User's Guide

bintec R1200 / R1200w(u) / R3000 / R3000w / R3400 / R3800(wu)

Technical Data

Version 3.0

Purpose

This document is part of the user's guide to the installation and configuration of bintec gateways running software release 7.4.10 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 Enterprise Communications GmbH

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1.1 Delivery size

Your gateway is supplied with the following parts:

- Cable sets/power supply:
  - Ethernet cable
  - ISDN cable
  - Serial cable
  - Power supply
- Funkwerk 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 R1200**

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 approx. 1260 g approx. 2.6 kg
Memory	32 MB SDRAM, 8 MB Flash-ROM
LEDs	18 (1x Power, 1x Status, 5x2 Ethernet, 3x2 Function)
Power consumption of equipment	max. 15 Watt, typ. 13 Watt
Voltage supply	15V AC 1.3A 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.
Available interfaces: Ethernet IEEE 802.3 LAN (4 port switch) one port with serial interface mode ISDN-WAN S0 (2) DMZ/ETH5	 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 Built-in Additional Ethernet switch port

Feature	Data
Plugs used: Serial interface Ethernet interface ISDN interface	 RJ45 RJ45 RJ45
SAFERNET™ Security Technology	Community Passwords, PAP, CHAP, MS-CHAP, MS-CHAP v.2, PPTP, PPPoE, PPPoA, Callback, Access Control Lists, CLID, NAT, SIF, MPPE Encryption, PPTP Encryption, VPN with PPTP or IPSec
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

1.3 LEDs

The LEDs on your bintec R1200 Gateway indicate the states and the activity of the gateway.

They are arranged as follows:

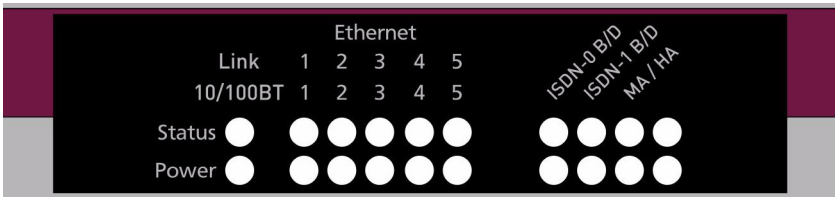


Figure 1-1: LEDs on **bintec R1200**

In operational mode the LEDs display the following status information:

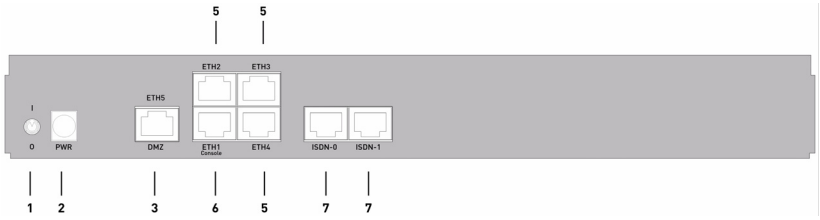
LED	Status	Information
Power	off on	Power is off. Power is on.
Status	perma-nently on or off flashing	Error. The gateway is active.
Ethernet 1 to 5 upper line: lower line:	 on flashing on off	 The gateway is connected to the Ethernet. Data traffic via the Ethernet interface. Data traffic with 100 mbps 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.
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.
MA / HA upper line: lower line:	 flashing on	 BRRP packets are received. A user is logged in to the system, e.g. via telnet.

Table 1-2: LED status display

1.4 Connections

All connections are located on the rear of the gateway. bintec R1200 offers a 4-port Ethernet switch including a port with serial interface mode, a DMZ/ETH5 interface, two ISDN interfaces.

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

Figure 1-2: **bintec R1200** rear

1.5 Pin Assignments

1.5.1 Ethernet Interfaces

bintec R1200 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:

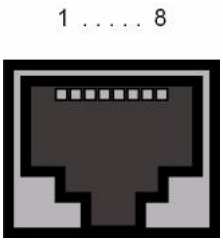


Figure 1-3: Ethernet 10/100Base-T interface (RJ45 socket)

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 Ethernet sockets are not equipped with Auto-MDIX technology.

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

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

The combined Serial-Ethernet-sockets are not equipped with Auto-MDIX technology.

1.5.2 ISDN Basic Rate Interface

bintec R1200 provides an ISDN S_0 interface, which can be used, e.g., for backup purposes.

