

## RECO Inline Overall View

Brief Description

SYSTEM200

<b>Title</b>	RECO Inline Overall View
<b>Type of Documentation</b>	Brief Description
<b>Document Typecode</b>	DOK-CONTRL-R-IL*INLINE-KB02-EN-P
<b>Internal File Reference</b>	Document Number, 120-0400-B348-02/EN
<b>Purpose of Documentation</b>	This documentation serves <ul style="list-style-type: none"> <li>• as brief description of the RECO Inline modules,</li> <li>• to provide technical data in brief.</li> </ul>

**Record of Revisions**

Description	Release Date	Notes
120-0400-B348-02/EN	10/01	First english issue

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<b>Published by</b>	Rexroth Indramat GmbH Bgm.-Dr.-Nebel-Str. 2 • D-97816 Lohr a. Main Telephone +49 (0)93 52/40-0 • Tx 68 94 21 • Fax +49 (0)93 52/40-48 85 <a href="http://www.boschrexroth.de/">http://www.boschrexroth.de/</a> Dept. BRC/EP6 (UK) Dept. BRC/EP (NH)
<b>Note</b>	This document has been printed on chlorine-free bleached paper.

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# 1 Introduction of Components

## 1.1 Description and Basic Functions

The description covers the following components:

### RECO Inline – Bus Terminals

- RECO Inline INTERBUS bus terminal

- R-IBS IL 24 BK-T

The bus terminal couples a RECO Inline station to the INTERBUS remote bus and makes the supply voltages available to the connected devices.

- RECO Inline INTERBUS remote bus branch

- R-IBS IL 24 RB-T

Using this terminal, an INTERBUS remote bus branch can be branched off from a RECO Inline station.

- RECO Inline PROFIBUS DP bus terminal

- R-IL PB BK

The bus terminal couples a RECO Inline station to the PROFIBUS DP remote bus and makes the supply voltages available to the connected devices.

### RECO Inline – Digital Inputs

- RECO Inline terminal with two digital inputs

- R-IB IL 24 DI 2

This input terminal provides two digital inputs, utilizing the 4-wire connection method.

- RECO Inline terminal with four digital inputs

- R-IB IL 24 DI 4

This input terminal provides four digital inputs, utilizing the 3-wire connection method.

- RECO Inline terminal with eight digital inputs

- R-IB IL 24 DI 8

This input terminal provides eight digital inputs, utilizing the 4-wire connection method.

- RECO Inline terminal with sixteen digital inputs

- R-IB IL 24 DI 16

This input terminal provides sixteen digital inputs, utilizing the 3-wire connection method.

- RECO Inline terminal with two digital inputs and two diagnostic inputs

- R-IB IL 24 EDI 2-DES

This input terminal provides two digital inputs and two diagnostic inputs, utilizing the 4-wire connection method.

## RECO Inline – Digital Outputs

- RECO Inline terminal with two digital 2-A outputs
  - R-IB IL 24 DO 2-2A

This output terminal provides two digital outputs, utilizing the 4-wire connection method.
  
- RECO Inline terminal with four digital 500-mA outputs
  - R-IB IL 24 DO 4

This output terminal provides four digital outputs, utilizing the 3-wire connection method.
  
- RECO Inline terminal with eight digital 500-mA outputs
  - R-IB IL 24 DO 8

This output terminal provides eight digital outputs, utilizing the 4-wire connection method.
  
- RECO Inline terminal with sixteen digital 500-mA outputs
  - R-IB IL 24 DO 16

This output terminal provides sixteen digital outputs, utilizing the 3-wire connection method.
  
- RECO Inline terminal with one relay output
  - R-IB IL 24/230 DOR 1/W

This terminal provides a potential-free relay contact (alternating contact).
  
- RECO Inline terminal pair as relay terminal accessories
  - R-IB IL DOR LV-SET

This terminal pair is intended for isolation of the relay terminal and establishes the voltage distance required.

## RECO Inline – Analog Inputs

- RECO Inline terminal with two analog input channels
  - R-IB IL 24 AI 2/SF

This analog terminal provides two analog single-ended signal inputs for optional connection of current or voltage signals, utilizing the 2- or the 3-wire connection method.
  
- RECO Inline terminal with two input channels for connection of temperature multiplier resistors
  - R-IB IL 24 TEMP 2 RTD

This analog terminal provides two analog signal inputs for connection of resistive temperature sensors, utilizing the 2-, the 3- and the 4-wire connection methods.



## RECO Inline – Analog Outputs

- RECO Inline terminal with one analog output channel
  - R-IB IL 24 AO 1/SF

This analog terminal provides one analog signal output for optional connection of current or voltage signals, utilizing the 2-wire connection method.

- RECO Inline terminal with two analog voltage outputs
  - R-IB IL 24 AO 2 U/BP

This analog terminal provides two analog bipolar voltage outputs, utilizing the 3-wire connection method.

## RECO Inline – Function Terminals

- RECO Inline function terminal: counter timer
  - R-IB IL 24 CNT

This function terminal provides the following functions:

- Event counting
- Frequency measurement
- Timing

## RECO Inline – Voltage Supply Terminals

- RECO Inline power terminal
  - R-IB IL PWR IN

This terminal permits feeding in of the module and segment voltages.

- RECO Inline segment terminal
  - R-IB IL SEG/F

This terminal permits safe supply of the module voltage into the segment voltage.



## 2 Important directions for use

### 2.1 Appropriate use

#### Introduction

Rexroth Indramat products represent state-of-the-art developments and manufacturing. They are tested prior to delivery to ensure operating safety and reliability.

The products may only be used in the manner that is defined as appropriate. If they are used in an inappropriate manner, then situations can develop that may lead to property damage or injury to personnel.

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**Note:** Rexroth Indramat, as manufacturer, is not liable for any damages resulting from inappropriate use. In such cases, the guarantee and the right to payment of damages resulting from inappropriate use are forfeited. The user alone carries all responsibility of the risks.

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Before using Rexroth Indramat products, make sure that all the prerequisites for appropriate use of the products are satisfied:

- Personnel that in any way, shape or form uses our products must first read and understand the relevant safety instructions and be familiar with appropriate use.
- If the product takes the form of hardware, then they must remain in their original state, in other words, no structural changes are permitted. It is not permitted to decompile software products or alter source codes.
- Do not mount damaged or faulty products or use them in operation.
- Make sure that the products have been installed in the manner described in the relevant documentation.

## 2.2 Areas of use and application

The RECO Inline system is a decentralized modular field-bus-coupled input and output system.

The RECO Inline system by Rexroth Indramat is intended for the cases of use listed below.

- Machine tools
- Transfer systems
- General automation

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**Note:** The RECO Inline system may only be used with the accessories and parts specified in this document. If a component has not been specifically named, then it may not be either mounted or connected. The same applies to cables and lines.

Operation is only permitted in the specified configurations and combinations of components using the software and firmware as specified in the relevant function descriptions.

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The typical fields of application of RECO Inline modules are as follows:

- Turning machines
- Milling machines
- Machining centers
- General automation

The RECO Inline system may only be operated under the assembly, installation and ambient conditions as described here (temperature, system of protection, humidity, EMC requirements, etc.) and in the position specified.

## 2.3 Inappropriate use

Using the RECO Inline system outside of the above-referenced areas of application or under operating conditions other than described in the document and the technical data specified is defined as "inappropriate use".

The RECO Inline system may not be used if

- they are subject to operating conditions that do not meet the above specified ambient conditions. This includes, for example, operation under water, in the case of extreme temperature fluctuations or extreme maximum temperatures or if
- Rexroth Indramat has not specifically released them for that intended purpose. Please note the specifications outlined in the general Safety Instructions!

### 3 Safety Instructions for Electric Drives and Controls

#### 3.1 Introduction

Read these instructions before the initial startup of the equipment in order to eliminate the risk of bodily harm or material damage. Follow these safety instructions at all times.

Do not attempt to install or start up this equipment without first reading all documentation provided with the product. Read and understand these safety instructions and all user documentation of the equipment prior to working with the equipment at any time. If you do not have the user documentation for your equipment, contact your local Rexroth Indramat representative to send this documentation immediately to the person or persons responsible for the safe operation of this equipment.

If the equipment is resold, rented or transferred or passed on to others, then these safety instructions must be delivered with the equipment.



**WARNING**

**Improper use of this equipment, failure to follow the safety instructions in this document or tampering with the product, including disabling of safety devices, may result in material damage, bodily harm, electric shock or even death!**

#### 3.2 Explanations

The safety instructions describe the following degrees of hazard seriousness in compliance with ANSI Z535. The degree of hazard seriousness informs about the consequences resulting from non-compliance with the safety instructions.




Warning symbol with signal word	Degree of hazard seriousness according to ANSI
 <b>DANGER</b>	Death or severe bodily harm will occur.
 <b>WARNING</b>	Death or severe bodily harm may occur.
 <b>CAUTION</b>	Bodily harm or material damage may occur.

Fig. 3-1: Hazard classification (according to ANSI Z535)

### 3.3 Hazards by Improper Use



**DANGER**

**High voltage and high discharge current!  
Danger to life or severe bodily harm by electric shock !**



**DANGER**

**Dangerous movements! Danger to life, severe bodily harm or material damage by unintentional motor movements!**



**WARNING**

**High electrical voltage due to wrong connections! Danger to life or bodily harm by electric shock!**



**WARNING**

**Health hazard for persons with heart pacemakers, metal implants and hearing aids in proximity to electrical equipment!**



**CAUTION**

**Surface of machine housing could be extremely hot! Danger of injury! Danger of burns!**



**CAUTION**

**Risk of injury due to improper handling! Bodily harm caused by crushing, shearing, cutting and mechanical shock or incorrect handling of pressurized systems!**



**CAUTION**

**Risk of injury due to incorrect handling of batteries!**

## 3.4 General Information

- Rexroth Indramat GmbH is not liable for damages resulting from failure to observe the warnings provided in this documentation.
- Read the operating, maintenance and safety instructions in your language before starting up the machine. If you find that you can not completely understand the documentation for your product, please ask your supplier to clarify.
- Proper and correct transport, storage, assembly and installation as well as care in operation and maintenance are prerequisites for optimal and safe operation of this equipment.
- Only persons who are trained and qualified for the use operation of the equipment may work on this equipment or within its proximity. The persons are qualified if they have sufficient knowledge of the assembly, installation and operation of the equipment as well as an understanding of all warnings and precautionary measures noted in these instructions.  
Furthermore, they must be trained, instructed and qualified to switch electrical circuits and equipment on and off in accordance with technical safety regulations, to ground them and to mark them according to the requirements of safe work practices. They must have adequate safety equipment and be trained in first aid.
- Only use spare parts and accessories approved by the manufacturer.
- Follow all safety regulations and requirements for the specific application as practiced in the country of use.
- The equipment is designed for installation in industrial machinery.
- The ambient conditions given in the product documentation must be observed.
- Use only safety features and applications that are clearly and explicitly approved in the Project Planning Manual.  
For example, the following areas of use are not permitted: construction cranes, elevators used for people or freight, devices and vehicles to transport people, medical applications, refinery plants, transport of hazardous goods, nuclear applications, applications sensitive to high frequency, mining, food processing, control of protection equipment (also in a machine).
- The information given in this documentation with regard to the use of the delivered components contains only examples of applications and suggestions.

The machine and installation manufacturer must

- make sure that the delivered components are suited for his individual application and check the information given in this documentation with regard to the use of the components,
  - make sure that his application complies with the applicable safety regulations and standards and carry out the required measures, modifications and complements.
- Startup of the delivered components is only permitted once it is sure that the machine or installation in which they are installed complies with the national regulations, safety specifications and standards of the application.

- Operation is only permitted if the national EMC regulations for the application are met.  
The instructions for installation in accordance with EMC requirements can be found in the documentation "EMC in Drive and Control Systems."  
The machine or installation manufacturer is responsible for compliance with the limiting values as prescribed in the national regulations.
- Technical data, connections and operational conditions are specified in the product documentation and must be followed at all times.

## 3.5 Protection Against Contact with Electrical Parts

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**Note:** This section refers to equipment and drive components with voltages above 50 Volts.

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Touching live parts with voltages of 50 Volts and more with bare hands or conductive tools or touching ungrounded housings can be dangerous and cause electric shock. In order to operate electrical equipment, certain parts must unavoidably have dangerous voltages applied to them.



### High electrical voltage! Danger to life, severe bodily harm by electric shock!

- ⇒ Only those trained and qualified to work with or on electrical equipment are permitted to operate, maintain or repair this equipment.
  - ⇒ Follow general construction and safety regulations when working on high voltage installations.
  - ⇒ Before switching on power the ground wire must be permanently connected to all electrical units according to the connection diagram.
  - ⇒ Do not operate electrical equipment at any time, even for brief measurements or tests, if the ground wire is not permanently connected to the points of the components provided for this purpose.
  - ⇒ Before working with electrical parts with voltage higher than 50 V, the equipment must be disconnected from the mains voltage or power supply. Make sure the equipment cannot be switched on again unintended.
  - ⇒ The following should be observed with electrical drive and filter components:  
Wait five (5) minutes after switching off power to allow capacitors to discharge before beginning to work. Measure the voltage on the capacitors before beginning to work to make sure that the equipment is safe to touch.
  - ⇒ Never touch the electrical connection points of a component while power is turned on.
  - ⇒ Install the covers and guards provided with the equipment properly before switching the equipment on. Prevent contact with live parts at any time.
  - ⇒ A residual-current-operated protective device (RCD) must not be used on electric drives! Indirect contact must be prevented by other means, for example, by an overcurrent protective device.
  - ⇒ Electrical Components with exposed live parts and uncovered high voltage terminals must be installed in a protective housing, for example in a control cabinet.
-



To be observed with electrical drive and filter components:



**DANGER**

**High electrical voltage on the housing!  
High leakage current! Danger to life, danger of  
injury by electric shock!**

- ⇒ Connect the electrical equipment, the housings of all electrical units and motors permanently with the safety conductor at the ground points before power is switched on. Look at the connection diagram. This is even necessary for brief tests.
- ⇒ Connect the safety conductor of the electrical equipment always permanently and firmly to the supply mains. Leakage current exceeds 3.5 mA in normal operation.
- ⇒ Use a copper conductor with at least 10 mm<sup>2</sup> cross section over its entire course for this safety conductor connection!
- ⇒ Prior to startups, even for brief tests, always connect the protective conductor or connect with ground wire. Otherwise, high voltages can occur on the housing that lead to electric shock.

