



ETERNITY

The Integrated Enterprise Voice Switch

The 3-Dimensional I

Modern businesses require a completely integrated communication solution. One that offers easy scalability and can grow with growing needs of the organisation. Presenting Matrix Eternity, an Integrated enterprise voice switch. It is a unique convergence of Innovative switching technology and Intelligent software features.

Intelligence that is embedded in the system to offer prompt and professional response coupled with features that help in efficient call management. The innovative technology used for the design of the system helps reduce overall the cost of communication. With its 100% non-blocking, PCM-TDM design Eternity ensures unrestricted communication from all the users simultaneously.

Matrix Eternity offers a platform with universal slots that can take care of all your future communication requirements. It also offers flexible scalability due to its modular design of the cards.

Get the power of Matrix Eternity behind you because winning is important, not only today but also tomorrow!



Innovative and robust design of Matrix Eternity ensures efficient, reliable and maintenance free communication. Powered by 32-bit controller and distributed processing, the system ensures immediate response. Built on ISDN switching platform and high density switching, Matrix Eternity is surely a future proof investment for any organisation.

Matrix Eternity is a unique mix of Integration, Intelligence and Innovation, thus making it preferred communication partner of large organisations. It is time you shift over to this winning 3 dimensional idea from Matrix because winning idea is the key to success!

■ Eternity is available in two models: (i) Eternity ME10S with 10 universal slots expandable to a maximum of 276 user ports, (ii) Eternity ME16S with 16 universal slots expandable to a maximum of 468 user ports.

Different types of interfaces can be integrated through these universal slots. Trunk Lines (TRK), Single Line Telephones (SLT), Digital Key Phones (DKP), ISDN BRI, ISDN PRI, T1/E1, E&M Tie Lines, GSM, VoIP Lines and even Magneto Trunk Lines* can be interfaced using these universal slots. It offers two options for voice mail system through universal slots. Matrix Eternity also offers various options of mixed cards e.g. TRK+SLT etc. The unique design of these modular cards for universal slots helps you to configure the system exactly as per your requirement. Thus you exactly buy what you need, neither more nor less. Even for future expansion, you need not burden your pocket heavily as you can expand in steps as per your requirements hence making it cost effective. Thus Matrix Eternity can grow easily and in a cost effective way with your growing communication needs.

All the facilities even like 4 Digital Key Phone Ports, 21-Party Conference, Auto Attendant, Digital Input Port, Digital Output Port, Analog Input Port, Analog Output Port, Remote Programming, SMDR Buffer with a large capacity etc. are built-in the system. These features normally warrant additional investments in most other brands. Integrated such that the system is complete in itself. No hidden costs, simply a comprehensive solution for your communication needs.

Intelligent features like Auto Attendant, CLI based Routing, and Dial by Name not only ensures efficient call management but also help in giving a prompt and professional response to the callers. Features like Least Cost Routing, CLI based External Call Forwarding, Call Budgeting are provided that help in reducing communication cost. Thus Matrix Eternity helps in enhancing productivity in the organisation.

Eternity ME10S



Eternity ME16S



■ AN INTELLIGENT ONE

An intelligent system, Matrix Eternity gives you a vital edge in your business with increased productivity and a distinct cost advantage.

Account Codes

A convenience feature. It is especially of great help when account for all calls made for a particular client, need to be recorded. A unique account code can be assigned to each client. Any call made by anyone from the organisation on behalf of a particular client can be recorded under a single account. Matrix Eternity shall make sure that you have the comprehensive list of all the calls made on behalf of each client. There is also an option of forced account code wherein without dialing account code, the user cannot dial a number. 1000 account codes can be defined in Matrix Eternity.

Alarms

Matrix Eternity offers facility of multiple types of alarms namely Daily, Time and Future Date and Time on each extension. All these alarms can also be activated remotely. What's more, each extension user has option to activate multiple alarms of each type depending on the requirement. Matrix Eternity even offers the option of alarm-snooze, same as that available in mobile handsets. A convenience feature for all users in the organisation.

Allowed and Denied Lists

This function avoids misuse of long distance and international dialing to control telephone cost. A comprehensive list of numbers can be included in the Allowed and Denied Lists. However, it allows dialing of a few fixed numbers and restricting dialing of other numbers in the same area. For example, an extension can dial only '22-262-5738' but not any other number starting with '22'. Matrix Eternity offers flexibility of defining 32 allowed and 32 denied lists. Each list can contain 256 numbers each of a maximum of 16 digits.

Auto Redial

Allows a user to keep contacting a person if the called number is busy. By instructing the Eternity by click of a button, the station user can continue with his/her other chores while the system shall keep trying the busy number till it does not get connected. The function even allows determining the priority of auto-redial as low priority or high priority.