A RJ45 socket is used for connecting:

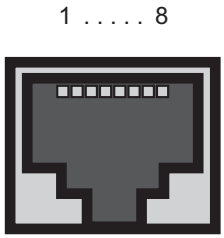


Figure 1-4: ISDN S_0 interface (RJ45 socket)

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 (-)
7	Not used
8	Not used

Table 1-5: RJ45 socket for ISDN connection

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2.1 Delivery size

Your gateway is supplied with the following parts:

- Cable sets/power supply:
  - Ethernet cable
  - ISDN cable
  - Serial cable
  - Power supply
- Antennas:
  - two standard antennas
- Funkwerk 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 R1200w**

Feature	Data
Dimensions/weight (B x H x D): Dimensions without cables Weight Transport weight (incl. documentation, cabling, packaging)	 295 mm x 160 mm + 8mm (antenna connections) x 41 mm approx. 1260 g approx. 2.6 kg
Memory	32 MB SDRAM, 8 MB Flash-ROM
LEDs	20 (1x Power, 1x Status, 5x2 Ethernet, 4x2 Function)
Power consumption of equipment	max. 15 Watt, typ. 13 Watt
Voltage supply	15V AC 1.3A 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.
Available interfaces: Ethernet IEEE 802.3 LAN (4 port switch) one port with serial interface mode ISDN-WAN S0 (2) DMZ/ETH5 WLAN interface (antennas)	 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 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

Feature	Data
Plugs used: Serial interface Ethernet interface ISDN interface	 RJ45 RJ45 RJ45
SAFERNET^{TM} Security Technology	Community Passwords, PAP, CHAP, MS-CHAP, MS-CHAP v.2, PPTP, PPPoE, PPPoA, Callback, Access Control Lists, CLID, NAT, SIF, MPPE Encryption, PPTP Encryption, VPN with PPTP or IPSec
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

Note

Antenna Diversity

The two antennas do not have equal funtion. The one named "Main", "Primary" or "1" (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.

2.3 LEDs

The LEDs on your bintec R1200w Gateway indicate the states and the activity of the gateway.

They are arranged as follows:

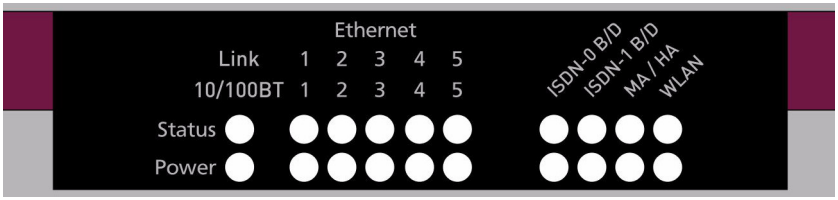


Figure 2-1: LEDs on **bintec R1200w**

In operational mode the LEDs display the following status information:

LED	Status	Information
Power	off on	Power is off. Power is on.
Status	perma-nently on or off 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.
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.

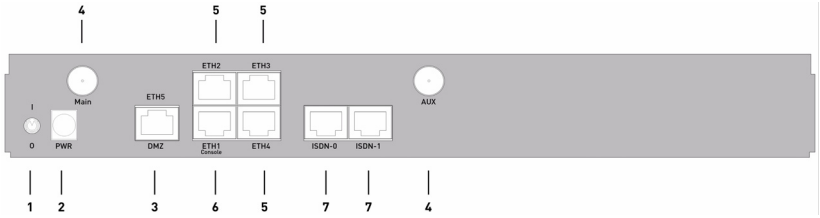
LED	Status	Information
MA / HA upper line: lower line:	 flashing on	 BRRP packets are received. A user is logged in to the system, e.g. via telnet.
WLAN upper line: lower line:	 flashing flashing slowly on	 Data traffic via the WLAN interface. The WLAN module is active. At least one WLAN client is connected.

Table 2-2: LED status display

2.4 Connections

All connections are located on the rear of the gateway. bintec R1200w offers a 4-port Ethernet switch including a port with serial interface mode, a DMZ/ETH5 interface, two ISDN interfaces.

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		

Figure 2-2: **bintec R1200w** rear

2.5 Pin Assignments

2.5.1 Ethernet Interfaces

bintec R1200w 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:

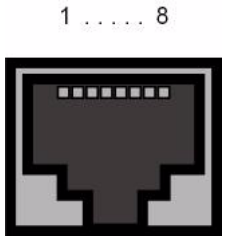


Figure 2-3: Ethernet 10/100Base-T interface (RJ45 socket)

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 Ethernet sockets are not equipped with Auto-MDIX technology.

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

The combined Serial-Ethernet-sockets are not equipped with Auto-MDIX technology.

2.5.2 ISDN Basic Rate Interface

bintec R1200w provides an ISDN S_0 interface, which can be used, e.g., for backup purposes.

A RJ45 socket is used for connecting:

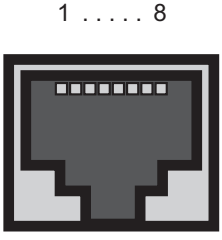


Figure 2-4: ISDN S_0 interface (RJ45 socket)

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

Pin	Function
1	Not used
2	Not used

Pin	Function
3	Send (+)
4	Receive (+)
5	Receive (-)
6	Send (-)
7	Not used
8	Not used

Table 2-5: RJ45 socket for ISDN connection

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3.1 Delivery size

Your gateway is supplied with the following parts:

- Cable sets/power supply:
  - Ethernet cable
  - ISDN cable
  - Serial cable
  - Power supply
- Antennas:
  - two standard antennas
- Funkwerk 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 R1200wu**