### 3.6 Protection Against Electric Shock by Protective Low Voltage (PELV)

All connections and terminals with voltages between 0 and 50 Volts on Rexroth Indramat products are protective low voltages designed in accordance with international standards on electrical safety.



**WARNING**

**High electrical voltage due to wrong  
connections! Danger to life, bodily harm by  
electric shock !**

- ⇒ Only connect equipment, electrical components and cables of the protective low voltage type (PELV = Protective Extra Low Voltage) to all terminals and clamps with voltages of 0 to 50 Volts.
- ⇒ Only electrical circuits may be connected which are safely isolated against high voltage circuits. Safe isolation is achieved, for example, with an isolating transformer, an opto-electronic coupler or when battery-operated.

## 3.7 Protection Against Dangerous Movements

Dangerous movements can be caused by faulty control of the connected motors. Some common examples are:

- improper or wrong wiring of cable connections
- incorrect operation of the equipment components
- wrong input of parameters before operation
- malfunction of sensors, encoders and monitoring device
- defective components
- software or firmware errors

Dangerous movements can occur immediately after equipment is switched on or even after an unspecified time of trouble-free operation.

The monitoring in the drive components will normally be sufficient to avoid faulty operation in the connected drives. Regarding personal safety, especially the danger of bodily injury and material damage, this alone cannot be relied upon to ensure complete safety. Until the integrated monitoring functions become effective, it must be assumed in any case that faulty drive movements will occur. The extent of faulty drive movements depends upon the type of control and the state of operation.




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### **Dangerous movements! Danger to life, risk of injury, severe bodily harm or material damage!**

- ⇒ Ensure personal safety by means of qualified and tested higher-level monitoring device or measures integrated in the installation. Unintended machine motion is possible if monitoring device are disabled, bypassed or not activated.
  - ⇒ Pay attention to unintended machine motion or other malfunction in any mode of operation.
  - ⇒ Keep free and clear of the machine's range of motion and moving parts. Possible measures to prevent people from accidentally entering the machine's range of movement:
    - use safety fences
    - use safety guards
    - use protective coverings
    - install light curtains or light barriers
  - ⇒ Fences and coverings must be strong enough to resist maximum possible momentum, especially if break off parts can fly into the environment.
  - ⇒ Mount the emergency stop switch in the immediate reach of the operator. Verify that the emergency stop works before startup. Don't operate the machine if the emergency stop is not working.
  - ⇒ Isolate the drive power connection by means of an emergency stop circuit or use a starting lockout to prevent unintentional start.
  - ⇒ Make sure that the drives are brought to a safe standstill before accessing or entering the danger zone. Safe standstill can be achieved by switching off the power supply contactor or by safe mechanical locking of moving parts.
-

- ⇒ Secure vertical axes against falling or dropping after switching off the motor power by, for example:
  - mechanically securing the vertical axes
  - adding an external braking/ arrester/ clamping mechanism
  - ensuring sufficient equilibration of the vertical axes
 The standard equipment motor brake or an external brake controlled directly by the drive controller are not sufficient to guarantee personal safety!
- ⇒ Disconnect electrical power to the equipment using a master switch and secure the switch against reconnection for:
  - maintenance and repair work
  - cleaning of equipment
  - long periods of discontinued equipment use
- ⇒ Prevent the operation of high-frequency, remote control and radio equipment near electronics circuits and supply leads. If the use of such equipment cannot be avoided, verify the system and the installation for possible malfunctions in all possible positions of normal use before initial startup. If necessary, perform a special electromagnetic compatibility (EMC) test on the installation.

### 3.8 Protection Against Magnetic and Electromagnetic Fields During Operation and Mounting

Magnetic and electromagnetic fields generated near current-carrying conductors and permanent magnets in motors represent a serious health hazard to persons with heart pacemakers, metal implants and hearing aids.



**WARNING**

#### **Health hazard for persons with heart pacemakers, metal implants and hearing aids in proximity to electrical equipment!**

- ⇒ Persons with heart pacemakers, hearing aids and metal implants are not permitted to enter following areas:
  - Areas in which electrical equipment and parts are mounted, being operated or started up.
  - Areas in which parts of motors with permanent magnets are being stored, operated, repaired or mounted.
- ⇒ If it is necessary for a person with a heart pacemaker to enter such an area, then a doctor must be consulted prior to doing so. Heart pacemakers that are already implanted or will be implanted in the future, have a considerable variation in their electrical noise immunity. Therefore there are no rules with general validity.
- ⇒ Persons with hearing aids, metal implants or metal pieces must consult a doctor before they enter the areas described above. Otherwise, health hazards will occur.

## 3.9 Protection Against Contact with Hot Parts



CAUTION

### **Housing surfaces could be extremely hot! Danger of injury! Danger of burns!**

- ⇒ Do not touch housing surfaces near sources of heat! Danger of burns!
- ⇒ After switching the equipment off, wait at least ten (10) minutes to allow it to cool down before touching it.
- ⇒ Do not touch hot parts of the equipment, such as housings with integrated heat sinks and resistors. Danger of burns!

## 3.10 Protection During Handling and Mounting

Under certain conditions, incorrect handling and mounting of parts and components may cause injuries.



CAUTION

### **Risk of injury by incorrect handling! Bodily harm caused by crushing, shearing, cutting and mechanical shock!**

- ⇒ Observe general installation and safety instructions with regard to handling and mounting.
- ⇒ Use appropriate mounting and transport equipment.
- ⇒ Take precautions to avoid pinching and crushing.
- ⇒ Use only appropriate tools. If specified by the product documentation, special tools must be used.
- ⇒ Use lifting devices and tools correctly and safely.
- ⇒ For safe protection wear appropriate protective clothing, e.g. safety glasses, safety shoes and safety gloves.
- ⇒ Never stand under suspended loads.
- ⇒ Clean up liquids from the floor immediately to prevent slipping.

### 3.11 Battery Safety

Batteries contain reactive chemicals in a solid housing. Inappropriate handling may result in injuries or material damage.



**CAUTION**

#### **Risk of injury by incorrect handling!**

- ⇒ Do not attempt to reactivate discharged batteries by heating or other methods (danger of explosion and cauterization).
- ⇒ Never charge non chargeable batteries (danger of leakage and explosion).
- ⇒ Never throw batteries into a fire.
- ⇒ Do not dismantle batteries.
- ⇒ Do not damage electrical components installed in the equipment.

**Note:** Be aware of environmental protection and disposal! The batteries contained in the product should be considered as hazardous material for land, air and sea transport in the sense of the legal requirements (danger of explosion). Dispose batteries separately from other waste. Observe the legal requirements in the country of installation.

### 3.12 Protection Against Pressurized Systems

Certain motors and drive controllers, corresponding to the information in the respective Project Planning Manual, must be provided with pressurized media, such as compressed air, hydraulic oil, cooling fluid and cooling lubricant supplied by external systems. Incorrect handling of the supply and connections of pressurized systems can lead to injuries or accidents. In these cases, improper handling of external supply systems, supply lines or connections can cause injuries or material damage.



**CAUTION**

#### **Danger of injury by incorrect handling of pressurized systems !**

- ⇒ Do not attempt to disassemble, to open or to cut a pressurized system (danger of explosion).
- ⇒ Observe the operation instructions of the respective manufacturer.
- ⇒ Before disassembling pressurized systems, release pressure and drain off the fluid or gas.
- ⇒ Use suitable protective clothing (for example safety glasses, safety shoes and safety gloves)
- ⇒ Remove any fluid that has leaked out onto the floor immediately.

**Note:** Environmental protection and disposal! The media used in the operation of the pressurized system equipment may not be environmentally compatible. Media that are damaging the environment must be disposed separately from normal waste. Observe the legal requirements in the country of installation.



## 4 General RECO Inline System Data

### 4.1 Limit Data of the RECO Inline Station

Description	Type	Value	Remark
System extension	Number of terminals	Max.: 63 192 bytes of data	Observe max. current load in the logic circuit Additionally observe with PROFIBUS DP
Load capacity	U <sub>L</sub> Logic supply U <sub>ANA</sub> Analog supply U <sub>M</sub> Module supply U <sub>S</sub> Segment supply	7.5 V 2 A max. 24 V 0.5 A max.  24 V 8 A max.	Max. logic current requirements incl. bus coupler Max. analog current requirements Max. load (sum of U <sub>M</sub> + U <sub>S</sub> ). Extension by fitting a new power terminal.
Supply	Supply voltage – Nominal value – Ripple factor – Range	24 V DC 5% 19.2 to 30 V DC	Including ripple factor

Fig. 4-1: RECO Inline – station data

### 4.2 Dimensions of Module Housings

#### 2-slot housing

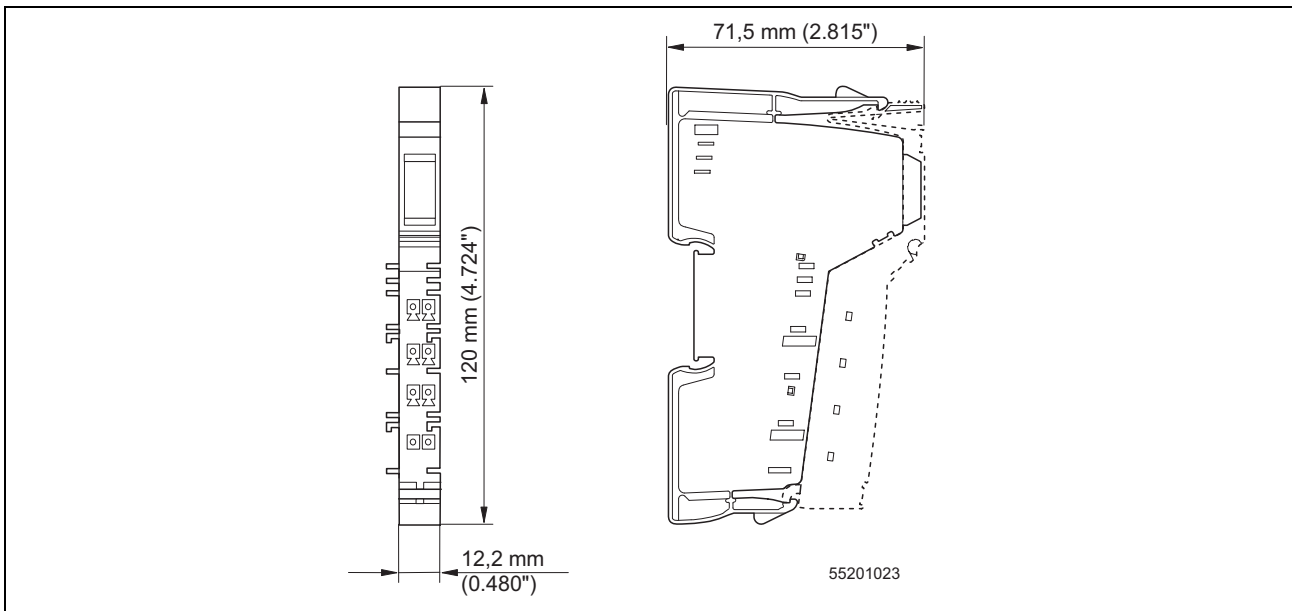


Fig. 4-2: Dimensions of the electronic socket (2-slot housing)

### 4-slot housing

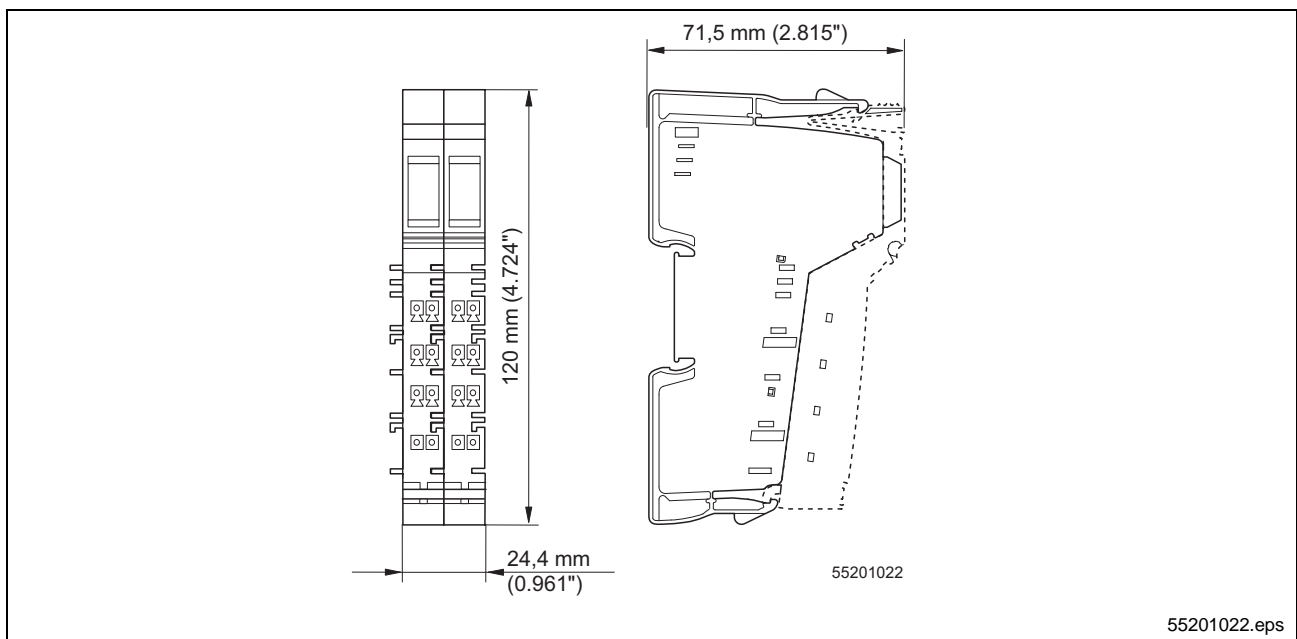


Fig. 4-3: Dimensions of the electronic socket (4-slot housing)

