



COSINE

Digital ISDN Key Phone System

The Value Creator

A communication system must offer flexibility to meet your present and future requirements, giving more value for your investment. Presenting Matrix Cosine: The future proof Digital ISDN Key Phone System. The true value creator for any organisation.

With its unique expansion cards, the system provides complete flexibility that allows it to grow with your growing needs, without increasing the burden on your pocket. Its 100% non-blocking, PCM-TDM design ensures unrestricted simultaneous communication by all users.

Built on latest SLIC based architecture and CPLD design, the system offers not only advanced technology but also reliable and robust performance. The Matrix Cosine is packed with value-enhancing features that meet your communication requirements and also enhance the productivity of your organisation.

■ The Matrix Cosine is available in two variants: Cosine32P and Cosine64P. Cosine32P offers flexible configuration starting from a basic configuration of 2 trunk line (TRK) ports, 1 digital key phone (DKP) port and 6 single line telephone (SLT) ports. Cosine32P also offers an optional connectivity of one ISDN BRI line and an 8-port card for Auto Attendant. It is expandable up to 4 TRK ports, 3 DKP ports and 12 SLT ports.

Cosine64P offers flexible configurations. Starting from a basic configuration of 4 TRK ports, 2 DKP ports, 16 SLT ports, it is scalable up to a maximum of 8 TRK ports, 8 DKP ports and 32 SLT ports. Cosine64P offers an optional connectivity for two ISDN BRI lines and an 8-port card for Auto Attendant. The expansion cards of Cosine64P are available in the smallest possible steps. Trunk line ports and digital key phone ports can be expanded in steps of a single port. Single line telephone ports can be expanded in steps of two ports at a time. Both systems also have a built-in specialized voice mail gateway to help you integrate an external voice mail system.

The unique design of Cosine helps you to configure the system exactly to suit your requirement.

Future expansion is possible in small steps as per your requirement, without increasing the burden on your pocket heavily. Thus the Matrix Cosine proves to be an extremely cost effective telecommunication solution.

The SMT based hardware design of Cosine ensures a compact size and low power consumption. Built on ISDN switching platform and CPLD based design, the Matrix Cosine offers robust and reliable performance.

Intelligent features like Alternate Number Dialing, Auto Attendant, CLI based Routing, Dial by Name offer prompt and professional response, enabling efficient call management. Features such as Least Cost Routing, Scheduled Dialing, and Live Call Supervision help reduce the cost of communication.

Also, features like 15-Party Conference, Security Dialer, Remote Programming, Digital Input Port, Digital Output Port, Analog Input Port, Analog Output Port, etc. are built in the system at no extra cost. These features normally warrant additional investments in most other brands. The Matrix Cosine has no hidden costs; it is simply a comprehensive communication solution for your business. Switch to the Matrix Cosine, for it not only adapts itself to your growing requirements, but also ensures value addition in your organisation.

■ Key Features

Digital Key Phone Ports

The Matrix Cosine offers the option of connecting Digital Key Phones. It possesses a two-wire full-duplex Digital Subscriber Network Interface Circuit (range upto 1 km).

Allowed and Denied Lists

This function prevents the dialing of unnecessary long distance calls and thereby controls telephone costs. A comprehensive list of numbers can be included in the Allowed and Denied Lists. However, it allows dialing of a few fixed numbers and restricts dialing of other numbers in the same area. For example, an extension can dial only '11-264-9875', but not any other number starting with '11'. Matrix Cosine offers the flexibility of defining 15 Allowed and 15 Denied lists. Each list can contain 16 numbers with a maximum of 16 digits in each number.

Alternate Number Dialing

Whenever redial or auto redial is used, the Matrix Cosine dials out the next alternative number instead of the same number that is found engaged. A great utility feature for office to office communication!



Auto Attendant

This feature is available on an optional 8-port auto attendant card that can be inserted in the Matrix Cosine. It allows the caller to directly reach an extension without the help of the operator. Different messages like Welcome Message, Dial by Name, Dial Extension, Busy, No Reply, Wrong Number Dialed and Transferring to the Operator are played according to the situation. Cosine can handle 8 callers simultaneously, a virtually impossible feat to accomplish for a human operator.