Feature	Data
Dimensions/weight (B x H x D):	
Dimensions without cables	295 mm x 160 mm + 8mm (antenna connections) x 41 mm
Weight	approx. 1200 g
Transport weight (incl. documentation, antennas, cabling, packaging)	approx. 2.6 kg
Memory	32 MB SDRAM, 8 MB Flash-ROM
LEDs	20 (1x Power, 1x Status, 5x2 Ethernet, 4x2 Function)
Power consumption of equipment	max. 15 Watt, typ. 13 Watt
Voltage supply	15V AC 1.3A 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:	
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 (2)	Built-in
DMZ/ETH5	Additional Ethernet switch port
WLAN interface (antennas)	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
CardBus interface (PCMCIA)	Interface for integration of an UMTS modem card
Plugs used:	
Serial interface	RJ45
Ethernet interface	RJ45
ISDN interface	RJ45
CardBus interface	68-pin PCMCIA plug
SAFERNET™ Security Technology	Community Passwords, PAP, CHAP, MS-CHAP, MS-CHAP v.2, PPTP, PPPoE, PPPoA, Callback, Access Control Lists, CLID, NAT, SIF, MPPE Encryption, PPTP Encryption, VPN with PPTP or IPSec
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

Note

Antenna Diversity

The two antennas do not have equal funtion. The one named "Main", "Primary" or "1" (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.

3.3 LEDs

The LEDs on your bintec R1200wu Gateway indicate the states and the activity of the gateway.

They are arranged as follows:

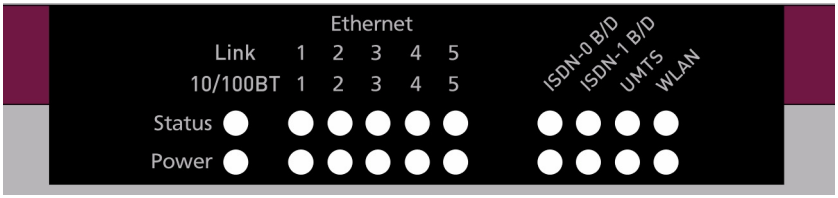


Figure 3-1: LEDs on **bintec R1200wu**

In operational mode the LEDs display the following status information:

LED	Status	Information
Power	off on	Power is off. Power is on.
Status	perma-nently on or off flashing	Error. The gateway is active.

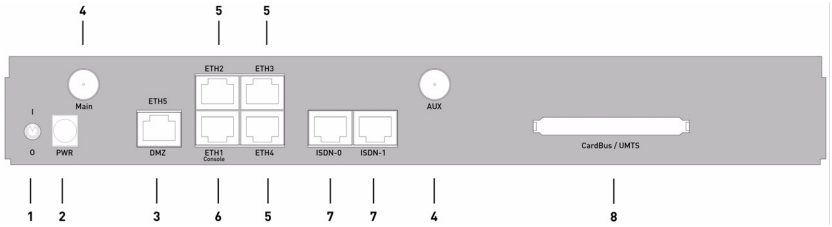
LED	Status	Information
Ethernet 1 to 5		
upper line:	on	The gateway is connected to the Ethernet.
	flashing	Data traffic via the Ethernet interface.
lower line:	on	Data traffic with 100 mbps
	off	Data traffic with 10 mbps
ISDN-0 B/D		
upper line:	on	ISDN D channel is active.
lower line:	on	One ISDN B channel is active.
	flashing	Both ISDN B channels are active.
ISDN-1 B/D		
upper line:	on	ISDN D channel is active.
lower line:	on	One ISDN B channel is active.
	flashing	Both ISDN B channels are active.
UMTS		
upper line:	on	UMTS connected.
lower line:	flashing	Data traffic via UMTS.
WLAN		
upper line:	flashing	Data traffic via the WLAN interface.
lower line:	flashing slowly	The WLAN module is active.
	on	At least one WLAN client is connected.

Table 3-2: LED status display

3.4 Connections

All connections are located on the rear of the gateway. bintec R1200wu offers a 4-port Ethernet switch including a port with serial interface mode, a DMZ/ETH5 interface, two ISDN interfaces as well as a CardBus slot for integration of an UMTS modem.

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. CardBus	CardBus slot for UMTS modem

Figure 3-2: **bintec R1200wu** rear

3.5 Pin Assignments

3.5.1 Ethernet Interfaces

bintec R1200wu 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:

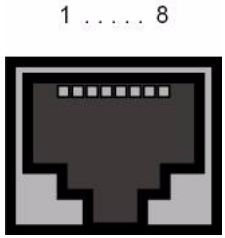


Figure 3-3: Ethernet 10/100Base-T interface (RJ45 socket)

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 Ethernet sockets are not equipped with Auto-MDIX technology.

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

Pin	Function
1	TD + (Ethernet)

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

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

The combined Serial-Ethernet-sockets are not equipped with Auto-MDIX technology.

3.5.2 ISDN Basic Rate Interface

bintec R1200wu provides an ISDN S_0 interface, which can be used, e.g., for backup purposes.