### 8-slot housing

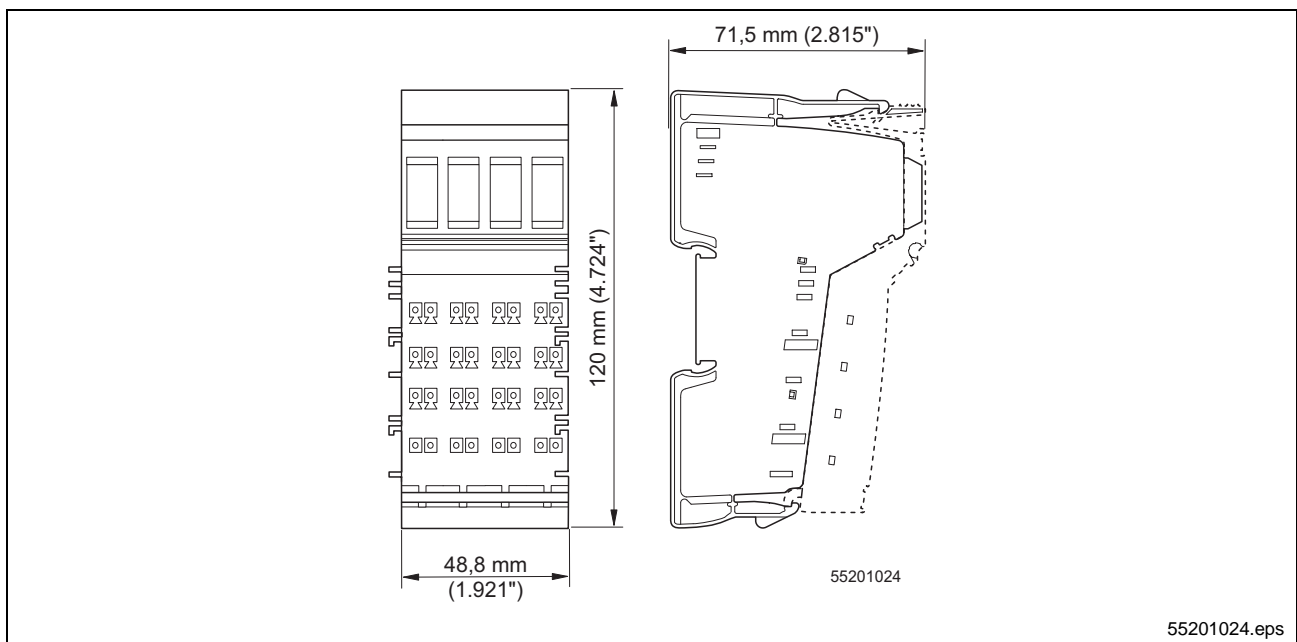
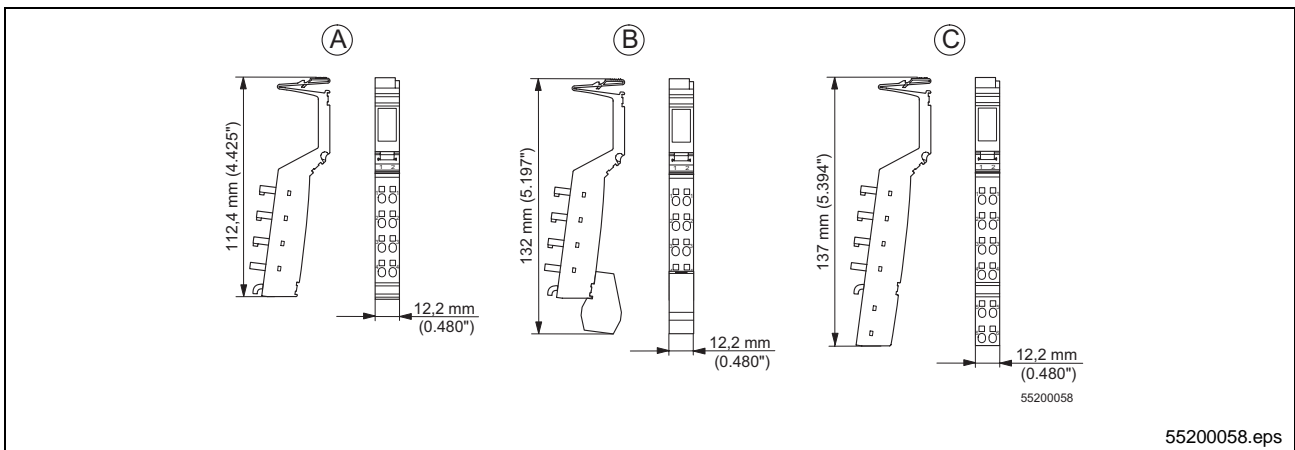


Fig. 4-4: Dimensions of the electronic socket (8-slot housing)



### Connector

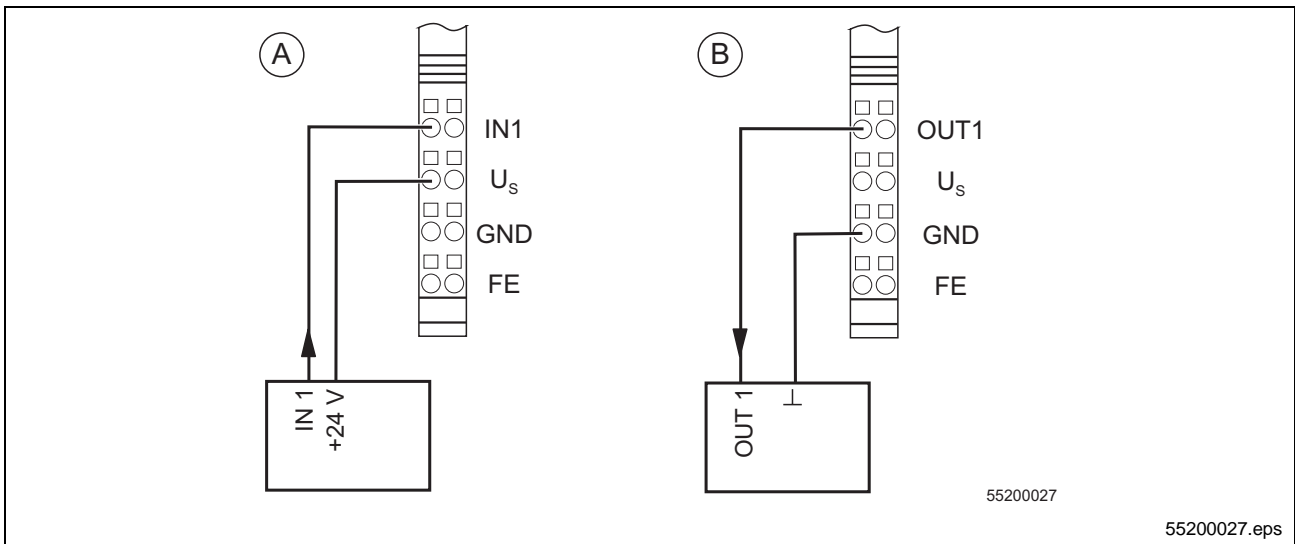


- L: A Standard connector  
 B Shield connector  
 C Extended double signal connector  
 The connector depth is irrelevant as it has no effect on the overall module depth.

Fig. 4-5: Connector dimensions

## 4.3 Connecting Sensors and Actuators Using the Various Connection Methods

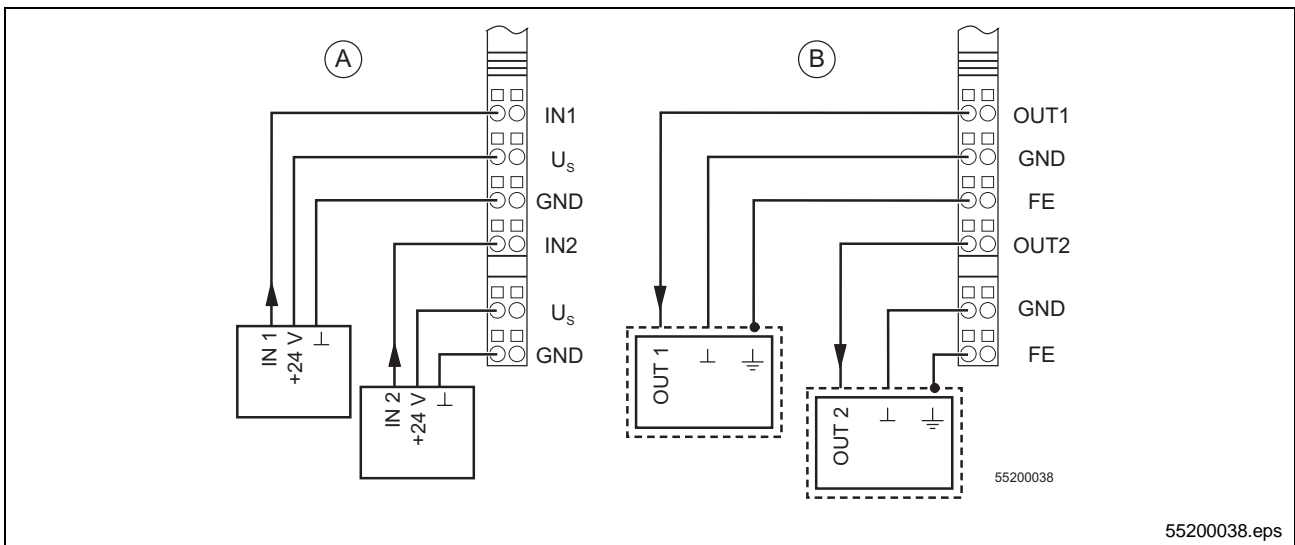
### 2-wire method



- L: A = 2-wire sensor (input)  
 L: B = 2-wire actuator (output)

Fig. 4-6: 2-wire connection in case of digital units

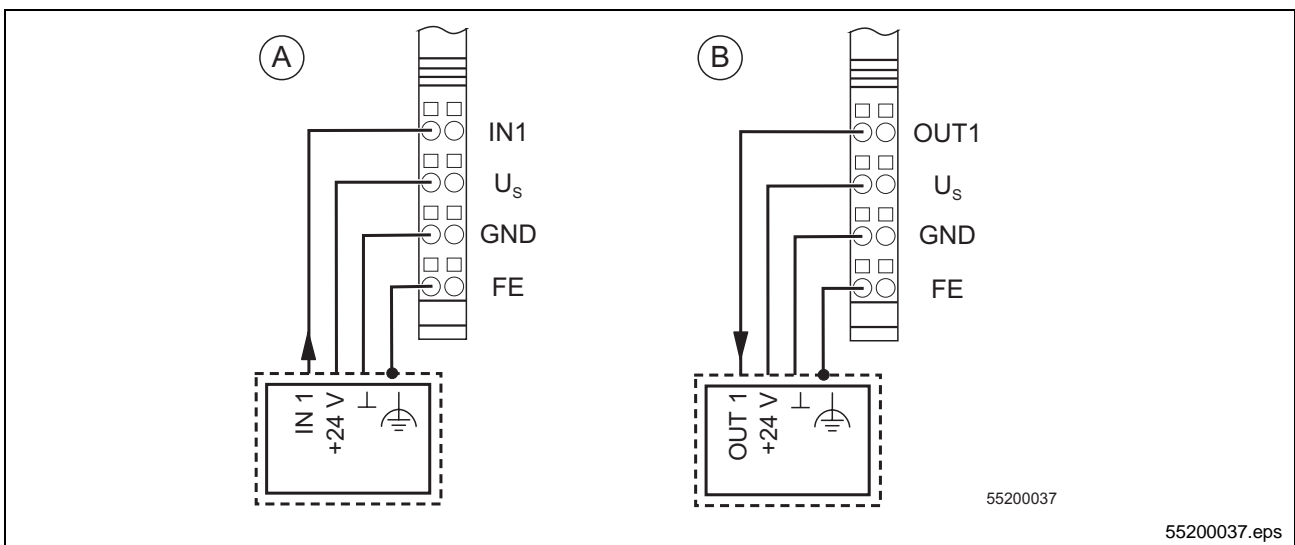
### 3-wire method



- L: A = 3-wire sensor (input)
- L: B = 3-wire actuator (output)

Fig. 4-7: 3-wire connection in case of digital units

### 4-wire method



- L: A = 4-wire sensor (input)
- L: B = 4-wire actuator (output)