Auto Redial (Multiple Numbers)

This feature redials a busy number till it gets through. As soon as the number is connected, the extension gets a special ring and the number connected is also displayed on the telephone. Upto 8 busy numbers can be set for auto redial.

Background Music

The system can be used as a device to play background music as well, thus saving the costs incurred for speakers and wiring. The user can play the built-in music, or use an external music source like a CD player, FM radio, etc.

Battery Charger Circuit

The system has a built-in battery charger circuit. A single battery of 24 V, 7 A.h. can be connected to it. In case of power failure, the system automatically transfers to battery and vice versa.

Boss Ring

When a call is generated from an important extension, a different ringing cadence is generated at the destination extension. The Matrix Cosine offers eight different types of ringing cadences that can be used for internal calls, calls from boss, alarms, auto redial, etc. A very useful feature for senior executives who are pressed for time and require quick assistance from their subordinates.

Call Duration Control

This is a highly effective cost controlling feature that allows users to check the misuse of telephones in their office. Each extension can be programmed with a number of options. These include: incoming, outgoing, intercom, selective long distance or international calls to be disconnected after a predefined duration.

Call Progress Tones and Rings

The Matrix Cosine provides programmable Call Progress Tones like Dial Tone, Ring Back Tone and Busy Tone, etc. These tones can be selected to match those of the country standard where it is installed. Similarly, Ring cadences can also be selected.

Call Taping

With the help of a Voice Mail System this feature allows users to record conversations in the organisation. Calls made to or received from selected external numbers, can be recorded. This feature is possible both on the digital key phone and single line telephone extensions. A helpful feature to document important voice conversations. This feature however, should be used in accordance with the local laws.

Caller Line Identification (CLI) and Presentation

The Matrix Cosine offers CLI features on both digital key phones and single line telephones. It offers the facility to detect CLI on ISDN line and analogue telephone line. It can detect both, DTMF and FSK signals for CLI. Users can get CLI of external numbers, internal numbers and also CLI on transfer of calls. The Matrix Cosine also offers the flexibility of extension-wise programming of the CLI feature.

Class of Service

The Matrix Cosine facilitates the access rights of features for each extension. Thus, allowing the system to be configured exactly as the user requires. For example, Extn. 201 (a middle management executive) can have features like Conference, Auto Redial, Access to Abbreviated Dialing Group-1 of Global Directory, Alarms, Do Not Disturb and Call Transfer only, whereas Extn. 501 (pantry) can be configured to dial intercom numbers only.

CLI based Routing

The dedicated code detector circuits identify the Caller Line Number (trunk call) and route it directly to a specified station. Fifty external numbers can be programmed in the Matrix Cosine. Even the name of the caller can be programmed to be displayed on the digital key phone.

Conference 15-Party

It allows 15 people to converse in a single conference. The unique design of this feature also allows multiple conferences to be conducted simultaneously. For example, you can conduct a 3-party conference, an 8-party conference and another 4-party conference simultaneously. As digital conferencing circuits are used, the number of parties involved in the conference does not affect the speech levels.

Conversation Recording

The user can set the Voice Mail System to record his conversation in his mailbox. This helps the user to keep a record of the points discussed and agreed upon with the opposite party. A boon for businesses that work on verbal commitments. This feature however, should be used in accordance with the local laws.

Dedicated DTMF

The Matrix Cosine has dedicated DTMF circuits for each port, thus making it 100% non-blocking, and allowing simultaneous dialing on all extensions.

Emergency Dialing and Reporting

Matrix Cosine allows you to program the emergency number and what's more, this emergency number can be dialed from any extension, even from those that do not have trunk access. If any user from the organisation dials a particular emergency number, for example, '911', the operator is immediately informed about the extension from which the number was dialed. This helps the operator to take necessary action.