Automatic Call Distribution

A smart feature, it automatically distributes incoming calls to the available operator. Thus utilising the available resources optimally. A very useful feature in call centers and other high call traffic offices.

Central Ringer

The Eternity offers a central ringer. Incase, an incoming call is not attended by any extension in normal course, the central ringer can be activated. A special buzzer provided on the master card will start ringing. You can also program such that a special alarm set up in the office starts ringing in the office as soon as the central ringer is activated. Once the central ringer is activated, any extension can answer the incoming call by dialing a specific code. A great utility feature in special circumstances like unplanned holiday in office, noisy work environments, etc.

Boss Ring

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

Call Accounting System Interface

Matrix Eternity offers interface for most types of Call Accounting System protocols available world-wide. This helps in easy integration of the third party call accounting software with Matrix Eternity.

Call Budgeting

The maximum usage in value terms can be allocated to each station thus avoiding excess telephone bills at the same time not hampering productivity. The DKP users can use the Call Cost Display feature and find out at any point of time how much call budget they were allocated and at that point of time, how much out of that budget they have consumed.

Call Duration Control (CDC)

An effective cost control feature that allows you to control the misuse of phone in your office. Each extension can be programmed for multiple options. These include incoming, outgoing and intercom call to be disconnected after a pre-defined duration, selective long distance or international calls to be disconnected after a pre-defined duration, only give indication after a pre-defined duration to keep track of time etc.

Call Progress Tones and Rings

Programable Call Progress Tones like Dial Tone, Ring Back Tone and Busy Tone etc., Are provided to match the tones of the country's standard where it is getting installed. Similarly, ring cadences can also be selected.

CLI Based Routing

The dedicated code detector circuits identify the Caller Line (trunk call) and routes the incoming call directly to a specified station (DKP or SLT). Such 400 external numbers can be programmed in Matrix Eternity. It also lets that station (DKP) know even the name of the caller if programmed accordingly.

Conference Dial-in

This unique feature allows participants of a conference to dial-in a live conference at a scheduled time just by dialing a code. A great time saving feature!

Department Call

This function is useful when the caller wants to talk to any person in a department and not a particular individual. The Eternity allows 16 department groups to be formed and each department is assigned an access code called department code.

Emergency Call Detection And Reporting

Emergency Call Detection and Reporting in Matrix Eternity allows you to program the emergency number that can be dialed by any user. This emergency number can be dialed from any extension, even those that do not have trunk access. If any user 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 further course of action.

Field Programmable (Onsite Upgradation)

The hardware and software configuration can be changed in the field to adapt to the dynamic field requirement. Capacity port configuration and programming can be managed at the installation site. Programming of the Eternity is possible using a normal phone, a key-phone or using a PC. Remote programming is also supported to save time and cost in providing essential technical support.

Flexible Clock Synchronisation

This feature allows user to synchronise the system clock of Matrix Eternity to desired network clock. It is programmable for each trunk port.

Hot Outward Dial

This function is of great use for those stations which make more trunk calls as compared to internal calls. As soon as the station user picks up the receiver, he/she gets access to the desired trunk line, saving a lot of time and efforts. This function also offers a variant whereby a specified telephone number may also be dialed as immediately as the handset is picked up or after a pre-defined delay.

Least Cost Routing

It is a unique function designed using structured programming. 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 leading to major savings. Four options for least cost routing based on (1) Time, (2) Number, (3) Combination of Time and Number (4) Service Provider to Service Provider are available. Even combinations of the above parameters can be defined for least cost routing. For example, you can program the system to

select only a particular trunk line for making STD calls and another trunk to make all local calls during day time but a different trunk for making local calls during night time. All this happens automatically! You can even program the system such that for calling any CDMA number across any location in India (local and long distance), only a particular trunk line is used. With Matrix Eternity, you can be rest assured that every call being made outside your organisation is always at the least cost!

Paging

Messages can be announced to a larger number of people just by lifting the phone and dialing a specific code. Mass communication at its best!

Priority

It allows certain stations, a higher priority of access over others, such that calls from the senior managers get priority while waiting to get connected to a station over others.

Room Monitor

Allows the station user to listen to the sounds in another room where the Digital Key Phone is installed without letting the people in that room know about it. What's more, you can even monitor the room from your mobile. A very powerful security feature!

Routing

The Eternity allows you to fix a route for all incoming calls so that they land on a particular station, if they are not answered till a specified number of rings, they are sent over to another station and so on. Hence no call gets terminated till it is replied properly.

Security Dialer

Matrix Eternity allows you to connect any type of sensors like glass break sensor, magnetic sensor, smoke detector etc. to the digital input port. In case of any emergency, the system 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. Even a hooter can be activated in case of emergency.