Fig. 4-8: 4-wire connection in case of digital units

### 4.4 Current and Voltage Distribution on the Voltage Jumpers

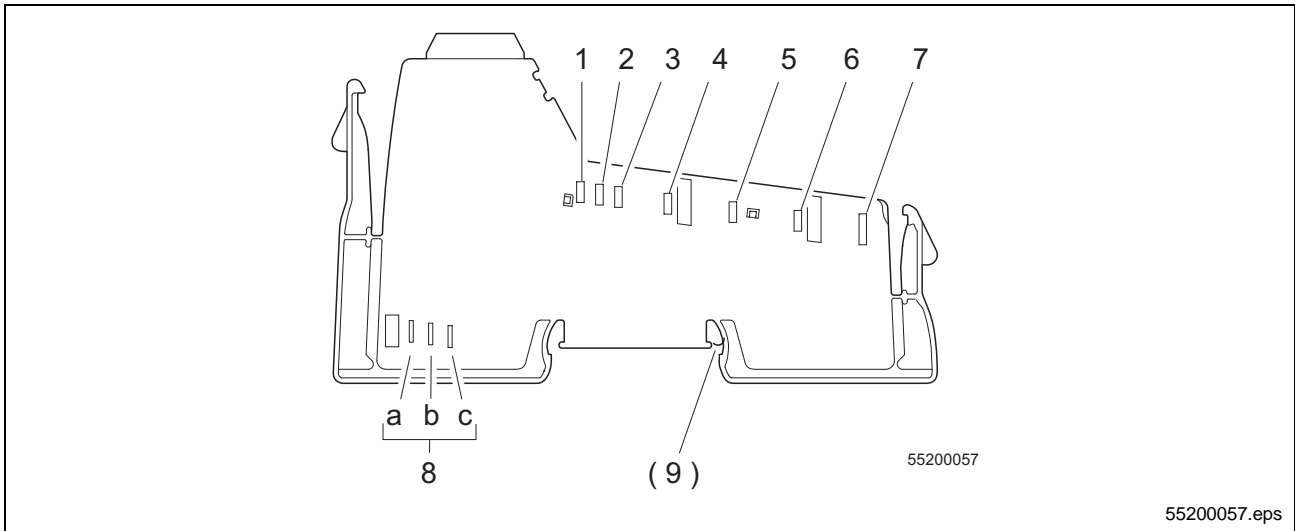


Fig. 4-9: Current and voltage distribution

No.	Function		Voltages on contact no. 6 (GND)		Current
	Name	Type	minimum	maximum	maximum
<b>Voltage jumper</b>					
1	U <sub>L+</sub>	7.5 V	7.0 V DC	7.87 V DC	2 A
2	U <sub>ANA</sub>	24 V	19.2 V DC	30 V DC	0.5 A
3	U <sub>L-</sub>	GND <sub>L</sub>	0 V DC *	0 V DC *	2.5 A
4	U <sub>S</sub>	24 V	19.2 V DC	30 V DC	8 A
5	U <sub>M</sub>	24 V	19.2 V DC	30 V DC	
6	GND	GND	0 V *	0 V *	8 A
7	FE	FE	undefined	undefined	undefined
(9)	FE spring				
<b>Data jumper</b>					
8a	Bus signal				
8b	Bus signal				
8c	reserved				

Fig. 4-10: Current and voltage distribution in the voltage and data jumpers

\* Contact no. 3 is the reference potential for the logic system.

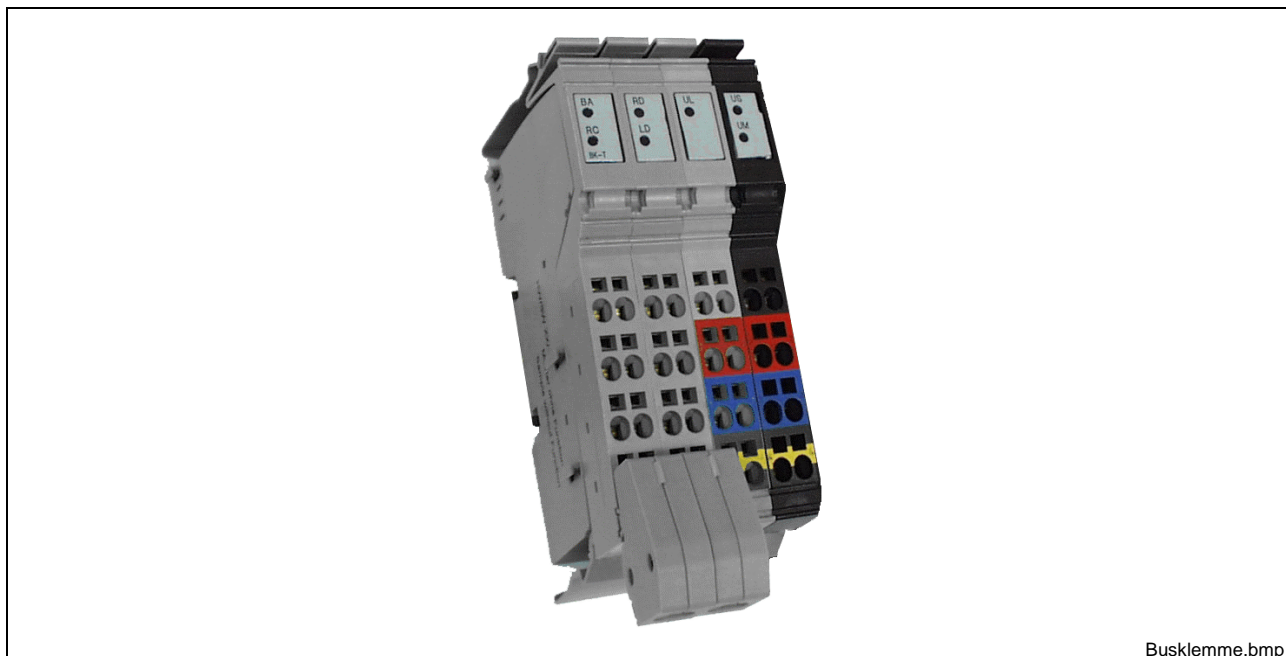
\* Contact no. 6 is the reference potential for the peripheral system.

**Note:** The values given above are only a brief overview. It is mandatory to observe the technical documentation (see Section 8.2).



## 5 RECO Inline – Bus Coupler

### 5.1 INTERBUS – Bus Coupler R-IBS IL 24 BK-T



Busklemme.bmp

Fig. 5-1: Bus terminal R-IBS IL 24 BK-T

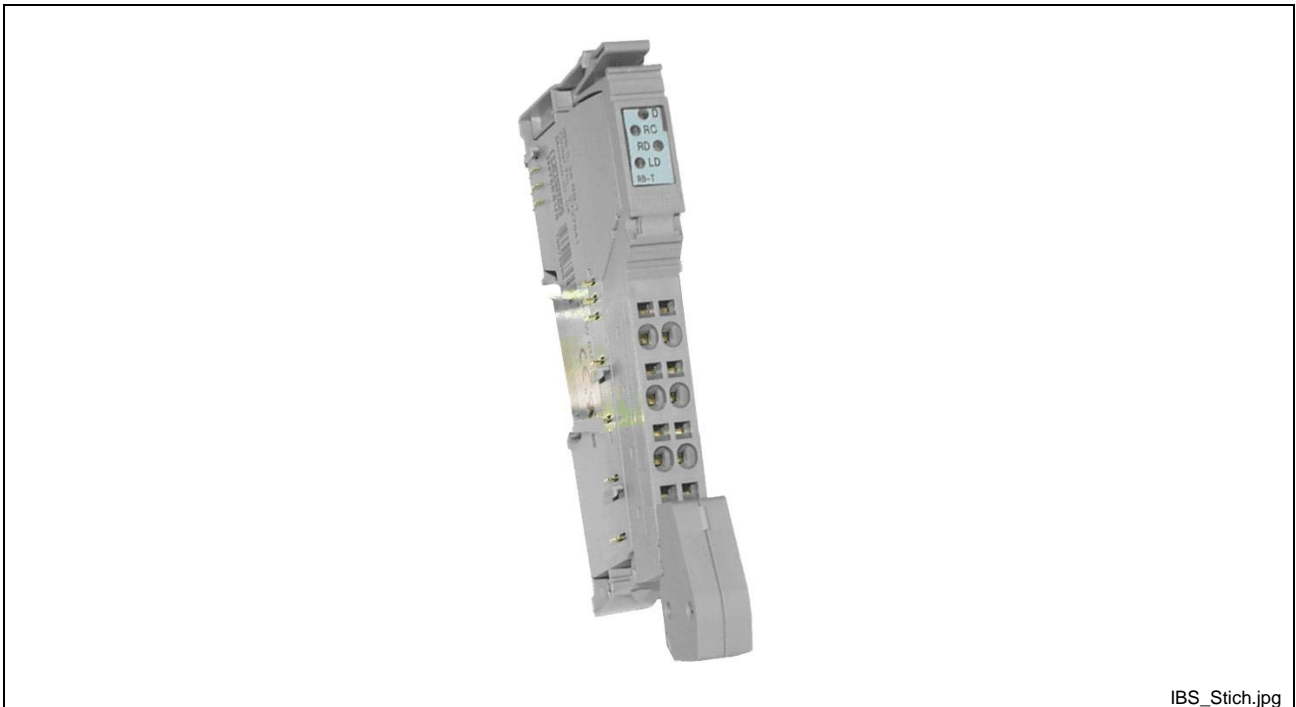
#### Technical data of R-IBS IL 24 BK-T

Description	Value	Remarks
<b>Interfaces</b> INTERBUS remote bus INTERBUS local bus	Connector set R-IB IL BK-PLSET RECO Inline – voltage jumper	
<b>Supply voltage</b> – Nominal value – Ripple factor – Range	24V DC 5% 19.2 to 30 V DC	Including ripple factor
<b>Current consumption</b>	Approx. 90 mA	Without connected I/O modules
<b>Max. total current consumption</b> Logic supply (7.5 V) Analog supply (24 V)	≤ 2 A ≤ 0.5 A	
<b>Module size</b>	8-slot	
<b>Accessories</b> Connector Labelling field	1 set of R-IB IL BK-PLSET 1 piece of R-IB IL FIELD 8	

Fig. 5-2: Technical data of the R-IBS IL 24 BK-T bus terminal

**Note:** The values given above are only a brief overview. It is mandatory to observe the technical documentation (see Section 8.23).

## 5.2 INTERBUS – Remote Bus Branch R-IB IL 24 RB-T



IBS\_Stich.jpg

Fig. 5-3: Remote bus branch R-IB IL 24 RB-T

### Technical data of R-IB IL 24 RB-T

Description	Value	Remarks
<b>Interfaces</b> INTERBUS local bus INTERBUS remote bus	RECO Inline – Potential distributor Connector R-IB IL SCN-6 SHILD	
<b>Supply</b> Logic voltage Current consumption	7.5 V DC Approx. 50 mA	Via voltage jumper
<b>Outputs</b>	INTERBUS remote bus	
<b>Module size</b>	2-slot	
<b>Accessories</b> Connector Labelling field	1 piece of R-IB IL SCN-6 SHIELD 1 piece of R-IB IL FIELD 2	

Fig. 5-4: Technical data of the remote bus branch R-IB IL 24 RB-T

**Note:** The values given above are only a brief overview. It is mandatory to observe the technical documentation (see Section 8.23).

### 5.3 PROFIBUS DP Bus Terminal R-IL PB BK



Fig. 5-5: Bus terminal R-IL PB BK

#### Technical data of R-IL PB BK

Description	Value	Remarks
<b>Interfaces</b> PROFIBUS DP Local bus	9-pin D-Sub connector RECO Inline – Potential distributor	Designed according to PROFIBUS approval
<b>Supply voltage</b> – Nominal value – Ripple factor – Range	24V DC 5% 19.2 to 30 V DC	Including ripple factor
<b>Current consumption</b>	Approx. 90 mA	Without connected I/O modules
<b>Max. total current consumption</b> Logic supply (7.5 V) Analog supply (24 V)	≤ 2 A ≤ 0.5 A	
<b>Module size</b>	85 mm wide	
<b>Accessories</b> Connector Labelling field	1 piece of R-IB IL SCN-PWR IN 1 piece of R-IB IL FIELD 2	

Fig. 5-6: Technical data of the R-IL PB BK bus terminal

**Note:** The values given above are only a brief overview. It is mandatory to observe the technical documentation (see Section 8.23).





## 6 Digital I/O Modules

### 6.1 Two Digital Inputs R-IB IL 24 DI 2



Fig. 6-1: Digital inputs R-IB IL 24 DI 2

#### Technical data of R-IB IL 24 DI 2

Description	Value	Remark
<b>Supply</b>		
Logic voltage	7.5 V DC	Via voltage jumper
Current requirements	Approx. 30 mA	
Peripheral voltage	24 V DC	Via voltage jumper
Ripple factor	5%	
Range	19.2 to 30 V DC	Including ripple factor
<b>Inputs</b>		
Number	2	
Input current requirements	5 mA at 24 V DC	
Current load because of peripheral supply	Max. 250 mA	Per input
Connection method	4-wire	
Module width	2-slot	
<b>Accessories</b>		
Connector	1 piece of R-IB IL SCN-8-CP	
Labelling field	1 piece of R-IB IL FIELD 2	

Fig. 6-2: Brief technical data of R-IB IL 24 DI 2-2

**Note:** The values given above are only a brief overview. It is mandatory to observe the technical documentation (see Section 8.23).