Expandability

Matrix Cosine offers the option for future expansion simply by adding cards as per user requirements. Four different varieties of cards are available for expansion. Expansion cards are available for 1 trunk line port, 1 digital key phone port, 2 single line telephone ports and 1 ISDN BRI for Cosine 32P and 2 ISDN BRI ports for Cosine 64P.

Fax Homing

Voice and Fax calls can be received on the same trunk. If an incoming call is a fax call, the Matrix Cosine directs the call on to an extension where a fax machine is connected.

Flexible Numbering

This function allows you to define the extension numbers as per your convenience. You can have 1, 2, 3 or 4 digit extension numbers. Moreover, within the same system, you can have combinations of 1, 2, 3 and 4 digit extension numbers. You can even have conflicting extension numbers defined like 2, 22, 222 and 2222 within the same system.

Hot Desking

The Object Oriented Programming done for this function allows the extension user to transfer the extension to another with a single command. It is akin to carrying your extension with you wherever you go. Both digital key phone and single line telephone users can activate this feature. The digital key phone user can hot desk his extension with another digital key phone user, and the single line trunk user can hot desk his extension with another single line telephone user. This feature is programmable extension-wise and can be activated by the use of a personal password.

ISDN BRI Ports

The Matrix Cosine32P offers the option of one ISDN BRI (2B+D) port. Cosine64P offers the option of two ISDN BRI Ports. ISDN BRI lines can be terminated to these ports. These systems support features like Multi Subscriber Number (MSN), Direct Dial In (DDI) and Caller Line Identification and Presentation (CLIP).

Jeeves

The Matrix Cosine is accompanied by Jeeves, a Windows based Graphic User Interface (GUI) software tool for programming the system. It is intuitive, user-friendly and supports many languages like English, French, Spanish, German, Russian, Portuguese and Italian. Jeeves makes programming of the Matrix Cosine a child's play!

Live Call Supervision

A great monitoring-cum-security feature, it lets the supervisor know the phone number which an extension (digital key phone or single line telephone) user is currently talking to. What's more, this feature is available both on digital key phone and single line telephone!



Power Down Operation

The Matrix Cosine offers power down operation for all trunk lines that are connected to the system. In case of power failure, the trunk lines get connected to the predefined user extensions (single line telephone). This is a built-in feature and does not require any additional hardware.

Programmable Access Codes

This function allows you to define feature access codes as per the convenience of users. This feature offers the users great convenience, as they do not have to remember the new codes in case the system is changed.

Remote Programming

The Matrix Cosine can be programmed from a remote location. This does not require the existence of a PC or any other specialised device at the site where Cosine is installed.

Room Monitor

It allows the station user to listen to the sounds in another room where the Digital Key Phone is installed without the knowledge of the room's occupants. What's unique about this feature is that you can monitor the room even from your mobile phone. A very powerful security feature!

Scheduled Dialing

The system can be programmed to dial a number at a pre-specified time. This facility is of great use to lock long distance and international lines at set timings, thereby preventing misuse. For example, the Matrix Cosine can be set to lock the long distance or international calling facility everyday after 6.00 pm, so that there is no misuse of the telephone line, even if it has been left open accidentally.

Security Dialer

The Matrix Cosine allows the users to connect any type of sensor like glass break sensor, magnetic sensor, smoke detector etc. to the digital input port. In case emergency, this feature dials 3 different numbers and plays a pre-recorded message. The called person can also be asked to confirm that the message has been heard by him. A hooter can also be activated in case of emergency.

Least Cost Routing (LCR)

It selects the most cost effective trunk from the allotted trunks to make outgoing calls depending upon the time of call and the destination number, resulting in major savings. Three parameters can be defined for LCR - (i) Time (ii) Number and (iii) Carrier Pre-Selection. Even combinations of the above parameters can be programmed for LCR. For example, you can program the system to select only a particular trunk line for making long distance calls, and another to make all local calls during the day, but a

Digital Key Telephone - Eon45 and Eon42

The Digital Key Phone is a feature-rich, easy to use station. 'Eon', is a Latin word for time. As its name suggests, it supports a host of additional features providing the user fast access to the functions of Matrix Eternity at single touch of a button. It is a versatile, user-friendly and feature-rich digital station. Matrix Digital Key Phones (DKP) is available in two models - Eon45 and Eon42S. Both models are available in



Adjustable Ringer Volume and Speech Level

User has the option of adjusting the ringer volume level and transmit/receive speech levels as per user requirement.

