cable length, unshielded Go00 m Rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Minimum load current Lamp load		-
Rated value DC 24 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis - Frequency range Input resistance - Input current for signal "1" 7 mA Connection of Two-Wire-BEROs possible √ Max. permissible BERO quiescent current 1.5 mA Input delay of "0" to "1" 3 ms Input delay of "1" to "0" 3 ms Input delay of "1" to "0" 3 ms Input characteristic curve IEC 61131-2, type 1 Initial data size 2 Byte Technical data digital outputs 8 EC 61131-2, type 1 Initial data size 2 Byte Technical data digital outputs 8 EC 600 m EC 24 V Exverse polarity protection of rated load voltage DC 24 V Exverse polarity protection of rated load voltage DC 24 V Exverse polarity protection of rated load voltage DC 24 V Exverse polarity protection of rated value 0.5 A Output delay of "0" to "1" max. 100 µs Output delay of "0" to "1" max. 350 µs Minimum load current - Internal lamitation of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input - Switching frequency with resistive load max. 100 Hz Switching frequency with resistive load max. 100 Hz Internal limitation of inductive shut-off voltage L+ (-52 V) Switching frequency on lamp load max. 10 Hz Internal limitation of inductive shut-off voltage L+ (-52 V) Switching capacity of contacts - Output data size Internal limitation of aload - - - - - - - - -	Current consumption from load voltage L+ (without	-
Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis Frequency range Input current for signal "1" Connection of Two-Wire-BEROs possible Max. permissible BERO quiescent current Input delay of "0" to "1" 3 ms Input delay of "0" to "1" 3 ms Input delay of "1" to "0" 3 ms Number of simultaneously utilizable inputs vertical configuration Number of simultaneously utilizable inputs vertical configuration Input characteristic curve Initial data size 2 Byte Technical data digital outputs Number of outputs Sable length, shielded 1000 m Cable length, unshielded 600 m Rated load voltage DC 24 V Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value 0.5 A Output delay of "0" to "1" max. 350 µs Minimum load current Lamp load - Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input - Switching frequency with resistive load max. 100 Hz Switching frequency with resistive load max. 100 Hz Internal limitation of inductive shut-off voltage L+ (-52 V) Short-circuit protection of output yes, electronic Trigger level 1 A Number of operating cycle of relay outputs Status display 1 green LED per channel Internal Internal limitation, alarms, diagnostics Status display 1 green LED per channel		
Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis - Frequency range - Input resistance - Input current for signal "1" 7 mA Connection of Two-Wire-BEROs possible ✓ Max. permissible BERO quiescent current 1.5 mA Input delay of "0" to "1" 3 ms Input delay of "1" to "0" 3 ms Number of simultaneously utilizable inputs horizontal configuration 16 horizontal configuration 17 my 16 my 17 my 17 my 18 my 18 my 19 my 1	Rated value	DC 24 V
Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis - Frequency range - Input resistance - Input current for signal "1" 7 mA Connection of Two-Wire-BEROs possible ✓ Max. permissible BERO quiescent current 1.5 mA Input delay of "0" to "1" 3 ms Input delay of "1" to "0" 3 ms Number of simultaneously utilizable inputs horizontal configuration 16 horizontal configuration 17 my 16 my 17 my 17 my 18 my 18 my 19 my 1	Input voltage for signal "0"	DC 05 V
Input voltage hysteresis Frequency range -		
Input current for signal "1" 7 mA		-
Input current for signal "1"		-
Input current for signal "1" 7 mA Connection of Two-Wire-BEROs possible 7 Max. permissible BERO quiescent current 1.5 mA Input delay of "0" to "1" 3 ms Input delay of "1" to "0" 3 ms Input delay of simultaneously utilizable inputs 16 Number of simultaneously utilizable inputs vertical configuration Number of simultaneously utilizable inputs vertical configuration Input characteristic curve IEC 61131-2, type 1 Initial data size 2 Byte Technical data digital outputs Number of outputs 8 Cable length, shielded 1000 m Cable length, unshielded 600 m Rated load voltage DC 24 V Reverse polarity protection of rated load voltage - Current consumption from load voltage L+ (without load) Output current at signal "1", rated value 0.5 A Output delay of "0" to "1" max. 100 µs Output delay of "0" to "1" max. 350 µs Minimum load current Lamp load - Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power - Actuation of digital input - Switching frequency with resistive load max. 1000 Hz Switching frequency on lamp load max. 0.5 Hz Switching frequency on lamp load max. 10 Hz Internal limitation of inductive shut-off voltage L+ (-52 V) Short-circuit protection of outputs on the sum of		-
Connection of Two-Wire-BEROs possible Max. permissible BERO quiescent current Input delay of "0" to "1" Input delay of "0" to "0" Input delay of "1" to "0" Input delay of simultaneously utilizable inputs Input delay of simultaneously utilizable inputs vertical configuration Input characteristic curve Initial data size Input characteristic curve Inductive charac		7 mA
Max. permissible BERO quiescent current Input delay of "0" to "1" Input delay of "1" to "0" Number of simultaneously utilizable inputs Number of simultaneously utilizable inputs vertical configuration Input characteristic curve IEC 61131-2, type 1 Initial data size Iechnical data digital outputs Number of outputs Number of outputs Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Dutput delay of "0" to "1" Max. 350 µs Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with resistive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Status information, alarms, diagnostics Status lisplay Interrupts Interrupt		
Input delay of "0" to "1" to "0" 3 ms Number of simultaneously utilizable inputs horizontal configuration 16 Number of simultaneously utilizable inputs vertical configuration 16 Input characteristic curve IEC 61131-2, type 1 Initial data size 2 Byte Technical data digital outputs 8 Number of outputs 8 Cable length, shielded 1000 m Cable length, unshielded 600 m Rated load voltage DC 24 V Reverse polarity protection of rated load voltage - Current consumption from load voltage L+ (without load) 20 mA Output current at signal "1", rated value 0.5 A Output delay of "0" to "1" max. 100 μs Output delay of "1" to "0" max. 350 μs Minimum load current - Lamp load - Parallel switching of outputs for redundant control of a load - Parallel switching of outputs for increased power - Actuation of digital input - Switching frequency with resistive load max. 100 Hz Switching frequency with inductive load		1.5 mA
Input delay of "1" to "0" 3 ms Number of simultaneously utilizable inputs horizontal configuration 16 Number of simultaneously utilizable inputs vertical configuration 16 Input characteristic curve IEC 61131-2, type 1 Initial data size 2 Byte Technical data digital outputs 8 Cable length, shielded 1000 m Cable length, unshielded 600 m Rated load voltage DC 24 V Reverse polarity protection of rated load voltage - Current consumption from load voltage L+ (without load) 20 mA Output current at signal "1", rated value 0.5 A Output delay of "0" to "1" max. 100 μs Output delay of "1" to "0" max. 350 μs Minimum load current - Lamp load - Parallel switching of outputs for redundant control of a load - Parallel switching of outputs for increased power - Actuation of digital input - Switching frequency with inductive load max. 1000 Hz Switching frequency on lamp load max. 10 Hz Internal limitation of induc		
Number of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration Input characteristic curve Initial data size Technical data digital outputs Number of outputs Sable length, shielded Cable length, unshielded Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with rinductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Switching capacity of contacts Output data size 1 Byte Status display Interrupts IEC 61131-2, type 1 16 Ce1131-2, type 1 18 Ce1131-2, type 1 18 EC 61131-2, type 1 18 Number of outputs Switching max. 100 m Cable length, unshielded 1000 m Rated load voltage - Current consumption from load voltage - Current consumption frated load voltage - Cable length, shielded 1000 m Rated load voltage - Current consumption from load voltage - Current consumption from load voltage - Current consumption from load frate with single frate w	Input delay of "1" to "0"	
Number of simultaneously utilizable inputs vertical configuration Number of simultaneously utilizable inputs vertical configuration Input characteristic curve Initial data size Technical data digital outputs Number of outputs Sable length, shielded Cable length, shielded Cable length, unshielded Rated load voltage DC 24 V Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value O.5 A Output delay of "0" to "1" Max. 100 µs Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage L+ (-52 V) Short-circuit protection of outputs Switching capacity of contacts Output data size 1 Byte Status information, alarms, diagnostics Status display Interrupts	Number of simultaneously utilizable inputs	
Number of simultaneously utilizable inputs vertical configuration Input characteristic curve Initial data size Technical data digital outputs Number of outputs Cable length, shielded Cable length, unshielded Cable length, unshielded Cable length, protection of rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Cutput delay of "0" to "1" Cutput delay of "1" to "0" Max. 350 µs Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Trigger level 1 A Number of operating cycle of relay outputs Switching capacity of contacts Output data size Status information, alarms, diagnostics Status display Interrupts IEC 61131-2, type 1 Inec 61131-2, type		
configuration Input characteristic curve IEC 61131-2, type 1 Initial data size 2 Byte Technical data digital outputs 8 Number of outputs 8 Cable length, shielded 1000 m Cable length, unshielded 600 m Rated load voltage DC 24 V Reverse polarity protection of rated load voltage - Current consumption from load voltage L+ (without load) 20 mA Output current at signal "1", rated value 0.5 A Output delay of "0" to "1" max. 100 μs Output delay of "1" to "0" max. 350 μs Minimum load current - Lamp load - Parallel switching of outputs for redundant control of a load - Parallel switching of outputs for increased power - Actuation of digital input - Switching frequency with resistive load max. 1000 Hz Switching frequency with inductive load max. 0.5 Hz Switching frequency with inductive load max. 10 Hz Internal limitation of inductive shut-off voltage L+ (-52 V) Short-circuit protection of output yes, electronic Trigge		16
Input characteristic curve Initial data size Technical data digital outputs Number of outputs 8 Cable length, shielded Cable length, unshielded Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Max. 100 μs Minimum load current Lamp load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Switching capacity of contacts Output data size Status display Internal limitation, alarms, diagnostics Status display Internal limiterian of green LED per channel Interrupts Internal limiterian of green LED per channel Interrupts Internal limiterian of green LED per channel Interrupts Internal limiterian of green LED per channel Interrupts Internal limiterian of green LED per channel		
