Rexroth
Bosch Group

Rexroth Inline Branch Terminal To Connect Fieldline Modular

R911170492
Edition 01

R-IB IL 24 FLM-PAC

Inline branch terminal
Connecting Fieldline Modular to an Inline station

10/2006

Description

The terminal is a component of an Inline station. This terminal can be used to integrate sensors and actuators in close proximity to the station, which are connected to the Fieldline modular local bus with IP65/67 protection, in your bus system.

Features

- Connection for bus cables from the hybrid cable
- Conversion of the physical transmission method of the Inline local bus to the physical transmission method of the Fieldline modular local bus

This terminal does not have a protocol chip and therefore is not a bus device.

When connecting a Fieldline modular local bus, please refer to the technical data for this product range. This can be found in the device-specific data sheets and in the application descriptions, see "Ordering Data" on page 2.

CAUTION

Only use the branch terminal as the **last** terminal in an Inline station.
The data jumpers for the local bus are **not** available after the branch terminal.
If terminals are snapped on after the branch terminal, the first Localbus device after the branch terminal indicates an interface error (D LED flashes at 4 Hz). In this case, change the Inline station so that the branch terminal is the last terminal in the station.

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.

Ordering Data

Product

Description	Type	MNR	Pcs./Pkt.
Branch terminal for integrating a Fieldline modular local bus in an Inline station; including accessories (connector and labeling field)	R-IB IL 24 FLM-PAC	R911170445	1

Accessories

Description	Type	MNR	Pcs./Pkt.
Inline segment terminal with fuse and diagnostics; including accessories (connector and labeling field)	R-IB IL 24 SEG/F-D-PAC	R911170710	1

Documentation

Description	Type	MNR	Pcs./Pkt.
„Automation Terminals of the Rexroth-Inline Product Range“ application description	DOK-CONTRL-IL-SYSINS***-AW..-EN-P	R911317021	1
"Installing the Fieldline Product Range" application description	DOK-CONTRL-FL-SYSINS***-AW..-EN-P	R911317026	1
"Configuring an INTERBUS System Using Devices in the Fieldline Product Range" application description	DOK-CONTRL-FLSIB-SYSPRO-AW..-EN-P	R911317947	1
"Configuring a PROFIBUS DP System Using Devices in the Fieldline Product Range" application description	DOK-CONTRL-FLSPB-SYSPRO-AW..-EN-P	R911317945	1
"Configuring a DeviceNet™ System Using Devices in the Fieldline Product Range" application description	DOK-CONTRL-FLSDN-SYSPRO-AW..-EN-P	R911317949	1

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

Technical Data

General Data	
Housing dimensions (width x height x depth; with connector)	12.2 mm x 134 mm x 72 mm
Weight (with connector)	43 g (including connector)
Permissible temperature (operation)	-25°C to +55°C
Permissible temperature (storage/transport)	-25°C to +85°C
Permissible humidity (operation/storage/transport)	10 % to 95 %, according to DIN EN 61131-2
Permissible air pressure (operation/storage/transport)	70 kPa to 106 kPa (up to 3000 m above sea level)
Transmission speed	500 kbps and 2 Mbps
Degree of protection	IP 20 according to IEC 60529
Protection class	Class 3 according to VDE 0106, IEC 60536
Connection data of Inline-connector	
Connection method	Spring-cage terminals
Conductor cross section	0.2 mm^2 - 1.5 mm^2 (solid/stranded), AWG 24 -16

Interfaces	
Local bus	Through data routing
M8 system	
Cable	2 x 2, shielded twisted pair, plus common braided shield outside diameter 5.2 mm, maximum
Permissible conductor cross section	
Bus	0.14 mm^2, minimum
Voltage	0.34 mm^2, minimum

Power Consumption	
Communications power U_L	7.5 V DC
Current consumption at U_L	110 mA
Power consumption at U_L	825 mW
Segment supply voltage U_S	24 V DC (nominal value)
Nominal current consumption at U_S	
Fieldline modular M8 local bus	3 A, maximum (with supply via return line) 6 A, maximum (with simultaneous supply; 3 A, maximum each for forward and return line)
Internal	55 mA, maximum

Supply of the Module Electronics and I/O Through Bus Coupler/Power Terminal	
Connection method	Through potential routing

Special Demands on the Voltage Supply

When installing a Fieldline modular M8 system, insert a segment terminal with fuse and diagnostics directly before the R-IB IL 24 FLM-PAC terminal (see "Ordering Data" on page 2). The supply voltage for the Fieldline modular system is thus protected and diagnostics can be performed for the supply voltage.