DSS Keys

The Eon offers 25 (Eon45) / 24 (Eon42) soft keys that can be programmed to access trunk line, SLT, DKP or any feature at a single touch of the key.

Executive and Operator Functionality

The Eon provides user functionality of Operator and Executive by means of dedicated keys to perform specific task by single touch of buttons. Its programmable keys can be customized as to work as per the user's requirement.

Last Dialed Calls

The last 16 dialed calls can be stored in Eon45 and Eon42.

Message Paging

The user of the Eon45 can page any of the pre-defined messages to other DKP users. Different messages like Meet Me, Congratulations, Meeting Today, etc., can be paged to other DKP users. These messages can be programmed by the system engineer.

Missed Calls

Details of the last 5 missed calls can be viewed on the LCD of the Digital Key Phones. A useful feature for the user to find out who called in his absence.

Tri Colour LEDs for Port Status

Status of other extensions (DKP and SLT) and trunk lines can be displayed on the Digital Key Phone. The status of the user's extension as well as that of other extensions or trunks can be known through the LEDs.

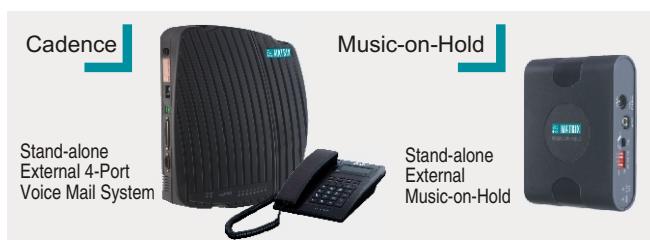
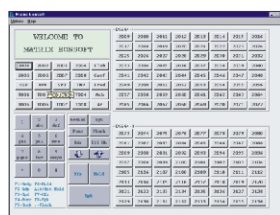
Features available in Eon45, Eon42S and EonSoft

- Absent/Present Settings
- Adjustable Ringer Volume Level
- Adjustable Speech Level
- Auto Answer
- Background Music (BGM)
- Call Chaining
- Call Cost Display
- Call Duration Display
- Dialed Number Directory
- Directory Dialing by Name
- Forced Answer
- Hands Free Operation
- Keypad Lock
- Last Dialed Calls
- Live Call Screening
- Menu Based Settings
- Message Paging
- Missed Calls List
- Multiple Ringer Tones
- Off-Hook Alert
- Personal Settings
- Quick Dial
- Room Monitor
- Text Message Reply
- Time Zone Display
- Tri Colour LEDs for Port Status

Key Differentiating Features in Eon45 and Eon42

| Features | Eon45 | Eon42S | Eon42P |
|--------------------------|-------------------------|-------------------------|-------------------------|
| Total keys | 45 | 42 | 42 |
| No. of Programmable Keys | 25 | 24 | 24 |
| LCD Screen | 2 Lines x 16 Characters | 2 Lines x 24 Characters | 6 Lines x 24 Characters |
| LCD with Backlight | No | Yes | Yes |
| Headset Interface | Yes | Yes | Yes |
| Ringer Lamp | No | Yes | Yes |
| Speaker Phone | Half Duplex | Full Duplex | Full Duplex |

EonSoft: PC based Digital Key Phone



An innovation from Matrix, the EonSoft offers integration of your PC with your Digital Key Phone. A feature of great utility to the techno savvy who have a computer on their desks and do not wish to keep a separate telephone.

Forced Answer

This feature enables the caller to force the called party (on Eon45, Eon42 or EonSoft) to answer the call by making the destination station's speaker go Off-Hook. This is useful when the called party is not responding to the call in spite of the station ringing continuously.

Help Menu

The EonSoft offers a user-friendly help menu for ease of operation.