## 6.2 Four Digital Inputs R-IB IL 24 DI 4

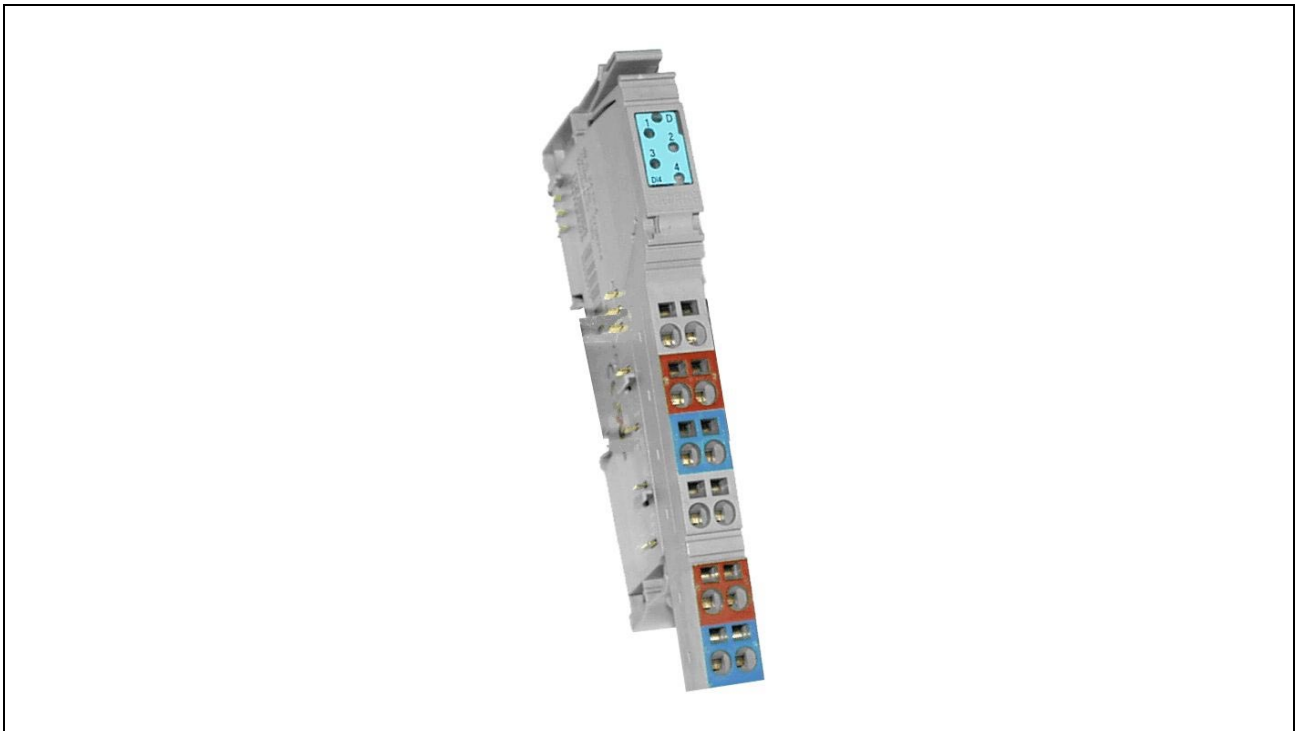


Fig. 6-3: Digital inputs R-IB IL 24 DI 4

### Technical data of R-IB IL 24 DI 4

Description	Value	Remark
<b>Supply</b>		
Logic voltage	7.5 V DC	Via voltage jumper
Current requirements	Approx. 40 mA	
Peripheral voltage	24 V DC	Via voltage jumper
Ripple factor	5%	
Range	19.2 to 30 V DC	Including ripple factor
<b>Inputs</b>		
Number	4	
Input current requirements	5 mA at 24 V DC	
Current load because of peripheral supply	Max. 250 mA	Per input
Connection method	3-wire	
Module width	2-slot	
<b>Accessories</b>		
Connector	1 piece of R-IB IL SCN-12-ICP	
Labelling field	1 piece of R-IB IL FIELD 2	

Fig. 6-4: Brief technical data of R-IB IL 24 DI 4

**Note:** The values given above are only a brief overview. It is mandatory to observe the technical documentation (see Section 8.23).

## 6.3 Eight Digital Inputs R-IB IL 24 DI 8



8\_IN.jpg

Abb. 6-5: Digital inputs R-IB IL 24 DI 8

### Technical data of R-IB IL 24 DI 8

Description	Data	Remark
<b>Supply</b> Logic voltage Current requirements Peripheral voltage Ripple factor Range	7.5 V DC Approx. 50 mA 24 V DC 5% 19.2 to 30 V DC	Via voltage jumper  Via voltage jumper Including ripple factor
<b>Inputs</b> Number Input current requirements	8 5 mA at 24 V DC	
Current load because of peripheral supply	Max. 250 mA	Per input
Connection method	4-wire	
Module width	8-slot	
<b>Accessories</b> Connector Labelling field	1 piece of R-IB IL SCN-8-CP 1 piece of R-IB IL FIELD 8	

Fig. 6-6: Brief technical data of R-IB IL 24 DI 8

**Note:** The values given above are only a brief overview. It is mandatory to observe the technical documentation (see Section 8.23).

## 6.4 Sixteen Digital Inputs R-IB IL 24 DI 16

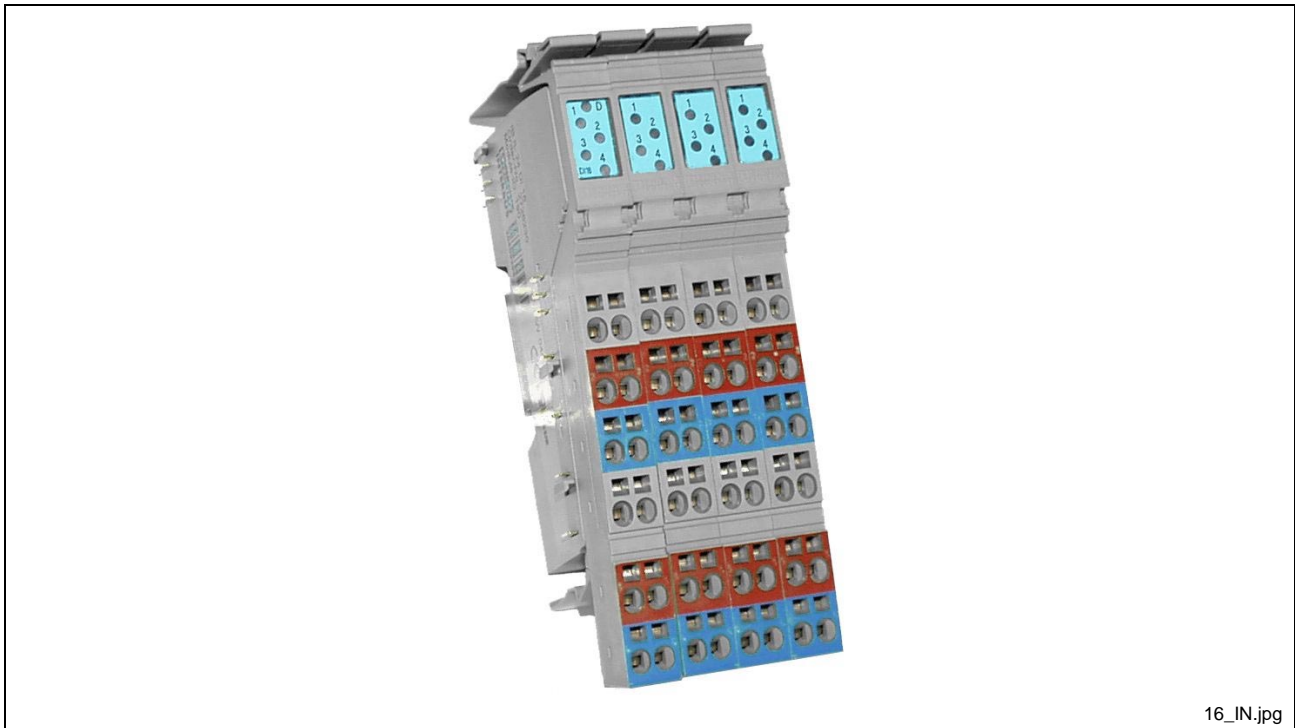


Fig. 6-7: Digital inputs R-IB IL 24 DI 16

### Technical data of R-IB IL 24 DI 16

Description	Value	Remark
<b>Supply</b> Logic voltage Current requirements Peripheral voltage Ripple factor Range	7.5 V DC Approx. 60 mA 24 V DC 5% 19.2 to 30 V DC	Via voltage jumper  Via voltage jumper  Including ripple factor
<b>Inputs</b> Number Input current requirements	16 5 mA at 24 V DC	
Current load because of peripheral supply	Max. 250 mA	Per input
Connection method	3-wire	
Module width	8-slot	
<b>Accessories</b> Connector Labelling field	4 piece of R-IB IL SCN-12-ICP 1 piece of R-IB IL FIELD 8	

Fig. 6-8: Brief technical data of R-IB IL 24 DI 16

**Note:** The values given above are only a brief overview. It is mandatory to observe the technical documentation (see Section 8.23).

## 6.5 Two Digital and Two Monitoring Inputs (DESINA)



Fig. 6-9: Inputs R-IB IL 24 EDI 2-DES

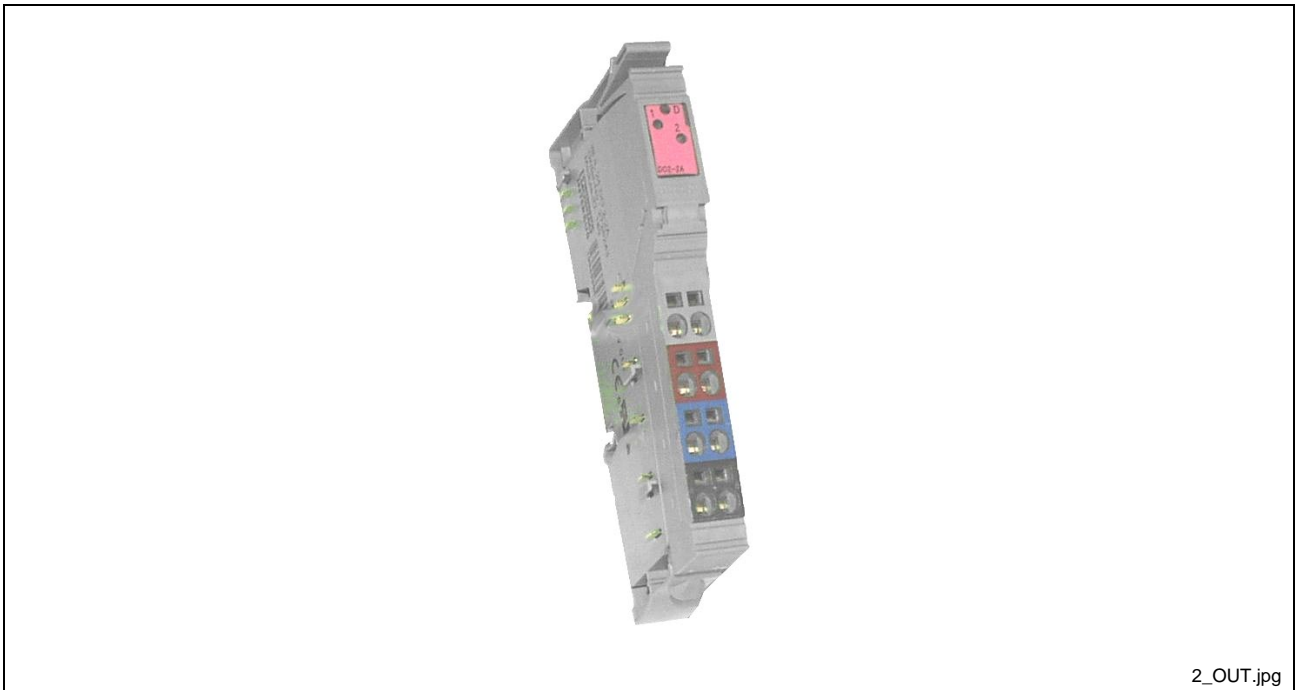
### Technical data of R-IB IL 24 EDI 2-DES

Description	Value	Remark
<b>Supply</b> Logic voltage Current requirements Peripheral voltage Ripple factor Range	7.5 V DC Approx. 31 mA 24 V DC 5% 19.2 to 30 V DC	Via voltage jumper Via voltage jumper Including ripple factor
<b>Inputs</b> Number Input current requirements	2 digital inputs 2 diagnosis inputs 5 mA at 24 V DC	
Current load because of peripheral supply	Max. 100 mA	Per input
Connection method	4-wire	
Module width	2-slot	
<b>Accessories</b> Connector Labelling field	1 piece of R-IB IL SCN-8 1 piece of R-IB IL FIELD 8	

Fig. 6-10: Brief technical data of R-IB IL 24 EDI 2-DES

**Note:** The values given above are only a brief overview. It is mandatory to observe the technical documentation (see Section 8.3).

## 6.6 Two Digital Outputs R-IB IL 24 DO 2-2A



2\_OUT.jpg

Fig. 6-11: Digital outputs R-IB IL 24 DO 2-2A

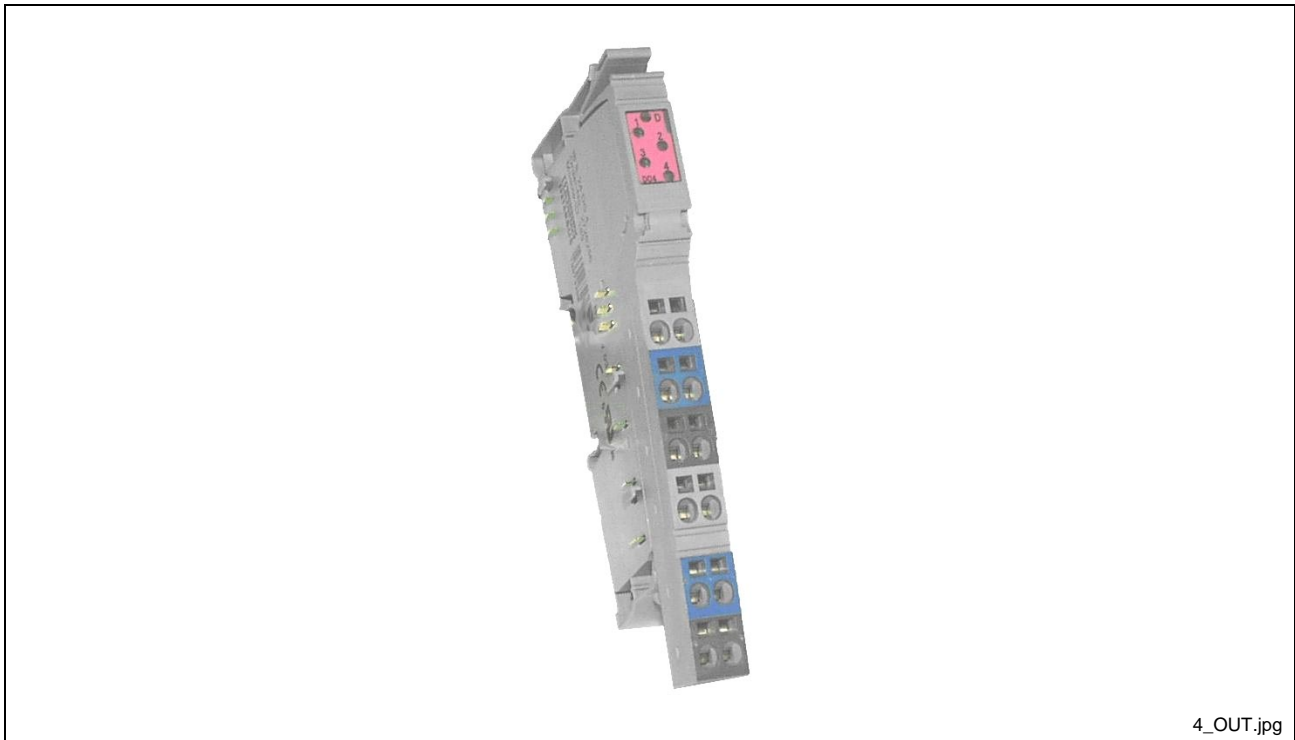
### Technical data of R-IB IL 24 DO 2-2

Description	Value	Remark
<b>Supply</b>		
Logic voltage	7.5 V DC	Via voltage jumper
Current requirements	Approx. 40 mA	
Peripheral voltage	24 V DC	Via voltage jumper
Ripple factor	5%	
Range	19.2 to 30 V DC	Including ripple factor
<b>Outputs</b>		
Number	2	
Output current load	max. 2 A at 24 V DC / per channel	Including peripheral supply
Connection method	4-wire	
Module width	2-slot	
<b>Accessories</b>		
Connector	1 piece of R-IB IL SCN-8-CP	
Labelling field	1 piece of R-IB IL FIELD 2	

Fig. 6-12: Brief technical data of R-IB IL 24 DO 2-2

**Note:** The values given above are only a brief overview. It is mandatory to observe the technical documentation (see Section 8.23).

