

IBT-100/-200/-300

Rapid and accurate testing and troubleshooting for ISDN-based applications with the JDSU range of ISDN BRA/PRA testers



Key Features

- Test rapidly across ISDN basic rate and primary rate interfaces with customizable test sequences and user-defined profiles
- Reduce installation and maintenance time, expertise and testing investments
- Conduct detailed monitoring of applications combining data communication and ISDN without specialist protocol knowledge
- Improve productivity and efficiency with easy-to-use graphical user interface and customizable on-line help
- Troubleshoot online and offline with the IBT-series' embedded decoding application or with the ISDNpartner Expert System software on PC
- Convert an IBT-100 or IBT-200 to an IBT-300 with a simple software upgrade

Network providers must ensure that the integrated services digital network (ISDN) services they deliver are highly reliable and accessible. Yet the number and complexity of voice and data services available across multiple protocols and interfaces continues to grow. With this flexible and feature-rich testing equipment, providers can enhance service quality and keep pace with change.

JDSU IBT-series handheld testers enable network providers to efficiently install, commission and troubleshoot ISDN basic and primary rate access services. The testers can rapidly verify any ISDN interface, protocol or service.

Both the IBT-100 (basic rate access) and the IBT-200 (primary rate access) instruments can be turned into an IBT-300 with a simple software upgrade. The IBT-300 provides top-of-the-range basic and primary rate access testing and analysis plus many additional features. However, all the IBT-series instruments deliver fully customizable test sequences and on-line help facilities.

Comprehensive testing

JDSU IBT-series testers enable operators to configure and verify their ISDN services and teleservices, as well as X.25 on the D and B channels.

The IBT-300 provides Terminal Emulation (TE) or Line Termination (LT) on the major interfaces S0/T0, U0, S2/T2, U2/G.703/G.704 (see figures 1 and 2). Bit error rate testing (BERT G.821) enables testers to assess the performance of both the physical layer as well as the transmission quality of ISDN on public and leased lines. The IBT-series testers can also simulate errors to assess the impact on service and performance.

For connection to the operator network, the instrument simulates the EDSS-1 protocol and national variations in both basic and primary rate accesses. For private networks connected by T0 or T2 tie-lines, the testers simulate Q.SIG, CorNet-N®, CorNet-NQ® and/or TN1R6 protocols.

Proactive monitoring and reactive maintenance identify faults before they impact performance and enable rapid problem resolution. To identify problems quickly, protocol analysis is integrated into the IBT-series, but is also available via complementary PC software.