Integration with Microsoft Address Book

The EonSoft is integrated with Microsoft address book. This helps the users to directly call the numbers stored in the address book at a click of the mouse.

Keyboard and Mouse Operation

The EonSoft can be operated both, through keyboard and with mouse.

Shortcut Keys

Shortcut keys can be defined for different functions so that they can be used easily.

Tools Tips on Mouse Over

Tool tips shall be displayed on mouse over. These tips can be programmed for each key. It can help the user to know details about a particular key. It is also useful in intuitive operation of the EonSoft.

Additional Features available in EonSoft

- Automatic Sensing of PC Status
- Automatic Sensing of Software Status
- Handset Connectivity
- Help Menu
- Integration with Microsoft Address Book
- Key Board Macros
- Key Board and Mouse Operation
- Programmable Tool Tips
- Shortcut Keys
- Standard Windows User Interface

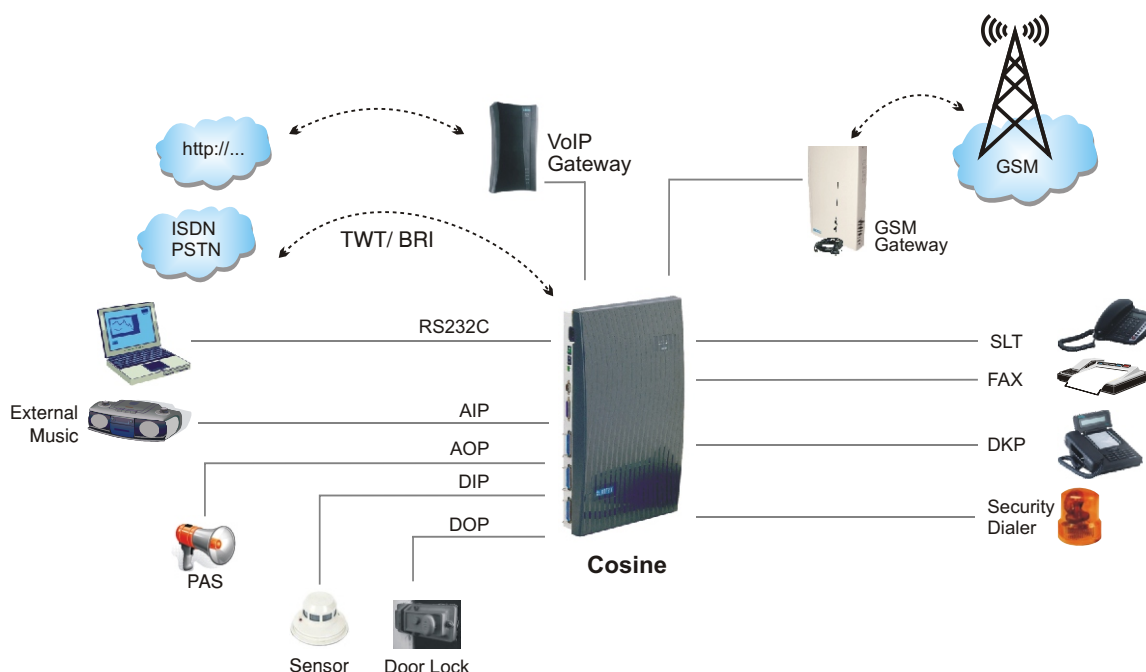
■ Cosine Features List

Abbreviated Dialing (Global, Personal)
 Access Codes - Programmable
 Alarms (Duration, Time, Daily, Remote, Date and Time)
 Alarms - Multiple
 Allowed and Denied Lists
 Alternate Number Dialing
 Auto Attendant*
 Auto Call Back (Busy, No reply)
 Auto Redial - Multiple
 Automated Control Applications
 Barge-In
 Battery Charger
 Behind the PBX Applications
 Boss Ring
 Call Duration Control
 Call Follow Me
 Call Forward (All, Busy, No reply, Dual Ring)
 Call Forward (Internal, External)
 Call Park
 Call Pick Up (Group, Selective)
 Call Progress Tones
 Call Splitting
 Call Taping^
 Call Transfer
 Calling Line Identification and Presentation (CLIP - FSK, DTMF)
 CLI Based Routing
 Class Of Service (CoS)
 Communication Port
 Conference -15 Party
 Conference Multiple
 Configuration Reports
 Conflict Dialing
 Continued Dialing
 Conversation Recording^

