

User's Guide
bintec R1200 / R1200w(u) / R3000 / R3000w / R3400 / R3800(wu)
SHDSL

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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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.

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1 SHDSL Menu

The fields of the *SHDSL* menu are described below.

In the *SHDSL* menu you configure the ►► **SHDSL** interface of your gateway.

R3400 and **R3800** and **R3800wu** are equipped with an integrated SHDSL modem and support ITU-T Recommendation ►► **G.991.2**. According to device type and configuration the gateway transmits the data over one pair of wires at up to 2312 kbps, over two pair of wires at up to 4624 kbps, over three pairs of wires at up to 6936 kbps or over four pairs of wires at up to 9248 kbps.



Note

Ask your provider about any special features of your SHDSL connection that need to be considered.



Note

For back to back connections (campus connect) arrange configuraton details with your remote partner.

R3800 The *SHDSL* menu of **R3800** and **R3800wu** displays the list of all SHDSL interfaces (*fcca-3-x*) which can be used for ATM connections (to the provider for SHDSL connections or leased lines).

R3800 Setup Tool		Funkwerk Enterprise Communications GmbH			
[SHDSL 8-WIRE]: Units		MyGateway			
ATM interface	Wire Pairs	Annex	Mode	Status	
fcca-3-0	4-5	ANNEX B	CO	down	
fcca-3-1	7-8	not configured			
fcca-3-2	3-6	ANNEX B	CO	up	
fcca-3-3	1-2	not configured			
EXIT					

The SHDSL interfaces can be configured separately or in a bundle.

Tag the respective list item for the interface to configure and press **Enter**.

Four SHDSL interfaces are predefined. One wire pair is assigned to each interface per default. If you apply bonding, the wire pairs of one SHDSL interface must be assigned to the required one. The pin assignment of the SHDSL connection sockets is described in the **bintec User's Guide** chapter **Technical Data**.

R3400 As R3400 only has one SHDSL interface (*fcca-3-0*) which is used for an ATM connection, this interface's configuration menu is displayed here.

Bonding Your gateway offers the possibility to apply the bonding technology to bundle wire pairs.

For **R3800** and **R3800wu** you can combine the four wire pairs into combinations of four, six, or eight wires (please see provider data and leased line specification). This results in a varying number of the displayed SHDSL interfaces.

For **R3400** you can add two further wires to the preconfigured two wires used per default for the SHDSL connection.

m-pair bonding For m-pair bonding the pieces of data are distributed per byte on the wire pairs of a bundle (see ITU-T recommendation **G.991.2**).

IMA bonding Using IMA bonding, data are distributed via the wire pairs per cell (see Inverse Multiplexing over ATM, according to **AF-PHY-0086.001** of the ATM Forum).

The **SHDSL** resp. **SHDSL** → **<INTERFACE>** → **EDIT** menu opens as follows:

R3800 Setup Tool	Funkwerk Enterprise Communications GmbH
[SHDSL 8-WIRE] [FCCA-3-0 PIN 4-5]: SHDSL settings	MyGateway
Physical Connection:	not established
Equipment Type:	Customer Premise (CPE)
Operating Mode:	region 2 (Annex B)
Wire Mode:	2 wire
Clock Rate Mode:	adaptive
Minimum Rate (kbit/s):	192
Maximum Rate (kbit/s):	2312
SAVE	CANCEL

The **SHDSL** resp. **SHDSL** → **<INTERFACE>** → **EDIT** menu consists of the following fields:

Feld	Wert
Physical Connection	Shows the status of the SHDSL connection and cannot be edited. Possible values: <ul style="list-style-type: none"> ■ <i>established</i>: SHDSL connection has been set up. ■ <i>not established</i>: SHDSL connection has not been set up.

Feld	Wert
Actual Line Speed	<p>Only if <i>established</i> is indicated for PHYSICAL CONNECTION.</p> <p>Shows the negotiated transmission speed of the connection in bps. The value cannot be edited.</p>
Equipment Type	<p>Defines the role in the connection.</p> <p>Possible values:</p> <ul style="list-style-type: none"> ■ <i>Customer Premises (CPE)</i>: Mode for the customer side of the SHDSL connection (default value). ■ <i>Central Office (CO)</i>: Mode for the provider side of the SHDSL connection. <p>(A SHDSL connection requires CPE at one side and CO at the other side.)</p>
Operating Mode	<p>Defines which annex of ITU-T Recommendation G.992.1 is used for the connection.</p> <p>Possible values:</p> <ul style="list-style-type: none"> ■ <i>region 1 (Annex A)</i>: For applications in North America, for example (provider-dependent). ■ <i>region 2 (Annex B)</i>: Default value. For applications in Europe, for example (provider-dependent).

Feld	Wert
Wire Mode	<p>Defines number and combination of wires (depends on type of device), which are to be used for the SHDSL connection.</p> <p>Possible values:</p> <ul style="list-style-type: none">■ <i>2 wire</i> (default value): 2 wires are used for m-pair bonding with a data transfer rate of 192 to 2312 kBit/s.■ <i>4 wire</i>: 4 wires are used for m-pair bonding with a data transfer rate of 384 to 4624 kBit/s. This option supports the 4 wire mode according to G991.2 and the Globe-span Enhanced Mode.

