

User's Guide
bintec R3000w / R3400 / R3800
Technical Data

Purpose This document is part of the user's guide to the installation and configuration of bintec gateways running software release 7.3.1 or later. For up-to-the-minute information and instructions concerning the latest software release, you should always read our **Release Notes**, especially when carrying out a software update to a later release level. The latest **Release Notes** can be found at www.funkwerk-ec.com.

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The information in this manual is subject to change without notice. Additional information, changes and **Release Notes** for bintec gateways can be found at www.funkwerk-ec.com.

As multiprotocol gateways, bintec gateways set up WAN connections in accordance with the system configuration. To prevent unintentional charges accumulating, the operation of the product should be carefully monitored. Funkwerk Enterprise Communications GmbH accepts no liability for loss of data, unintentional connection costs and damages resulting from unsupervised operation of the product.

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Guidelines and standards bintec gateways comply with the following guidelines and standards:

R&TTE Directive 1999/5/EG

CE marking for all EU countries and Switzerland

You will find detailed information in the Declarations of Conformity at www.funkwerk-ec.com.

**How to reach Funkwerk
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1 bintec R3000w

1.1 Delivery size

Your gateway is supplied with the following parts:

- Cable sets/power supply:
 - Ethernet cable
 - ISDN cable
 - Serial cable
 - DSL cable
 - Power supply
- Antennas:
 - two standard antennas
- bintec Companion CD
- Documentation:
 - **Quick Install Guide** (printed)
 - **User's Guide** (on CD)
 - **Release Notes**, if required
 - Safety Instructions

1.2 General Product Features

The general product features cover performance features and the technical requirements for installation and operation of your gateway.

These features are outlined in the following table:

Feature	Data
Product name	bintec R3000w

Feature	Data
Dimensions/weight (B x H x D): Dimensions without cables	295 mm x 160 mm + 8mm (antenna connections) x 41 mm
Weight	1250 g
Transport weight (incl. documentation, cabling, packaging)	approx. 2.6 kg
Memory	32 MB SDRAM, 8 MB Flash-ROM
LEDs	18 (1x Power, 1x Status, 5x2 Ethernet, 4x2 Function)
Power consumption of equipment	max. 15 Watt, typ. 13 Watt
Voltage supply	15V AC 1A EU PSU
Ambient requirements: Storage temperature	-20° to +70°C
Ambient temperature	0 to 40 °C
Relative humidity	10 to 90% non-condensing in operation 5 to 95% non-condensing in storage
Room classification	Operate only in dry rooms.

Feature	Data
Available interfaces: ADSL interface	Built-in ADSL modem for Annex A and Annex B
Ethernet IEEE 802.3 LAN (4 port switch) one port with serial interface mode	Built-in (twisted-pair only), 10/100 Mbps, auto sensing, MDIX; supports the following baud rates: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bauds
ISDN-WAN S0 DMZ/ETH5 WLAN interface (antennas)	Built-in Additional Ethernet switch port 802.11b, 802.11g and 802.11a with Antenna Diversity Data rates of 1-, 2-, 5.5-, 6-, 9-, 11-, 12-, 18-, 24-, 36-, 48-, 54 Mbps
Plugs used: Serial interface	RJ45
Ethernet interface	RJ45
ISDN interface	RJ45
ADSL interface	RJ45
SAFERNET™ Security Technology	Community Passwords, PAP, CHAP, MS-CHAP, Access Control Lists, NAT, SIF
Software includes	BRICKware for Windows BRICKtools for Unix
Printed documentation included	Quick Install Guide
Documentation in PDF format	User's Guide BRICKware for Windows Software Reference

Table 1-1: General product features



Note

Antenna Diversity

The two antennas do not have equal function. The one named "Main", "Primary" or "1" (at **R3000 Series** devices the antenna next to the power switch) is used for sending and receiving, the other one only for receiving. The AP (Access point) verifies, which of the two antennas receives the better signal, which is then used for decoding. As the antennas are positioned with a distance of approx. one wave length, the signal quality can differ enormously.

1.3 LEDs

The LEDs on your **bintec R3000w Gateway** indicate the states and the activity of the gateway.