Daylight Saving Time
 Department Call
 Dial by Name*
 Digital Input Port (DIP)
 Digital Key Phone Connectivity
 Digital Output Port (DOP)
 Direct Inward Dialing (DID)
 Direct Inward System Access (DISA)
 Distinctive Rings
 Do Not Disturb (DND)
 Dynamic Lock (Auto, Manual)
 Emergency Call Detection and Reporting
 Emergency Dialing
 External Call Forward (ECF)
 External Music Port
 Fax Homing
 Flash Timer
 Flexible Numbers
 Hold
 Hot Desking
 Hotline (Internal, External)
 Interrupt Request
 ISDN-BRI#
 Last Caller Recall
 Last Number Redial
 Least Cost Routing (Time, Number, Combination, Carrier Pre-Selection)
 Live Call Screening^
 Live Call Supervision
 Message Paging
 Message Wait
 Music on Hold (Internal, External, Voice Module)
 Name Programming
 Operator
 Override

Paging
 Power Fail Transfer
 Printer Port (Only for Cosine64P)
 Priority (Extension, Trunk)
 Privacy
 Programming (Using SLT, DKP, COMM Port-Jeeves)
 Public Address System (PAS)Port
 Raid
 Real Time Clock
 Region Settings
 Remote Programming (from Mobile and Landline Phone)
 Scheduled Dialing
 Security Dialer
 Selective Trunk Access
 Station Message Detail Recording (Incoming, Outgoing)
 Station Name
 System Security (Passwords)
 Time Tables (Day, Night, Break)
 Toll Control
 Trunk Access Groups
 Trunk Landing Group
 Trunk Reservation
 User Security (Password)
 Voice Greetings for Alarms*
 Voice Guided help for DISA and DID (Busy, No Reply, Transfer, Wrong Dial)*
 Voice Message for Auto Redial*
 Voice Greetings for Day & Night*
 Voice Message for Security Dialer*
 VMS Gateway
 Walk-in Class of Service

* Auto Attendant card required
 ^ Voice Mail System required
 # BRI card required



