

Panasonic
Communication Systems Division
Technical Advisory

Updated: Nov. 16, 00

Subject: KX-TD816/1232 ISDN Program and Installation

Document Number: KXTD1232010

- ISDN will only work on a KX-TD816 -3 or a KX-TD1232 -3.
 - KX-TD816 -1 and below cannot be upgraded.
 - KX-TD816 -2 can be upgraded via EPROM's. *1
 - KX-TD 1232 -1 and below can be upgraded with a CPU upgrade. *1
 - KX-TD 1232 -2 can be upgraded via EPROM's. *1
- Panasonic ISDN Modules are compatible with:
 - Lucent (AT&T) 5ESS configured for National ISDN 1 ONLY.
- Telco Ordering Code:
 - ISDN Basic Rate Interface.
 - EZ-ISDN 1 or EZ-ISDN 2. *2
 - Or Equivalent Capability Package U. *2
- Types of KX-TD ISDN Modules:
 - KX-TD382
 - 2-ISDN U-Point Line Unit.
 - Internal NT-1.
 - Maximum of 4 Digital CO Lines.
 - KX-TD384
 - 4-ISDN U-Point Line Unit.
 - Internal NT-1.
 - Maximum of 8 Digital CO Lines.
 - KX-TD386
 - 6-ISDN U-Point Line Unit.
 - Internal NT-1.
 - Maximum of 12 Digital CO Lines.
 - KX-TD284
 - S/T Point Line Unit.
 - CPE NT-1 Required.
 - Maximum of 8 ISDN Equipment's. (ISDN Phone, ISDN PC Card, Etc.)
 - KX-TD112
 - PLL (Phase Locked Loops) Card.
 - A PLL Card must be installed in a Single Cabinet utilizing an ISDN Module.
 - In a Double Cabinet Installation utilizing ISDN Module(s), you must install one PLL Card in each Cabinet.

*1 All upgrades can be obtained at VND 1-888-201-4030

*2 Calling Number Identification will not be sent to a Caller ID compatible single line device that may be connected to the KX-TD171 card from calls processed through an ISDN module.

Understanding ISDN service.

ISDN

- ISDN = Integrated Services Digital Network.
- Integrated Services means voice, data, and or video services.
- Digital means the service is digital to the customers site.

ISDN Services

ISDN Primary Rate Interface (PRI) “4 Wires” **Is Not Supported.**

ISDN Basic Rate Interface (BRI) “2 Wires”

- 2B+D.
- 2 Bearer (64 kbps) channels. (Note: 64K=64,000)
- 1 Delta signal channel. (16 kbps) “control”
- 2-wires for delivery.

ISDN Equipment

- NT1 (Network Termination One) This unit terminates the 2-wire non-loaded local loop from the central office and converts the signal to the 4-wire subscriber interface.

ISDN Terms

- | | DN | Suffix | TID |
|---|----|--------|-----|
| • SPID = Service Profile Identifier. Example format XXX-XXX-XXXX | | XX | XX |
| • TID = Terminal Identifier. | | | |
| • U-loop or U-Point. Defines the demarcation point. U-Point is the only type of BRI available in North America. | | | |
| • S/T Bus defines the interface between the NT1 and the Terminal Equipment. | | | |
| • CLIP = Caller ID. | | | |
| • PLL = Phase Lock Loop. This keeps the clock signal from the ISDN line and System in sync. | | | |

Integrated Services Digital Network can be ordered many ways so it is important to understand the proper ordering codes. For the KX-TD816/1232 you need to order **National ISDN Code “EZ-ISDN 1”**. Also remember our cards are only compatible with service provided from a **Lucent (AT&T) 5ESS with NI1 compatibility.**

Understanding What the KX-TD816/1232 Can Do With ISDN.

- ISDN provides high quality voice lines.
- ISDN provides higher data throughput speeds using V.35 and V.90 modems.
- In some areas, it may be more cost effective to install ISDN lines verses analog lines. Taking into account the fact that one ISDN line gives you the equivalent of two analog CO lines, and the additional services such as call waiting and caller ID that can be provided, it may be less expensive to use ISDN lines then loop start lines.

System programming

- **012** ISDN Extension Number Set. Assigns an extension number to the terminal equipment. This allows you to call each piece of equipment on the bus.
- **013** ISDN Extension Name Set.
- **109** Expansion Unit Type. (Remember you must reset the system for this change to take affect)
- **407 – 408** DIL 1:1.
- **409-410** Intercept Extension.
- **419** ISDN Outgoing CLIR Service Assignment. Blocks your number (CID) from being sent.
- **420** ISDN Ring Service Assignment. Select if the system uses programs 455-456 or 407-408.
- **423** ISDN Port Assignment. Sets the port type to extension or C.O. (Remember you must reset the system for this change to take affect)
- **424** ISDN Layer 1 Active Mode. (Remember you must reset the system for this change to take affect)
- **425** ISDN Configuration. (Remember you must reset the system for this change to take affect)
- **426** ISDN Data Link Mode.
- **427** ISDN TEI Mode.
- **428** ISDN Extension Multiple Directory Number.
- **429** ISDN Extension Progress Tone.
- **453** SPID Assignment.
- **454** DN Assignment.
- **455 – 456** Extension Ringing Assignment for ISDN.
- **613** ISDN Class of Service.
- **614 – 615** Outgoing Permitted Outside Line Assignment Day and Night for ISDN Extension.
- **990** Area 07 Field 57,64.

Basic programming

- To get ISDN lines working on the system, as CO's you only need to program **109, 453 and 454**. In most cases all other programs for ISDN should be left at the default.

Remember this document assumes you have a high level of knowledge about the hardware and software for the KX-TD systems and ISDN service.