## 6.7 Four Digital Outputs R-IB IL 24 DO 4



4\_OUT.jpg

Fig. 6-13: Digital outputs R-IB IL 24 DO 4

### Technical data of R-IB IL 24 DO 4

Description	Value	Remark
<b>Supply</b>		
Logic voltage	7.5 V DC	Via voltage jumper
Current requirements	Approx. 50 mA	
Peripheral voltage	24 V DC	Via voltage jumper
Ripple factor	5%	
Range	19.2 to 30 V DC	Including ripple factor
<b>Outputs</b>		
Number	4	
Output current load	max. 0.5 A at 24 V DC / per channel	Including peripheral supply
Connection method	3-wire	
Module width	2-slot	
<b>Accessories</b>		
Connector	1 piece of R-IB IL SCN-12-OCP	
Labelling field	1 piece of R-IB IL FIELD 2	

Fig. 6-14: Brief technical data of R-IB IL 24 DO 4

**Note:** The values given above are only a brief overview. It is mandatory to observe the technical documentation (see Section 8.23).

## 6.8 Eight Digital Outputs R-IB IL 24 DO 8



8\_OUT.jpg

Fig. 6-15: Digital outputs R-IB IL 24 DO 8

### Technical data of R-IB IL 24 DO 8

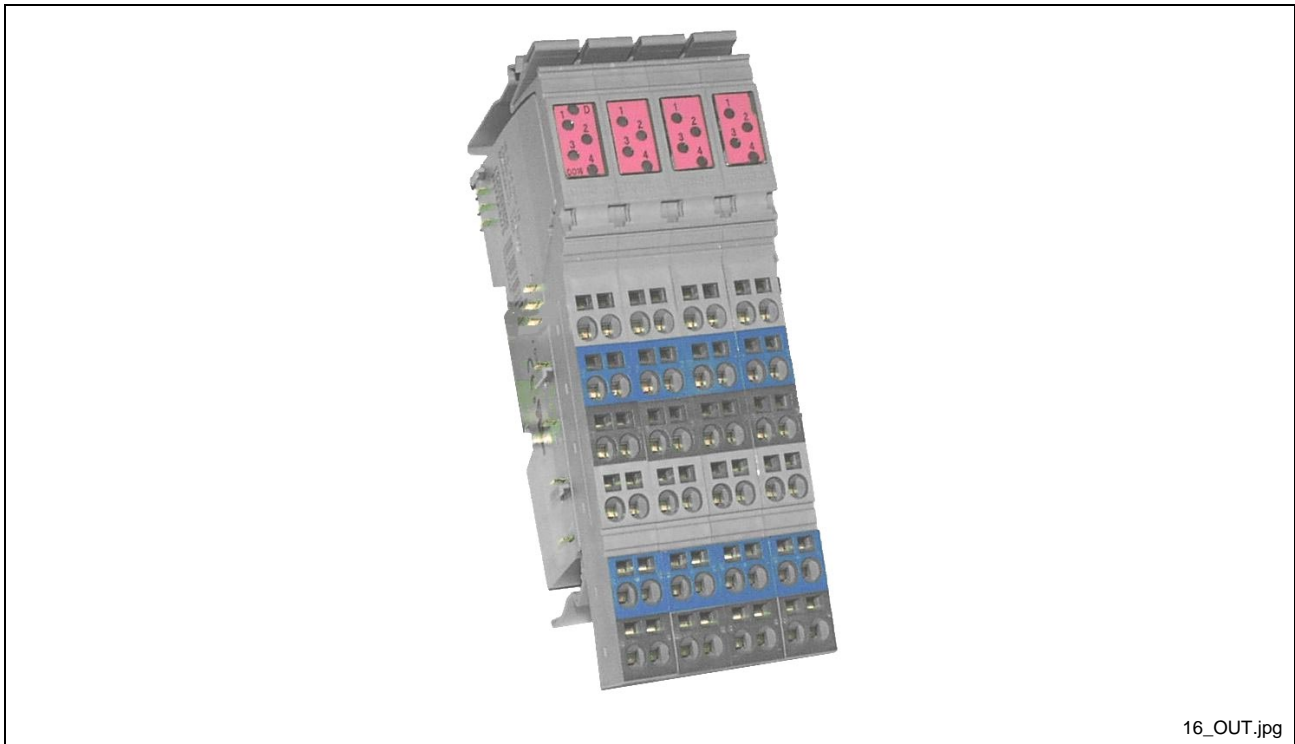
Description	Value	Remark
<b>Supply</b> Logic voltage Current requirements Peripheral voltage Ripple factor Range	7.5 V DC Approx. 70 mA 24 V DC 5% 19.2 to 30 V DC	Via voltage jumper  Via voltage jumper  Including ripple factor
<b>Outputs</b> Number Output current load	8 max. 0.5 A at 24 V DC / per channel	Including peripheral supply
Connection method	4-wire	
Module width	8-slot	
<b>Accessories</b> Connector Labelling field	4 piece of R-IB IL SCN-8-CP 1 piece of R-IB IL FIELD 8	

Fig. 6-16: Brief technical data of R-IB IL 24 DO 8

**Note:** The values given above are only a brief overview. It is mandatory to observe the technical documentation (see Section 8.23).



## 6.9 Sixteen Digital Outputs R-IB IL 24 DO 16



16\_OUT.jpg

Abb. 6-17: Digital outputs R-IB IL 24 DO 16

### Technical data of R-IB IL 24 DO 16

Description	Value	Remark
<b>Supply</b>		
Logic voltage	7.5 V DC	Via voltage jumper
Current requirements	Approx. 90 mA	
Peripheral voltage	24 V DC	Via voltage jumper
Ripple factor	5%	
Range	19.2 to 30 V DC	Including ripple factor
<b>Outputs</b>		
Number	16	
Output current load	max. 0.5 A at 24 V DC / per channel	Including peripheral supply
Connection method	3-wire	
Module width	8-slot	
<b>Accessories</b>		
Connector	4 piece of R-IB IL SCN-12-OCP	
Labelling field	1 piece of R-IB IL FIELD 8	

Fig. 6-18: Brief technical data of R-IB IL 16 DO 8

**Note:** The values given above are only a brief overview. It is mandatory to observe the technical documentation (see Section 8.23).

## 6.10 Relay Terminal R-IB IL 24/230 DOR 1/W



Fig. 6-19: Relay terminal R-IB IL 24/230 DOR 1/W

### Technical data of R-IB IL 24/230 DOR 1/W

Description	Value	Remark
<b>Supply</b> Logic voltage Current requirements	7.5 V DC Approx. 60 mA	Via voltage jumper
<b>Outputs</b> Number Current load	1 alternating contact Max. 3 A	Observe derating
Connection method		See connection description
Module width	2-slot	
<b>Accessories</b> Connector Labelling field	1 piece of R-IB IL SCN-8-AC-REL 1 piece of R-IB IL FIELD 2	

Fig. 6-20: Brief technical data of R-IB IL 24/230 DOR 1/W

**Note:** The values given above are only a brief overview. It is mandatory to observe the technical documentation (see Section 8.23).

## Accessories

### Terminal pair R-IB IL DOR LV-SET

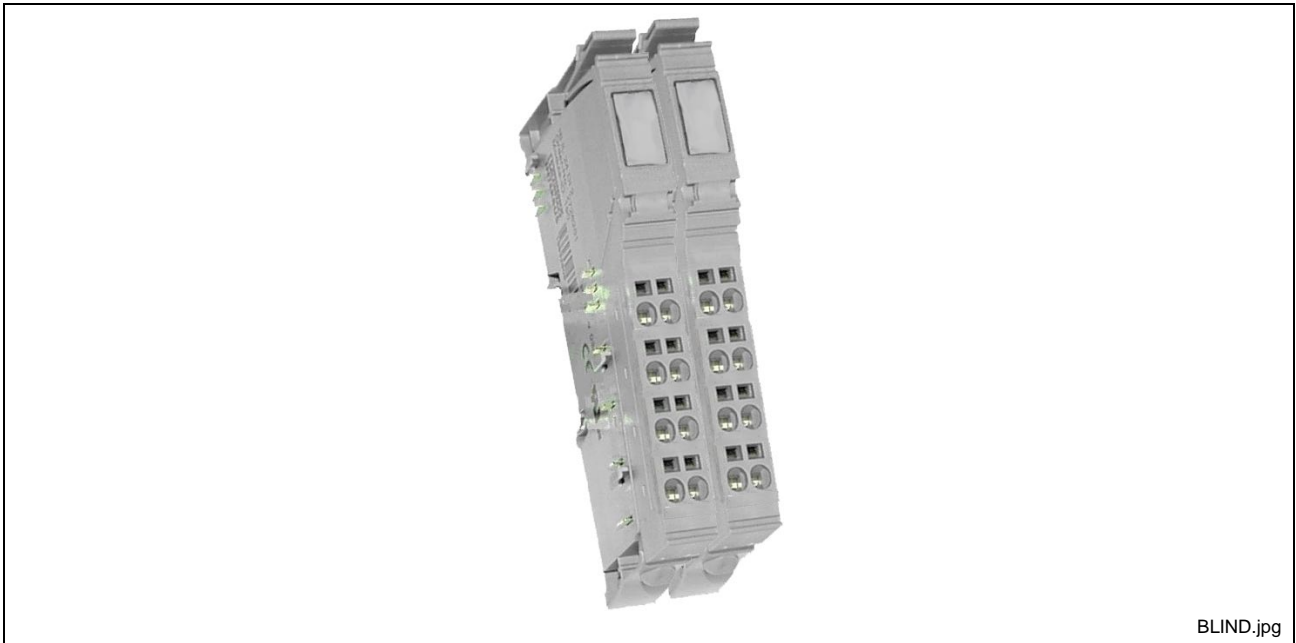


Fig. 6-21: Terminal pair R-IB IL DOR LV-SET

The terminal pair R-IB IL DOR LV-SET is intended for isolation of the relay terminal R-IB IL 24/230 DOR 1/W, if voltages are to be switched which are not available in the segment in question, e.g. 230 V in a 24 V segment. They establish the voltage distance required.

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**Note:** Please refer to the technical documentation (Section 8.3) for further information.

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## 7 Analog I/O Modules

### 7.1 Two Analog Inputs, Unipolar, Bipolar, R-IB IL 24 AI 2/SF

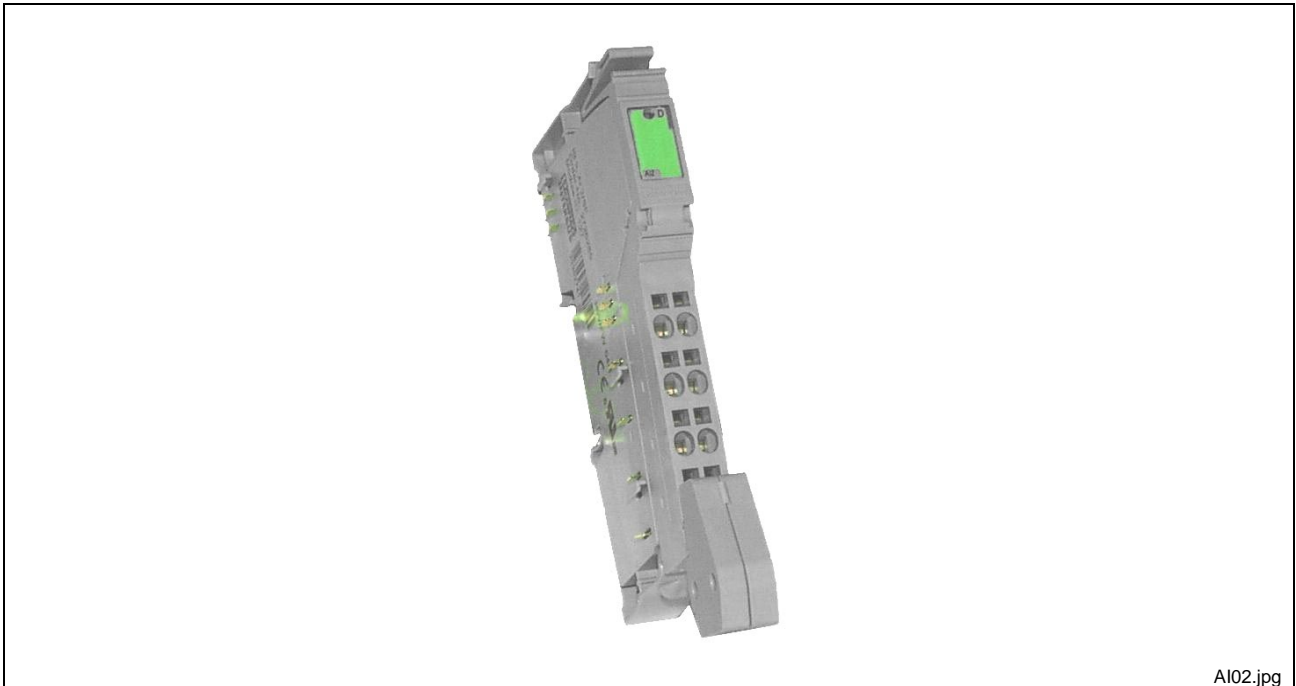


Fig. 7-1: Analog inputs R-IB IL 24 AI 2/SF

#### Technical data of R-IB IL 24 AI 2/SF

Description	Value	Remark
<b>Supply</b>		
Logic voltage	7.5 V DC	Via voltage jumper
Current consumption	Approx. 45 mA typically	
Analog voltage	24 V DC	Via voltage jumper
Current consumption	12 mA typically	
<b>Inputs</b>		
Number	2, single-ended	
Connection method	2-wire	Shielded
Input ranges	0–10 V, ± 10 V 0–20 mA, ±20 mA, 4–20 mA	Voltage Current
Module width	Slot-2	
Accessories		
Connector	1 piece of R-IB IL SCN-6 SHIELD	
Labelling field	1 piece of R-IB IL FIELD 2	

Fig. 7-2: Brief technical data of R-IB IL 24 AI 2/SF

**Note:** The values given above are only a brief overview. It is mandatory to observe the technical documentation (see Section 8.23).