SMDR Reports (Outgoing, Incoming and Internal)

The Advanced Search Module allows detailed reports for each outgoing, incoming and internal calls, to be generated and printed for better analysis. Filters for selecting what calls to be stored and filters for different types of analysis are available in Matrix Eternity. Separate buffer capacity of calls is available each for 6000 outgoing, 5000 incoming and 1000 internal calls.

ISDN Features

Eternity offers connectivity of ISDN BRI and ISDN PRI lines. Features like Multi Subscriber Numbers (MSN), Direct Dial In (DDI), Calling Line Identification and Presentation (CLIP) and Calling Line Identification Restriction (CLIR) are in-built. Also other Number Identification features* like Connected Line Identification Presentation (COLP), Connected Line Identification Restriction (COLR) and Malicious Caller Identification (MCID) are available. Other Call Offering Services* like Call Forward - Unconditional, Busy and No Reply, Call Deflection, Explicit Call Transfer, Call Waiting, Call Hold, Call Completion on Busy Subscriber, Advice on Charge at end of the call and Advice on Charge during the call are also available. It also offers facility of connecting ISDN Phone, Video Phone or other Video Conferencing equipment.

Time Tables

The system can work differently depending upon the time of the day. It allows flexible programming for 3 time zones namely (1) Working hours, (2) Lunch hours and (3) Non-working hours, individually, for all 7 days in a week. Thus long distance dialing access may be denied to certain stations after working hours or trunk calls may directly reach security office after the office shuts down or a specific message is played on a holiday.

Virtual Users

Matrix Eternity offers feature of virtual users that allows sharing of an extension by multiple users. It offers option of mapping this virtual extension number to actual extensions. So whenever the virtual extension number is dialed, it will reach the actual extension to which it is mapped. A maximum of 640 (less the actual number of extensions used) can be defined as virtual users.

Voice Mail Gateway

Matrix Eternity offers a generalised gateway such that it can be easily integrated with voice mail system of any other brand. However, the handshake is possible only if the voice mail system also supports the gateway operation. Please check for exact details regarding this handshake with the supplier of the voice mail system.

Voice Prompts for Tones

Matrix Eternity offers this unique feature of guiding the users at various tones. Voice prompts can be recorded for various tones like dial tone, engage tone, error tone and ring back tone. For example, if a user dials an extension and the extension is busy, a message 'The called extension is busy. Please dial 2 for auto call back,' can be played. An extremely user friendly feature offering a world of convenience.

Web Based Programming

A flexible and user friendly windows based software, Jeeves helps undertake programming of the features through web browser like internet explorer. Matrix Eternity incorporates built-in server functionality that is required to access Eternity to program through internet. This web based programming features helps user to configure Eternity from any part of the world once it is connected with IP network.

■ THE INTEGRATED ONE

Build to perform, Matrix Eternity is the most integrated solution for all your communication needs. A unique convergence of the latest switching technology with intelligent software programming, Matrix Eternity offers a completely reliable communication set-up for your organisation.

21-Party Conference

Matrix Eternity possesses a PCM Conference Call Circuit that uses a total of 8 digital conferencing circuits. This supports maximum of 21 parties in a

single conference without affecting the speech levels. This feature allows even multiple conferences to be conducted simultaneously. Dial-in Conference is also possible. Using Dial-in feature, the users, at a specified time can directly enter the conference by entering their passwords.

128 Digital Key Phones

The Digital Key Phone (Eon45/Eon42) as part of the Eternity can be offered to any number of stations with the addition of extra cards. Maximum 128 Digital Key Phones can be connected to Matrix Eternity depending on the system capacity.

4 Digital Key Phone Ports

Two models of Matrix Eternity namely ME10S and ME16S offer 4 Digital Key Phone ports as part of the standard equipment. It possesses a 2 wire full-duplex Digital Subscriber Network Interface Circuit (offers range up to 4km). Additional Digital Key Phones can be easily connected by adding additional ports.

Background Music

The system allows you to use the DKP as well as SLT as a device to play background music as well. This does not hamper the switching functions of the DKP, thus saving the cost incurred for putting up speakers and wiring. Four types of music tones are built-in the system, besides the option of using an external music source like CD player, FM radio, etc.

Caller Line Identification (CLI)

Matrix Eternity offers CLI features on both DKP and SLT. It offers the facility to detect CLI on normal telephone lines, ISDN lines, GSM lines and VoIP lines. It can detect both, DTMF and FSK signals for CLI. You can get CLI of external number, internal number and also CLI on transfer of calls. If programmed, even the name of the caller can be displayed on DKP. Matrix Eternity also offers the flexibility of programming the CLI feature for each extension individually.