They are arranged as follows:

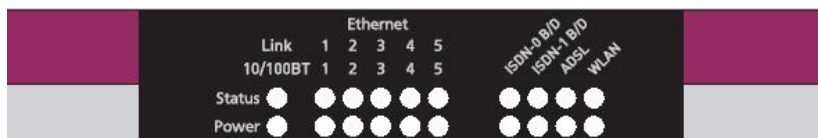


Figure 1-1: LEDs on **bintec R3000w**

In operational mode the LEDs display the following status information:

LED	Status	Information
Power	off	Power is off.
	on	Power is on.
Status	on	Error.
	flashing	The gateway is active.
Ethernet 1 to 5 upper line: lower line:	on	The gateway is connected to the Ethernet.
	flashing	Data traffic via the Ethernet interface.
	on	Data traffic with 100 mbps
	off	Data traffic with 10 mbps

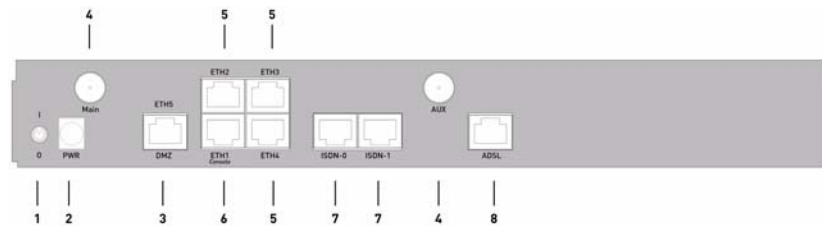
LED	Status	Information
ISDN-0 B/D upper line: lower line:	on on flashing	ISDN D channel is active. One ISDN B channel is active. Both ISDN B channels are active.
ISDN-1 B/D upper line: lower line:	on on flashing	ISDN D channel is active. One ISDN B channel is active. Both ISDN B channels are active.
ADSL upper line: lower line: both lines:	flashing flashing on flashing synchro- nously	Data traffic via the ADSL interface. The gateway synchronizes with the ADSL provider's DSLAM. The gateway has successfully synchronized with the ADSL provider's DSLAM. System error (ADSL)
WLAN upper line: lower line:	flashing flashing slowly on	Data traffic via the WLAN interface. The WLAN module is active. At least one WLAN client is connected.

Table 1-2: LED status display

1.4 Connections

All connections are located on the rear of the gateway. **bintec R3000w** offers a 4-port Ethernet switch including a port with serial interface mode, a DMZ/ETH5 interface, two ISDN interfaces as well as an ADSL interface.

The connections are arranged as follows:



1. I/O	Power Switch	5. ETH2 - ETH4	Ethernet interface
2. PWR	Socket for power supply	6. ETH1/Console	Ethernet interface with serial interface mode
3. DMZ/ETH5	Ethernet interface	7. ISDN-0 ISDN-1	ISDN interfaces
4. Main and AUX	RSMA connection	8. ADSL	ADSL interface

Figure 1-2: **bintec R3000w** rear

1.5 Pin Assignments

1.5.1 Ethernet Interfaces

bintec R3000w offers an Ethernet interface with integrated 4-port switch (ETH1 - ETH4) and a separate Ethernet interface (DMZ/ETH5).

The 4-port switch can be used to connect single PCs as well as additional switches

The *ETH1/Console* interface can also be used as serial interface.

The DMZ/ETH5 interface can be used to connect an optional DSL modem or a DMZ.

An RJ45 socket is used for connecting:

1 8

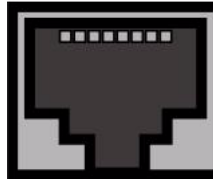


Figure 1-3: Ethernet 10/100Base-T interface (RJ45 socket)

The Ethernet sockets have the following pin assignment:

Pin	Function
1	TD +
2	TD -
3	RD +
4	Not used
5	Not used
6	RD -
7	Not used
8	Not used

Table 1-3: RJ45 socket for Ethernet connection

The combined Serial-Ethernet-sockets have the following pin assignment:

Pin	Function
1	TD + (Ethernet)
2	TD - (Ethernet)
3	RD + (Ethernet)

Pin	Function
4	RX (Console)
5	GND (Console)
6	RD - (Ethernet)
7	GND (Console)
8	TX (Console)

Table 1-4: RJ45 socket for Ethernet connection resp. serial interface (Console)

1.5.2 ADSL Interface

The ADSL interface is connected using a RJ45 socket. The supplied cable combines the RJ11 plug required by most ADSL splitters and the RJ45 plug required by the gateway.