## 7.2 Two Temporary Inputs R-IB IL 24 TEMP 2 RTD

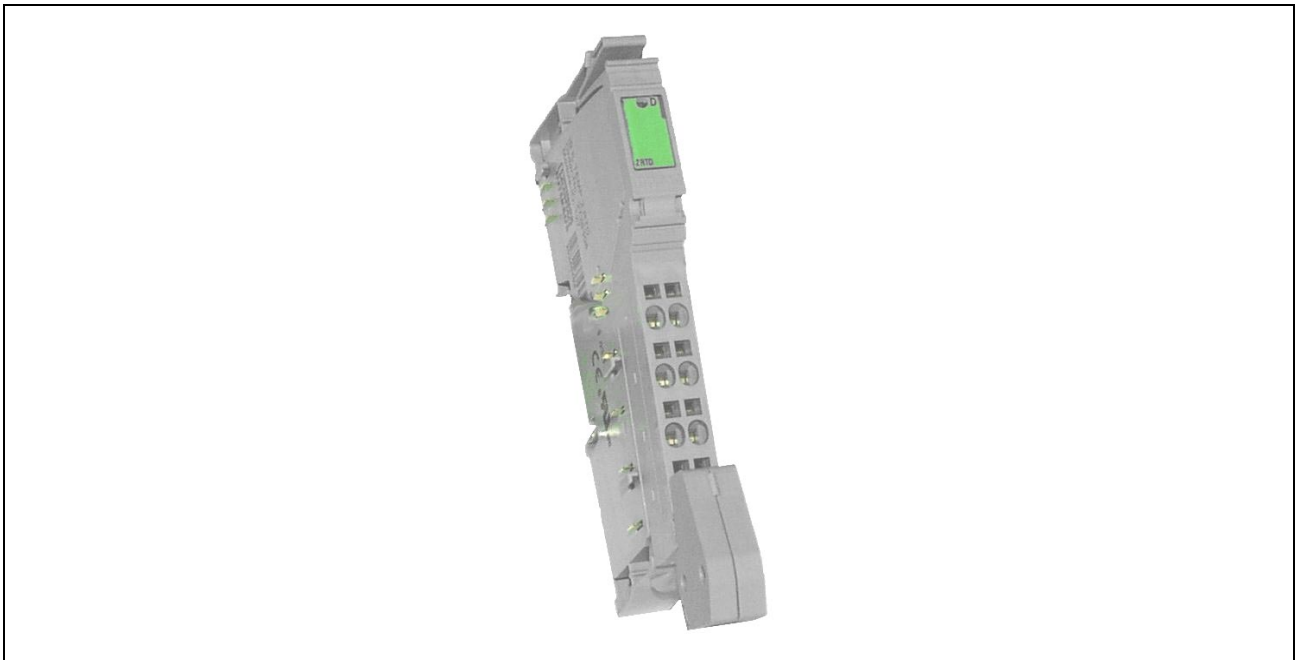


Fig. 7-3: Temporary module R-IB IL 24 TEMP 2 RTD

### Technical data of R-IB IL 24 TEMP 2 RTD

Description	Value	Remark
<b>Supply</b> Logic voltage Current consumption Analog voltage Current consumption	7.5 V DC Approx. 43 mA typically 24 V DC 11 mA typically	Via voltage jumper Via voltage jumper
<b>Inputs</b> Number Connection method Sensor types Standards on characteristics	2, for resistive temperature meas. 2-, 3-, 4-wire Pt, Ni, Cu, KTY According to DIN, according to SAMA	Shielded sensor line
Module width	Slot-2	
Accessories Connector Labelling field	1 piece of R-IB IL SCN-6 SHIELD 1 piece of R-IB IL FIELD 2	

Fig. 7-4: Brief technical data of R-IB IL 24 TEMP 2 RTD

**Note:** The values given above are only a brief overview. It is mandatory to observe the technical documentation (see Section 8.23).

### 7.3 One Analog Output, Unipolar, R-IB IL 24 AO 1/SF

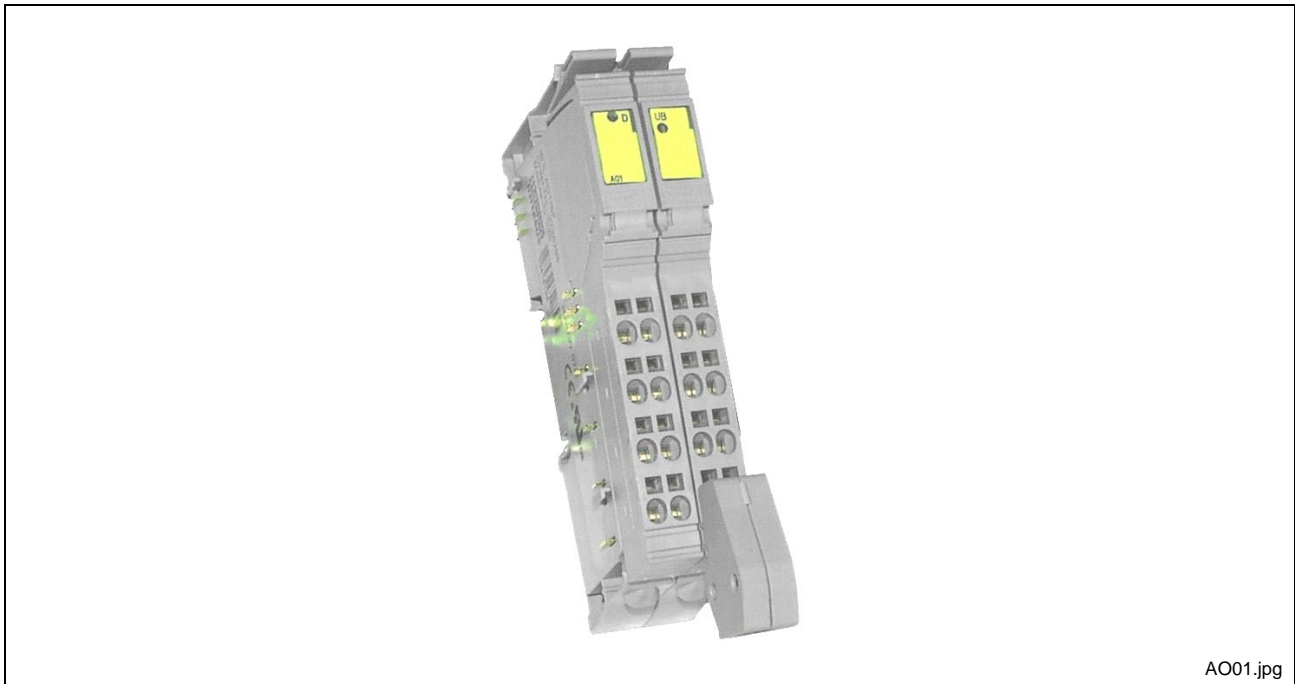


Abb. 7-5: Analog output R-IB IL 24 AO 1/SF

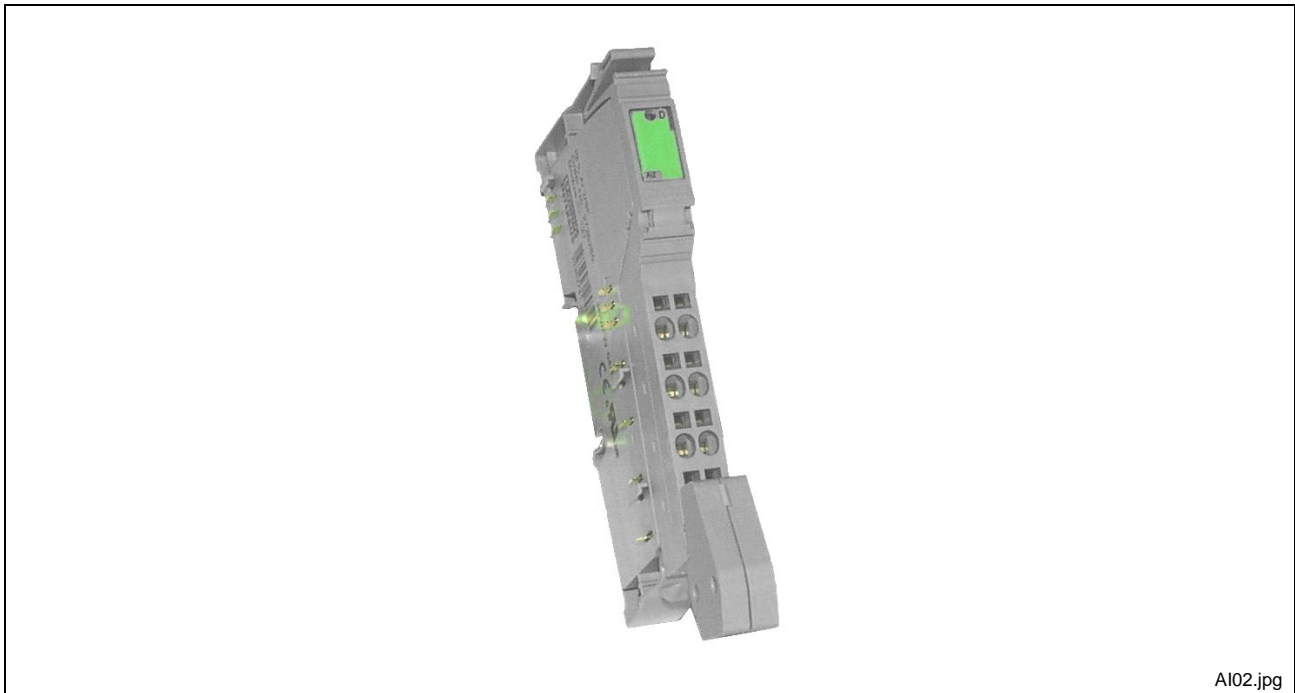
#### Technical data of R-IB IL 24 AO 1/SF

Description	Value	Remark
<b>Supply</b> Logic voltage Current consumption Analog voltage Current consumption	7.5 V DC Approx. 30 mA typically 24 V DC 65 mA typically	Via voltage jumper  Via voltage jumper
<b>Outputs</b> Number Connection method Optional output ranges or,	1 2-wire 0–10 V, 0–20 mA, 4–20 mA	Shielded Voltage or current
Module width	Slot-4	
Accessories Connector Labelling field	1 piece of R-IB IL AO/CNT-PLSET 2 piece of R-IB IL FIELD 2	Connector set

Fig. 7-6: Brief technical data of R-IB IL 24 AO 1 SF

**Note:** The values given above are only a brief overview. It is mandatory to observe the technical documentation (see Section 8.23).

## 7.4 Two Analog Outputs, Bipolar, R-IB IL 24 AO 2/U/BP



AI02.jpg

Fig. 7-7: Analog outputs R-IB IL 24 AO 2/U/BP

### Technical data of R-IB IL 24 AO 2/U/BP

Description	Value	Remark
<b>Supply</b> Logic voltage Current consumption Analog voltage Current consumption	7.5 V DC Approx. 33 mA typically 24 V DC 25 mA typically, max. 35 mA	Via voltage jumper Via voltage jumper
<b>Outputs</b> Number Connection method Optional output ranges	2 2-wire 0–10 V, $\pm$ 0–10 V,	Shielded Voltage
Module width	Slot-2	
Accessories Connector Labelling field	1 piece of R-IB IL SCN-6 SHIELD 1 piece of R-IB IL FIELD 2	

Fig. 7-8: Brief technical data of R-IB IL 24 2/U/BP

**Note:** The values given above are only a brief overview. It is mandatory to observe the technical documentation (see Section 8.23).



## 8 Supply Terminals

### 8.1 Power Terminal R-IB IL PWR IN



Fig. 8-1: Power terminal R-IB IL PWR IN

### Technical data of R-IB IL PWR IN

Description	Value	Remark
<b>Supply</b> Voltage Ripple factor Range Current	24 V DC 5% 19.2 to 30 V DC Max. 8 A	Protect by external fuse  Included ripple factor
Requirements for the voltage supply	If it is intended to set up a potential-free range, the power terminals must be supplied from a new power supply unit.	
Module width	2-slot	
<b>Accessories</b> Connector Labelling field	1 piece of R-IB IL SCN-PWR IN-CP 1 piece of R-IB IL FIELD 2	

Fig. 8-2: Brief technical data of R-IB IL PWR IN

**Note:** The values given above are only a brief overview. It is mandatory to observe the technical documentation (see Section 8.23).