Cosine - Interfaces and Applications

Technical Specifications

| | |
|---|---|
| CO Lines (FXO) | |
| Off Hook Line Impedance | : 600Ω |
| Loop Limit | : 1500Ω |
| Pulse Dialing | : 10 PPS +/- 5%, Make/Break =33:67, 40:60, 50:50 |
| DTMF Dialing and Reception | : As per ITU-T Q.23 & Q.24 |
| CLI Reception | : DTMF, FSK ITU-T V.23 and FSK Bellcore 202 |
| Call Maturity | : Delay Type |
| Protection | : Solid State (over Voltage and Over Current) built-in Secondary Protection |
| Connections | : Cosine64P - Amphenol 36-way Connector (20-pair cable, 0.5 mm/0.019") Cosine32P - Push-Type Connector (Single Pair Wire, 0.5 mm/0.019") |
| Power Fail Transfer | : All CO lines to fixed stations |
| Stations Lines (FXS) | |
| Loop Limit | : 1200Ω Max. (Excluding Telephone) |
| Loop Current | : 39 mA Max. |
| Ring Voltage | : 60 Vrms, 25 Hz |
| Off Hook Line Impedance | : 600Ω |
| Pulse Detection | : 10 PPS +/- 5%, Make/Break = 33:67 |
| DTMF Detection | : As per ITU-T Q.24 |
| CLI Presentation | : DTMF, FSK ITU-T V.23 and FSK Bellcore 202 |
| Protection | : Solid State (over Voltage and Over Current) built-in Secondary Protection |
| Connections | : Cosine64P - Amphenol 36-Way Connector (20-Pair Cable, 0.5 mm/0.019") Cosine32P - Push-Type Connector (Single Pair Wire, 0.5 mm/0.019") |
| BRI Trunks | |
| Channels | : 2B+D |
| Personality | : TE (Terminal Equipment) |
| Signaling | : Euro ISDN ETSI DSS1 CTR3 (NET3), ITU-T Q.921, Q.931, US National ISDN-1, German 1TR6, France VNx, Australian TS-013, TS-031 |
| Countries Supported | : Europe, USA, Germany, France, UK, Australia, China, Hong Kong, Korea, Singapore |
| Supplementary Services | : Euro ISDN, US Nation ISDN |
| Digital Key Phone (DKP) Port | |
| Interfaces | : Single Pair for Speech, Signaling and Power |
| Channels | : 2B+D |
| Signaling | : Proprietary Protocol |
| Loop Limit | : 150Ω (Eon45), 100Ω (Eon42) |
| Protection | : Solid State (over Voltage and Over Current) built-in Secondary Protection |
| Additional Ports | |
| Analog Input Port | : 0.7 Vrms, Isolated, Push-Type Connector |
| Analog Output Port | : 0.7 Vrms, Isolated, Push-Type Connector |
| Digital Input Port | : Loop Sensing-Open/Close, 5 mA, Push-Type Connector |
| Digital Output Port | : VDC Max = 60 V DC, IDC Max = 0.15 A, Push-Type Connector |
| Switching | : PCM/TDM Digital Switching, 100% Non-blocking |
| Transmission Parameter (Between FXS-FXO) | |
| Return Loss | : More than 20 dB |
| Insertion Loss | : Less than 1 dB |
| Inter-Channel Cross-Talk | : Less than -65 dBm |
| Idle Channel Noise | : Less than -65 dBmOp |
| Longitudinal Balance | : Better than 40 dB |
| Power Supply | |
| Input | : 90-265 V AC, 47-65 Hz |
| Power Consumption (Typical) | : Cosine32P - 20 W Cosine64P - 40 W |
| Battery Backup | : 24 V DC, 7-10 A.h |
| Mechanical | |
| Dimensions (W x H x D) | : Cosine32P - 25.0 x 33.0 x 7.0 cm (9.8" x 13.0" x 2.7") Cosine64P - 31.5 x 50.7 x 7.5 cm (12.4" x 20.0" x 2.9") |
| Unit Weight | : Cosine32P - 1.6 kg (3.5 lb) Cosine64P - 3.8 kg (8.4 lb) |
| Shipping Weight | : Cosine32P - 3.7 kg (8.1 lb) Cosine64P - 7.5 kg (16.5 lb) |
| Installation | : Wall Mount |
| Environment | |
| Operating Temperature | : -10°C to 50°C (14°F to 122°F) |
| Operating Humidity | : 5-95% RH, Non-Condensing |
| Storage Temperature | : -40°C to 85°C (-40°F to 185°F) |
| Storage Humidity | : 0-95% RH, Non-Condensing |

Compliance

EMI/EMC

| | |
|--------------------------------|--------------------|
| Conducted Emission | : CISPR 22 Class A |
| Radiated Emission | : CISPR 22 Class A |
| Harmonic Current Emission | : IEC 61000-3-2 |
| Voltage Flicker | : IEC 61000-3-3 |
| Electro-static Discharge | : IEC 61000-4-2 |
| Radiated Susceptibility | : IEC 61000-4-3 |
| Electrical Fast Transient | : IEC 61000-4-4 |
| Surge | : IEC 61000-4-5 |
| Conducted Immunity | : IEC 61000-4-6 |
| Power Frequency Magnetic Field | : IEC 61000-4-8 |
| Voltage Interruption & Dips | : IEC 61000-4-11 |

EC Directives

R&TTE 1999/5/EC
LVD 73/23/EEC
EMC 89/336EEC

Safety

IEC 60950 3rd Edition (1999)

FCC

Conducted Emission : FCC Part 15 Sub Part B Class A
Radiated Emission : FCC Part 15 Sub Part B Class A

