

HST-3000

ETSI ISDN Basic Rate Access (BRA) SIM



Key Features

- Field portable solution for ISDN BRA service testing
- Detailed monitoring of applications combining data communications and ISDN without specialist protocol knowledge
- Reduction of installation and maintenance time
- TE (Terminal), NT (Network), S/T, and U-simulation modes
- NT1 replacement mode and U-monitor mode
- IDSL testing at 128K and 144K in either BERT or loopback modes
- Country specified protocols
- Flexible and easily upgradeable modular hardware and software architecture

With many network operators planning a migration from a circuit-switched to an IP based network infrastructure, the HST-3000 is well suited to ease the transition process, including workgroup consolidation. The HST-3000's modular plug-in hardware and software architecture is scalable to test Copper, E1/Datacom, ISDN, ADSL, ADSL2+, G.SHDSL, IP, Ethernet, VoIP, and IP Video.

The JDSU HST-3000 enables network operators to deliver Triple-Play Services both economically and efficiently.

As customers upgrade from POTS to Basic Rate Access (BRA), to take advantage of enhanced network services, they present a significant revenue stream for service providers. Installing ISDN BRA is challenging, not only is the installation more complex than POTS, but providers struggle with reduced budgets, smaller workforces, and tighter deadlines. To meet these challenges, an all-in one, versatile test solution for ISDN BRA, as well as copper plant and E1/Datacom, is required. This solution must help reduce failures and repeat rates while enhancing efficiency and ensuring consistent test practices.

The JDSU HST-3000 ISDN BRA SIM is an easy-to-use field tool enabling workgroups to perform multiple services for the installation, maintenance, and troubleshooting of the physical circuit, the service, and the application. The test suite analyzes the performance of the ISDN link in both directions. It verifies operation or locates network problems by generating and receiving calls and testing the requested supplementary services that run under a wide range of protocols.

Functional Overview

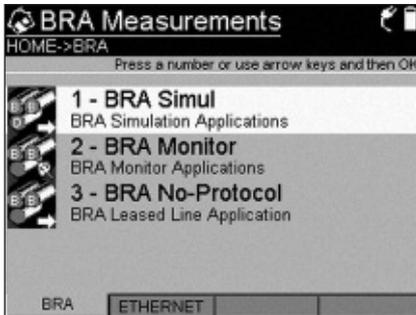


Figure 1: Select the Application

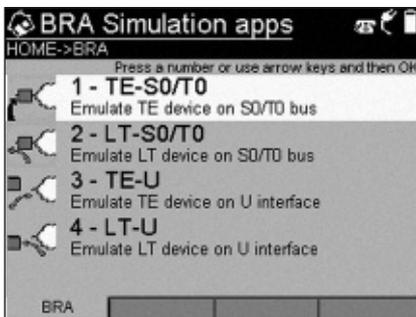


Figure 2: Select the Interface

TE (Terminal) Simulation

The TE simulation mode is used to replace a terminal, make two calls simultaneously, measure the bit error rate (BER), and test the services and supplementary services. The HST-3000 BRA application generates DTMF (touch tones 0 to 9, * and #) and allows access to the keypad while the call is being established and during the call.

Bit Error Rate Test (G.821)

The HST-3000 BRA application tests the quality at an ISDN access in self-call mode or through end-to-end measurements. Bit errors can be inserted manually or automatically and the level of quality is displayed during the test.

Test of Services and Teleservices

The HST-3000 BRA application tests the availability of the various services offered with ISDN - bearer capability, services, and teleservices. Protocol dependent services can be selected and tested as appropriate.

Dual Call

The dual call function is used to generate two calls. Once the two calls are configured, one channel is used to test the BER while the other channel is looped back. The HST BRA application is also able to receive two calls.

NT (Network) Simulation

The NT simulation mode is used to simulate an ISDN network at the S/T and U interface prior to connecting the terminal to the network. This operating mode enables the user to use tests and functions available in TE (call, automatic testing of services and teleservices, BER test, loopback).

U-Interface

If the network termination is not present or is faulty, the integrated U-interface is used to carry out all the tests needed to define the access by simulating the combination of an ISDN terminal (U/TE mode) and a network termination.

Test of Supplementary Services

The HST-3000 BRA application quickly and simply allows users to perform a functional or automatic test to check for the presence of all the supplementary services on the access being tested. In automatic mode, the BRA application results indicate availability, non-availability, or the causes of errors for each of the tested supplementary services.