A RJ45 socket is used for connecting:

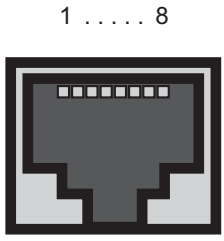


Figure 3-4: ISDN S_0 interface (RJ45 socket)

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 (-)
7	Not used
8	Not used

Table 3-5: RJ45 socket for ISDN connection

3.5.3 CardBus Interface (PCMCIA)

The CardBus interface enables you to integrate an UMTS CardBus modem into the system.

If the hot-pluggable modem card is inserted into the provided CardBus slot, the system will integrate the card automatically.

If the card is not integrated automatically, the system does not support this specific card. For more information please contact our support center.

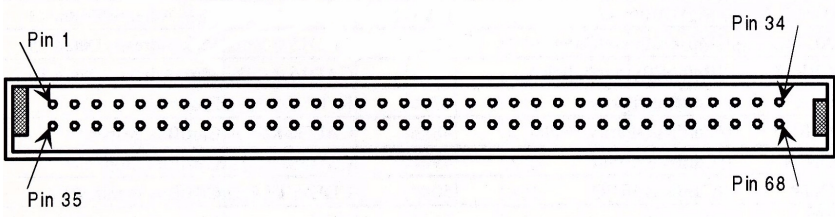


Figure 3-5: 68-Pin CardBus slot for UMTS modem card

The CardBus slot has the following pin assignment:

Pin	Function	Description
1	GND	Ground
2	CAD0	Address/data bit 0
3	CAD1	Address/data bit 1
4	CAD3	Address/data bit 3
5	CAD5	Address/data bit 5
6	CAD7	Address/data bit 7
7	CCBE0#	Command/Byte Enable 0
8	CAD9	Address/data bit 9
9	CAD11	Address/data bit 11
10	CAD12	Address/data bit 12
11	CAD14	Address/data bit 14
12	CCBE1#	Command/Byte Enable 1
13	CPAR	CardBus Parity
14	CPERR#	CardBus Parity Error
15	CGNT#	CardBus Grant
16	CINT#	CardBus IREQ
17	VCC	Card Voltage Supply
18	VPP1	Programming Voltage 1
19	CCLK	CardBus Clock
20	CIRDY#	CardBus Initiator Ready
21	CCBE2#	Command/Byte Enable 2
22	CAD18	Address/data bit 18
23	CAD20	Address/data bit 20
24	CAD21	Address/data bit 21

Pin	Function	Description
25	CAD22	Address/data bit 22
26	CAD23	Address/data bit 23
27	CAD24	Address/data bit 24
28	CAD25	Address/data bit 25
29	CAD26	Address/data bit 26
30	CAD27	Address/data bit 27
31	CAD29	Address/data bit 29
32	RFU	Reserved
33	CCLKRUN#	CardBus Clock Start
34	GND	Ground
35	GND	Ground
36	CCD1#	Card Detect 1
37	CAD2	Address/data bit 2
38	CAD4	Address/data bit 4
39	CAD6	Address/data bit 6
40	RFU	Reserved
41	CAD8	Address/data bit 8
42	CAD10	Address/data bit 10
43	CVS1	Voltage Detection 1
44	CAD13	Address/data bit 13
45	CAD15	Address/data bit 15
46	CAD16	Address/data bit 16
47	RFU	Reserved
48	CBLOCK#	CardBus blocked
49	CSTOP#	CardBus Stop

Pin	Function	Description
50	CDEVSEL#	CardBus Device Select
51	VCC	Card Voltage Supply
52	VPP2	Programming Voltage 2
53	CTRDY#	CardBus Target Ready
54	CFRAME#	CardBus Cycle Frame
55	CAD17	Address/data bit 17
56	CAD19	Address/data bit 19
57	CVS2	Voltage Detection 2
58	CRST#	CardBus Reset
59	CSERR#	CardBus System Reset
60	CREQ#	CardBus Request
61	CCBE3#	Command/Byte Enable 3
62	CAUDIO	CardBus Audio
63	CSTSCHG	CardBus Status Change
64	CAD28	Address/data bit 28
65	CAD30	Address/data bit 30
66	CAD31	Address/data bit 31
67	CCD2#	Card Detection 2
68	GND	Ground

Table 3-6: CardBus slot pin assignment

4 bintec R3000

4.1 Delivery size

Your gateway is supplied with the following parts:

- Cable sets/power supply:
  - Ethernet cable
  - ISDN cable
  - Serial cable
  - 2 DSL cables (one for Annex A, one for Annex B)
  - Power supply
- Funkwerk Companion CD
- Documentation:
  - **Quick Install Guide** (printed)
  - **User's Guide** (on CD)
  - **Release Notes**, if required
  - Safety Instructions

