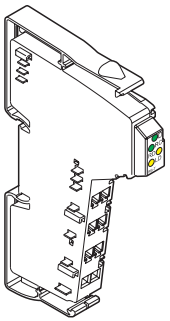
IBS IL 24 BK RB-T-2MBD

INTERBUS Inline Terminal for Connecting a Remote Bus Branch



6036B001

Data Sheet 6766A 01/2003

This data sheet is only valid in association with the "Configuring and Installing the INTERBUS Inline Product Range" User Manual IB IL SYS PRO UM E.

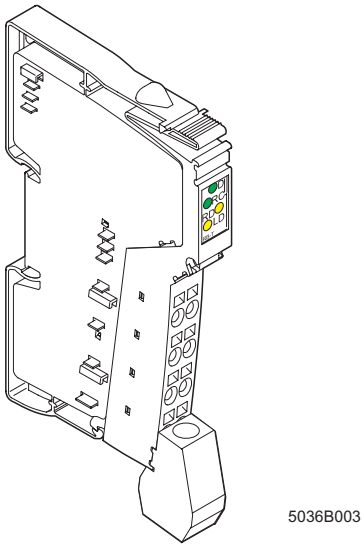
Function

This terminal can be used to create a remote bus branch from an Inline station. It can also be used to integrate remote devices (e.g., display fields, keypads, motor starters with IP 65 protection or sensor/actuator boxes) into INTERBUS via an Inline station.

Features

– Connections for a remote bus branch using copper technology
– Supply of the remote bus branch terminal via the bus terminal or a pre-connected power terminal (not a bus device)

Please note the "Configuration Notes" on page 4 to avoid configuration errors.



5036B003

Figure 1 The IBS IL 24 RB-T-2MBD terminal with connector

Please note that the connector is not supplied as standard with the terminal. Refer to the Ordering Data on page 10 to order the appropriate connector for your application.

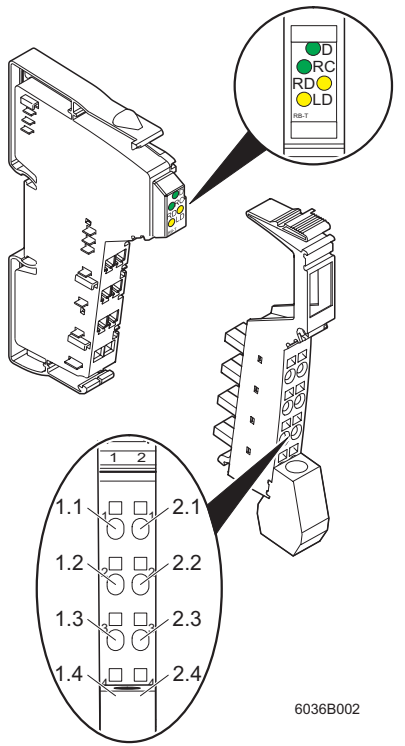


Figure 2 IBS IL 24 RB-T-2MBD with appropriate connector

Local Diagnostic Indicators

Des.	Color	Meaning
D	Green	Bus diagnostics
RC	Green	Remote bus cable check
RD	Yellow	Remote bus branch switched off
LD	Yellow	Local bus switched off
LD	Red	Isolated disconnection of local bus after error

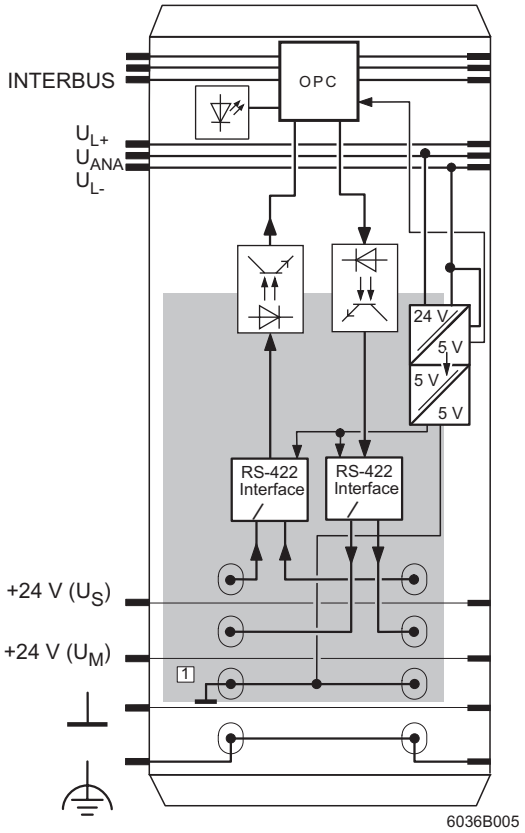
Function Identification

Gray

Terminal Assignment

Terminal Point	Assignment		Remark/ Wire Color in the INTERBUS Standard Cable
1.1	DO	Receive	Green
2.1	DO	Receive	Yellow
1.2	DI	Send	Pink
2.2	DI	Send	Gray
1.3	GND	Reference potential	Brown
2.3			Not used
1.4, 2.4	Shield		Shield potential is directly connected to functional earth ground (FE) of the voltage jumper.