## 8.2 Segment Terminal R-IB IL SEG/F

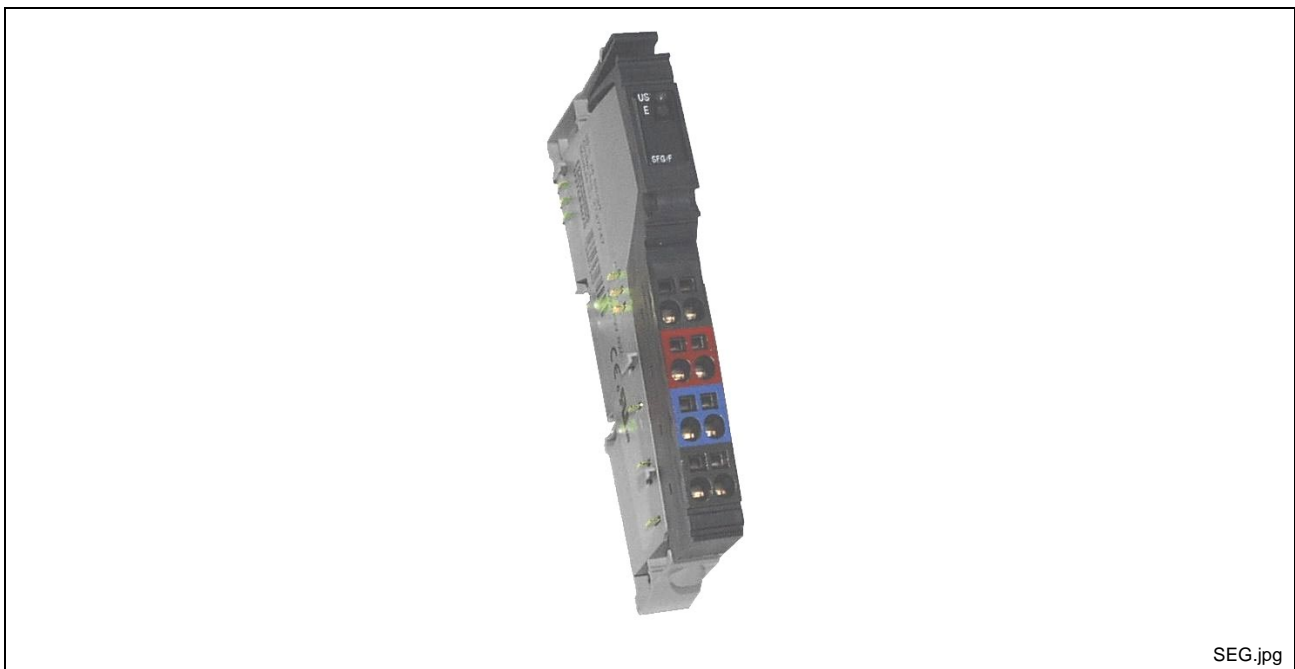


Fig. 8-3: Segment terminal R-IB IL SEG/F

### Technical data of R-IB IL SEG/F

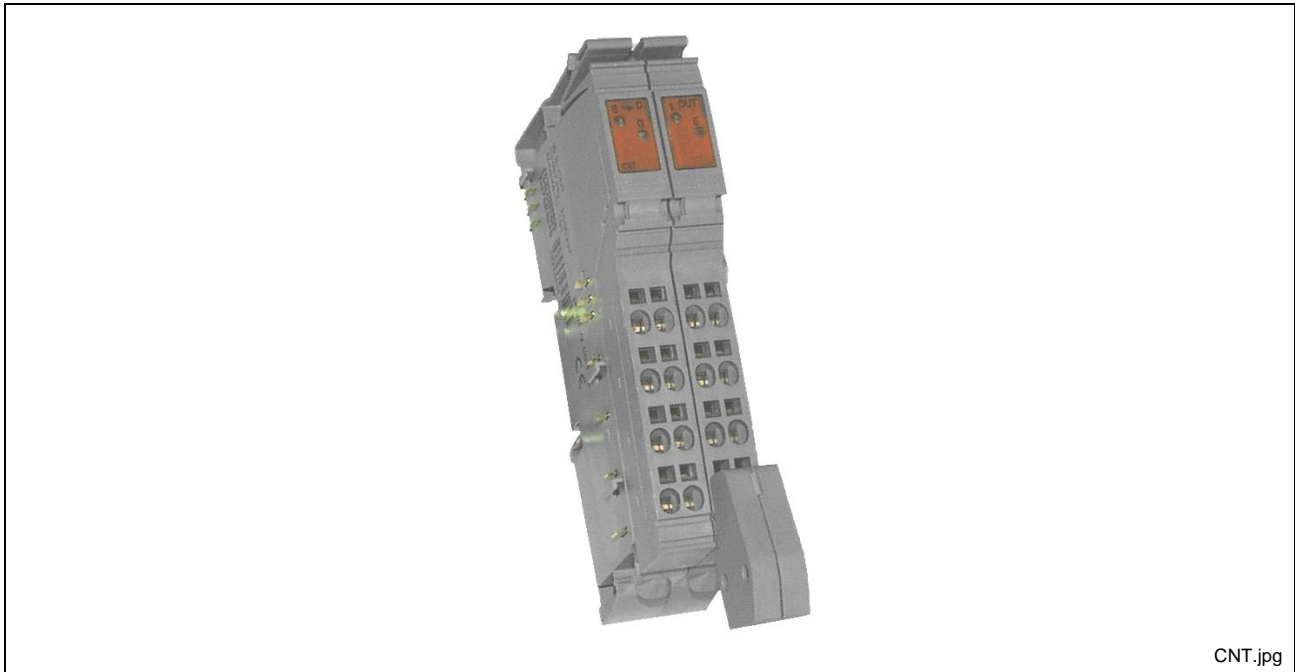
Name	Values	Remark
<b>Supply</b> Voltage Ripple factor Range Current	24 V DC 5% 19.2 to 30 V DC Max. 8 A	Protect by external fuse Included ripple factor
Requirements for the voltage supply	If it is intended to set up a potential-free range, the power terminals must be supplied from a new power supply unit.	
Module width	2-slot	
<b>Accessories</b> Connector Labelling field	1 piece of R-IB IL SCN-PWR IN-CP 1 piece of R-IB IL FIELD 2	

Fig. 8-4: Brief data of R-IB IL SEG/F

**Note:** The values given above are only a brief overview. It is mandatory to observe the technical documentation (see Section 8.23).

## 9 Function Terminals

### 9.1 Timer Counter R-IB IL CNT



CNT.jpg

Fig. 9-1: Timer Counter R-IB IL CNT

#### Technical data of R-IB IL CNT

Description	Value	Remark
<b>Supply</b> Logic voltage Current requirements Peripheral voltage Ripple factor Range	7.5 V DC Max. 50 mA	Via voltage jumper
<b>Basic functions</b>	Frequency measurement, timing, pulse measurement, pulse generator.	Alternative
Type of connection of 24 V sensors	2- and 3-wire	
Type of connection of 5 V sensors	2-wire with shield	External 5 V supply required
Module width	4-slot	
<b>Accessories</b> Connector Labelling field	1 piece of R-IB IL AO/CNT-PLSET 2 piece of R-IB IL FIELD 2	

Fig. 9-2: Brief technical data of R-IB IL CNT

**Note:** The values given above are only a brief overview. It is mandatory to observe the technical documentation (see Section 8.23).



## 10 Ordering Information

### 10.1 Ordering Information on Modules

Description	Article identification	Article no.
<b>Bus couplers</b>		
Bus coupler INTERBUS	R-IBS IL 24 BK-T	289280
Remote bus branch INTERBUS	R-IB IL 24 RB-T	289282
Bus coupler PROFIBUS DP	R-IL PB BK	289283
<b>Digital I/O modules</b>		
Two inputs	R-IB IL 24 DI 2	289286
Four inputs	R-IB IL 24 DI 4	289287
Eight inputs	R-IB IL 24 DI 8	289288
Sixteen inputs	R-IB IL 24 DI 16	289290
Two digital inputs, two diagnostic inputs	R-IB IL 24 EDI 2-DES	289292
Two outputs	R-IB IL 24 DO 2-2	289294
Four outputs	R-IB IL 24 DO 4	289295
Eight outputs	R-IB IL 24 DO 8	289297
Sixteen outputs	R-IB IL 24 DO 16	289299
One relay contact	R-IB IL 24/230 DOR 1/W	289301
Terminal set for isolation of the relay terminal	R-IB IL DOR LV-SET	291260
<b>Analog I/O modules</b>		
Two analog inputs	R-IB IL 24 AI 2/SF	289306
Two temperature measurement inputs	R-IB IL 24 TEMP 2 RTD	289305
One analog input (unipolar)	R-IB IL 24 A0 1/SF	289303
Two analog voltage outputs (bipolar)	R-IB IL 24 AO 2 U/BP	289381
<b>Functional modules</b>		
Counter timer	R-IB IL 24 CNT	289315
<b>Voltage supply terminals</b>		
Power terminal	R-IB IL 24 PWR IN	289312
Segment terminal	R-IB IL 24 SEG/F	289313

Fig. 10-1: Ordering information on modules

## 10.2 Ordering Information on Connectors

Description	Article identification	Article no.
Connector for RECO Inline terminals, 2 signals utilizing the 4-wire connection method, light-gray, unprinted	R-IB IL SCN-8	291191
Connector for RECO Inline terminals, 2 signals utilizing the 4-wire connection method, light-gray, printed	R-IB IL SCN-8-CP	289323
Connector for RECO Inline terminals, signals with shielded lines, e.g. analog signals, with shield connection clip, light-gray, unprinted	R-IB IL SCN-6 SHIELD	289331
Connector for RECO Inline input terminals, 4 signals utilizing the 3-wire connection method, light-gray, printed	R-IB IL SCN-12-CP	289326
Connector for RECO Inline output terminals, 4 signals utilizing the 3-wire connection method, light-gray, printed	R-IB IL SCN-12-OCP	289327
Power connector for RECO Inline terminals, neighboring terminal points internally jumpered, black, printed	R-IB IL SCN-PWR IN-CP	289328
Connector for RECO Inline relay terminals, dark-gray, printed	R-IB IL SCN-8-AC-REL	289337
Connector set for RECO Inline isolation terminals R-IB IL DOR LV-SET	R-IB IL DOR LV-PLSET	291261
Connector set for RECO Inline Interbus terminal (set containing 4 pieces)	R-IB IL BK-PLSET	289338
Connector set for RECO Inline terminal, AO/CNT (set containing 2 pieces)	R-IB IL AO/CNT-PLSET	289339
Labelling field, latching in, 2-slot housing, 10 pieces	R_IB IL FIELD 2	289341
Labelling field, latching in, 8-slot housing, 10 pieces	R_IB IL FIELD 8	289342

Fig. 10-2: Ordering information on connectors

## 10.3 Ordering Information on Documentation

Description	Article identification	Article no.
System description of INTERBUS	DOK-CONTRL-R-IL*IBSSYS-AWxx-EN-P	289594
System description of PROFIBUS DP	DOK-CONTRL-R-IL*PBSSYS-AWxx-EN-P	289596
Data sheets of INTERBUS bus coupler	DOK-CONTRL-R-IL*IBS-BK-FKxx-EN-P	289584
Data sheets of PROFIBUS bus coupler	DOK-CONTRL-R-IL*PB*-BK-FKxx-EN-P	289586
Data sheets of digital I/O modules	DOK-CONTRL-R-IL*DIO***-FKxx-EN-P	289588
Data sheets of analog I/O modules	DOK-CONTRL-R-IL*AIO***-FKxx-EN-P	289590
Data sheets of functional module CNT	DOK-CONTRL-R-IL*CNT***-AWxx-EN-P	289592

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## 13 Service & Support

### 13.1 Helpdesk

Unser Kundendienst-Helpdesk im Hauptwerk Lohr am Main steht Ihnen mit Rat und Tat zur Seite. Sie erreichen uns

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- per Fax: **+49 (0) 9352 40 49 41**
- per e-Mail: **service@indramat.de**

Our service helpdesk at our headquarters in Lohr am Main, Germany can assist you in all kinds of inquiries. Contact us

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- by fax: **+49 (0) 9352 40 49 41**
- by e-mail: **service@indramat.de**

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Außerhalb der Helpdesk-Zeiten ist der Service direkt ansprechbar unter

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oder **+49 (0) 172 660 04 06**

After helpdesk hours, contact our service department directly at

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Ergänzende Hinweise zu Service, Reparatur und Training sowie die **aktuellen** Adressen unserer Service- und Vertriebsbüros finden Sie unter **www.indramat.de** – einige Angaben in dieser Dokumentation können inzwischen überholt sein.

Außerhalb Deutschlands nehmen Sie bitte zuerst Kontakt mit Ihrem lokalen Ansprechpartner auf.

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Additional notes about service, repairs and training as well as the **actual** addresses of our sales- and service facilities are available on the Internet at **www.indramat.de** – some information in this documentation may meanwhile be obsolete.

Please contact the sales & service offices in your area first.

- sales agencies  
 offices providing service

### 13.4 Vor der Kontaktaufnahme... - Before contacting us...

Wir können Ihnen schnell und effizient helfen wenn Sie folgende Informationen bereithalten:

1. detaillierte Beschreibung der Störung und der Umstände.
2. Angaben auf dem Typenschild der betreffenden Produkte, insbesondere Typenschlüssel und Seriennummern.
3. Tel./Faxnummern und e-Mail-Adresse, unter denen Sie für Rückfragen zu erreichen sind.

For quick and efficient help, please have the following information ready:

1. Detailed description of the failure and circumstances.
2. Information on the type plate of the affected products, especially type codes and serial numbers.
3. Your phone/fax numbers and e-mail address, so we can contact you in case of questions.

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