4.2 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 R3000**

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 approx. 1260 g approx. 2.6 kg
Memory	32 MB SDRAM, 8 MB Flash-ROM
LEDs	18 (1x Power, 1x Status, 5x2 Ethernet, 3x2 Function)
Power consumption of equipment	max. 15 Watt, typ. 13 Watt
Voltage supply	15V AC 1.3A 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.
Available interfaces: ADSL interface Ethernet IEEE 802.3 LAN (4 port switch) one port with serial interface mode ISDN-WAN S0 (2) DMZ/ETH5	 Built-in ADSL modem for Annex A and Annex B 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 Built-in Additional Ethernet switch port

Feature	Data
Plugs used: Serial interface Ethernet interface ISDN interface ADSL interface	 RJ45 RJ45 RJ45 RJ45
SAFERNET™ Security Technology	Community Passwords, PAP, CHAP, MS-CHAP, MS-CHAP v.2, PPTP, PPPoE, PPPoA, Callback, Access Control Lists, CLID, NAT, SIF, MPPE Encryption, PPTP Encryption, VPN with PPTP or IPSec
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 4-1: General product features

4.3 LEDs

The LEDs on your bintec R3000 Gateway indicate the states and the activity of the gateway.

They are arranged as follows:

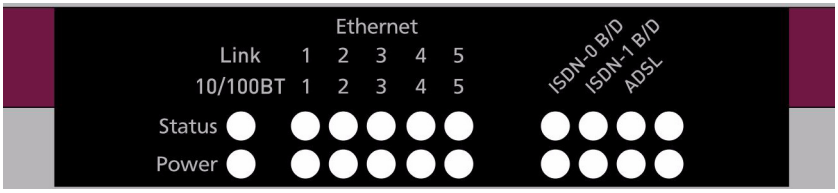


Figure 4-1: LEDs on **bintec R3000**

In operational mode the LEDs display the following status information:

LED	Status	Information
Power	off on	Power is off. Power is on.
Status	perma-nently on or off 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.
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.

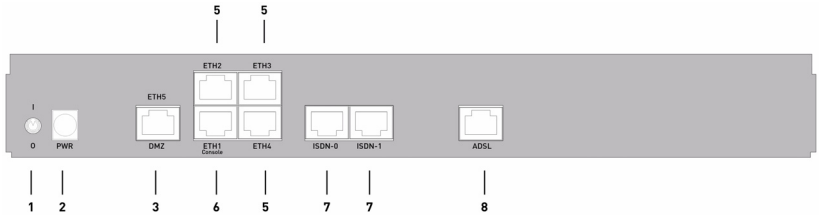
LED	Status	Information
ADSL		
upper line:	flashing	Data traffic via the ADSL interface.
lower line:	flashing	The gateway synchronizes with the ADSL provider's DSLAM.
	on	The gateway has sucessfully synchronized with the ADSL provider's DSLAM.
both lines:	flashing synchro-nously	System error (ADSL)

Table 4-2: LED status display

4.4 Connections

All connections are located on the rear of the gateway. bintec R3000 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
		8. ADSL	ADSL interface

Figure 4-2: **bintec R3000** rear

4.5 Pin Assignments

4.5.1 Ethernet Interfaces

bintec R3000 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:

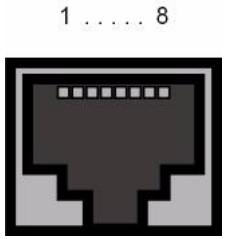


Figure 4-3: Ethernet 10/100Base-T interface (RJ45 socket)

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 4-3: RJ45 socket for Ethernet connection

The Ethernet sockets are not equipped with Auto-MDIX technology.

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

The combined Serial-Ethernet-sockets are not equipped with Auto-MDIX technology.

4.5.2 ADSL Interface

The ADSL interface is connected using a RJ45 socket. The one supplied cable combines the RJ11 plug required by Annex A and the RJ45 plug required by the gateway. The other supplied cable combines the RJ45 plug required by Annex B and the RJ45 plug.

Only the inner pins are used for the ADSL connection:

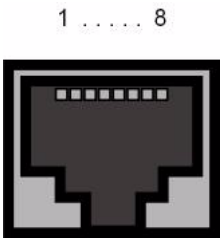


Figure 4-4: ADSL interface (RJ45)

The ADSL interface has the following pin assignment:

Pin	Function
1	not assigned

Pin	Function
2	not assigned
3	not assigned
4	line a
5	line b
6	not assigned
7	not assigned
8	not assigned

Table 4-5: ADSL interface (RJ45 socket)

4.5.3 ISDN Basic Rate Interface

bintec R3000 provides an ISDN S_0 interface, which can be used, e.g., for backup purposes.

