ISDN TRAINING SETUP

This trainers provides training of hardware and software theory of ISDN technology.

(1) ISDN Exchange 101-2

1. Power Adapter

   Input   : 110/220 VAC Output: 9 VDC,

                            600mA. 2.5mm jack
2. U Interface   : RJ-45, 8-pin modular jack
3. U Interface protocol   : 2B1Q (2 Binary 1 Quaternary)
4. S/T Interface   : RJ-45, 8-pin modular jack
5. S/T Interface protocol : ASI (Alternate Space Inversion)
6. Maximum cable drop   : 1600 meters (U Interface), 100 meters (S/T interface)
7. RS-232 Interface   : DB-9 Female

In keeping view of SIGMA policy of continuous development and improvement, the Specifications may be changed without prior notice or obligation.

(2) ISDN Phones ISP100

Options

- Options
- PC Dialer II
- Charging bay

The PC-Dialer II is an ideal add-on for your ISP100. You can use the PC Dialer II to download the latest software to your ISP100. The PC-Dialer II software enables computer integrated telephony. If you want the comfort of managing telephone numbers and addresses on your PC, initiating calls at a mouse click, setting up your ISP100 directly on the computer etc., the PC-Dialer II is the ideal solution for you.

Features

- Foxkey for menu-driven user guidance
- User key for up to 3 users (3 MSNs)
- Alphanumerical 14-character display
- Phonebook (for 40 names and numbers)
- Speed-dial memory (for 12 numbers)
- Caller list (for 30 unanswered calls)
- Redial (for 10 dialed numbers)
- Call log (for 10 answered calls)
- Speaker phone
- Advice of charge per user
- Automatic call-back when busy
- Three-way conference
- Emergency mode
- Data backup for power failure
- Software update with PC-Dialer II
- Headset operation
- Multilingual user guidance

In keeping view of SIGMA policy of continuous development and improvement, the Specifications may be changed without prior notice or obligation.

(3) ISDN Modem MTA128ST

Model Number	:	MTA128ST (International)
Network Interface	:	ST-Four-wire S/T interface
		NT– 2-wire "U" interface
Switch Compatibility:		EuroISDN (ETSI/DSS1/NET3), VN4, INS64, U.S. NI-1, AT&T 5ESS, DMS-100 (both models support all of the switch protocols)
B-Channel Protocols :		V.110 (some models only),V.120, X.75, PPP, ML-PPP, CLEAR
Voice Coding PCM	:	A-Law ; µ-Law (switch protocol dependent)
LED Indicators	:	10 front panel LED indicators: Transmit Data, Receive Data, Link Status, B1 Active, B2 Active, Terminal Ready, Off Hook (AUX port), 128 Kbps, P1 Active (data protocol), P2 Active (data protocol)
Data Rates	:	300, 1.2K, 2.4K, 4.8K, 9.6K, 19.2K, 38.4K, 56K, 57.6K, 64K, 115.2K, 230.4K, and 460.8K bps
Async Data Format	:	7 bit data + odd/even parity + 1 start/stop, 8 bit no parity. 36 baud rate/parity settings via S-register. Baud rates of 300–460.8K bps with even, space, mark, odd, or no parity.
Data Connections	:	Two ISDN B-channels
		One ISDN D-channel
		One analog port for connecting a standard telephone, modem, or fax machine
Command Interface :		AT commands, S-registers, result codes, ConfigMenu firmware configuration utility, Windows 98/NT/ME configuration utility, Dial-Up Networking (DUN)
Connectors ISDN	:	RJ-45 female receptacle, 4-wire S/T (accepts connection cable to the network provider's NT1 device) or 2-wire U interface
		AUX: RJ-11 female receptacle, 2-wire voice service
		Serial Port: female DB-25 RS232E/V.24
Serial Interfaces	:	ITU-T V.24, EIA/TIA RS232E
Switches	:	Two-position power switch
Power Requirements:		Two-prong outlet-mounted transformer (included), 240 VAC 50/60 Hz
Dimensions	:	15.0 cm × 10.7 cm × 2.8 cm (L × W × D)
Environmental	:	Temperature range 0°–40° C (32°–104°F)
Humidity range	:	20–90% (non-condensing)
Power Consumption :		4 watts
Weight	:	224 g (8 oz)
Warranty	:	5 years

(4) ISDN Videophone ISVPH100

SUPPORTED STANDARDS
- ITU-T H.320 ISDN
- ITU-T H.323 IP networks
- Video H.261, H.263+
- Audio G.711, G.722, G.728, G723.1
- Data T.120
- MCU compatibility H.243

TRANSMISSION
- Bit rate   56 ÷ 128 kbps over ISDN
                    64 ÷ 384 kbps over IP

VIDEO
- Frame rate 15 frames per second
- Video resolution   FCIF 352 x 288 pixels
                            QCIF 176 x 144 pixels
                            4CIF 704 x 576 pixels
  for still images (Annex D or H.263)
- Remote camera control H.281 (H.320),
  H.282/H.283 (H.323)