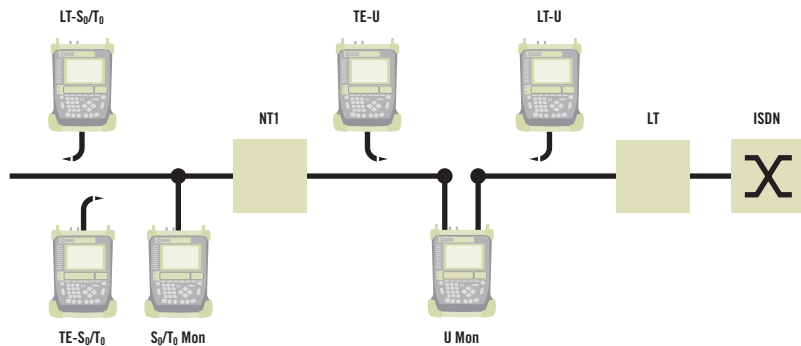


figure 1 Basic rate access

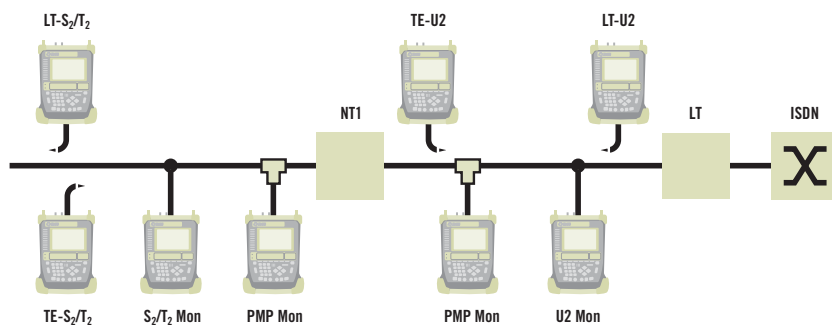


figure 2 Frame Detailed Analysis

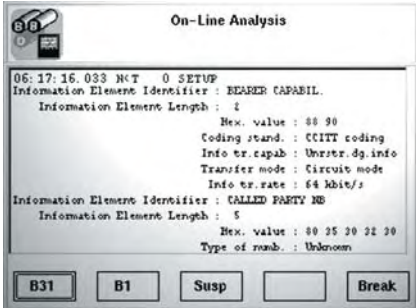


figure 3 Embedded frame detail information

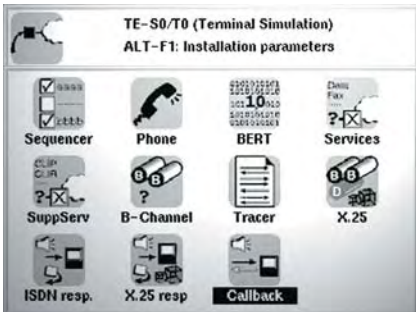


figure 4 Extended features



figure 5 Before customization. Example: BERT function (implemented only in G.621 mode)



figure 6 After customization. Example: The automatic test checks the configuration of an access in accordance with the type of subscription, whether "Standard" (offering few supplementary services) or "Comfort" (providing additional packages of supplementary services)

This means users can comprehensively decode every frame of an ISDN call on the D channel (see figure 3), thus helping to identify problems. A complete analysis of V5.1/V5.2 signaling on an E1 link (of up to three time slots) extends the user's range of action to the interface between the central unit and the access network. Monitoring is available for all major interfaces and on protected monitoring points (PMPs).

Extended features

Physical Layer 1 and Layer 2 status is indicated by LEDs, and so are Layer 1 alarms and phantom power. An automatic test to check the availability of services and teleservices indicates the access configuration and supports subset checking by simply adjusting test parameters. Additionally, all models include automated availability test of ETSI supplementary services (see figure 4).

Several calls can be simulated simultaneously (two for BRA, 30 for PRA). In addition, three specific procedures can be used to automatically check the availability and behavior of B-channel access at full load or with specialization (incoming, outgoing or both).

The instruments also allow X.25 testing in the D and B channels, helping to evaluate packet transmissions.

For facilities, the testers offer an unattended mode (with call loopback if required) and an automatic callback function.

Simplified use

An icon-based graphical user interface (GUI) and a context-sensitive, customizable help system assures maximum simplicity and functionality for the user. A library of test profiles means that many standard tests can be preprogrammed without needing to define or adjust test parameters (see figures 5 and 6). Users can also save customized test sequences for future use.

Enhanced troubleshooting

Compatible with all JDSU's testers, the JDSU ISDNpartner Expert System enables information and statistics generated by the equipment to be downloaded for more detailed analysis by PC-based applications. Using the software solution, testers can analyze data on the D channel in realtime, examining logs and statistics and tracking for recurring errors and so ensuring that long-term corrective action can be taken (see figure 7).

The software solution provides an HTML interface that guides testers through the testing process whatever their level of skills and experience, reducing the need for specialist staff to detect and correct common ISDN problems. Automatic diagnosis and suggested corrective actions are offered, as well as a sophisticated process for navigating the trace for complex faults, increasing the speed at which problems are isolated and resolved (see figure 8).

