

Rexroth Inline Segment Terminal

R911170610
Edition 01

R-IB IL 24 SEG/F-PAC

Segment Terminal With Fuse
Opens New Segment Circuit Within Main Circuit

11/2007



Description

This terminal is designed for use within an Inline station.

It is used to create a protected partial circuit (segment circuit) within the main circuit. The terminal is not used to supply power and therefore has no elements for protection against polarity reversal and surge voltage.



This terminal does not have an INTERBUS protocol chip and therefore is not an INTERBUS device.



This data sheet is only valid in association with the application descriptions for the Rexroth Inline system (see "[Documentation](#)" on [page 2](#)).



Make sure you always use the latest documentation.

It can be downloaded at www.boschrexroth.com.

Features

- Automatic creation of a segment circuit within the main circuit
- Segment circuit protected by internal fuse
- Diagnostic indicators

Ordering Data

Products

| Description | Type | MNR | Pcs./Pck. |
|---|----------------------|------------|-----------|
| Rexroth Inline segment terminal with fuse, including accessories (connector and labeling field) | R-IB IL 24 SEG/F-PAC | R911170790 | 1 |

Documentation

| Description | Type | MNR | Pcs./Pck. |
|--|----------------------------------|------------|-----------|
| "Automation Terminals of the Rexroth Inline Product Range" application description | DOK-CONTRL-ILSYSINS***-AW..-EN-P | R911317021 | 1 |
| "Configuring and Installing the Rexroth Inline Product Range for INTERBUS" application description | DOK-CONTRL-ILSYSPRO***-AW..-EN-P | R911317023 | 1 |



For additional ordering data (accessories), please refer to the product catalog at www.boschrexroth.com.

Technical Data

General Data

| | |
|--|---|
| Housing dimensions (width x height x depth) | 12.2 mm x 120 mm x 72 mm (with connector) |
| Weight | 59 g (with connector) |
| Ambient temperature (operation) | -25°C to +55°C |
| Ambient temperature (storage/transport) | -25°C to +85°C |
| Permissible humidity (operation/storage/transport) | 10% to 95%, according to DIN EN 61131-2 |
| Air pressure (operation/storage/transport) | 70 kPa to 106 kPa (up to 3000 m above sea level) |
| Degree of protection | IP20 according to IEC 60529 |
| Class of protection | Class 3 according to IEC 61140 |
| Connection data for Inline connector | |
| Connection method | Spring-cage terminals |
| Conductor cross-section | 0.2 mm ² to 1.5 mm ² (solid or stranded), 24 - 16 AWG |

24 V I/O Supply

Power is supplied in the bus coupler or in the power terminal.

Connections for the supply voltage are not required on the segment terminal. The corresponding terminal points are only provided for testing purposes.

Transmission Speed

Can be used in Inline stations with a transmission speed of 500 kbps or 2 Mbps either

Permissible Total Current in the Potential Jumpers of the Main and Segment Circuit

| | |
|---------------------------------|-------|
| Nominal current of the terminal | 6.0 A |
| Maximum permissible value | 8.0 A |



CAUTION

The terminal is delivered with a 6.3 A slow-blow fuse. In the event of an increased total current in the potential jumpers U_M and U_S the user must protect the circuit by using higher rated fuses. Please note the information for the selection of fuses given on [page 4](#).

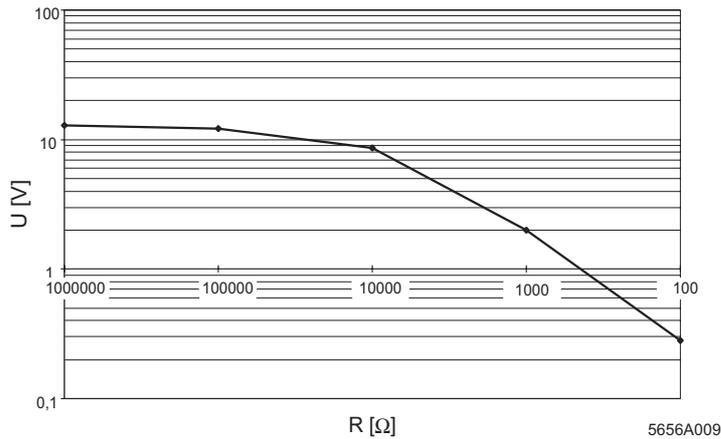
Characteristic Curve of the Voltage in the Segment Circuit With Blown Fuse



Note that power is not disconnected in the main circuit even after the fuse has blown. Observe the characteristic curve.