A RJ45 socket is used for connecting:

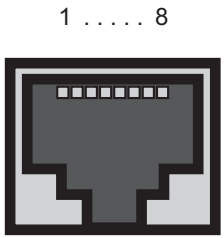


Figure 4-5: ISDN S_0 interface (RJ45 socket)

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

Pin	Function
1	Not used
2	Not used

Pin	Function
3	Send (+)
4	Receive (+)
5	Receive (-)
6	Send (-)
7	Not used
8	Not used

Table 4-6: RJ45 socket for ISDN connection

5 bintec R3000w

5.1 Delivery size

Your gateway is supplied with the following parts:

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

5.2 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	approx. 1260 g
Transport weight (incl. documentation, cabling, packaging)	approx. 2.6 kg
Memory	32 MB SDRAM, 8 MB Flash-ROM
LEDs	20 (1x Power, 1x Status, 5x2 Ethernet, 4x2 Function)
Power consumption of equipment	max. 15 Watt, typ. 13 Watt
Voltage supply	15V AC 1.3A 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	Built-in
DMZ/ETH5	Additional Ethernet switch port
WLAN interface (antennas)	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, MS-CHAP v.2, PPTP, PPPoE, PPPoA, Callback, Access Control Lists, CLID, NAT, SIF, MPPE Encryption, PPTP Encryption, VPN with PPTP or IPSec
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 5-1: General product features

Note

Antenna Diversity

The two antennas do not have equal funtion. 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.

5.3 LEDs

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

They are arranged as follows:

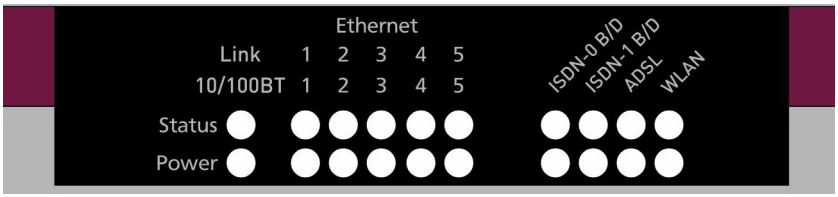


Figure 5-1: LEDs on **bintec R3000w**

In operational mode the LEDs display the following status information:

LED	Status	Information
Power	off on	Power is off. Power is on.
Status	perma-nently on or off flashing	Error. The gateway is active.

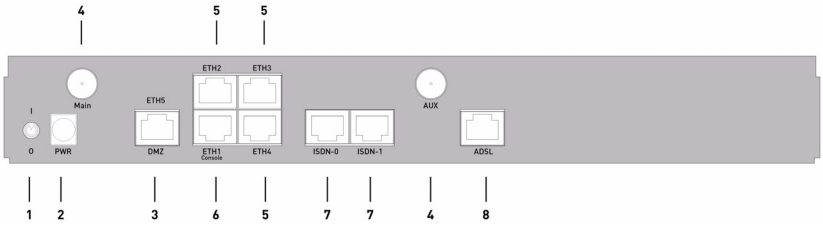
LED	Status	Information
Ethernet 1 to 5		
upper line:	on	The gateway is connected to the Ethernet.
	flashing	Data traffic via the Ethernet interface.
lower line:	on	Data traffic with 100 mbps
	off	Data traffic with 10 mbps
ISDN-0 B/D		
upper line:	on	ISDN D channel is active.
lower line:	on	One ISDN B channel is active.
	flashing	Both ISDN B channels are active.
ISDN-1 B/D		
upper line:	on	ISDN D channel is active.
lower line:	on	One ISDN B channel is active.
	flashing	Both ISDN B channels are active.
ADSL		
upper line:	flashing	Data traffic via the ADSL interface.
lower line:	flashing	The gateway synchronizes with the ADSL provider's DSLAM.
	on	The gateway has sucessfully synchronized with the ADSL provider's DSLAM.
both lines:	flashing synchro-nously	System error (ADSL)
WLAN		
upper line:	flashing	Data traffic via the WLAN interface.
lower line:	flashing slowly	The WLAN module is active.
	on	At least one WLAN client is connected.

Table 5-2: LED status display

5.4 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 5-2: **bintec R3000w** rear

5.5 Pin Assignments

5.5.1 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:

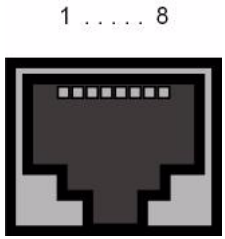


Figure 5-3: Ethernet 10/100Base-T interface (RJ45 socket)

The Ethernet sockets have the following pin assignment:

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

Pin	Function
7	Not used
8	Not used

Table 5-3: RJ45 socket for Ethernet connection

The Ethernet sockets are not equipped with Auto-MDIX technology.

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

Pin	Function
1	TD + (Ethernet)
2	TD - (Ethernet)
3	RD + (Ethernet)
4	RX (Console)
5	GND (Console)
6	RD - (Ethernet)
7	GND (Console)
8	TX (Console)

Table 5-4: RJ45 socket for Ethernet connection resp. serial interface (Console)

The combined Serial-Ethernet-sockets are not equipped with Auto-MDIX technology.

5.5.2 ADSL Interface

The ADSL interface is connected using a RJ45 socket. The one supplied cable combines the RJ11 plug required by Annex A and the RJ45 plug required by the gateway. The other supplied cable combines the RJ45 plug required by Annex B and the RJ45 plug.