Only the inner pins are used for the ADSL connection:

1 8

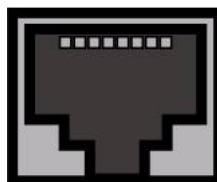


Figure 1-4: ADSL interface (RJ45)

The ADSL interface has the following pin assignment:

Pin	Function
1	not assigned
2	not assigned
3	not assigned
4	line a

Pin	Function
5	line b
6	not assigned
7	not assigned
8	not assigned

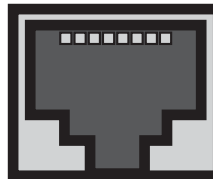
Table 1-5: ADSL interface (RJ45 socket)

1.5.3 ISDN Basic Rate Interface

bintec R3000w provides an ISDN S_0 interface, which can be used, e.g., for backup purposes.

A RJ45 socket is used for connecting:

1 8

Figure 1-5: ISDN S_0 interface (RJ45 socket)

The ISDN interface (RJ45 socket) has the following pin assignment:

Pin	Function
1	Not used
2	Not used
3	Send (+)
4	Receive (+)
5	Receive (-)

Pin	Function
6	Send (-)
7	Not used
8	Not used

Table 1-6: RJ45 socket for ISDN connection

2 bintec R3400

2.1 Delivery size

Your gateway is supplied with the following parts:

- Cable sets/power supply:
 - Ethernet cable
 - ISDN cable
 - Serial cable
 - DSL cable
 - Power supply
- bintec Companion CD
- Documentation:
 - **Quick Install Guide** (printed)
 - **User's Guide** (on CD)
 - **Release Notes**, if required
 - Safety Instructions

2.2 General Product Features

The general product features cover performance features and the technical requirements for installation and operation of your gateway.

These features are outlined in the following table:

Feature	Data
Product name	bintec R3400

Feature	Data
Dimensions/weight (B x H x D): Dimensions without cables Weight Transport weight (incl. documentation, cabling, packaging)	295 mm x 160 mm x 41 mm 1250 g approx. 2,6 kg
Memory	32 MB SDRAM, 8 MB Flash-ROM
LEDs	18 (1x Power, 1x Status, 5x2 Ethernet, 4x2 Function)
Power consumption of equipment	max. 15 Watt, typ. 10 Watt
Voltage supply	15V AC 1A EU PSU
Ambient requirements: Storage temperature Ambient temperature Relative humidity Room classification	-20° to +70°C 0 to 40 °C 10 to 90% non-condensing in operation 5 to 95% non-condensing in storage Operate only in dry rooms.

Feature	Data
Available interfaces: SHDSL interface	Built-in SHDSL 4-wire modem for Annex A and Annex B Bonding technology with 2-/4-wire Can also be used as invers multiplexer - with IMA according to ATM Forum
Ethernet IEEE 802.3 LAN (4 port switch) one port with serial interface mode	Built-in (twisted-pair only), 10/100 Mbps, auto sensing, MDIX; supports the following baud rates: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bauds
ISDN-WAN S0 DMZ/ETH5	Built-in Additional Ethernet switch port
Plugs used: Serial interface Ethernet interface ISDN interface SHDSL interface	RJ45 RJ45 RJ45 RJ45
SAFERNET™ Security Technology	Community Passwords, PAP, CHAP, MS-CHAP, Access Control Lists, NAT, SIF
Software includes	BRICKware for Windows BRICKtools for Unix
Printed documentation included	Quick Install Guide
Documentation in PDF format	User's Guide BRICKware for Windows Software Reference

Table 2-1: General product features

2.3 LEDs

The LEDs on your **bintec R3400 Gateway** indicate the states and the activity of the gateway.

They are arranged as follows:

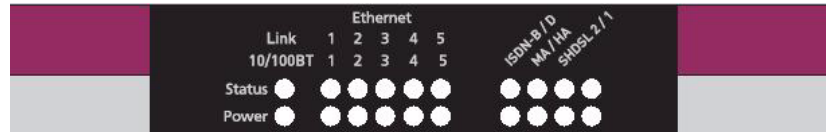


Figure 2-1: LEDs on **bintec R3400**

In operational mode the LEDs display the following status information:

LED	Status	Information
Power	off on	Power is off. Power is on.
Status	on flashing	Error. The gateway is active.
Ethernet 1 to 5 upper line: lower line:	on flashing on off	The gateway is connected to the Ethernet. Data traffic via the Ethernet interface. Data traffic with 100 mbps Data traffic with 10 mbps
ISDN-0 B/D upper line: lower line:	on on flashing	ISDN D channel is active. One ISDN B channel is active. Both ISDN B channels are active.
MA / HA upper line: lower line:	flashing on	BRRP packets are received. A user is logged in to the system, e.g. via telnet.