Initial data size Technical data digital outputs Number of outputs Cable length, shielded Cable length, unshielded Cable length, unshielded Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Max. 100 µs Output delay of "1" to "0" Max. 350 µs Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of output Trigger level 1 A Number of operating cycle of relay outputs Status display Green LED per channel Interrupts Pagy the Max. 1000 m 100		IFC 61131-2 type 1
Technical data digital outputs Number of outputs Cable length, shielded Cable length, unshielded Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Max. 100 μs Output delay of "1" to "0" Max. 350 μs Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load max. 100 Hz Switching frequency on lamp load Internal limitation of inductive shut-off voltage L+ (-52 V) Short-circuit protection of outputs Trigger level 1 A Number of operating cycle of relay outputs Status display green LED per channel Interrupts		
Number of outputs 8 Cable length, shielded 1000 m Cable length, unshielded 600 m Rated load voltage DC 24 V Reverse polarity protection of rated load voltage - Current consumption from load voltage L+ (without load) 20 mA Output current at signal "1", rated value 0.5 A Output delay of "0" to "1" max. 100 μs Output delay of "1" to "0" max. 350 μs Minimum load current - Lamp load - Parallel switching of outputs for redundant control of a load - Parallel switching of outputs for increased power - Actuation of digital input - Switching frequency with resistive load max. 1000 Hz Switching frequency with inductive load max. 0.5 Hz Switching frequency on lamp load max. 10 Hz Internal limitation of inductive shut-off voltage L+ (-52 V) Short-circuit protection of output yes, electronic Trigger level 1 A Number of operating cycle of relay outputs - Switching capacity of contacts - Output data size 1 Byte <td></td> <td>2 Byte</td>		2 Byte
Cable length, shielded 1000 m Cable length, unshielded 600 m Rated load voltage DC 24 V Reverse polarity protection of rated load voltage - Current consumption from load voltage L+ (without load) 20 mA Output current at signal "1", rated value 0.5 A Output delay of "0" to "1" max. 100 μs Output delay of "1" to "0" max. 350 μs Minimum load current - Lamp load - Parallel switching of outputs for redundant control of a load - Parallel switching of outputs for increased power - Actuation of digital input - Switching frequency with resistive load max. 1000 Hz Switching frequency with inductive load max. 0.5 Hz Switching frequency on lamp load max. 10 Hz Internal limitation of inductive shut-off voltage L+ (-52 V) Short-circuit protection of output yes, electronic Trigger level 1 A Number of operating cycle of relay outputs - Switching capacity of contacts - Output data size 1 Byte Status display green LED per cha		8
Cable length, unshielded 600 m Rated load voltage DC 24 V Reverse polarity protection of rated load voltage - Current consumption from load voltage L+ (without load) 20 mA Output current at signal "1", rated value 0.5 A Output delay of "0" to "1" max. 100 μs Output delay of "1" to "0" max. 350 μs Minimum load current - Lamp load - Parallel switching of outputs for redundant control of a load - Parallel switching of outputs for increased power - Actuation of digital input - Switching frequency with resistive load max. 1000 Hz Switching frequency with inductive load max. 0.5 Hz Switching frequency on lamp load max. 10 Hz Internal limitation of inductive shut-off voltage L+ (-52 V) Short-circuit protection of output yes, electronic Trigger level 1 A Number of operating cycle of relay outputs - Switching capacity of contacts - Output data size 1 Byte Status display green LED per channel Interrupts <td></td> <td></td>		
Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Minimitation of inductive shut-off voltage Switching frequency or lamp load Internal limitation of output Trigger level Number of operating cycle of relay outputs Status display green LED per channel Interrupts DC 24 V 20 mA 21 max. 100 µs max. 100 µs max. 350 µs max. 350 µs max. 350 µs max. 350 µs max. 1000 Hz max. 1000 Hz switching frequency with resistive load max. 1000 Hz T		
Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Max. 100 µs Output delay of "1" to "0" Max. 350 µs Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Trigger level Number of operating cycle of relay outputs Status display Green LED per channel Interrupts Output data size Status display Green LED per channel		
Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Max. 350 µs Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage L+ (-52 V) Short-circuit protection of output Trigger level Trigger level Number of operating cycle of relay outputs Switching capacity of contacts Output data size Status display Green LED per channel Interrupts		DC 24 V
Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Trigger level Switching capacity of contacts Output data size Status display Interrupts Interrupts Status display Guency on lamp load Interrupts Internal limitation of output Internal limitation of inductive shut-off voltage Internal limitation of inductive shut-off		20 m∆
Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Trigger level Number of operating cycle of relay outputs Status display Interrupts Sutching Irequency on lamp, diagnostics Status display Green LED per channel Interrupts Output data size Gutput data size Status display Green LED per channel Interrupts		ZOTIIA
Output delay of "0" to "1" max. 100 µs Output delay of "1" to "0" max. 350 µs Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load max. 1000 Hz Switching frequency with inductive load max. 0.5 Hz Switching frequency on lamp load max. 10 Hz Internal limitation of inductive shut-off voltage Trigger level 1 A Number of operating cycle of relay outputs Switching capacity of contacts Output data size 1 Byte Status display green LED per channel Interrupts		0.5.Δ
Output delay of "1" to "0" max. 350 µs Minimum load current - Lamp load - Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power - Actuation of digital input - Switching frequency with resistive load max. 1000 Hz Switching frequency with inductive load max. 0.5 Hz Switching frequency on lamp load max. 10 Hz Internal limitation of inductive shut-off voltage L+ (-52 V) Short-circuit protection of output yes, electronic Trigger level 1 A Number of operating cycle of relay outputs - Switching capacity of contacts - Output data size 1 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts	Output delay of "0" to "1"	
Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Internal limitation of output Trigger level Trigger level The Number of operating cycle of relay outputs Switching capacity of contacts Output data size Status information, alarms, diagnostics Status display Interrupts		
Lamp load - Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power - Actuation of digital input - Switching frequency with resistive load max. 1000 Hz Switching frequency with inductive load max. 0.5 Hz Switching frequency on lamp load max. 10 Hz Internal limitation of inductive shut-off voltage L+ (-52 V) Short-circuit protection of output yes, electronic Trigger level 1 A Number of operating cycle of relay outputs - Switching capacity of contacts - Output data size 1 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts		παχ. 350 μs
Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of output Trigger level Number of operating cycle of relay outputs Switching capacity of contacts Output data size Status information, alarms, diagnostics Status display Interrupts Switching capacity of contacts Green LED per channel Interrupts		-
Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of output Trigger level Number of operating cycle of relay outputs Switching capacity of contacts Output data size Status information, alarms, diagnostics Status display Green LED per channel Interrupts		
Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Internal limitation of output Trigger level Number of operating cycle of relay outputs Switching capacity of contacts Output data size Status information, alarms, diagnostics Status display Internal limitation of output outputs - Switching capacity of contacts - Output data size Status display Green LED per channel Interrupts		-
Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of output Trigger level Number of operating cycle of relay outputs Switching capacity of contacts Output data size Status information, alarms, diagnostics Status display Interrupts Switching capacity of contacts Green LED per channel Interrupts		
Switching frequency with resistive load max. 1000 Hz Switching frequency with inductive load max. 0.5 Hz Switching frequency on lamp load max. 10 Hz Internal limitation of inductive shut-off voltage L+ (-52 V) Short-circuit protection of output yes, electronic Trigger level 1 A Number of operating cycle of relay outputs - Switching capacity of contacts - Output data size 1 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts		-
Switching frequency with inductive load max. 0.5 Hz Switching frequency on lamp load max. 10 Hz Internal limitation of inductive shut-off voltage L+ (-52 V) Short-circuit protection of output yes, electronic Trigger level 1 A Number of operating cycle of relay outputs - Switching capacity of contacts - Output data size 1 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no		- 1000 H-
Switching frequency on lamp load max. 10 Hz Internal limitation of inductive shut-off voltage L+ (-52 V) Short-circuit protection of output yes, electronic Trigger level 1 A Number of operating cycle of relay outputs - Switching capacity of contacts - Output data size 1 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no	<u> </u>	
Internal limitation of inductive shut-off voltage Short-circuit protection of output Trigger level Number of operating cycle of relay outputs Switching capacity of contacts Output data size Status information, alarms, diagnostics Status display Interrupts L+ (-52 V) yes, electronic 1 A LH A Number of operating cycle of relay outputs - Switching capacity of contacts - Output data size I Byte Status display green LED per channel Interrupts		
Short-circuit protection of output Trigger level 1 A Number of operating cycle of relay outputs - Switching capacity of contacts - Output data size 1 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no		
Trigger level 1 A Number of operating cycle of relay outputs - Switching capacity of contacts - Output data size 1 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no		
Number of operating cycle of relay outputs - Switching capacity of contacts - Output data size 1 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no		
Switching capacity of contacts Output data size Status information, alarms, diagnostics Status display Interrupts Interrupts		
Output data size 1 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no		
Status information, alarms, diagnostics Status display green LED per channel Interrupts no		
Status display green LED per channel no		1 Byte
Interrupts no		
		green LED per channel
Process alarm no		no
	Process alarm	no