Only the inner pins are used for the ADSL connection:

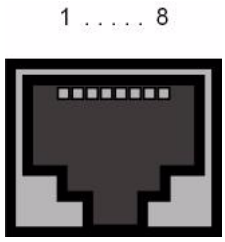


Figure 5-4: ADSL interface (RJ45)

The ADSL interface has the following pin assignment:

Pin	Function
1	not assigned
2	not assigned
3	not assigned
4	line a
5	line b
6	not assigned
7	not assigned
8	not assigned

Table 5-5: ADSL interface (RJ45 socket)

5.5.3 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:

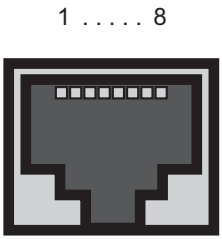


Figure 5-5: ISDN S_0 interface (RJ45 socket)

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 (-)
7	Not used
8	Not used

Table 5-6: RJ45 socket for ISDN connection

6 bintec R3400

6.1 Delivery size

Your gateway is supplied with the following parts:

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

6.2 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 approx. 1260 g approx. 2,6 kg
Memory	32 MB SDRAM, 8 MB Flash-ROM
LEDs	18 (1x Power, 1x Status, 5x2 Ethernet, 3x2 Function)
Power consumption of equipment	max. 15 Watt, typ. 10 Watt
Voltage supply	15V AC 1.3A 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	Built-in
DMZ/ETH5	Additional Ethernet switch port
Plugs used:	
Serial interface	RJ45
Ethernet interface	RJ45
ISDN interface	RJ45
SHDSL interface	RJ45
SAFERNET^{TM} 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 6-1: General product features

6.3 LEDs

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

They are arranged as follows:

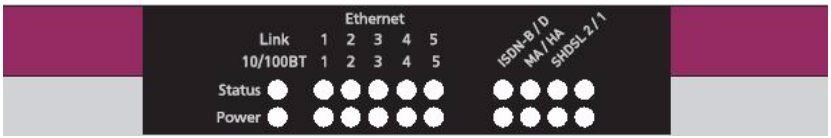


Figure 6-1: LEDs on **bintec R3400**

In operational mode the LEDs display the following status information:

LED	Status	Information
Power	off on	Power is off. Power is on.
Status	perma-nently on or off 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.

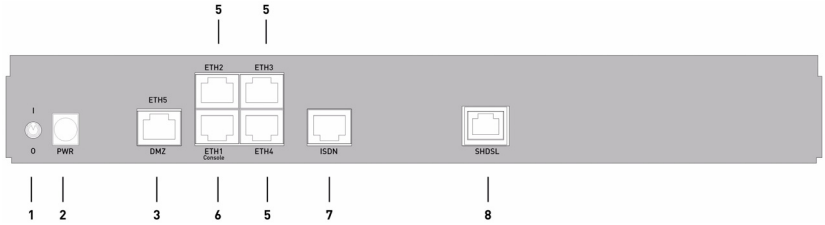
LED	Status	Information
MA / HA		
upper line:	flashing	BRRP packets are received.
lower line:	on	A user is logged in to the system, e.g. via telnet.
SHDSL-2/1		
upper line:	on	The wire pair 4-5 is synchronized with the DSLAM of the SHDSL-Provider.
	flashing	Data traffic via the SHDSL wire pair 4-5.
lower 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 6-2: LED status display

6.4 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. 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	ISDN interface
		8. SHDSL	SHDSL interface

Figure 6-2: **bintec R3400** rear

6.5 Pin Assignments

6.5.1 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:

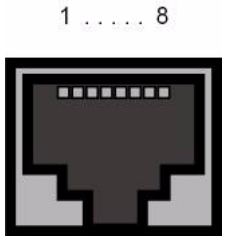


Figure 6-3: Ethernet 10/100Base-T interface (RJ45 socket)

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 6-3: RJ45 socket for Ethernet connection

The Ethernet sockets are not equipped with Auto-MDIX technology.

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 6-4: RJ45 socket for Ethernet connection resp. serial interface (Console)

The combined Serial-Ethernet-sockets are not equipped with Auto-MDIX technology.

6.5.2 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:

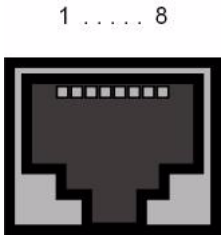


Figure 6-4: SHDSL interface (RJ45)

The SHDSL interface has the following pin assignment:

Pin	Function
1	not assigned
2	not assigned

Pin	Function
3	not assigned
4	line a1
5	line b1
6	not assigned
7	line a2
8	line b2

Table 6-5: SHDSL interface (RJ45 socket)

6.5.3 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:

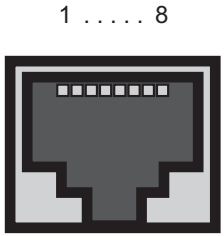


Figure 6-5: ISDN S_0 interface (RJ45 socket)