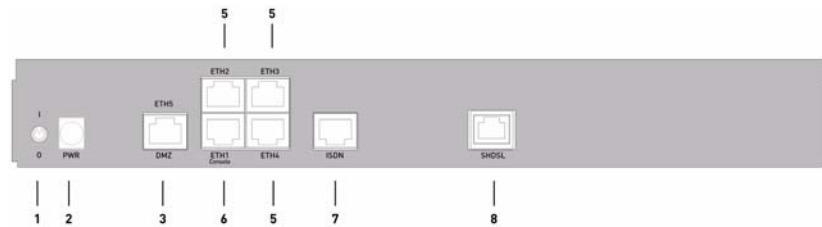
LED	Status	Information
SHDSL-2/1 upper line:	on	The wire pair 4-5 is synchronized with the DSLAM of the SHDSL-Provider.
	flashing	Data traffic via the SHDSL wire pair 4-5.
lower line:	on	The wire pair 7-8 is synchronized with the DSLAM of the SHDSL-Provider.
	flashing	Data traffic via the SHDSL wire pair 7-8.

Table 2-2: LED status display

2.4 Connections

All connections are located on the rear of the gateway. **bintec R3400** offers a 4-port Ethernet switch including a port with serial interface mode, a DMZ/ETH5 interface, an ISDN interface as well as an SHDSL interface.

The connections are arranged as follows:



1. I/O	Power Switch	5.	Ethernet interface ETH2- ETH4
2. PWR	Socket for power supply	6.	Ethernet interface with serial interface mode
3. DMZ/ETH5	Ethernet interface	7. ISDN	ISDN interface
		8. SHDSL	SHDSL interface

Figure 2-2: **bintec R3400** rear

2.5 Pin Assignments

2.5.1 Ethernet Interfaces

bintec R3400 offers an Ethernet interface with integrated 4-port switch (ETH1 - ETH4) and a separate Ethernet interface (DMZ/ETH5).

The 4-port switch can be used to connect single PCs as well as additional switches

The *ETH1/Console* interface can also be used as serial interface.

The DMZ/ETH5 interface can be used to connect an optional DSL modem or a DMZ.

An RJ45 socket is used for connecting:

1 8

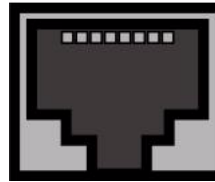


Figure 2-3: Ethernet 10/100Base-T interface (RJ45 socket)

The Ethernet sockets have the following pin assignment:

Pin	Function
1	TD +
2	TD -
3	RD +
4	Not used
5	Not used
6	RD -
7	Not used
8	Not used

Table 2-3: RJ45 socket for Ethernet connection

The combined Serial-Ethernet-sockets have the following pin assignment:

Pin	Function
1	TD + (Ethernet)
2	TD - (Ethernet)
3	RD + (Ethernet)
4	RX (Console)

Pin	Function
5	GND (Console)
6	RD - (Ethernet)
7	GND (Console)
8	TX (Console)

Table 2-4: RJ45 socket for Ethernet connection resp. serial interface (Console)

2.5.2 SHDSL Interface

The SHDSL interface is connected using a RJ45 socket. The supplied cable combines the RJ45 plug required for the SHDSL connection and the RJ45 plug required by the gateway.

Only the inner pins are used for the SHDSL connection:

1 8

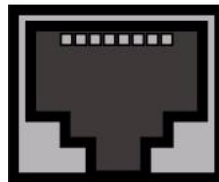


Figure 2-4: SHDSL interface (RJ45)

The SHDSL interface has the following pin assignment:

Pin	Function
1	not assigned
2	not assigned
3	not assigned
4	line a1
5	line b1

Pin	Function
6	not assigned
7	line a2
8	line b2

Table 2-5: SHDSL interface (RJ45 socket)

2.5.3 ISDN Basic Rate Interface

bintec R3400 provides an ISDN S_0 interface, which can be used, e.g., for backup purposes.