Order number 123-4EJ01 Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out none Supply voltage display none Group error display none Channel error display none Isolation - Between channels - Between channels of groups to 8 Between channels and backplane bus ✓ Insulation tested with DC 500 V Datasizes 2 Input bytes 2 Output bytes 2 Parameter bytes 0 Diagnostic bytes 0 Housing Profile rail 35 mm Material PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) Weight 226 g Environmental conditions 0 °C to 60 °C Operating temperature -25 °C to 70 °C Certifications UL508 certification UL508 certification ves			
Diagnostic functions no Diagnostics information read-out none Supply voltage display none Group error display none Channel error display none Isolation - Between channels - Between channels of groups to 8 Between channels and backplane bus ✓ Insulation tested with DC 500 V Datasizes		123-4EJ01	
Diagnostics information read-out none Supply voltage display none Group error display none Channel error display none Isolation - Between channels - Between channels of groups to 8 Between channels and backplane bus ✓ Insulation tested with DC 500 V Datasizes 2 Input bytes 2 Output bytes 2 Parameter bytes 0 Diagnostic bytes 0 Housing Prefile rail 35 mm Mechanical data Profile rail 35 mm Mechanical data 101.6 x 76 x 48 mm Weight 226 g Environmental conditions 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications -25 °C to 70 °C		no	
Supply voltage display none Group error display none Channel error display none Isolation - Between channels - Between channels of groups to 8 Between channels and backplane bus ✓ Insulation tested with DC 500 V Datasizes 2 Input bytes 2 Output bytes 2 Parameter bytes 0 Diagnostic bytes 0 Housing PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 226 g Environmental conditions 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications		no	
Group error display none Channel error display none Isolation Between channels Between channels of groups to Between channels and backplane bus Insulation tested with DC 500 V Datasizes Input bytes 2 Output bytes 2 Parameter bytes 0 Diagnostic bytes 0 Housing Material PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 226 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Diagnostics information read-out	none	
Channel error display none Isolation - Between channels - Between channels of groups to 8 Between channels and backplane bus ✓ Insulation tested with DC 500 V Datasizes DC 500 V Input bytes 2 Output bytes 2 Parameter bytes 0 Diagnostic bytes 0 Housing PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 226 g Environmental conditions 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications -25 °C to 70 °C	Supply voltage display	none	
IsolationBetween channels-Between channels of groups to8Between channels and backplane bus✓Insulation tested withDC 500 VDatasizesInput bytesInput bytes2Output bytes2Parameter bytes0Diagnostic bytes0HousingPPE / PA 6.6MountingProfile rail 35 mmMechanical dataProfile rail 35 mmDimensions (WxHxD)101.6 x 76 x 48 mmWeight226 gEnvironmental conditionsO °C to 60 °COperating temperature0 °C to 70 °CCertifications-25 °C to 70 °C	Group error display	none	
Between channels Between channels of groups to Between channels and backplane bus Insulation tested with DC 500 V Datasizes Input bytes 2 Output bytes 2 Parameter bytes Diagnostic bytes Housing Material PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 226 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Channel error display	none	
Between channels of groups to Between channels and backplane bus Insulation tested with DC 500 V Datasizes Input bytes Qutput bytes Parameter bytes Diagnostic bytes Diagnostic bytes Housing Material PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) To 10.6 x 76 x 48 mm Weight Poperating temperature Qo °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Isolation		
Between channels and backplane bus✓Insulation tested withDC 500 VDatasizes2Input bytes2Output bytes2Parameter bytes0Diagnostic bytes0HousingPPE / PA 6.6MountingProfile rail 35 mmMechanical dataProfile rail 35 mmDimensions (WxHxD)101.6 x 76 x 48 mmWeight226 gEnvironmental conditions226 gOperating temperature0 °C to 60 °CStorage temperature-25 °C to 70 °CCertifications-25 °C to 70 °C	Between channels	-	
Insulation tested with DC 500 V Datasizes Input bytes 2 Output bytes 2 Parameter bytes 0 Diagnostic bytes Housing Material Material PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 226 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Between channels of groups to	8	
DatasizesInput bytes2Output bytes2Parameter bytes0Diagnostic bytes0HousingPPE / PA 6.6MountingProfile rail 35 mmMechanical dataProfile rail 35 mmDimensions (WxHxD)101.6 x 76 x 48 mmWeight226 gEnvironmental conditionsOperating temperature0 °C to 60 °CStorage temperature-25 °C to 70 °CCertifications-25 °C to 70 °C	Between channels and backplane bus	✓	
Input bytes 2 Output bytes 2 Parameter bytes 0 Diagnostic bytes 0 Housing PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 226 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Insulation tested with	DC 500 V	
Output bytes 2 Parameter bytes 0 Diagnostic bytes 0 Housing PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 226 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Datasizes		
Parameter bytes Diagnostic bytes 0 Housing Material PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 226 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Input bytes	2	
Diagnostic bytes 0 Housing Material PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 226 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Output bytes	2	
Housing Material PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 226 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Parameter bytes	0	
MaterialPPE / PA 6.6MountingProfile rail 35 mmMechanical data101.6 x 76 x 48 mmDimensions (WxHxD)101.6 x 76 x 48 mmWeight226 gEnvironmental conditionsCoperating temperatureOperating temperature0 °C to 60 °CStorage temperature-25 °C to 70 °CCertifications	Diagnostic bytes	0	
Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 226 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Housing		
Mechanical data101.6 x 76 x 48 mmDimensions (WxHxD)101.6 x 76 x 48 mmWeight226 gEnvironmental conditions0 °C to 60 °COperating temperature0 °C to 60 °CStorage temperature-25 °C to 70 °CCertifications-25 °C to 70 °C	Material	PPE / PA 6.6	
Dimensions (WxHxD) Weight 226 g Environmental conditions Operating temperature Storage temperature Certifications 101.6 x 76 x 48 mm 226 g Common of the second o	Mounting	Profile rail 35 mm	
Weight 226 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Mechanical data		
Environmental conditions Operating temperature O °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Dimensions (WxHxD)	101.6 x 76 x 48 mm	
Operating temperature0 °C to 60 °CStorage temperature-25 °C to 70 °CCertifications	Weight	226 g	
Storage temperature -25 °C to 70 °C Certifications	Environmental conditions		
Storage temperature -25 °C to 70 °C Certifications	Operating temperature	0 °C to 60 °C	
Certifications		-25 °C to 70 °C	
UL508 certification ves			
J = =	UL508 certification	yes	