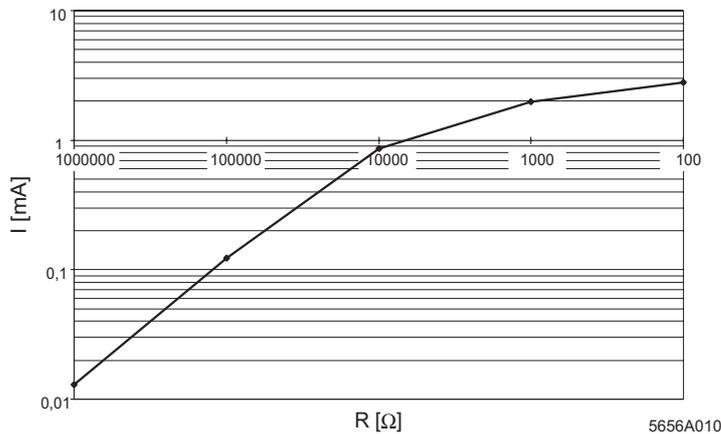
| Load Resistance (Ω) | Typical Output Voltage (V) | Typical Current (mA) |
|------------------------------|----------------------------|----------------------|
| 1000000 | 12.80 | 0.013 |
| 100000 | 12.21 | 0.122 |
| 10000 | 8.60 | 0.86 |
| 1000 | 1.99 | 1.99 |
| 100 | 0.28 | 2.8 |

Typical Output Voltage in Relation to the Resistance in the Segment Circuit



U [V] Output voltage in V
R [Ω] Resistance in Ω

Typical Output Current in Relation to the Resistance in the Segment Circuit



I [mA] Output current in mA
R [Ω] Resistance in Ω

Power Dissipation

Formula to Calculate the Power Dissipation of the Electronics

$$P_{TOT} = 0.180 \text{ W} + I_S^2 \times R_F$$

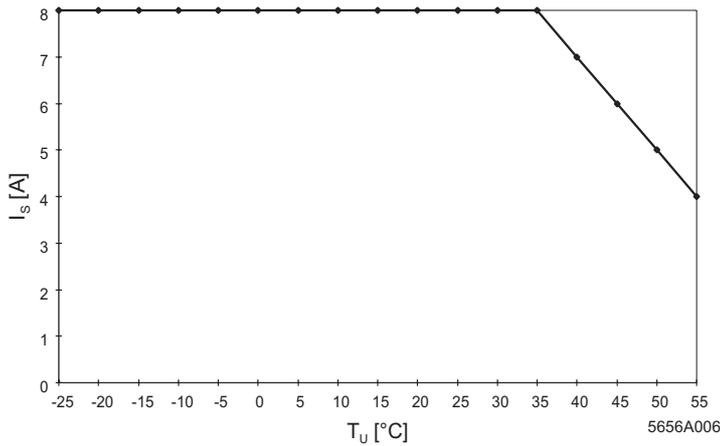
Where:

R_F Resistance of the fuse
 The resistance of the fuse R_F is approximately 50 mΩ for a 6.3 AT fuse.

Derating of the Load Current in the Segment Circuit

| Ambient Temperature T_A in °C | Load Current in the Segment Circuit I_S in A |
|---------------------------------|--|
| 55°C | 4.0 A |
| 45°C | 6.3 A |

Permissible Load Current in the Segment Circuit in Relation to the Ambient Temperature



I_S [A] Load current in the segment circuit in A
 T_A [°C] Ambient temperature in °C

Safety Equipment

Overload/short circuit in the segment circuit Fuse 5 x 20 mm with 6.3 A slow-blow



Fuses with other values can also be used. The maximum fuse value is 8 A.



CAUTION

Note for the selection of fuses:

For fuses with a value greater than 2 A, only slow-blow fuses may be used.

| | |
|--------------------------------------|--|
| Surge voltage | Protective elements in the power terminal or the bus coupler |
| Protection against polarity reversal | Protective elements in the power terminal or the bus coupler |

Electrical Isolation/Isolation of the Voltage Areas**CAUTION**

To provide electrical isolation between the logic level and the I/O area, it is necessary to supply these areas via the bus coupler or via the bus coupler and a power terminal from separate power supply units. Interconnection of the power supply units in the 24 V area is not permitted. Please also observe the GND/PE connections on the power supply units (see also user manual).

Common Potentials

The 24 V main voltage, 24 V segment voltage, and GND have the same potential. FE is a separate potential area.

Separate Potentials in the System Consisting of Bus Coupler/Power Terminal and I/O Terminal**- Test Distance**

5 V supply incoming remote bus/7.5 V supply (bus logic)

5 V supply outgoing remote bus/7.5 V supply (bus logic)

7.5 V supply (bus logic)/24 V supply (I/O)

24 V supply (I/O)/functional earth ground

- Test Voltage

500 V AC, 50 Hz, 1 min

Error Messages to the Higher-Level Control or Computer System

None

Approvals

For the latest approvals, please visit www.boschrexroth.com.