A RJ45 socket is used for connecting:

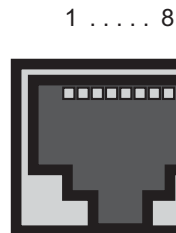


Figure 2-5: ISDN S_0 interface (RJ45 socket)

The ISDN interface (RJ45 socket) has the following pin assignment:

Pin	Function
1	Not used
2	Not used
3	Send (+)
4	Receive (+)
5	Receive (-)
6	Send (-)

Pin	Function
7	Not used
8	Not used

Table 2-6: RJ45 socket for ISDN connection

3 bintec R3800

3.1 Delivery size

Your gateway is supplied with the following parts:

- Cable sets/power supply:
 - Ethernet cable
 - ISDN cable
 - Serial cable
 - DSL cable
 - Power supply
- bintec Companion CD
- Documentation:
 - **Quick Install Guide** (printed)
 - **User's Guide** (on CD)
 - **Release Notes**, if required
 - Safety Instructions

3.2 General Product Features

The general product features cover performance features and the technical requirements for installation and operation of your gateway.

These features are outlined in the following table:

Feature	Data
Product name	bintec R3800

Feature	Data
Dimensions/weight (B x H x D): Dimensions without cables Weight Transport weight (incl. documentation, cabling, packaging)	295 mm x 160 mm x 41 mm 1250 g approx. 2,6 kg
Memory	32 MB SDRAM, 8 MB Flash-ROM
LEDs	18 (1x Power, 1x Status, 5x2 Ethernet, 4x2 Function)
Power consumption of equipment	max. 15 Watt, typ. 12 Watt
Voltage supply	15V AC 1A EU PSU
Ambient requirements: Storage temperature Ambient temperature Relative humidity Room classification	-20° to +70°C 0 to 40 °C 10 to 90% non-condensing in operation 5 to 95% non-condensing in storage Operate only in dry rooms.

Feature	Data
Available interfaces: SHDSL interface	Built-in SHDSL 8-wire modem for Annex A and Annex B Bonding technology with 2-/4-/6-/8-wire Can also be used as inverse multiplexer - with IMA according to ATM Forum
Ethernet IEEE 802.3 LAN (4 port switch) one port with serial interface mode	Built-in (twisted-pair only), 10/100 Mbps, auto sensing, MDIX; supports the following baud rates: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bauds
ISDN-WAN S0 DMZ/ETH5	Built-in Additional Ethernet switch port
Plugs used: Serial interface Ethernet interface ISDN interface ADSL interface	RJ45 RJ45 RJ45 RJ45
SAFERNET™ Security Technology	Community Passwords, PAP, CHAP, MS-CHAP, Access Control Lists, NAT, SIF
Software includes	BRICKware for Windows BRICKtools for Unix
Printed documentation included	Quick Install Guide
Documentation in PDF format	User's Guide BRICKware for Windows Software Reference

Table 3-1: General product features

3.3 LEDs

The LEDs on your **bintec R3800 Gateway** indicate the states and the activity of the gateway.

They are arranged as follows:

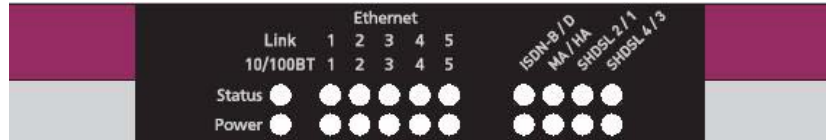


Figure 3-1: LEDs on **bintec R3800**

In operational mode the LEDs display the following status information:

LED	Status	Information
Power	off on	Power is off. Power is on.
Status	on flashing	Error. The gateway is active.
Ethernet 1 to 5 upper line: lower line:	on flashing on off	The gateway is connected to the Ethernet. Data traffic via the Ethernet interface. Data traffic with 100 mbps Data traffic with 10 mbps
ISDN-0 B/D upper line: lower line:	on on flashing	ISDN D channel is active. One ISDN B channel is active. Both ISDN B channels are active.
MA / HA upper line: lower line:	flashing on	BRRP packets are received. A user is logged in to the system, e.g. via telnet.