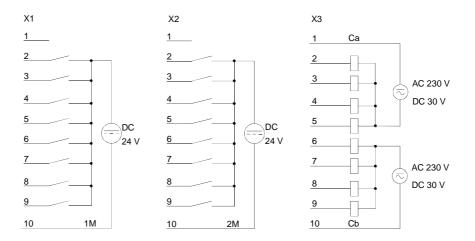
123-4EJ11 - DI 16xDC 24V / DO 8xRelay

Structure

Position X1	Position X2	Position X3	Position X4
DI 8xDC 24V	DI 8xDC 24V	DO 8xRelay	not used

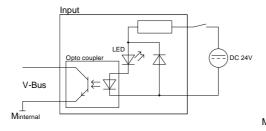


Circuit diagram

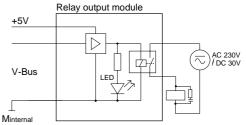


Schematic diagram

Input section



Relay output section



Note: When using inductive load please take an suitable protector (i.e. RC combination).

Technical data

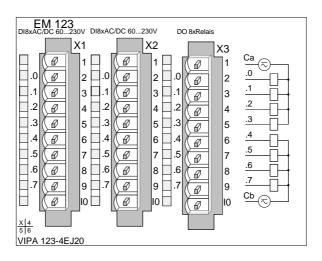
123-4E-IT		T
Current consumption/power loss Current consumption from backplane bus 300 mA Power loss 4.5 W Technical data digital inputs Number of inputs 16 Cable length, unshielded 1000 m Cable length, unshielded 600 m Rated load voltage	Order number	123-4EJ11
Current consumption from backplane bus		EM 123
Power loss Technical data digital inputs Number of inputs Cable length, shielded Cable length, unshielded Rated load voltage Current consumption from load voltage L+ (without load) Rated value Rated value Rated value DC 24 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis Frequency range Input rotsistance Input rotsistance Input rotsisble BEROs possible Vax. permissible BEROs quiescent current Input delay of "0" to "1" Intitial data size Technical data digital outputs Number of outputs Cable length, shielded Cable length, shielded Rated load voltage Current consumption from load voltage L+ (without load) Cutput current at signal "1", rated value DC 30 V/ AC 230 V Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output delay of "0" to "1" Output delay of "0" to "1" Output delay of "0" to "1" Sm S Parallel switching of outputs for redundant control of a load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input		
Technical data digital inputs Number of inputs 16 Cable length, shielded Cable length, unshielded Rated load voltage Current consumption from load voltage L+ (without load) Rated value Input voltage for signal "0" Input voltage for signal "1" Input current for signal "1" Input current for signal "1" Input delay of "0" to "1" Input delay of "1" to "0" Input delay of "0" to "1" In	•	
Number of inputs		4.5 W
Cable length, shielded Cable length, unshielded Cable length, unshielded Cable length, unshielded Carrent consumption from load voltage L+ (without load) Current consumption from load voltage L+ (without load) Input voltage for signal "0" Input voltage for signal "1" Input voltage for signal "1" Input voltage spisteresis Frequency range Input current for signal "1" Connection of Two-Wire-BEROs possible Max. permissible BERO quiescent current Input delay of "0" to "1" Input delay of "0" to "1" Input delay of "0" to "0" Number of simultaneously utilizable inputs vertical configuration Number of simultaneously utilizable inputs vertical configuration Input characteristic curve Initial data size 2 Byte Technical data digital outputs Number of outputs Sable length, shielded Cable length, shielded Cable length, unshielded Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output delay of "0" to "1" Output delay of outputs for increased power Actuation of digital input Switching frequency with inductive load Output delay of outputs for increased power Actuation of inductive shut-off voltage Short-	Technical data digital inputs	
Cable length, unshielded Rated load voltage Current consumption from load voltage L+ (without load) Rated value Input voltage for signal "0" Input voltage for signal "1" Input voltage for signal "1" Input voltage for signal "1" Input voltage hysteresis Frequency range Input current for signal "1" Connection of Two-Wire-BEROs possible Max. permissible BERO quiescent current Input delay of "0" to "1" 3 ms Input delay of "0" to "1" 3 ms Input delay of "0" to "1" 3 ms Number of simultaneously utilizable inputs Norizontal configuration Input characteristic curve Initial data size Technical data digital outputs Number of outputs Rabel length, shielded Cable length, unshielded Rated load voltage Reverse polarity protection of rated load voltage Reverse polarity protection of rated load voltage Reverse polarity protection from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output for more and voltage L+ (without load) Parallel switching of outputs for increased power Actuation of digital input Switching frequency with inductive load Internal limitation of inductive shut-off voltage Short-circuit protection of outputs For parallel switching copacity of contacts Output data size In Byte Status display Internal limiterion, alarms, diagnostics Internupts Internupts		
Rated load voltage Current consumption from load voltage L+ (without load) Rated value Rated value Rot voltage for signal "0" Rot voltage for signal "1" Rot voltage for signal relations to the signal signal voltage inputs		
Current consumption from load voltage L+ (without load) Rated value Input voltage for signal "0" Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis Frequency range Input resistance Input current for signal "1" Connection of Two-Wire-BEROs possible Max. permissible BERO quiescent current Input delay of "0" to "1" Max permissible BERO quiescent current Input delay of "0" to "1" Number of simultaneously utilizable inputs Norizontal configuration Number of simultaneously utilizable inputs vertical configuration Input characteristic curve Initial data size Input delay di "1" Input delay of "1" to "0" Sams Input delay of "3" to "0" Input characteristic curve Initial data size Initial data size Initial data digital outputs Number of outputs Sable length, shielded Cable length, shielded Cable length, unshielded Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "0" to "1" Output delay of "0" to "1" Output delay of "1" to "0" Farallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with inductive load Switching frequency with resistive load Switching frequency with resistive load Switching frequency with inductive shut-off voltage Internal limitation of inductive shut-off voltage Short-circuit protection of output Trigger level Number of operating cycle of relay outputs Status display Internal limiter on joundaries Internal limitation, alarms, diagnostics Status display Internal limiter on green LED per channel Internupts		600 m
Cadd Rated value DC 24 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis - Frequency range - Input resistance - Input current for signal "1" 7 mA Connection of Two-Wire-BEROs possible V Max. permissible BERO quiescent current 1.5 mA Input delay of "0" to "1" 3 ms Input delay of "0" to "1" 3 ms Input delay of "0" to "1" 3 ms Input delay of "0" to "1" 16 Input delay of "0" to "1" Input delay of "3" to "0" 3 ms Input delay of "1" to "0" 3 ms Input delay of "1" to "0" 3 ms Input delay of "1" to "0" Input characteristic curve IEC 61131-2, type 1 Initial data size 2 Byte Initial data size 2 Byte Initial data digital outputs 8 Input characteristic curve IEC 61131-2, type 1 Initial data digital outputs 8 Input characteristic curve IEC 61131-2, type 1 Initial data digital outputs 8 Input characteristic curve IEC 61131-2, type 1 Initial data size 2 Byte Input characteristic curve IEC 61131-2, type 1 Initial data size 2 Byte Initial data size 2 Byte Initial data digital outputs 8 Input characteristic curve IEC 61131-2, type 1 Initial data digital outputs 8 Input characteristic curve IEC 61131-2, type 1 Initial data size Input characteristic curve IEC 61131-2, type 1 Initial data size Input characteristic curve IEC 61131-2, type 1 Initial data size Input characteristic curve IEC 61131-2, type 1 Initial data digital outputs Input characteristic curve IEC 61131-2, type 1 Initial data size Input characteristic curve IEC 61131-2, type 1 Initial characteristic curve IEC 61131-2, type 1 Initial data size Input characteristic curve IEC 61131-2, type 1 Initial data size Input characteristic curve IEC 61131-2, type 1 Initial characteristic curve IEC 61131-2, type 1 Initial data size Input characteristic curve IEC 61131-2, type 1 Initial c		-
Rated value		-
Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis Frequency range Input resistance Input current for signal "1" Connection of Two-Wire-BEROs possible Max. permissible BERO quiescent current Input delay of "0" to "1" Input delay of "0" to "1" Input delay of "0" to "1" Input delay of "1" to "0" Input delay		
Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis - Frequency range - Input resistance - Input current for signal "1" 7 mA Connection of Two-Wire-BEROs possible Max. permissible BERO quiescent current 1.5 mA Input delay of "0" to "1" 3 ms Input delay of "1" to "0" 3 ms Input delay of "1" to "0" 3 ms Input delay of "1" to "0" 3 ms Input delay of simultaneously utilizable inputs orizontal configuration 16 Number of simultaneously utilizable inputs vertical configuration 16 Input characteristic curve IEC 61131-2, type 1 Initial data size 2 Byte Technical data digital outputs Number of outputs 8 Cable length, shielded 1000 m Cable length, unshielded 600 m Rated load voltage PC urrent consumption from load voltage L+ (without load) Output current at signal "1", rated value 5 A Output delay of "0" to "1" 10 ms Output delay of "0" to		
Input voltage hysteresis Frequency range -		
Input current for signal "1" 7 mA		DC 1528.8 V
Input current for signal "1" 7 mA Connection of Two-Wire-BEROs possible		-
Input current for signal "1" 7 mA Connection of Two-Wire-BEROs possible V Max. permissible BERO quiescent current 1.5 mA Input delay of "0" to "1" 3 ms Input delay of "1" to "0" 3 ms Input delay of "1" to "0" 3 ms Input delay of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration Number of simultaneously utilizable inputs vertical configuration Input characteristic curve IEC 61131-2, type 1 Initial data size 2 Byte Technical data digital outputs Number of outputs 8 Cable length, shielded 1000 m Cable length, unshielded 600 m Rated load voltage DC 30 V/ AC 230 V Reverse polarity protection of rated load voltage - Current consumption from load voltage L+ (without load) Output current at signal "1", rated value 5 A Output delay of "0" to "1" 10 ms Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power not possible Actuation of digital input - Switching frequency with resistive load max. 10 Hz Switching frequency with rinductive load - Switching frequency with inductive load - Switching frequency with inductive load - Internal limitation of inductive shut-off voltage - Short-circuit protection of output Trigger level - Number of operating cycle of relay outputs - Switching capacity of contacts - Output data size 1 Byte Status display green LED per channel Interrupts -		-
Connection of Two-Wire-BEROs possible Max. permissible BERO quiescent current Input delay of "0" to "1" Number of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration Input characteristic curve Input characteristic curve Input characteristic curve Input characteristic curve Initial data size Technical data digital outputs Number of outputs Cable length, shielded Cable length, unshielded Rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "0" to "0" Sims Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with resistive load Switching frequency with inductive load Short-circuit protection of output Switching requency on lamp load Internal limitation of inductive shut-off voltage Switching capacity of contacts Output data size 1 Byte Status display Interrupts Internal Internal Interpart Internal Internal Internal on alarms, diagnostics Status display Interrupts		
Max. permissible BERO quiescent current Input delay of "0" to "1" Input delay of "1" to "0" Number of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration Input characteristic curve Initial data size Technical data digital outputs Number of outputs Sable length, shielded Cable length, unshielded Cable length, unshielded Cable length, unshielded Carrent consumption from load voltage Current consumption from load voltage L+ (without load) Cutput current at signal "1", rated value Output delay of "0" to "1" Camp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with inductive load Switching frequency with inductive load Switching frequency with inductive load Short-circuit protection of output Internal limitation of inductive shut-off voltage Short-circuit protection of output Status display Internate Interrupts Output display Interrupts		
Input delay of "0" to "1" to "0" 3 ms Input delay of "1" to "0" 3 ms Number of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration Input characteristic curve Initial data size 2 Byte Technical data digital outputs Number of outputs 8 Cable length, shielded 1000 m Cable length, unshielded 600 m Rated load voltage DC 30 V/ AC 230 V Reverse polarity protection of rated load voltage - Current consumption from load voltage L+ (without load) Output current at signal "1", rated value 5 A Output delay of "0" to "1" 10 ms Output delay of "0" to "1" 10 ms Output delay of "1" to "0" 5 ms Minimum load current - Lamp load - Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input - Switching frequency with resistive load max. 10 Hz Switching frequency with inductive load - Switching frequency with inductive load - Switching frequency with inductive shut-off voltage - Short-circuit protection of output - Trigger level - Number of operating cycle of relay outputs - Switching capacity of contacts - Output data size 1 Byte Interrupts no		✓
Input delay of "1" to "0" Number of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration Input characteristic curve Input characteristic curve Input characteristic curve Initial data size Technical data digital outputs Number of outputs Cable length, shielded Cable length, unshielded Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of output Trigger level Number of operating cycle of relay outputs Status display Interrupts		1.5 mA
Number of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration Input characteristic curve Initial data size Technical data digital outputs Number of outputs Cable length, shielded Cable length, unshielded Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with rinductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Switching capacity of contacts Output data size Status display Interrupts Interrupts 16 60 Carrent consumption from lead voltage 100 00 m 88 8 Cable length, shielded 1000 m 88 8 Cable length, shielded 1000 m 88 8 Cable length, unshielded 1000 m 80 80 Cable length, unshielded 1000 m 80 600 m 80 80 Cable length, unshielded 1000 m 80 600 m 80 80 Cable length, unshielded 1000 m 80 600 m 80 Factor 30 V/ AC 230 V 80 Factor 30 V 80 Factor 30 V 80 F		3 ms
Number of simultaneously utilizable inputs vertical configuration Number of simultaneously utilizable inputs vertical configuration Input characteristic curve Initial data size Technical data digital outputs Number of outputs Sable length, shielded Cable length, shielded Cable length, unshielded Rated load voltage DC 30 V/ AC 230 V Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "0" to "1" Output delay of "1" to "0" Sims Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of output Trigger level Number of operating cycle of relay outputs Switching capacity of contacts Output data size Status display Interrupts Interrupts Interrupts Interrupts Interrupts Interrupts Interrupts Interrupts		3 ms
Number of simultaneously utilizable inputs vertical configuration Input characteristic curve Initial data size Technical data digital outputs Number of outputs Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Similar load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency or lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of alarms, diagnostics Status display Internal Internal Internation Internal Internation, alarms, diagnostics Status display Internal Intern		16