Private Protocols

The HST-3000 BRA application supports the CorNet-N®, CorNet-NQ®, and Q.SIG private protocols and can connect to private PBX networks in place of a PBX. This operating mode enables the user to use the tests and functions available in TE mode (call, automatic testing of services and teleservices, BER test, loopback) and the special features of this type of network such as clock synchronization and Master/Slave mode.

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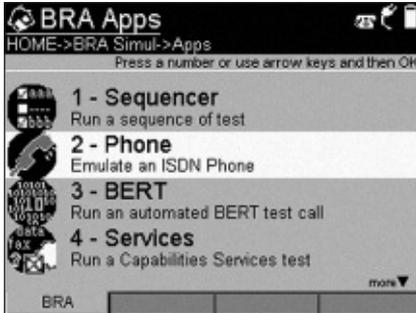


Figure 3: Select the Test

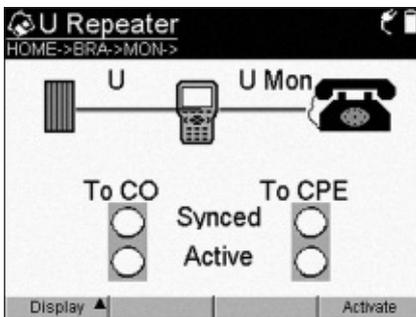


Figure 4: Perform the Test

Saved Results

Hundreds of results can be saved on the HST-3000 and exported directly to a printer or a PC via serial or Ethernet ports. The results files can then be e-mailed, printed, or saved to a PC. The USB port can be used to save results to an USB memory stick for off line analysis with the ISDN partner software. The HST-3000's file manager also allows technicians to view previously saved test information directly on the instrument.

VT100 Emulation

With the HST-3000's VT100 emulation feature, technicians can access E1, ISDN, and HDSL network equipment for configuration, performance data measurements, and loopback capabilities without having to carry a PC or laptop into the field.

Flexible and Rugged Design

The HST-3000's rugged, weather-resistant design and long battery life are ideally suited for use in the field. Standard Ethernet, USB, and serial ports offer flexibility to easily download software and offload captured test data. Easily configurable, the HST-3000 can be used by different technicians with different responsibilities to perform a wide variety of tests. The HST-3000 is based on a modular platform, allowing for the addition of upgrades and options in the field. This flexibility also allows for the support of future growth in new technologies and advanced options to accommodate the changing needs of versatile technicians.

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Specifications

ISDN BRA SIM Specifications

BRA Access

Electrical characteristics	Rec. I.430 (ITU-T) ETS 300 012
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Connectors	RJ-45
Mode	100Ω, high impedance (bridging)

U-Interface

U-Interfaces	2
Connector	RJ-45 (ISO 10173)
Line code	2B1Q

S/T Interface

Connector	RJ-45 (ISO 107173)
Impedance	100 Ω or Hi-Z
Line code	AMI
Codecs supported	

ISDN BRI specifications

Operation Modes on Interface

Simulate	TE-S0/T0, LT-S0T0, TE-U, LT-U
Monitor	U Repeater, NT1 Swap
Call Controls	1TR6, 1TR67, EDSS-1, VN3, VN4, VN6 TPH1962 QSIG, Televerket, Telenokia, NTT, Q.931, Cornet-T, TN-1 R6, SwissNet-3, Cornet-N, Conret-NQ

Test Functions

Sequencer
Phone
BERT
Services
Supplementary services
B-Channel
Tracer
Responder

Voice Capability

Hands-free operation and Headset interface
DTMF dialing
B-channel selection
Dual call capability
Calling party ID
Speed dialing (10, 30-digit numbers)

Layer Analysis

Layer 1 states
Layer 2 (LAPD) states
Layer 3 (call status) states
Cause messages
Loopbacks
D-channel decode monitor
D-channel message capture/LCD display/state

BERT

Pattern
2 ¹¹ -1, 2 ¹⁵ -1, 2 ¹¹ -1 INV, 2 ¹⁵ -1 INV, 16 Bit Word
Error Insertion Rate
Manual, Non, 1 ⁶ , 1 ⁵ , 1 ⁴ , 1 ³ , 1 ²
Duration
1 Min, 15 Min, Infinite, User

Results

Sync, Start Time, Stop Time, Duration
BE, EFS, EFS %, ES, ES %, SES, SES %, BEC, BEC %, US, US%, DM, DM %