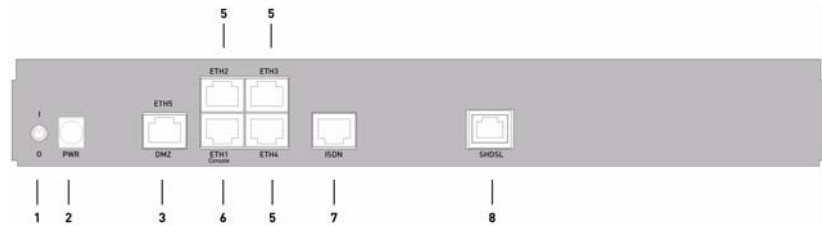
LED	Status	Information
SHDSL-2/1 upper line:	on	The wire pair 4-5 is synchronized with the DSLAM of the SHDSL-Provider.
	flashing	Data traffic via the SHDSL wire pair 4-5.
lower line:	on	The wire pair 7-8 is synchronized with the DSLAM of the SHDSL-Provider.
	flashing	Data traffic via the SHDSL wire pair 7-8.
SHDSL-4/3 upper line:	on	The wire pair 3-6 is synchronized with the DSLAM of the SHDSL-Provider.
	flashing	Data traffic via the SHDSL wire pair 3-6.
lower line:	on	The wire pair 1-2 is synchronized with the DSLAM of the SHDSL-Provider.
	flashing	Data traffic via the SHDSL wire pair 1-2.

Table 3-2: LED status display

3.4 Connections

All connections are located on the rear of the gateway. **bintec R3800** offers a 4-port Ethernet switch including a port with serial interface mode, a DMZ/ETH5 interface, an ISDN interface as well as an SHDSL interface.

The connections are arranged as follows:



1. I/O	Power Switch	5.	Ethernet interface ETH2 - ETH4
2. PWR	Socket for power supply	6.	Ethernet interface with serial interface mode
3. DMZ/ETH5	Ethernet interface	7. ISDN	ISDN interface
		8. SHDSL	SHDSL interface

Figure 3-2: **bintec R3800** rear

3.5 Pin Assignments

3.5.1 Ethernet Interface

bintec R3800 offers an Ethernet interface with integrated 4-port switch (ETH1 - ETH4) and a separate Ethernet interface (DMZ/ETH5).

The 4-port switch can be used to connect single PCs as well as additional switches

The *ETH1/Console* interface can also be used as serial interface.

The DMZ/ETH5 interface can be used to connect an optional DSL modem or a DMZ.

An RJ45 socket is used for connecting:

1 8

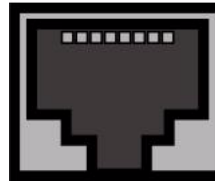


Figure 3-3: Ethernet 10/100Base-T interface (RJ45 socket)

The Ethernet sockets have the following pin assignment:

Pin	Function
1	TD +
2	TD -
3	RD +
4	Not used
5	Not used
6	RD -
7	Not used
8	Not used

Table 3-3: RJ45 socket for Ethernet connection

The combined Serial-Ethernet-sockets have the following pin assignment:

Pin	Function
1	TD + (Ethernet)
2	TD - (Ethernet)
3	RD + (Ethernet)
4	RX (Console)

Pin	Function
5	GND (Console)
6	RD - (Ethernet)
7	GND (Console)
8	TX (Console)

Table 3-4: RJ45 socket for Ethernet connection resp. serial interface (Console)

3.5.2 SHDSL Interface

The SHDSL interface is connected using a RJ45 socket. The supplied cable combines the RJ45 plug required for the SHDSL connection and the RJ45 plug required by the gateway.

Only the inner pins are used for the SHDSL connection:

1 8

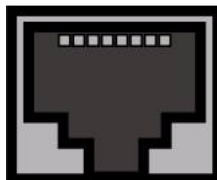


Figure 3-4: SHDSL interface (RJ45)

The SHDSL interface has the following pin assignment:

Pin	Function
1	line a4
2	line b4
3	line a3
4	line a1
5	line b1

Pin	Function
6	line b3
7	line a2
8	line b2

Table 3-5: SHDSL interface (RJ45 socket)

3.5.3 ISDN Basic Rate Interface

bintec R3800 provides an ISDN S_0 interface, which can be used, e.g., for backup purposes.

A RJ45 socket is used for connecting:

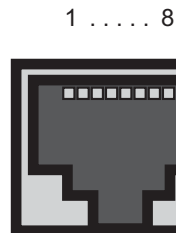


Figure 3-5: ISDN S_0 interface (RJ45 socket)

The ISDN interface (RJ45 socket) has the following pin assignment:

Pin	Function
1	Not used
2	Not used
3	Send (+)
4	Receive (+)
5	Receive (-)
6	Send (-)

Pin	Function
7	Not used
8	Not used

Table 3-6: RJ45 socket for ISDN connection