Calling Line Identity Restriction (CLIR)

Matrix Eternity offers the facility of calling line identity restriction. Selected users can deny disclosing their extension identity to others.

Compact and Sturdy Design

Matrix Eternity's compact design leads to smaller footprint. The wall mountable design is easy to maintain and occupies lesser space. Besides, all the parts have been fixed in specified slots. This 'no moving parts' design leads to higher reliability.

Dedicated DTMF

Matrix Eternity offers dedicated DTMF circuit for each user making it 100% non-blocking even while dialing. This is a critical parameter for organisations expecting heavy call traffic. This is what makes Matrix Eternity a 100% non-blocking system in true sense.

Digital Key Phone + Single Line Telephone

Matrix Eternity allows flexibility in selecting number of Digital Key Phones and Single Line Telephones in the system as per the needs of an organisation. More DKPs and less SLTs are also possible.

Direct Inward System Access (DISA)

Direct Inward System Access (DISA) allows a user to access the systems resources from a remote location. Thus a user can make calls to and from any of the stations, activate/deactivate features of any station and even program or administer the system.

Direct Outward System Access (DOSA)

Direct Outward System Access (DOSA) allows a user to access the systems resources from a remote location. Thus a user can make calls to any external number, from a remote location, using the trunk lines connected to the system. This is a password protected access to ensure security.

External Music Port

The external music port allows an external music source to be connected to Matrix Eternity. Desired music or jingle can be played while a person is kept on hold.

Hot Desking

The Object Oriented Programming done for this function allows the extension user to transfer his extension to another extension just with a command. It's akin to carrying your extension wherever you move. Both DKP and SLT users can activate this feature. DKP user can hot desk his extension with another DKP user and SLT user can hot desk his extension with another SLT user. This feature can be program for any extension and can be activated by use of a personal password.

Hotel Motel Features

Matrix Eternity offers comprehensive hotel motel features built-in the system. The system also offers integration with Property Management Software (PMS) used in hotels. For further details, please refer to Hotel Motel brochure of Matrix Eternity.

Public Address System (PAS)

The Public Address System Port allows any station user to make announcements on external speakers.

System Activity Log

Matrix Eternity maintains a complete system activity log. You can find out when a particular extension entered in programming mode, when a particular card was removed from the system or even when a particular port was not detected by the software of the system. A great utility feature for the system engineer!

System Fault Log

Eternity possesses a functionality of watch dog, where by it keeps maintaining a log of all faults occurring in system. Various faulty events like Card Absent, RTC Failure, DS1 Signal Loss, BRI Signal Loss, and DKP/SLT absent etc... are registered in the fault log. On such events Eternity activates buzzer to sounds. A very helpful feature for system engineer to identify the faulty condition and to take appropriate preventive actions against such errors.

System Administrator (SA) Mode

System Administrator (SA) mode is one of the different programming mode which Eternity provides for security purpose. SA mode is used to program the features like SMDR generation, Setting Report Filters, Class of Service, Hotel-Motel features etc. SA mode is password protected which prevents system to be used by unauthorized person.

Voice DID

The built-in auto-attendant feature performs the task of an operator by greeting the external caller and transferring call to the desired station. Five callers can be handled simultaneously.

Voice Mail Connectivity

All voice mail features can be availed in Matrix Eternity by connecting an integrated Voice Mail (VMS) System card to the Eternity.

Voice Message Applications

Matrix Eternity has built-in voice modules. They can be used for various voice applications like Station Greetings, Reminders, Toll Control, Multiple Trunk Auto Attendant, DID Greetings, DID Guidance, Security Dialer, Message Wait, Alarm, Help and Music-on-Hold.

■ THE INNOVATIVE ONE

A system built after intensive R&D efforts, the Matrix Eternity is designed with features after understanding the needs of the modern businesses. Thus offering you the advantage to use the technology for increasing productivity and convenience. A futuristic system, the Matrix Eternity shall serve you for years to come.

12 KHz / 16 KHz Metering

Matrix Eternity can calculate your telecommunication cost more accurately as it is able to sense the pulse of the call sent by the Central Office Exchange. This leads to your knowing for sure as to how much are you exactly spending.

Distributed Processing

Matrix Eternity employs multi-processor architecture, wherein each card has its own dedicated micro-controller, EPROM and RAM. This processor is responsible for local processing of events and commands. The master processor manages all the slaves. This technology enhances flexibility and reliability and performance of the system.

E&M Connectivity

E&M card can be used to connect the Eternity to routers, VSAT, voice-data multiplexers, etc. This card facilitates integrating the Eternity into your Wide Area Network (WAN). E&M card can also be used to expand the configuration of any existing PBX/KTS system. Eternity supports 2 wire / 4 wire E&M connectivity. It also supports Type IV and Type V E&M.