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

Pin	Function
1	Not used
2	Not used
3	Send (+)

Pin	Function
4	Receive (+)
5	Receive (-)
6	Send (-)
7	Not used
8	Not used

Table 6-6: RJ45 socket for ISDN connection

7 bintec R3800

7.1 Delivery size

Your gateway is supplied with the following parts:

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

7.2 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 approx. 1260 g approx. 2,6 kg
Memory	32 MB SDRAM, 8 MB Flash-ROM
LEDs	20 (1x Power, 1x Status, 5x2 Ethernet, 4x2 Function)
Power consumption of equipment	max. 15 Watt, typ. 12 Watt
Voltage supply	15V AC 1.3A 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	Built-in
DMZ/ETH5	Additional Ethernet switch port
Plugs used:	
Serial interface	RJ45
Ethernet interface	RJ45
ISDN interface	RJ45
SHDS interface	RJ45
SAFERNET^{TM} 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 7-1: General product features

7.3 LEDs

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

They are arranged as follows:

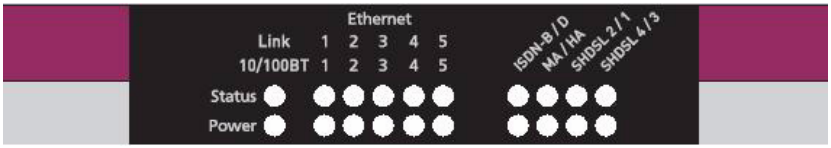


Figure 7-1: LEDs on **bintec R3800**

In operational mode the LEDs display the following status information:

LED	Status	Information
Power	off	Power is off.
	on	Power is on.
Status	permanently on or off	Error.
	flashing	The gateway is active.
Ethernet 1 to 5		
upper line:	on	The gateway is connected to the Ethernet.
	flashing	Data traffic via the Ethernet interface.
lower line:	on	Data traffic with 100 mbps
	off	Data traffic with 10 mbps
ISDN-0 B/D		
upper line:	on	ISDN D channel is active.
lower line:	on	One ISDN B channel is active.
	flashing	Both ISDN B channels are active.

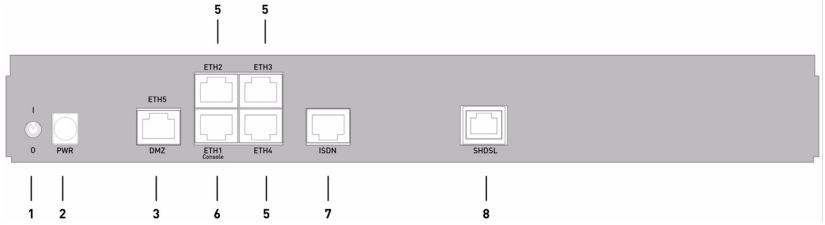
LED	Status	Information
MA / HA		
upper line:	flashing	BRRP packets are received.
lower line:	on	A user is logged in to the system, e.g. via telnet.
SHDSL-2/1		
upper line:	on	The wire pair 4-5 is synchronized with the DSLAM of the SHDSL-Provider.
	flashing	Data traffic via the SHDSL wire pair 4-5.
lower 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 7-2: LED status display

7.4 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. 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	ISDN interface
		8. SHDSL	SHDSL interface

Figure 7-2: **bintec R3800** rear

7.5 Pin Assignments

7.5.1 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:

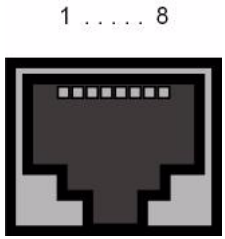


Figure 7-3: Ethernet 10/100Base-T interface (RJ45 socket)

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 7-3: RJ45 socket for Ethernet connection

The Ethernet sockets are not equipped with Auto-MDIX technology.

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 7-4: RJ45 socket for Ethernet connection resp. serial interface (Console)

The combined Serial-Ethernet-sockets are not equipped with Auto-MDIX technology.

7.5.2 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:

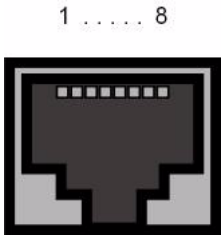


Figure 7-4: SHDSL interface (RJ45)

The SHDSL interface has the following pin assignment:

Pin	Function
1	line a4
2	line b4

Pin	Function
3	line a3
4	line a1
5	line b1
6	line b3
7	line a2
8	line b2

Table 7-5: SHDSL interface (RJ45 socket)

7.5.3 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:

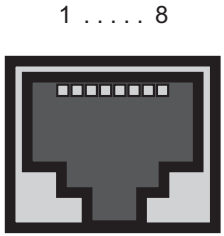


Figure 7-5: ISDN S_0 interface (RJ45 socket)

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

Pin	Function
1	Not used
2	Not used
3	Send (+)

Pin	Function
4	Receive (+)
5	Receive (-)
6	Send (-)
7	Not used
8	Not used

Table 7-6: RJ45 socket for ISDN connection