Local Diagnostic and Status Indicators and Terminal Point Assignment

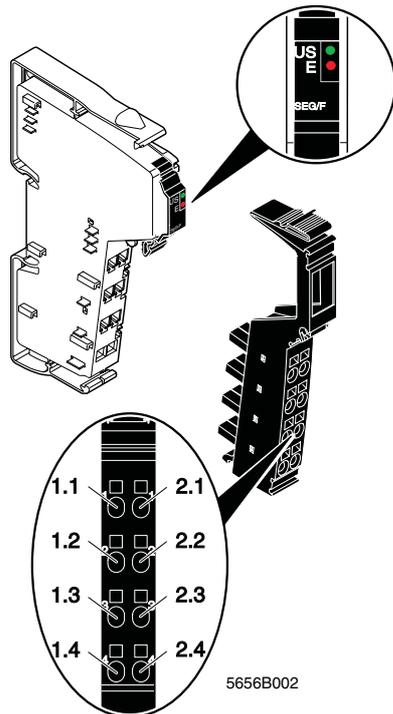


Fig. 1 Terminal with appropriate connector

Internal Basic Circuit Diagram

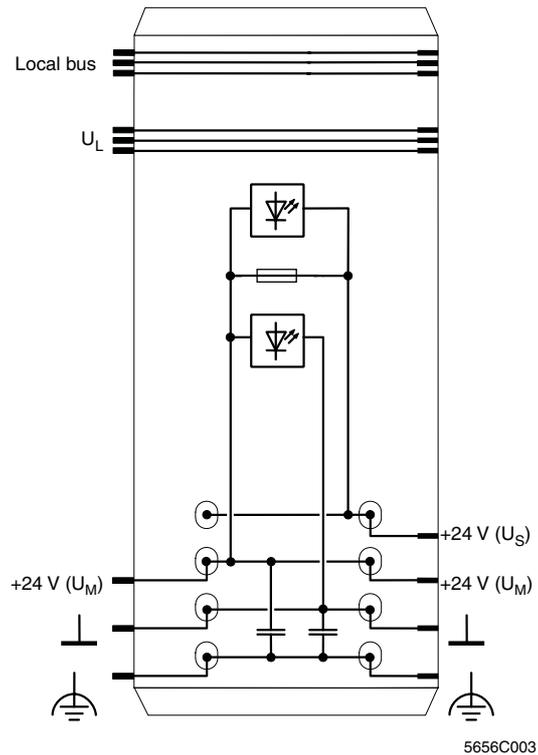


Fig. 2 Internal wiring of the terminal points

Local Diagnostic Indicators

| Des. | Color | Meaning |
|------|-------|--|
| US | Green | 24 V voltage (in segment circuit U_S); prior to fuse |
| E | Red | Fuse in the segment terminal (in segment circuit U_S) |

A blown fuse is indicated by diagnostic indicator E (the E LED lights up).

Function Identification

Black

Terminal Point Assignment



CAUTION

The terminal points are **only** provided for measuring purposes. Voltage is supplied via a bus terminal or a power terminal.

| Terminal Point | Assignment |
|----------------|--|
| 1.1, 2.1 | Segment voltage U_S (after the fuse) |
| 1.2, 2.2 | Main voltage U_M |
| 1.3, 2.3 | GND of the supply voltages |
| 1.4, 2.4 | FE connection |

Key:



LED



Fuse



Capacitive connection to functional earth ground (FE)



Other symbols used are explained in the application descriptions for the Rexroth Inlinesystem (see "Documentation" on page 2) or the application description for your bus system.

Notes:

DOK-CONTRL-
ILSEG/F****-KB01-EN-P

Bosch Rexroth AG
Electric Drives and Controls
P.O.Box 13 57
97803 Lohr, Germany
Bgm.-Dr.-Nebel-Str. 2
97816 Lohr, Germany
Tel. +49-(0) 93 52 - 40-50 60
Fax. +49-(0) 93 52 - 40-49 41
service.svc@boschrexroth.de
www.boschrexroth.com

All rights reserved. No part of this document may be reproduced or stored, processed, duplicated, or circulated using electronic systems, in any form or by any means, without the prior written authorization of Bosch Rexroth AG, Electric Drives and Controls. Violations shall give rise to claims for damages. The data specified above only serve to describe the product. They do not indicate any specific condition or suitability for a certain application. The information provided does not release the user from the obligation of own judgment and verification. It must be remembered that our products are subject to natural wear and aging.

Reprint forbidden - subject to modifications