Safety Equipment	
Overload in local bus ring	Yes; by fuse in the preconnected R-IB IL 24 SEG/F-D-PAC segment terminal
Protection against polarity reversal	Yes; by protective elements in the preconnected R-IB IL 24 SEG/F-D-PAC segment terminal
Short-circuit protection	Yes; by fuse in the preconnected R-IB IL 24 SEG/F-D-PAC segment terminal

Electrical Isolation/Isolation of the Voltage Areas

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	Test Voltage
Functional earth ground/Fieldline modular M8 local bus	500 V AC, 50 Hz, 1 min.
Functional earth ground/Inline (7.5 V supply U_L)	500 V AC, 50 Hz, 1 min.
Inline (7.5 V supply U_L)/Fieldline modular M8 local bus	500 V AC, 50 Hz, 1 min.

Error Messages to the Higher-Level Control or Computer System	
Yes	Via preconnected R-IB IL 24 SEG/F-D-PAC segment terminal

Approvals

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

Local Diagnostic Indicator and Assignment of Terminal Points

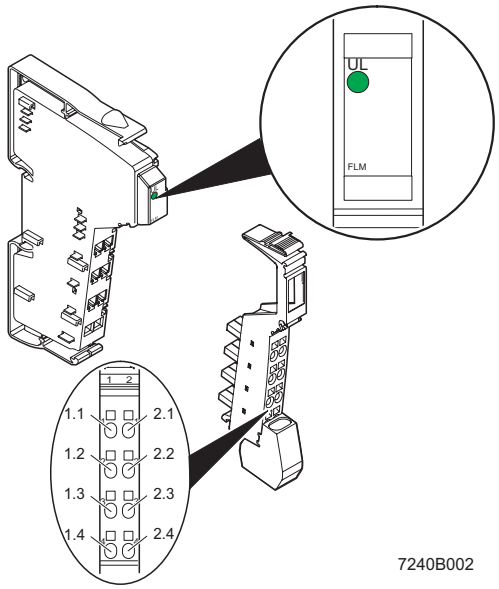

Fig. 1 R-IB IL 24 FLM-PAC terminal

Local Diagnostic Indicator

Designation	Color	
UL	Green	Communications power (Fieldline local bus) present

Function Identification

Orange

Terminal Point Assignment

Terminal Point	Assignment	Wire Color M8	Wire Color M12
Forward line, local bus			
1.1	$\overline{DO}$	Green	Green
2.1	DO	Yellow	Yellow
Return line, local bus			
1.2	$\overline{DI}$	Green	Pink
2.2	DI	Yellow	Gray
1.3	GND (FLM)	Blue	Brown
2.3	Not used		
1.4	Shield connection		
2.4	Shield connection		

Internal Circuit Diagram

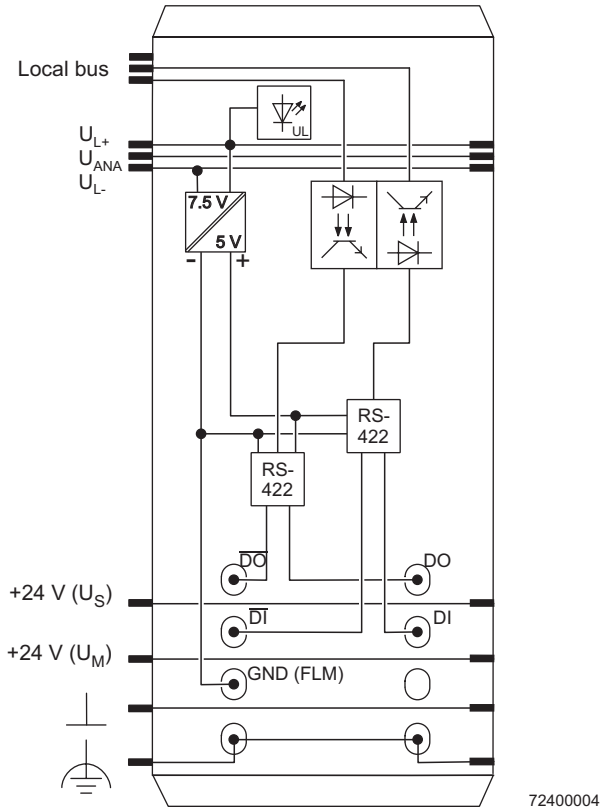

Fig. 2 Internal wiring of the terminal points

Key:

DC/DC converter with electrical isolation

LED with details of the display designation (UL; see page 4)

Optocoupler

RS-422 interface

Other symbols used are explained in the application descriptions of the Rexroth Inline/Fieldline system (see "Documentation" on page 2).