Interface

Results
FEBE Errors, CRC Errors, ACT DEA AIB, Rx EOC, Sealing Current, TEI, Call 1, Call 2, Rx Level VPP, BPV Errors, PS1, PS2, Cause Values
EOC Results
RX Buffer, Message, Address, 40 Khz tone generation
Supplementary Services Test
CLIP, CLIR_SUB, CLIR_REQ, COLP, COLR_REQ, COLR_SUB, SUB, AOC, TP, HOLD, CW, CFU, CFB, CFNR, MCID1, MCID2, UUS1, UUS2, UUS3, MSN, DDI, CUG

General Specifications

Power Supply

Battery	Lithium Ion, removable battery pack
Battery life	8 hours of typical usage
Auto switch-off	Up to 15 minutes after last action or off
Charging time, internal	Up to 7 hours from empty to full charge
	AC line operation via external adapter/charger

Permissible Ambient Temperature

Nominal range of use	-5°C to +50°C
Storage and transport	-40°C to +60°C
Operating humidity	10% to 90% relative humidity
Storage humidity	10% to 90% relative humidity

Physical Specifications

Size (H x W x D)	240 x 114 x 70 mm
Weight	1.23 kg, including batteries and SIM
Display	1/4 VGA monochrome transfective, 9.6-cm diagonal (readable in direct sunlight)

General Specifications

Ruggedness	Survives 0.9 m (3 ft) drop to concrete on all sides
Water-resistant, splash-proof base unit - may be used in heavy rain	
Multi-language	English, German, French, Spanish, Italian
Keypad	12-button keyboard with cursor keys and soft keys
CE Marked	

Base units

HST-3000C HST-3000C base with copper testing
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Ordering information

Requires the purchase of a SIM
See separate listing for HST3000-CAR (Ethernet and serial ports included)

HST-3000 HST-3000 base without copper testing
Requires the purchase of a SIM
see separate listing for HST3000-AR (Ethernet and serial ports included)

SIMS (Modules)

HST3000-DC	Datacom SIM
HST3000-4WLL	4 wire local loop
HST3000-T1	Dual TX/RX bantam T1 interface and T1 software option
HST3000-CT1	Dual T/R/G interface for copper testing and dual TX/RX bantam T1
HST3000-T3	Dual TX/RX bantam T1 interface, and dual RX/single TX BNC DS3 interface and DS3 software option
HST3000-BRI	ISDN BRI option
HST3000-ARCE	ADSL (ATU-R) option
HST3000-CAR	Copper (ATU-R) option
HST3000-CU	Dual T/R/G interface to copper test option
HST-GSH	G.SHDSL option
HST3000-CuCE	Cu only SIM, CE mark
HST3000-CARCE	Cu and ATU-R (Annex A) SIM, CE mark
HST3000-ARCA	ATU-R/C dual mode SIM, AoPOTS
HST3000-CARCA	Cu and ATU-R/C dual mode SIM, AoPOTS
HST3000-ARB	Annex B ATU-R SIM
HST3000-CARB	Annex B Cu/ATU-R SIM
HST3000-ARCB	ATU-R/C dual mode SIM, AoISDN
HST3000-CARCB	Cu and ATU-R/C dual mode SIM, AoISDN
HST3000-CSHCE	G.SHDSL and Cu SIM
HST3000-BLK	Blank SIM

Software options

HST3000-AR2A	ADSL2+ (ATU-R, Annex A)
HST3000-AR2AB	ADSL2+ (ATU-R, Annex A/B)
HST3000-AR2B	ADSL2+ (ATU-R, Annex A)
HST-BRA	ETSI (Euro) ISDN BRA SIM
HST3000-PS	Pulse Shape software option
HST3000-FR	Frame Relay software option
HST3000S-IP	Advanced IP suite – PING and Through mode support
HST3000S-WEB	Web browser option
HST3000-WBTONES	WB TIMS option
HST3000-RFP	RFL option
HST3000S-VOIP	VoIP software
HST3000-FTP	FTP software option
HST3000-SCRIPT	Scripted test option
HST3000S-H.323	VoIP Signalling call controls for H.323
HST3000S-SCCP	VoIP Signalling option for Cisco SCCP
HST3000S-SIP	VoIP Signalling option for SIP call control
HST3000-PCMSIG	Signalling (PCM) software option
HST3000-PCMTIMS	TIMS (PCM) software option
HST3000-T1DDS	DDS-T1 software option
HST3000-PRI	ISDN PRI software option (NC Standard)
HST3000-SPE	Spectral Noise software option
HST3000S-MOS	MOS (Mean Opinion Score) Analysis option

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