Input characteristic curve IEC 61131-2, type 1 Initial data size 2 Byte Technical data digital outputs Number of outputs 8 Cable length, shielded 1000 m Cable length, unshielded 600 m Rated load voltage DC 30 V/ AC 230 V Reverse polarity protection of rated load voltage - Current consumption from load voltage L+ (without load) Output current at signal "1", rated value 5 A Output delay of "0" to "1" 10 ms Output delay of "1" to "0" 5 ms Minimum load current - Lamp load - Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input - Switching frequency with resistive load max. 10 Hz Switching frequency with inductive load - Switching frequency with inductive load - Short-circuit protection of output - Trigger level Number of operating cycle of relay outputs - Switching capacity of contacts - Output display green LED per channel Interrupts Interrupts		
Input characteristic curve Initial data size Ini		16
Initial data size		
Technical data digital outputs Number of outputs Cable length, shielded Cable length, unshielded Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" S ms Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of outputs Switching capacity of contacts Output data size Status display Interrupts B (000 m 1000		IEC 61131-2, type 1
Number of outputs Cable length, shielded Cable length, unshielded Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" 10 ms Output delay of "1" to "0" 5 ms Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of outputs Switching capacity of contacts Output data size Status display Interrupts 800 m 100 m 100 m 100 m 5 A 0 ms 100 ms 1	Initial data size	2 Byte
Cable length, shielded Cable length, unshielded Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Sms Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of output Trigger level Number of operating cycle of relay outputs Status display Green LED per channel Interrupts DC 30 V/ AC 230 V DC 30 V DC 30 V/ AC 230 V DC 30 V DC 30 V DC 30 V/ AC 230 V DC 30 V		
Cable length, unshielded Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Sms Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of output Trigger level Number of operating cycle of relay outputs Status display Gene LED per channel Interrupts DC 30 V/ AC 230 V DC 30 V/		-
Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" S ms Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of output Trigger level Number of operating cycle of relay outputs Status display Interrupts DC 30 V/ AC 230 V - C 230 V - C 230 V - C 240 - Number of operating the voltage of max and output of max and output of max and output outp		
Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" S ms Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of output Trigger level Number of operating cycle of relay outputs Switching capacity of contacts Output data size Status display Interrupts P A A Chamber 10 ms 10 possible 10 mot possible 10 ms 10 m		
Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" S ms Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of output Trigger level Number of operating cycle of relay outputs Switching capacity of contacts Output data size Status display Interrupts S A 10 ms 5 A 10 ms 5 ms Minimum load experiment of possible - not possible - not possible - and p		DC 30 V/ AC 230 V
Output current at signal "1", rated value		-
Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" S ms Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of output Trigger level Number of operating cycle of relay outputs Switching capacity of contacts Output data size Status display Interrupts S A 10 ms 5 ms mot possible not possible not possible not possible	Current consumption from load voltage L+ (without	-
Output delay of "0" to "1" 5 ms Output delay of "1" to "0" 5 ms Minimum load current		
Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of output Trigger level Number of operating cycle of relay outputs Switching capacity of contacts Output data size Status information, alarms, diagnostics Status display Internal limitation of inductive shut-off voltage S green LED per channel Interrupts	Output current at signal "1", rated value	
Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of output Trigger level Number of operating cycle of relay outputs Switching capacity of contacts Output data size Status information, alarms, diagnostics Status display Interrupts Interrupts		
Lamp load - Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power not possible Actuation of digital input - Switching frequency with resistive load max. 10 Hz Switching frequency with inductive load - Switching frequency on lamp load - Internal limitation of inductive shut-off voltage - Short-circuit protection of output - Trigger level - Number of operating cycle of relay outputs - Switching capacity of contacts - Output data size 1 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts on other possible not possi		5 ms
Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power not possible Actuation of digital input Switching frequency with resistive load max. 10 Hz Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of output Trigger level Number of operating cycle of relay outputs Switching capacity of contacts Output data size Status information, alarms, diagnostics Status display Interrupts Interrupts Interrupts		-
of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of output Trigger level Number of operating cycle of relay outputs Switching capacity of contacts Output data size Status information, alarms, diagnostics Status display Interrupts no not possible	<u>'</u>	
Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of output Trigger level Number of operating cycle of relay outputs Switching capacity of contacts Output data size Status information, alarms, diagnostics Status display Interrupts no		not possible
Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of output Trigger level Number of operating cycle of relay outputs Switching capacity of contacts Output data size Status information, alarms, diagnostics Status display Interrupts		
Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of output - Trigger level Number of operating cycle of relay outputs Switching capacity of contacts Output data size Status information, alarms, diagnostics Status display Interrupts max. 10 Hz max. 10 Hz Trigger level - Number of Department of Supplement o	·	not possible
Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of output - Trigger level Number of operating cycle of relay outputs Switching capacity of contacts Output data size Status information, alarms, diagnostics Status display Interrupts - Switching capacity of contacts green LED per channel Interrupts		-
Switching frequency on lamp load - Internal limitation of inductive shut-off voltage - Short-circuit protection of output - Trigger level - Number of operating cycle of relay outputs - Switching capacity of contacts - Output data size 1 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no	• , ,	max. 10 Hz
Internal limitation of inductive shut-off voltage Short-circuit protection of output Trigger level Number of operating cycle of relay outputs Switching capacity of contacts Output data size Status information, alarms, diagnostics Status display Interrupts Interrupts Interrupts	<u> </u>	-
Short-circuit protection of output - Trigger level - Number of operating cycle of relay outputs - Switching capacity of contacts - Output data size 1 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no		-
Trigger level - Number of operating cycle of relay outputs - Switching capacity of contacts - Output data size 1 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no	•	-
Number of operating cycle of relay outputs Switching capacity of contacts Output data size Status information, alarms, diagnostics Status display Interrupts Interrupts Output data size I Byte green LED per channel no		-
Switching capacity of contacts Output data size Status information, alarms, diagnostics Status display Interrupts Interrupts		-
Output data size 1 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no		-
Status information, alarms, diagnostics Status display green LED per channel Interrupts no	Switching capacity of contacts	-
Status display green LED per channel Interrupts no		1 Byte
Interrupts no		
	Status display	green LED per channel
Process alarm no		no
	Process alarm	no

Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out none Supply voltage display none Group error display none Channel error display none Isolation - Between channels - Between channels of groups to 8 Between channels and backplane bus √ Insulation tested with DC 500 V Datasizes		
Diagnostic functions no Diagnostics information read-out none Supply voltage display none Group error display none Channel error display none Isolation - Between channels - Between channels of groups to 8 Between channels and backplane bus ✓ Insulation tested with DC 500 V Datasizes Input bytes Input bytes 2 Output bytes 2 Parameter bytes 0 Diagnostic bytes 0 Housing PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Profile rail 35 mm Mechanical data Dimensions (WxHxD) Weight 250 g Environmental conditions O°C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Order number	123-4EJ11
Diagnostics information read-out none Supply voltage display none Group error display none Channel error display none Isolation - Between channels - Between channels of groups to 8 Between channels and backplane bus ✓ Insulation tested with DC 500 V Datasizes 2 Input bytes 2 Output bytes 2 Parameter bytes 0 Diagnostic bytes 0 Housing PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) Weight 250 g Environmental conditions 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications -25 °C to 70 °C		no
Supply voltage display none Group error display none Channel error display none Isolation - Between channels - Between channels of groups to 8 Between channels and backplane bus ✓ Insulation tested with DC 500 V Datasizes 2 Input bytes 2 Output bytes 2 Parameter bytes 0 Diagnostic bytes 0 Housing Profile rail 35 mm Mechanical data Profile rail 35 mm Mechanical data 101.6 x 76 x 48 mm Weight 250 g Environmental conditions 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications -25 °C to 70 °C		no
Group error display none Channel error display none Isolation Between channels Between channels of groups to Between channels and backplane bus Insulation tested with DC 500 V Datasizes Input bytes Qutput bytes Qutput bytes Quarameter bytes Quiput b	Diagnostics information read-out	none
Channel error display none Isolation - Between channels - Between channels of groups to 8 Between channels and backplane bus ✓ Insulation tested with DC 500 V Datasizes DC 500 V Input bytes 2 Output bytes 2 Parameter bytes 0 Diagnostic bytes 0 Housing PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) Weight 250 g Environmental conditions 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications -25 °C to 70 °C	Supply voltage display	none
Isolation - Between channels - Between channels of groups to 8 Between channels and backplane bus √ Insulation tested with DC 500 V Datasizes DC 500 V Input bytes 2 Output bytes 2 Parameter bytes 0 Diagnostic bytes 0 Housing PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Profile rail 35 mm Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 250 g Environmental conditions Coperating temperature Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications		none
Between channels Between channels of groups to Between channels and backplane bus Insulation tested with DC 500 V Datasizes Input bytes 2 Output bytes 2 Parameter bytes Diagnostic bytes Housing Material PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 250 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Channel error display	none
Between channels of groups to Between channels and backplane bus Insulation tested with DC 500 V Datasizes Input bytes Qutput bytes Parameter bytes Diagnostic bytes Housing Material PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) Weight Environmental conditions Operating temperature Q °C to 60 °C Storage temperature -25 °C to 70 °C	Isolation	
Between channels and backplane bus Insulation tested with DC 500 V Datasizes Input bytes 2 Output bytes 2 Parameter bytes 0 Diagnostic bytes Housing Material PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 250 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C	Between channels	-
Insulation tested with Datasizes Input bytes 2 Output bytes 2 Parameter bytes 0 Diagnostic bytes 0 Housing Material PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 250 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C	Between channels of groups to	8
DatasizesInput bytes2Output bytes2Parameter bytes0Diagnostic bytes0HousingPPE / PA 6.6MountingProfile rail 35 mmMechanical dataProfile rail 35 mmDimensions (WxHxD)101.6 x 76 x 48 mmWeight250 gEnvironmental conditionsOperating temperatureOperating temperature0 °C to 60 °CStorage temperature-25 °C to 70 °CCertifications-25 °C to 70 °C	Between channels and backplane bus	✓
Input bytes	Insulation tested with	DC 500 V
Output bytes 2 Parameter bytes 0 Diagnostic bytes 0 Housing PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 250 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Datasizes	
Parameter bytes Diagnostic bytes 0 Housing Material PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 250 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Input bytes	2
Diagnostic bytes Housing Material PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) Veight Environmental conditions Operating temperature O °C to 60 °C Storage temperature Certifications	Output bytes	2
Housing Material PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 250 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Parameter bytes	0
Material PPE / PA 6.6 Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 250 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Diagnostic bytes	0
Mounting Profile rail 35 mm Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 250 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Housing	
Mechanical data Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 250 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Material	PPE / PA 6.6
Dimensions (WxHxD) 101.6 x 76 x 48 mm Weight 250 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Mounting	Profile rail 35 mm
Weight 250 g Environmental conditions Operating temperature 0 °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Mechanical data	
Environmental conditions Operating temperature O °C to 60 °C Storage temperature -25 °C to 70 °C Certifications	Dimensions (WxHxD)	101.6 x 76 x 48 mm
Operating temperature0 °C to 60 °CStorage temperature-25 °C to 70 °CCertifications-25 °C to 70 °C	Weight	250 g
Storage temperature -25 °C to 70 °C Certifications	Environmental conditions	
Storage temperature -25 °C to 70 °C Certifications	Operating temperature	0 °C to 60 °C
	Storage temperature	-25 °C to 70 °C
111 =0.0 (10) (1)	Certifications	
UL508 certification yes	UL508 certification	yes