Connection Notes

CAUTION

Only use the branch terminal as the last terminal in an Inline station (see also page 1).

To supply the Fieldline modular M8 system, insert a segment terminal with fuse and diagnostics directly before the R-IB IL 24 FLM-PAC (see "Ordering Data" on page 2).

Terminal Point Assignment of the R-IB IL 24 SEG/F-D-PAC

Terminal Point	Assignment	Wire Color
1.1	+24 V U_S	Red
2.1	+24 V U_S	Red
1.2	+24 V U_M	
2.2	+24 V U_M	
1.3	GND	Blue
2.3	GND	Blue
1.4	FE	
2.4	FE	

Connection Example

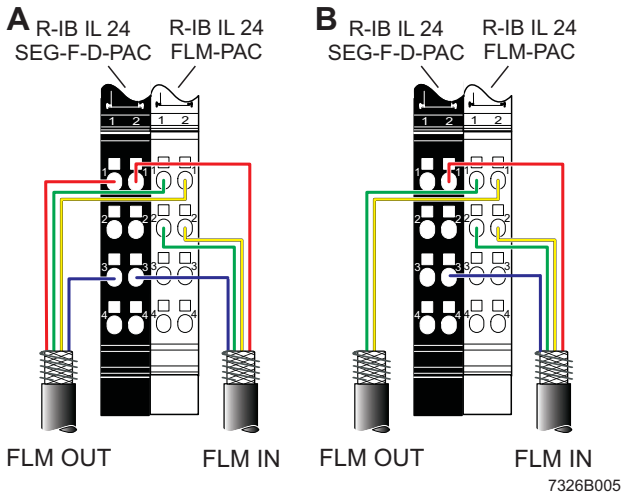

Fig. 3 Typical connection of the Fieldline modular local bus

A	Supply from both sides
B	Single-sided supply
FLM OUT	Forward line
FLM IN	Return line

Connecting the Cables

Stripping the Outer Cable Sheath and Cables (Fig. 4, A)

- Strip approximately 100 mm off the outer cable sheath.
- Remove the protective foil.
- Shorten the braided shield by approximately 85 mm.
- Remove the felt and the protective foil of the wire pairs.
- Wind the filler litz wire around the shield.
- Strip 8 mm off the wires.

Connecting the Cables to the Terminal Points

- Release the spring by pressing with the screwdriver.
- Insert the cable in the corresponding terminal point.
- Secure the cable by removing the screwdriver.

Connecting the Shield

- Open the shield connection (Fig. 4, B).
- Insert the shield connection clamp according to the conductor cross section.
- Insert the cable (Fig. 4, C).
- Close the shield connection (Fig. 4, D).
- Tighten the screws on the shield connection with a screwdriver (Fig. 4, E).

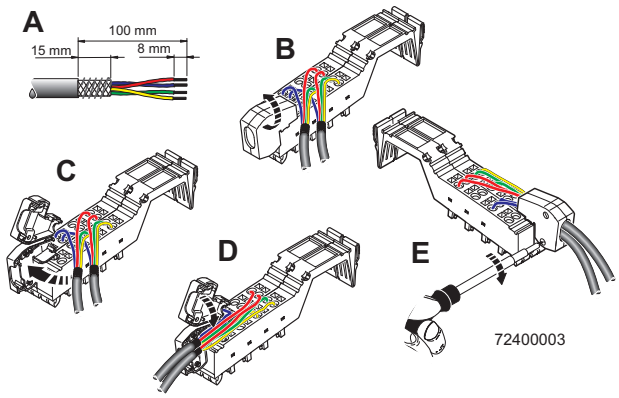

Fig. 4 Wiring of the R-IB IL 24 FLM-PAC and R-IB IL 24 SEG/F-D-PAC terminals

Notes:

DOK-CONTRL-IL-FLM******-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

7326_en_01