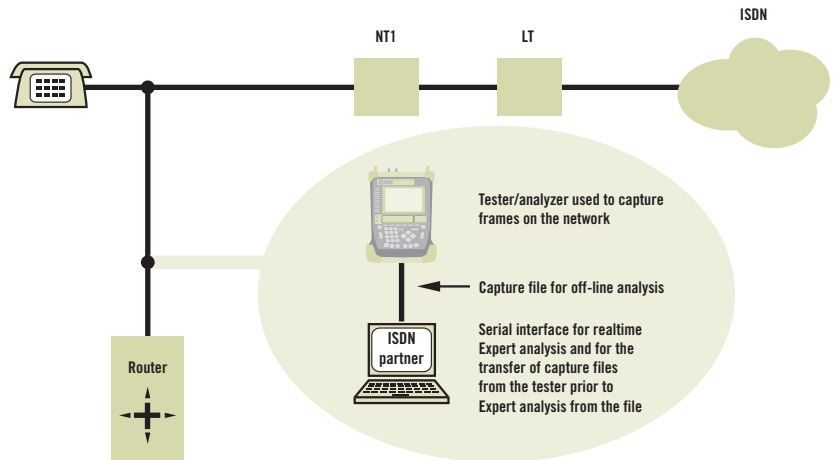


figure 7 Analysis with IBT-100/-200/-300 combined with ISDNpartner

| Number | IS | NT | Type | SAR | CR | Mng Type | Cause |
|--------|------|----|------|------|----|---------------|----------------------|
| 1 | | | Phys | | | NT IS | |
| 2 | | | Phys | | | TE IS - NT IS | |
| 3 | | | Phys | | | TE IS - NT IS | |
| 8 | isdn | 1 | B | isdn | | ALPFRM | |
| 11 | isdn | 1 | B | isdn | | CONNECT | |
| 13 | isdn | 1 | B | isdn | | CONNECT | |
| 15 | isdn | 1 | B | isdn | | DISCONNECT | Normal call clearing |
| 17 | isdn | 1 | B | isdn | | DISCONNECT | |
| 19 | isdn | 1 | B | isdn | | REL_COMP | Normal call clearing |
| 20 | isdn | 1 | B | isdn | | REL_COMP | |
| 26 | isdn | 1 | B | isdn | | TE IS - NT IS | |

figure 8 Throughout the Expert analysis any detected events are logged in a journal that centralizes all of the collected information

Specifications

Specifications

| | |
|-------------------------------------|---------------------------------|
| <i>S/T basic rate access (2B+D)</i> | |
| Electrical characteristics | Rec. I.430 (ITU-T), ETS 300 012 |
| Connectors | RJ-45 |
| Mode | 100 Ω, high impedance |

U interface

| | |
|------------------------|-----------------------------------|
| Connector | RJ-45 |
| Layer 1 specifications | as per ANSI, ITU-T, ETSI |
| Code | 2B1Q (other code available: 4B3T) |

S2/T2 primary rate access (30B+D)

| | |
|----------------------------|--|
| Electrical characteristics | Rec. I.431 (ITU-T), ETS 300 011 |
| Connectors | RJ-45 (symmetrical 120 Ω) 2 x BNC (asymmetrical 75 Ω) |
| Mode | 75 W, 120 Ω, high impedance |

E1 interface (G.703/G.704)

| | |
|---|---|
| Joint physical interface with the S2/T2 interface | |
| Receiver sensitivity | 33 dB |
| Connector | RJ-45 |
| Mode | 75 W, 120 W, high impedance protected monitoring point (PMP) |

Additional interfaces

| | |
|--|--|
| U interface (code 4B3T) | |
| U interface (LT simulation and U repeater) | |

Miscellaneous

Coding law

| | |
|-----------------------|--------------|
| Selection by software | A law, μ law |
|-----------------------|--------------|

Integrated handset

| | |
|----------------------------|------|
| External handset interface | RJ-9 |
|----------------------------|------|

Software update

| | |
|-------------------------------|--|
| Downloaded over a serial link | |
|-------------------------------|--|

PC interface

| | |
|--------------------|-------------------------|
| Serial interface | SUBD-9, max. 115.4 kbps |
| Parallel interface | SUBD-25, max. 2 Mbps |