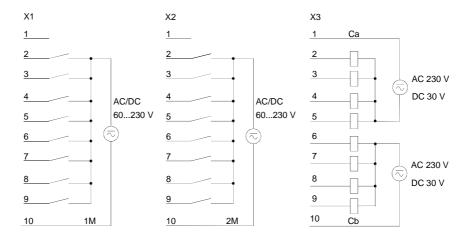
123-4EJ20 - DI 16xAC/DC 60...230V / DO 8xRelay

Structure

Position	X1	Position X2	Position X3	Position X4
DI 8xAC 6023		DI 8xAC/DC 60230V	DO 8xRelay	not used



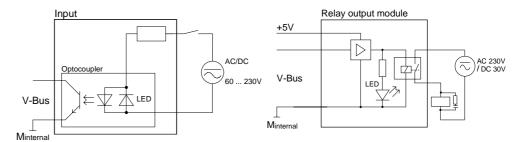
Circuit diagram



Schematic diagram

Input section

Relay output section



Note: When using inductive load please take an suitable protector (i.e. RC combination).

Technical data

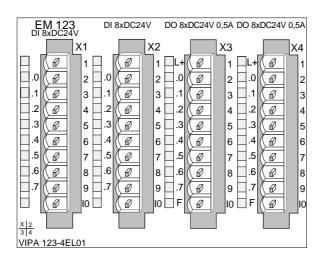
0.1	100 15 100
Order number	123-4EJ20
Type	EM 123
Current consumption/power loss	
Current consumption from backplane bus	320 mA
Power loss	4.6 W
Technical data digital inputs	
Number of inputs	16
Cable length, shielded	1000 m
Cable length, unshielded	600 m
Rated load voltage	-
Current consumption from load voltage L+ (without	-
load)	
Rated value	AC/DC 60230 V
Input voltage for signal "0"	AC/DC 035 V
Input voltage for signal "1"	AC/DC 60230 V
Input voltage hysteresis	-
Frequency range	-
Input resistance	-
Input current for signal "1"	7 mA
Connection of Two-Wire-BEROs possible	-
Max. permissible BERO quiescent current	-
Input delay of "0" to "1"	25 ms
Input delay of "1" to "0"	25 ms
Number of simultaneously utilizable inputs	16
horizontal configuration	
Number of simultaneously utilizable inputs vertical	16
configuration	
Input characteristic curve	-
Initial data size	2 Byte
Technical data digital outputs	
Number of outputs	8
Cable length, shielded	1000 m
Cable length, unshielded	600 m
Cable length, unshielded Rated load voltage	
Rated load voltage	600 m DC 30 V/ AC 230 V
Rated load voltage Reverse polarity protection of rated load voltage	
Rated load voltage	DC 30 V/ AC 230 V
Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load)	DC 30 V/ AC 230 V -
Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value	DC 30 V/ AC 230 V
Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1"	DC 30 V/ AC 230 V - - 5 A 6 ms
Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0"	DC 30 V/ AC 230 V 5 A 6 ms 3 ms
Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current	DC 30 V/ AC 230 V - - 5 A 6 ms
Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load	DC 30 V/ AC 230 V 5 A 6 ms 3 ms
Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control	DC 30 V/ AC 230 V 5 A 6 ms 3 ms -
Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load	DC 30 V/ AC 230 V 5 A 6 ms 3 ms not possible
Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power	DC 30 V/ AC 230 V 5 A 6 ms 3 ms not possible not possible
Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input	DC 30 V/ AC 230 V 5 A 6 ms 3 ms not possible not possible -
Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load	DC 30 V/ AC 230 V 5 A 6 ms 3 ms not possible not possible
Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load	DC 30 V/ AC 230 V 5 A 6 ms 3 ms not possible not possible - max. 10 Hz -
Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency on lamp load	DC 30 V/ AC 230 V 5 A 6 ms 3 ms not possible not possible - max. 10 Hz
Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Internal limitation of inductive shut-off voltage	DC 30 V/ AC 230 V 5 A 6 ms 3 ms not possible not possible - max. 10 Hz
Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of output	DC 30 V/ AC 230 V 5 A 6 ms 3 ms not possible not possible - max. 10 Hz
Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of output Trigger level	DC 30 V/ AC 230 V 5 A 6 ms 3 ms not possible not possible - max. 10 Hz
Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of output Trigger level Number of operating cycle of relay outputs	DC 30 V/ AC 230 V 5 A 6 ms 3 ms not possible not possible - max. 10 Hz
Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of output Trigger level Number of operating cycle of relay outputs Switching capacity of contacts	DC 30 V/ AC 230 V 5 A 6 ms 3 ms not possible not possible - max. 10 Hz
Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of output Trigger level Number of operating cycle of relay outputs Switching capacity of contacts Output data size	DC 30 V/ AC 230 V 5 A 6 ms 3 ms not possible not possible - max. 10 Hz
Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of output Trigger level Number of operating cycle of relay outputs Switching capacity of contacts Output data size Status information, alarms, diagnostics	DC 30 V/ AC 230 V 5 A 6 ms 3 ms not possible not possible - max. 10 Hz 1 Byte
Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of output Trigger level Number of operating cycle of relay outputs Switching capacity of contacts Output data size Status information, alarms, diagnostics Status display	DC 30 V/ AC 230 V 5 A 6 ms 3 ms not possible not possible - max. 10 Hz 1 Byte green LED per channel
Rated load voltage Reverse polarity protection of rated load voltage Current consumption from load voltage L+ (without load) Output current at signal "1", rated value Output delay of "0" to "1" Output delay of "1" to "0" Minimum load current Lamp load Parallel switching of outputs for redundant control of a load Parallel switching of outputs for increased power Actuation of digital input Switching frequency with resistive load Switching frequency with inductive load Switching frequency on lamp load Internal limitation of inductive shut-off voltage Short-circuit protection of output Trigger level Number of operating cycle of relay outputs Switching capacity of contacts Output data size Status information, alarms, diagnostics	DC 30 V/ AC 230 V 5 A 6 ms 3 ms not possible not possible - max. 10 Hz 1 Byte

Order number	123-4EJ20	
Diagnostic interrupt	no	
Diagnostic functions	no	
Diagnostics information read-out	none	
Supply voltage display	none	
Group error display	none	
Channel error display	none	
Isolation		
Between channels	-	
Between channels of groups to	8	
Between channels and backplane bus	✓	
Insulation tested with	DC 500 V	
Datasizes		
Input bytes	2	
Output bytes	2	
Parameter bytes	0	
Diagnostic bytes	0	
Housing		
Material	PPE / PA 6.6	
Mounting	Profile rail 35 mm	
Mechanical data		
Dimensions (WxHxD)	101.6 x 76 x 48 mm	
Weight	244 g	
Environmental conditions		
Operating temperature	0 °C to 60 °C	
Storage temperature	-25 °C to 70 °C	
Certifications		
UL508 certification	yes	
	•	

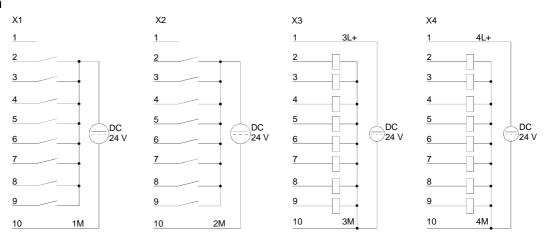
123-4EL01 - DI 16xDC 24V / DO 16xDC 24V 0.5A

Structure

Position X1	Position X2	Position X3	Position X4
DI 8xDC 24V	DI 8xDC 24V	DO 8xDC 24V 0.5A	DO 8xDC 24V 0.5A



Circuit diagram



Schematic diagram

Input section

Input Opto coupler V-Bus Minternal

Output section

Technical data

F	T
Order number	123-4EL01
Туре	EM 123
Current consumption/power loss	
Current consumption from backplane bus	110 mA
Power loss	6 W
Technical data digital inputs	
Number of inputs	16
Cable length, shielded	1000 m
Cable length, unshielded	600 m
Rated load voltage	-
Current consumption from load voltage L+ (without	-
load)	
Rated value	DC 24 V
Input voltage for signal "0"	DC 05 V
Input voltage for signal "1"	DC 1528.8 V
Input voltage hysteresis	-
Frequency range	-
Input resistance	-
Input current for signal "1"	7 mA
Connection of Two-Wire-BEROs possible	✓ · · · · · · · · · · · · · · · · · · ·
Max. permissible BERO quiescent current	1.5 mA
Input delay of "0" to "1"	3 ms
Input delay of "0" "0"	3 ms
Number of simultaneously utilizable inputs	16
horizontal configuration	10
Number of simultaneously utilizable inputs vertical	16
configuration	10
Input characteristic curve	IEC 61131-2, type 1
Initial data size	2 Byte
	2 Byte
Technical data digital outputs	16
Number of outputs	
Cable length, shielded	1000 m
Cable length, unshielded	600 m
Rated load voltage	DC 24 V
Reverse polarity protection of rated load voltage	-
Current consumption from load voltage L+ (without	30 mA
load)	0.5.4
Output current at signal "1", rated value	0.5 A
Output delay of "0" to "1"	max. 100 μs
Output delay of "1" to "0"	max. 350 μs
Minimum load current	-
Lamp load	5 W
Parallel switching of outputs for redundant control	not possible
of a load	
Parallel switching of outputs for increased power	not possible
Actuation of digital input	-
Switching frequency with resistive load	max. 1000 Hz
Switching frequency with inductive load	max. 0.5 Hz
Switching frequency on lamp load	max. 10 Hz
Internal limitation of inductive shut-off voltage	L+ (-52 V)
Short-circuit protection of output	yes, electronic
Trigger level	1 A
Number of operating cycle of relay outputs	-
Switching capacity of contacts	-
Output data size	2 Byte
Status information, alarms, diagnostics	, in the second second
Status display	green LED per channel
Interrupts	no
Process alarm	no
	· · -

Order number	123-4EL01
Diagnostic interrupt	no
Diagnostic functions	no
Diagnostics information read-out	none
Supply voltage display	none
Group error display	none
Channel error display	none
Isolation	
Between channels	-
Between channels of groups to	8
Between channels and backplane bus	✓
Insulation tested with	DC 500 V
Datasizes	
Input bytes	2
Output bytes	2
Parameter bytes	0
Diagnostic bytes	0
Housing	
Material	PPE / PA 6.6
Mounting	Profile rail 35 mm
Mechanical data	
mensions (WxHxD) 101.6 x 76 x 48 mm	
Weight	271 g
Environmental conditions	
Operating temperature	0 °C to 60 °C
Storage temperature	-25 °C to 70 °C
Certifications	
UL508 certification	yes