Expandability

All models of Matrix Eternity are expandable that allow you to keep adding extra cards to increase the number of stations as your organisation keeps growing. The greatest advantage is that the same expansion cards can be used for all the two models of Eternity (ME10S and ME16S).

GSM Connectivity

Matrix Eternity supports GSM connectivity by means of an optional GSM card. Important features like Automatic Number Translation, Network Selection and supplementary services like Call Hold, Call Waiting, Call Swap, Conference and Out Dial are built-in.

GPAX Features

Matrix Eternity supports Group PBX applications. Important features like Flexible Numbering, Station-wise SMDR Reports, Back Ground Music on Station (SLT), Reversal on SLT for connecting PCO on SLT etc. are available.

High Density Switching

Built on PCM/TDM, non-blocking, digital technology, Matrix Eternity ME10S and Eternity ME16S use 512 x 512 digital switching matrix, which reduces chip count and real estate.

Hot-Swap (Optional)

In a high-reliability scenario, the Eternity cards can be ordered with hot-swap circuitry. This allows removing a faulty card and inserting a working card without switching off the entire system and in the process disconnecting all the ongoing calls.

Integrated Conference Circuits

Eternity employs a single powerful digital conferencing IC with speech level control instead of traditional, bulky cards.

ISDN Connectivity

Eternity allows to can connect ISDN BRI (2B+D) as well as ISDN PRI (23B+D or 30B+D) lines to the system using optional cards. ISDN BRI and ISDN PRI lines can be configured as NT or TE as per application requirement. An ISDN Terminal, Video Phone or LAN can be connected to ISDN port if it is programmed as NT.

VoIP Connectivity

VoIP lines can be connected to Matrix Eternity through an optional VoIP card. Users can use these lines directly from their stations. Each VoIP card provides 8 Channels, enables users to call on all 8 channels simultaneously. Eternity is designed to support maximum 32 SIP accounts of various ITSP.

Magneto Phones Connectivity*

Magneto phones can be connected directly to the Eternity. It can detect incoming call ring and route this call to any digital or analog station. The station can just lift the handset and talk to the calling magneto phone. Similarly, a user can "crank" outgoing calls on a magneto line. The Eternity has build-in circuit and logic to generate ringing voltages to alert the magneto phone at the other end of the line. This interface makes the Eternity a truly timeless switch.

Redundancy (Optional)

The Eternity ME10S offers redundancy for its all important functional blocks - Control, Switching and Power. It supports duplication of the Master Card, the Switch Card and the PS48V Card. For Power Card and Switch Card failure conditions, the stand-by card takes over smoothly. Whereas, if the active Master Card fails, the stand-by Master Card takes over automatically but the system restarts once.

Remote Programming

Matrix Eternity can be engineered for change in its programming from a remote location also. This does not even require a PC or any other specialised device at the site.

Subscriber Loop Integrated Circuits (SLIC)

Station port hardware uses DSP based advanced Subscriber Loop Integrated Circuits (SLIC). It offers programmable line parameters.

Surface Mount Technology (SMT)

The Surface Mount Technology (SMT) is the current semiconductor packaging technology that offers reduction in real estate resulting in less heat generation and low power consumption. This in turn improves reliability.

T1/E1 Connectivity

T1/E1 lines can be connected to Matrix Eternity through an optional DS1 card.

Universal Slots

All the expansion slots of Matrix Eternity are universal in nature. Any card can be inserted in any slot and the system will configure it automatically. This scheme eliminates configuration bottle-necks because any slot can be used for SLT, DKP, Analog Trunk, ISDN BRI, ISDN PRI, GSM, VoIP, Magneto or any other circuit. Thus, allowing flexible configuration.

Upgrading Software

The programming of the software can be conveniently upgraded through a CD. What's more, the software can be upgraded through internet or even with a file transferred through mail. A boon for system engineers!

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 three models - Eon45, Eon42S and Eon42P. All models are available in two colour variants- Black and White.

Eon45



Eon42S



Eon42P



Adjustable Ringer Volume and Speech Level

User has the option of adjusting the ringer volume level as per requirement. The added advantage is that the receive and transmit speech levels can also be adjusted by the user.

DSS Keys

The Eon offers 20 (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 user's requirement.

Last Dialed Calls

Last 16 dialed calls can be stored in Eon45 and Eon42.