Feld	Wert
Wire Mode (cont.)	<ul style="list-style-type: none"> <li data-bbox="719 286 1225 485">■ <i>4 wire standard</i> (only R3800, R3800wu): 4 wires are used for m-pair bonding with a data transfer rate of 384 to 4624 kBit/s. This option supports the 4 wire mode according to G991.2, but not the Globespan Enhanced Mode. <li data-bbox="719 514 1225 604">■ <i>4 wire IMA</i> (only R3800, R3800wu): 4 wires are used for IMA with a data transfer rate of 384 to 4624 kBit/s. <li data-bbox="719 633 1225 724">■ <i>6 wire</i> (only R3800, R3800wu): 6 wires are used for m-pair bonding with a data transfer rate of 576 to 6936 kBit/s. <li data-bbox="719 753 1225 843">■ <i>6 wire IMA</i> (only R3800, R3800wu): 6 wires are used for IMA with a data transfer rate of 576 to 6936 kBit/s. <li data-bbox="719 872 1225 963">■ <i>8 wire</i> (only R3800, R3800wu): 8 wires are used for m-pair bonding with a data transfer rate of 768 to 9248 kBit/s. <li data-bbox="719 992 1225 1082">■ <i>8 wire IMA</i> (only R3800, R3800wu): 8 wires are used for IMA with a data transfer rate of 768 to 9248 kBit/s. <li data-bbox="719 1111 1225 1171">■ <i>not used</i> (only R3800, R3800wu): The wires are not used.

Feld	Wert
Additional Wire Pairs	<p>(only R3800, R3800wu)</p> <p>Only for WIRE MODE = 4 wire, 4 wire standard, 4 wire IMA, 6 wire, 6 wire IMA</p> <p>Defines which wire pairs are to be added to the SHDSL connection.</p> <p>For <i>4 wire, 4 wire standard</i> and <i>4 wire IMA</i> you can choose the second wire pair.</p> <p>For <i>6 wire</i> and <i>6 wire IMA</i> you can choose the second and the third wire pair.</p> <p>Wires which are already assigned to combinations are not available. If these should be added to another SHDSL connection, the existing combination must be dissolved first.</p>
Clock Rate Mode	<p>Defines the transmission rate to be negotiated.</p> <p>Possible values:</p> <ul style="list-style-type: none"> ■ <i>adaptive</i> (default value): The transmission rate is negotiated according to the line quality in the range from MINIMUM RATE (KBIT/S) up to MAXIMUM RATE (KBIT/S). ■ <i>fixed</i>: The transmission rate is fixed by the REQUESTED RATE.

Feld	Wert
Minimum Rate (kbit/s)	<p>Only for CLOCK RATE MODE = <i>adaptive</i>.</p> <p>Defines the minimum transmission rate of the connection.</p> <ul style="list-style-type: none"> ■ for WIRE MODE = <i>2 wire</i>: 192 to 2312 kBit/s in predefined steps. ■ for WIRE MODE = <i>4 wire / 4 wire standard / 4 wire IMA</i>: 384 to 4624 kBit/s in predefined steps. ■ for WIRE MODE = <i>6 wire / 6 wire IMA</i>: 576 to 6936 kBit/s in predefined steps. ■ for WIRE MODE = <i>8 wire / 8 wire IMA</i>: 768 to 9248 kBit/s in predefined steps.
Maximum Rate (kbit/s)	<p>Only for CLOCK RATE MODE = <i>adaptive</i>.</p> <p>Defines the maximum transmission rate of the connection.</p> <p>Possible values:</p> <ul style="list-style-type: none"> ■ for WIRE MODE = <i>2 wire</i>: 192 to 2312 kBit/s in predefined steps. ■ for WIRE MODE = <i>4 wire / 4 wire standard / 4 wire IMA</i>: 384 to 4624 kBit/s in predefined steps. ■ for WIRE MODE = <i>6 wire / 6 wire IMA</i>: 576 to 6936 kBit/s in predefined steps. ■ for WIRE MODE = <i>8 wire / 8 wire IMA</i>: 768 to 9248 kBit/s in predefined steps.

Feld	Wert
Requested Rate (kbit/s)	<p>Only for CLOCK RATE MODE = fixed.</p> <p>Defines the transmission rate of the connection.</p> <p>Possible values:</p> <ul style="list-style-type: none"> ■ for WIRE MODE = 2 wire: 192 to 2312 kBit/s in predefined steps. ■ for WIRE MODE = 4 wire / 4 wire standard / 4 wire IMA: 384 to 4624 kBit/s in predefined steps. ■ for WIRE MODE = 6 wire / 6 wire IMA: 576 to 6936 kBit/s in predefined steps. ■ for WIRE MODE = 8 wire / 8 wire IMA: 768 to 9248 kBit/s in predefined steps.

Table 1-1: **SHDSL** menu fields

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