Interface for external sync. source

| | |
|------------------|---|
| Connector | BT-43 sub min coax |
| Input | 2 MB (TTL) |
| Graphics display | 1/4 VGA (320 x 240 dots) 30 lines x 53 characters, backlighting and adjustable contrast |
| Results storage | (Flash RAM) |
| Capacity | 8 MB (approx.) |

General characteristics

Power supply

| | |
|--------------------------------|--|
| Power supply | rechargeable NiCd cells or mains |
| Operating time with NiCd cells | > 8 hours charge level and battery low LEDs, cell level display |
| Cell recharge time | < 4 hours |

Permitted ambient temperature

| | |
|-----------------------------|-------------------|
| Nominal operating range | -5°C to +45°C |
| Lower/upper operating range | -10°C to +55°C |
| Storage and transport | -40°C to +70°C |
| Dimensions (w x h x d) | 180 x 60 x 260 mm |
| Weight of basic instrument | approx. 1.1 kg |

Ordering information

Basic instrument

Includes test set, rechargeable batteries, carrying bag and all accessories (such as cables and literature).

Menu available in various languages: English, French, German, and Spanish.

Includes the following test measurements and facilities: TE simulation (S/T and U interfaces), NT1 swap-out mode, LT simulation (S/T interfaces), X.25 in D and B channel test, services/teleservices test, supplementary services test, leased lines, file management and D-channel tracer. Includes PC software (ISDNpartner) for test results management and expert trace file analysis.

Advanced package

Includes basic instrument and D-channel protocol analysis functions, protocol analysis on PC function, and private protocols (such as Q.SIG, CorNet-N/-NQ/-T/-TS®, and TN1R6).

ISDN BRA Service Tester (IBT-100)

| | |
|--------------------------|------------|
| IBT-100 Basic instrument | BN 4537/10 |
| IBT-100 Advanced package | BN 4537/11 |

Software upgrade packages

| | |
|--------------------------------------|---------------|
| IBT-100 Basic to IBT-100 Advanced | BN 4537/95.34 |
| IBT-100 Basic to IBT-300 Basic | BN 4537/95.35 |
| IBT-100 Advanced to IBT-300 Advanced | BN 4537/95.36 |

Hardware/Software options (maximum three)

| | |
|---|---------------|
| LT simulation (U 2B1Q) and U (2B1Q) monitor | BN 4537/92.02 |
| LT simulation (U 2B1Q) | BN 4537/92.05 |
| U (2B1Q) monitor | BN 4537/92.06 |

ISDN PRA Service Tester (IBT-200)

| | |
|--------------------------|------------|
| IBT-200 Basic instrument | BN 4537/20 |
| IBT-200 Advanced package | BN 4537/21 |

Software options

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|-----------------------------|---------------|
| V5.1/V5.2 Protocol Analysis | BN 4537/93.24 |
|-----------------------------|---------------|

Software upgrade packages

| | |
|--------------------------------------|---------------|
| IBT-200 Basic to IBT-200 Advanced | BN 4537/95.37 |
| IBT-200 Basic to IBT-300 Basic | BN 4537/95.38 |
| IBT-200 Advanced to IBT-300 Advanced | BN 4537/95.39 |

ISDN BRA/PRA Tester (IBT-300)

| | |
|--------------------------|------------|
| IBT-300 Basic instrument | BN 4537/30 |
| IBT-300 Advanced package | BN 4537/31 |

Software options

| | |
|-----------------------------|---------------|
| V5.1/V5.2 Protocol Analysis | BN 4537/93.24 |
|-----------------------------|---------------|

Software upgrade packages

| | |
|-----------------------------------|---------------|
| IBT-300 Basic to IBT-300 Advanced | BN 4537/95.40 |
|-----------------------------------|---------------|

Hardware/Software options

| | |
|---|---------------|
| LT simulation (U 2B1Q) and U (2B1Q) monitor | BN 4537/92.02 |
| LT simulation (U 2B1Q) | BN 4537/92.05 |
| U (2B1Q) monitor | BN 4537/92.06 |
| U interface (4B3T) | BN 4537/92.03 |

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