AUDIO
Audio Band Bit rate

G.711 300 ÷ 3400 Hz 56 kbps

G.722 50 ÷ 7000 Hz 48/56 kbps

G.723. 1 300 ÷ 3400 Hz 5.3 / 6.3 kbps

G.728 50 ÷ 3400 Hz 16 kbps

- Echo cancellation Full-duplex
- Echo Return Loss Enhancement (ERLE)
- Automatic Gain Control (AGC)
- Automatic Noise Suppression

BUILT-IN CAMERA
- Sensor 1/4″ CCD
- Format Video composite
- Picture elements 542 x 586 pixels
- Resolution 380 TV line
- Lens f = 3.7 mm
- Iris F = 2.0
- Focus Manual

- White balance Automatic
- Minimum illumination 0.5 lux
- S/N 52 dB

BUILT-IN DISPLAY
- Type Color TFT-LCD
- Size 5″
- Resolution 960 x 234

NETWORK INTERFACES
- ISDN - 1 BRI 1 RJ-45
- Ethernet
  10/100BASE-T full-duplex 1 RJ-45

AUDIO/VIDEO INTERFACES
- Video input CVBS PAL/NTSC (RCA)
- Video output CVBS PAL/NTSC (RCA)
- Audio input Line (RCA)
- Audio output Line (RCA)
  AUXILIARY INTERFACES
- Serial port RS232 (DB9)

USER INTERFACE
- Multilingual on-screen graphic user interface
- User selectable languages:
  Italian, English, French, Spanish, German,
  Portuguese, Norwegian, Swedish, Chinese
- Contextual help
- Diagnostics and management functions
- Call progress monitoring

BUILT-IN HANDS FREE
- Omnidirectional microphone
- Speaker 8 ohm 1 Watt

ENCRYPTION
AES encryption standard (option)

WEB MANAGEMENT
All configuration, call diagnostics and management functions are accessible using the following web browsers: Microsoft® Internet Explorer™, Netscape Navigator™

(5) Analog Phone

FEATURES

- DTMF / FSK Caller ID System Compatible
- 38 Incoming Calls Memory
- 05 Outgoing Calls Memory
- Green Backlit, 12 Digit LCD Display
- Line Tapping Protection
- Mechanical Lock for 0,95 Call Lock & Full Keyboard Lock
- Checking, Erasing and Call Back for Incoming / Outgoing Calls
- Auto add '0' in Call Back
- Auto Filter Local Area Code up to 5 Digit
- 8-Ring Melody Selectable
- 3-Programmable Alarm Clock Settings
- 3-Single Touch Memories
- Music on hold
- Two way speaker phone with adjustable volume
- Speaker volume adjustable
- Pre-dialing & clearing function
- Display of Real Time and Date in Idle mode
- Special Ring for VIP number
- Display of real time & date in idle mode
- Basic Calculator
- In-Use LED Indication
- Programmable Selectable Tone / Pulse Mode
- Flash Time 300 msec
- Pause Function
- 4-Step Programmable Ringer Volume Control
- Last Number Redial

(6) ISDN Protocol Analyzer

- ISDN Protocol Analyzer is an integrated solution for providing basic telephony and data services, whilst offering more telephony services such as supplementary services.
- It can capture and analyze stream of frames on an ISDN BRI link.
- It decodes LAPD according to Q.921, while, the ISDN information parsing is done based on the user's selection of Euro ISDN.
- It supports Windows 2000/XP Operating System)

Height	:	229 mm
Width	:	72 mm
Depth	:	35 mm
Weight	:	350 g
Keypad	:	21 Keys

LCD display with Switchable background lighting 4 lines with 16 characters

Memory EEPROM Non-volatile memory : 16K Byte

Flash program memory	:	2 M byte
S-RAM	:	512Kbytes

Inputs / Outputs

1 RJ45 for ADSL / analog (POTS) (optional)

1 jack for an external power supply

1 RJ-11 for the serial interface

1 RJ-45 10BaseTEthernet (optional)

Power Supply   :   NiMH rechargeable or 9 V, plug-in power supply

(7) Software and Training Package

1. Theory:-

1. Structure of the ISDN network
2. Characteristics of the primary access (2 Mb/s)- PRI
3. Characteristics of the basic access 2B+D- BRI
4. Data channels B1 and B2 at 64 kb/s
5. Service channel D at 16 kb/s
6. Electrical signals and line codes : AMI ; 4B3T
7. Theory of Switching ISDN exchanges
8. Theory of Network interfaces : U/T/S/R
9. Theory of Network interfaces NT1 and NT2
10. Terminal equipment TP1 for interface S: telephone ISDN; video telephone; fax; multi-functional terminal.
11. Theory of Terminal adapters (TA).
12. Theory of Terminal equipment TE2 for interface R: Personal Computer; Modem
13. Configuration and Programming of ISDN equipment and connections
14. Theory of Protocols of the ISDN network
15. Testing ISDN Signal with protocol analyzer
16. Protocol analysis of the level 2 and level 3.

(2). Experiments:-

1. To Study Installation procedure.
2. To configure and install ISDN emulator - IRQ, I/O port address, Memory address.
3. To install ISDN Software.
4. To test ISDN installation.
5. To connect two analog telephones through ISDN emulated lines and establish voice conversation.
6. To connect FAX machine to ISDN emulated line.
7. To connect two Video telephones through ISDN emulated lines and establish call each other.
8. To demonstrate and understand different types of faults.