Internal Circuit Diagram



Key:

- OPC — INTERBUS protocol chip (bus logic including voltage conditioning)
- LED
- Optocoupler
- Power supply unit with electrical isolation
- 1 — Ground; electrically isolated from ground of the voltage jumper (GND)
- RS-422 Interface — Interface component
- Electrically isolated area
- Other symbols are explained in the IB IL SYS PRO UM E User Manual.

Figure 3 Internal wiring of the terminal points

Connection Example

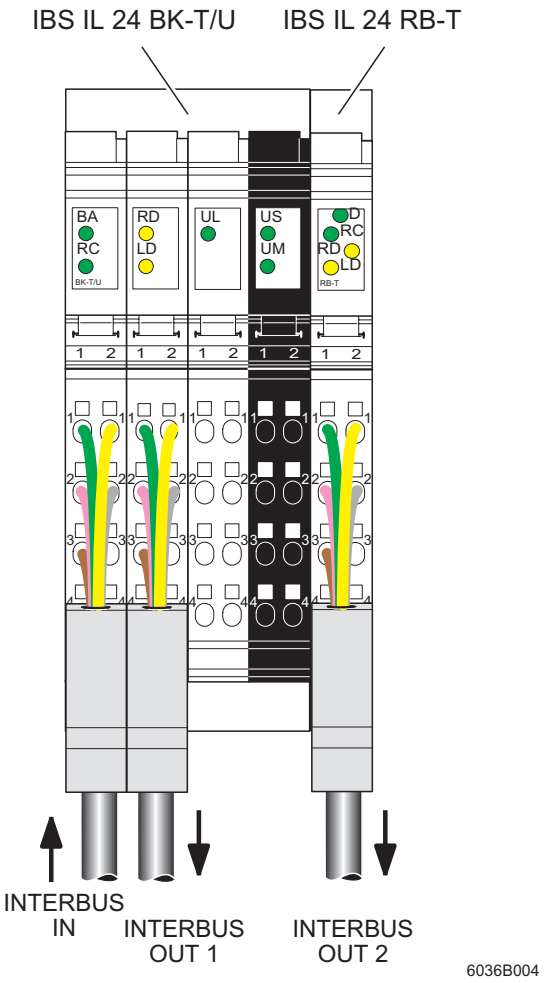


Figure 4 Example of connecting the INTERBUS cables to the bus terminal and to the remote bus branch terminal

INTERBUS IN	Incoming Remote Bus
INTERBUS OUT 1	Outgoing Remote Bus
INTERBUS OUT 2	Remote bus branch

Configuration Notes

The terminal for connecting a remote bus branch must be positioned directly after a bus terminal, a control terminal, or a terminal with remote bus branch. Directly means that there must be no bus device between the bus terminal/control terminal and the terminal with remote bus branch.

Only one remote bus branch terminal may be used within an Inline station with an IBS IL 24 BK-T.

Up to 15 terminals with remote bus branch may be used after other bus terminals or after the control terminal if no restrictions are made in the according terminal-specific data sheets.

Programming Data

ID code	04_{hex} (04_{dec})
Length code	00_{hex}
Process data channel	0 bytes
Input address area	0 bytes
Output address area	0 bytes
Parameter channel (PCP)	0 bytes
Register length (bus)	0 bytes

Technical Data

General Data	
Housing dimensions (width x height x depth)	12.2 mm x 120 mm x 71.5 mm (0.480 in. x 4.724 in. x 2.815 in.)
Weight	46 g (without connectors)
Permissible temperature (operation)	-25°C to +55°C (-13°F to +131°F)
Permissible temperature (storage/transport)	-25°C to +85°C (-13°F to +185°F)
Permissible humidity (operation)	75% on average, 85% occasionally
In the range from -25°C to +55°C (-13°F to +131°F) appropriate measures against increased humidity (> 85%) must be taken.	
Permissible humidity (storage/transport)	75% on average, 85% occasionally
For a short period, slight condensation may appear on the housing if, for example, the terminal is brought into a closed room from a vehicle.	
Permissible air pressure (operation)	80 kPa to 106 kPa (up to 2000 m [6562 ft.] above sea level)
Permissible air pressure (storage/transport)	70 kPa to 106 kPa (up to 3000 m [9843 ft.] above sea level)
Degree of protection	IP 20 according to IEC 60529
Class of protection	Class 3 according to VDE 0106, IEC 60536

Interfaces (INTERBUS)	
Remote bus	
Incoming remote bus	Through data routing
Outgoing remote bus	Through data routing
Remote bus branch	Copper cable (RS-422), connected via Inline shield connector; electrically isolated supply, shielding directly connected to functional earth ground
Recommended cable lengths	See INTERBUS system data

Interfaces (INTERBUS) (Continued)	
Local Bus	
Connection	Through data routing
Level	5 V CMOS signal level
Number of Inline terminals that can be connected	
Limitation through software	63, maximum
Limitation through power supply unit	Maximum logic current consumption of the connected local bus terminals: $I_{max} \leq 2$ A DC

Observe the current consumption of the terminals

Observe the logic current consumption of each device when configuring an Inline station. This information is given in every terminal-specific data sheet. The current consumption can differ depending on the individual terminal. The permissible number of devices that can be connected depends on the specific station structure.