■ System Capacity and Resources

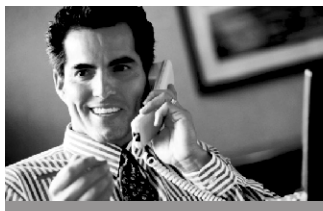
| Hardware | Application | Cosine32P | Cosine64P |
|---------------------------|---|-------------------------------|-----------|
| Total Ports | User Ports | 21 | 52 |
| Maximum TWT Trunks | PSTN/CO Line Connectivity | 4 | 8 |
| Maximum BRI Trunks | BRI Line Connectivity | 1 | 2 |
| Maximum Analog Phone | Phone, Fax, Modem Connectivity | 12 | 32 |
| Maximum Digital Phone | Digital Key Phone Connectivity | 3 | 8 |
| Analog Input Port (AIP) | Eternal Music Connectivity | 1 | 1 |
| Analog Output Port (AOP) | Public Address System (PAS) Connectivity | 1 | 1 |
| Digital Input Port (DIP) | Sensors, Panic Switches Connectivity | 1 | 1 |
| Digital Output Port (DOP) | Door Lock, Relay Based Device Connectivity | 1 | 1 |
| RS232C (COMM) Ports | Computer Connectivity | 1 | 1 |
| Parallel Port | Printer Connectivity | --- | 1 |
| Security Dialer | Emergency Dialing | 1 | 1 |
| Voice Module | Auto Attendant & Other Voice Based Applications | 256 sec | 256 sec |
| DTMF Decoders | | Separate for each Analog Port | |
| DTMF Encoders | | Separate for each Analog Port | |
| Conference | Multi-Party Conference | 15 Party | |

■ Expansion Cards

| Card | Application | Cosine32P | Cosine64P |
|------|--|-----------|-----------|
| TRK1 | 1-Port card for CO Line | Yes | Yes |
| SLT2 | 2-Port Card for Analog Phone Line (SLT) | Yes | Yes |
| DKP1 | 1-Port Card for Digital Phone Line (DKP) | Yes | Yes |
| BRI1 | 1-Port Card for ISDN BRI | Yes | No |
| BRI2 | 2-Port Card for ISDN BRI | No | Yes |
| AA8 | 8-Port Card for Auto Attendant | Yes | Yes |

■ Matrix Business PBX-KTS Products

| | |
|-----------|--|
| Cosine32P | Key Phone system for 4 Trunk Lines, 3 Digital Extensions, 12 Analog Extensions and 1 ISDN BRI Line |
| Cosine64P | Key Phone system expandable up to 8 Trunk Lines, 8 Digital Extensions, 32 Analog Extensions and 2 ISDN BRI Lines |
| Team208S | PBX for 2 Trunk Lines and 8 Analog Extensions, expandable up to 20 Ports |
| Team208P | PBX with Premium Features for 2 Trunk Lines and 8 Analog Extensions, expandable up to 20 Ports |
| Focus416P | PBX with Premium Features for 4 Trunk Lines and 16 Analog Extensions, expandable up to 40 Ports |
| Empire428 | PBX with Premium Features for 4 Trunk Lines and 28 Analog Extensions, expandable up to 96 Ports |



■ ABOUT MATRIX

An ISO 9001 Company, Matrix is a leader in the VoIP, GSM, Key Phone System and PBX market. An innovative, technology driven and customer focused organization; the company is committed to keep pace with revolutions in the telecom industry. This has resulted in bringing forth cutting edge products like Digital and ISDN Key Phone Systems, Voice Messaging Products, GSM Gateways, VoIP Gateways, VoIP PBXs, Intercom Security Products and PLCC Switches. With over 1,000,000 line units installed and growing by over 1000 line units per day, the installed base of Matrix connects over 10,000,000 calls everyday. Thus, Matrix has gained the trust and admiration of users representing the entire spectrum of industries. Matrix has won many awards for its innovative products.

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Due to continuous technology upgradations, product specifications are subject to change without notice.

** Check Availability*