Message Paging

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 last 5 missed calls can be viewed on the LCD of the Eon45. 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 Eon42P

- 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
- Key Pad Lock
- Last Dialed Calls
- Live Call Screening
- Menu Based Settings
- Message Paging
- Missed Calls List
- Multiple Ringer Tones
- Mute
- Off-Hook Alert
- Personal Settings
- Quick Dial
- Room Monitor
- Text Message Reply
- Time Zone Display
- Tri Colour LEDs for Port Status

Key Differentiator Features in Eon45, Eon42S and Eon42P

Features	Eon45	Eon42S	Eon42P
Total keys	45	42	42
No. of Feature Keys	13	24	24
No. of Programmable Keys	25	24	24
LCD Screen	2 Lines x 16 Characters	2 Lines x 16 Characters	6 Lines x 24 Characters
LCD with Back Light	No	Yes	Yes
Headset Interface	No	Yes	Yes
Ringer Lamp	No	Yes	Yes
Speaker Phone	Half Duplex	Full Duplex	Full Duplex

EonSoft PC based Digital Key Phone with two numbers of PC based DSS64

An innovation from Matrix, the EonSoft offers integration of your PC with your DKP/SLT. A feature of great utility to those techno savvy people who have 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.

Features available in EonSoft

- Automatic Sensing of PC Status
- Automatic Sensing of Software Status
- Executive Mode (with 20 DSS Keys)
- 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
- Tool Tips on Mouse Over

(The EonSoft offers all the features offered by the Eon45 and in addition to those, offers other user friendly features.)

Other Accessories

DSS72

Direct Station Selection Console
with 72 keys for Eon42S and Eon42P



DSS64

Direct Station Selection Console
with 64 keys for Eon45



Cadence4P

Stand-alone external
voice mail system
for 4 ports



PFT8

Microcontroller based intelligent
Power FailTransfer module for
8 analog trunk lines



VOICE MAIL FEATURES

Matrix Eternity offers an option of card based internal voice mail. Voice Mail card can be configured to work as 8 ports card or 16 ports. It has capacity of 512 mailboxes and 570 minutes storage capacity. This card can be inserted in any of the universal slots offering all voice mail features that can boost productivity of any organisation.

Message Wait Indication

Indication can be provided to the extension (both DKP and SLT) user regarding any new message in the mailbox. There are three ways to indicate new message. (1) Change in dial tone (stuttered dial tone), (2) LED indication on the telephone (both DKP and SLT with message wait LED) and (3) Voice message before dial tone on lifting the handset.

Call Taping

The system utilizes a Customized Information Exchange Protocol where in, it allows users to record conversations without any indication. Calls made to or received from selected external numbers, can be recorded. This feature is possible both on DKP and SLT. A very helpful feature to document important voice conversations. This feature should be used in accordance with the local laws.

Conversation Recording

User can ask the Cadence to record his conversation in his mailbox. This helps the user to keep record of the points discussed and agreed with the opposite person. This feature can be activated both for DKP and SLT extensions. A boon for businesses that work on verbal commitments. This feature should be used in accordance with the local laws.

Live Call Screening

The Customized Information Exchange Protocol allows DKP users to listen to an incoming voice mail message for the first few moments. This feature lets the user determine whether it requires his attention or not, giving him the option to either talk to the caller or store the message in mailbox for retrieval in future.

Voice Mail Features List

Auto and Manual Mode	Flexible Graph	Parallel Printer Port
Auto Attendant	Individual Mailboxes	Personalised Greetings
Broadcast Message	Information Node	Programming through Jeeves
Call Forward on Voice Mail	Live Call Screening	Redirecting Messages
Call Taping	Message Forward	Remote Programming
Call Transfer Types	Message Nodes	Serial Communication Port
Configuration Reports	Message Notification	System Security (Password)
Conversation Recording	Message Verification	Traffic and Utilisation Reports
Customised Mailbox Size	Message Wait Indication	Transfer Nodes
Dial By Name	Multiple Mailboxes on a Single	Voice Greetings
Distribution Lists	Extension	Voice Memo

Please refer to brochure of Matrix Cadence for further details.