The remote bus branch devices do not count as Inline station devices.

Power Consumption	
Communications voltage U_L	–
Current consumption from U_L	–
Power consumption from U_L	–
Analog supply voltage U_{ANA}	24 V DC (nominal value)
Nominal current consumption at U_{ANA}	0.029 A (nominal value)
Power consumption from U_{ANA}	0.696 W, maximum

Supply of the Module Electronics Through the Bus Terminal (U_{ANA})	
Connection method	Through potential routing

Power Dissipation

Formula to Calculate the Power Dissipation of the Electronics

$P_{EL} = U_{ANA} \times I_{TOT}$

Where

P_{EL}	Total power dissipation of the terminal
U_{ANA}	Analog voltage
I_{TOT}	Total current consumption in the remote bus branch terminal at U_{ANA}

Example:

$P_{EL} = 24\ V \times 29\ mA$

$P_{EL} = 696\ mW$

Power Dissipation of the Housing

$P_{HOU} = 0.7\ W$ in the total permissible ambient temperature range

Where

P_{HOU}	Permissible power dissipation of the housing

Derating

No derating

Error Messages to the Higher-Level Control or Computer System

None

Safety Devices

None

Electrical Isolation/Isolation of the Voltage Areas
Common Potentials
The 7.5 V communications power, 24 V analog supply, 24 V bus terminal supply and the 5 V communications power of the remote bus branch terminal share a common potential.
Separate Potentials
The communications power ground is jumpered with the ground of the 7.5 V communications power for the bus terminal power supply unit. The interface supply for the remote bus branch is electrically isolated from all other potentials. The I/O supply is always electrically isolated from the interface supplies.

Electrical Isolation/Isolation of the Voltage Areas With a Combination of the IBS IL 24 BK-T Bus Terminal and the IBS IL 24 RB-T-2MBD Remote Bus Branch Terminal	
Test Distance	**Test Voltage**
5 V supply of incoming remote bus electrically isolated from	
– 5 V supply of outgoing remote bus	500 V AC, 50 Hz, 1 min
– 5 V supply of remote bus branch	
– 7.5 V communications power, 24 V analog supply, 24 V bus terminal supply, 5 V communications power of remote bus branch terminal	
– 24 V main supply, 24 V segment supply	
– Functional earth ground	
5 V supply of outgoing remote bus electrically isolated from	500 V AC, 50 Hz, 1 min
– 5 V supply of incoming remote bus	
– 5 V supply of remote bus branch	
– 7.5 V communications power, 24 V analog supply, 24 V bus terminal supply, 5 V communications power of remote bus branch terminal	
– 24 V main supply, 24 V segment supply	
– Functional earth ground	

Electrical Isolation/Isolation of the Voltage Areas With a Combination of the IBS IL 24 BK-T Bus Terminal and the IBS IL 24 RB-T-2MBD Remote Bus Branch Terminal	
7.5 V communications power, 24 V analog supply, 24 V bus terminal supply, 5 V communications power of remote bus branch terminal electrically isolated from	500 V AC, 50 Hz, 1 min
– 5 V supply of incoming remote bus	
– 5 V supply of outgoing remote bus	
– 5 V supply of remote bus branch	
– 24 V main supply, 24 V segment supply	
– Functional earth ground	
24 V main supply, 24 V segment supply electrically isolated from	500 V AC, 50 Hz, 1 min
– 5 V supply of incoming remote bus	
– 5 V supply of outgoing remote bus	
– 5 V supply of remote bus branch	
– 7.5 V communications power, 24 V analog supply, 24 V bus terminal supply, 5 V communications power of remote bus branch terminal	
– Functional earth ground	
5 V supply of remote bus electrically isolated from	500 V AC, 50 Hz, 1 min
– 5 V supply of incoming remote bus	
– 5 V supply of outgoing remote bus	
– 7.5 V communications power, 24 V analog supply, 24 V bus terminal supply, 5 V communications power of remote bus branch terminal	
– 24 V main supply, 24 V segment supply	
– Functional earth ground	

Ordering Data

Description	Order Designation	Order No.
INTERBUS Inline terminal for connecting a remote bus branch	IBS IL 24 RB-T-2MBD	28 55 12 7
Shield connector; pack of 5	IB IL SCN-6 SHIELD	27 26 35 3
"Configuring and Installing the INTERBUS Inline Product Range" User Manual	IB IL SYS PRO UM E	27 43 04 8

Phoenix Contact GmbH & Co. KG
Flachsmarktstr. 8
32825 Blomberg
Germany

+ 49 - (0) 52 35 - 3-00

+ 49 - (0) 52 35 - 3-4 12 00

www.phoenixcontact.com

Worldwide Locations:
www.phoenixcontact.com/salesnetwork

单击下面可查看定价，库存，交付和生命周期等信息

>>Phoenix Contact(菲尼克斯)