ETERNITY FEATURES LIST

12 kHz/16 kHz Metering	Digital Input Port	Programming the System (Using SLT, DKP, Ethernet Port, Serial Port, Jeeves)
Abbreviated Dialing (Global & Personal)	Digital Output Port	Public Address System Port
Abbreviated Dialing (Free)	Direct Inward Dialing (DID)	Quick Dial
Access Codes (Programmable)	Direct Inward System Access (DISA)	Raid
Account Codes	Direct Outward System Access (DOSA)	Real Time Clock
Account Codes (Forced)	Distinctive Rings	Real Time Clock Synchronization
Alarms (Time, Daily, Future Date & Time)	Do Not Disturb (DND)	Redundancy (Optional)
Alarm-Snooze	Do Not Disturb (Remote)	Region Code
Alarm-Multiple	Dynamic Lock (Auto and Manual)	Remote Alarm
Allowed and Denied Lists	Emergency Call Detection and Reporting	Remote Call Forward
Alternate Number Dialing	Emergency Dialing	Remote Programming
Analog Input Port	External Call	RS232C Ports
Analog Output Port	External Music Port	Security Dialing and Reporting
Auto Attendant (Multiple Languages)	Field Programmable (Onsite up-gradation)	Selective Trunk Access
Auto Call Back (Busy, No Reply)	Flash Timer	Self Ring Test
Auto Redial	Flexible Clock Synchronization	Station Groups
Automated Control Applications	Flexible Numbers	Station In-Service/Out-Service
Background Music (DKP, SLT)	Forced Call Disconnection	Station Message Detail Recording (SMDR)
Barge-In	GPAX Applications	Station Message Detail Recording (Incoming, Outgoing, Internal)
Behind the PBX Applications	Helpdesk	System Activity Log and Display
Boss Ring	Hold	System Administrator (SA) Mode
Call Accounting System (CAS) Interface	Hot Desking	System Debug
Call Budget	Hotline (Immediate and With Delay)	System Fault Log and Display
Call Cost Calculation	Hot Outward Dialing (With/Without Number, With/Without Delay)	System Security (Passwords)
Call Duration Control	Hotel-Motel Features	Time Tables
Call Follow Me	Hot-Swap (Optional)	Toll Control
Call Forward (Busy, No Reply, Dual Ring, Busy or No Reply, To external number)	Incoming Call Management	Trunk Access Groups
Call Forward (Remote)	Internal Call	Trunk Auto Answer
Call Park (General and Personal Orbit)	Internal Call Restriction	Trunk Connectivity (TWT)
Call Pick Up (Group and Selective)	Interrupt Request	Trunk Connectivity (ISDN BRI-NT/TE)
Call Splitting	Last Caller Recall	Trunk Connectivity (E&M)
Call Taping	Last Number Redial	Trunk Connectivity (E1)
Call Transfer (Screened, On Busy, While Ringing, Trunk to Trunk)	Least Cost Routing (Number, Time, Combination of Time + Number, and Service Provider to Service Provider)	Trunk Connectivity (GSM)
Calling Line Identification and Presentation (CLIP)	Live Call Screening	Trunk Connectivity (ISDN PRI-NT/TE)
Calling Line Identity Restriction (CLIR)	Live Call Supervision	Trunk Connectivity (T1)
Calling Line Identification-Station (DKP and SLT)	Master Time Zone	Trunk Connectivity (VoIP)
Calling Line Identification-Trunk (Analog, ISDN, T1/E1, GSM, VoIP)	Maturity (12 kHz/16 kHz, Delay, CPD, Polarity Reversal, Connect)	Trunk Connectivity (Magneto *)
Central Ringer	Meet Me Paging	Trunk Landing Groups
Class of Service (CoS)	Message Wait	Trunk Parameters
Closed User Group	Mobile Ports	Trunk Reservation
CLI Based Routing	Music on Hold	Upgrading the Software
Closed User Group (With/Without Exchange ID)	Name Programming (Station, Trunk)	User Security (Password)
Communication Ports	Networking Mode	Video Conferencing
Conference-21 Party	Operator (Single, Multiple)	Virtual Stations
Conference Dial-in	Override	Voice Help
Conference-Multiple	Paging (Internal and External)	Voice Mail Integration
Conflict Dialing	PLCC Applications	Voice Message Applications
Continued Dialing	PMS Interface	Voice Prompts for Tones
Conversation Recording	Printer Port	Walk-in Class of Service
Customer Emergency Services Identification	Priority (Intercom and Trunk)	Web Based Programming - Jeeves
Customer Name	Privacy	
Date and Time Format	Programmable Access Codes	*Check Availability
Day Light Saving	Programmable Call Progress Tones & Rings	
Department Call		

TECHNICAL SPECIFICATIONS

FXO (CO Lines) Port

Off Hook Line Impedance	: 600Ω
Loop Limit	: 1500Ω
Pulse Dialing	: 10PPS +/- 5%, Make/Break = 33:67
DTMF Dialing and Reception	: As per ITU-T Q.23 & Q.24
CLI Reception	: DTMF, FSK ITU-T V.23 and FSK Bellcore 212
Call Maturity	: Delay, Polarity Reversal, 12 kHz or 16 kHz SPM
Protection	: Solid State (Over Voltage and Over Current) built-in Secondary Protection
Connections	: Amphenol 36-Way Connector (20-Pair Cable, 0.5 mm/0.019")

FXS (Stations Lines) Port

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 212
Protection	: Solid State (Over Voltage and Over Current) built-in Secondary Protection
Connections	: Amphenol 36-way connector (20-pair cable, 0.5 mm/0.019")

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

BRI Trunks	
Channels	: 2B+D
Personality	: Network (NT) and Terminal (TE)
Signaling	: Euro ISDN ETSI NET3, ITU-T Q.921, Q.931, US National ISDN-1, German 1TR6, France VNx, Australian TS- 013, TS-031
Supplementary Services*	: Euro ISDN, US Nation ISDN

PRI Trunks	
Channels	: 23B+D and 30B+D
Personality	: Network (NT) and Terminal (TE)
Signaling	: Euro ISDN ETSI DSS1 CTR4 (NET5), ITU-T Q.921, Q.931, US National ISDN-2, German 1TR6, France VNx, Australian TS-014, TS-038
Supplementary Services*	: Euro ISDN, US Nation ISDN

E1 CAS	
Bit Rate	: 2048 kbps +/- 50 ppm
Line Coding	: HDB3
Signaling	: ITU-T Q.400, Q.421, Q.422, Q.424, Q.440-Q.442, Q.450, Q.457-458, Q.466 and Q.471-Q-476 and MFC-R2
Alarms	: I.431, G.732, ETSI 300-233
Connection	: RJ45 (120Ω)
Country Variants*	: Argentina, Bahrain, Bolivia, Brazil, Chile, China, Columbia, Czech Republic, Honduras, India, Indonesia, Korea, Malaysia, Panama, Singapore, Thailand

T1 RBS *	
Bit Rate	: 1544 kbps
Line Coding	: AMI and B8ZS
Signaling	: Using ABCD Signaling includes EIA-464 B/ E&M, Wink Start, FXS Ground Start, FXS Loop Start, FXO, DTMF, MF-R1*
Alarms	: ANSI T1.231
Performance	: ANSI T1.403, ANSI T1.231, AT&T TR54016
Connection	: RJ45 (100Ω)

GSM Trunks	
GSM Band (MHz)	: Quad-band: GSM850, EGSM900, DCS1800, PCS1900
Compliant	: ETSI GSM Phase2/2+
SIM Card	: One SIM per GSM Port
SIM Interface	: 1.8V, 3V
Transmission Power	: Class 4 (2W) at GSM850 MHz and EGSM900 MHz band Class 1 (1W) at DCS1800 MHz and PCS1900 MHz band
RF Sensitivity	: Better than -106dBm
External Antenna	: One Antenna per 4 GSM Ports, 3.0 dBi, SMA (Male), 50 Omni Directional with Cable of 3 meters length

E&M Trunks	
Type	: Type IV and Type V
Signaling	: Pulse 10 PPS, Pulse 20 PPS, and DTMF
Signaling Protocol	: Normal, Delay, Wink, CCS Signals
Speech Interface	: 2-Wire and 4-Wire

VoIP Channel	
VoIP Protocols	: SIP v2, SDP, RTP, RFC 2833
Network Protocol	: IPv4, TCP, UDP, DHCP, STUN, PPPoE
SIP	: Maximum 32 SIP Accounts per System, Out Bound Proxy Support, Display Name, User Name, Password, URL, Proxy URL, Register URL, Register Interval
Voice Codecs	: G.711 (A-Law, μ-Law), G.723, G.729AB, GSM-FR, iLBC
Line Echo Cancellation	: G.168 with 64/128ms Tail Length
Call Progress Tones	: Dial Tone, Ring Back Tone, Busy Tone, Error Tone
Voice	: Dynamic Jitter Buffer (Adaptive), Comfort Noise Generation and Voice Activity Detection
Fax	: T.38 and Pass Through
Data Network	: Ethernet (RJ45) Port, Auto MDIX (10/100 BaseT)
Quality of Service	: Layer 3 DIFFServ and TOS
LED Indications	: 1-LED for System Status and 1-LED for Registrar Status

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 and Control	
Type of Switching	: PCM/TDM, Digital Switching (100% Non-blocking)
Type of Control	: CMOS Micro-controller with SPC, Distributed Processing Architecture

Transmission Parameter (Between FXS -FXO)	
Return Loss	: Better than 20 dB
Insertion Loss	: <1 dB
Inter-channel cross-talk	: < -65 dBm
Idle channel noise	: < -65 dBmOp
Longitudinal Balance	: Better than 40 dB

Power Supply	
Input	: Option 1 (Mains): 90-265 V AC, 47-63 Hz Option 2 (DC) : -48 V DC +/- 20%
Power Consumption (Typical)	: Eternity ME10S - 70 W Eternity ME16S - 100 W

Mechanical	
Dimensions (W x H x D)	: Eternity ME10S - 48.2 x 33.0 x 29.9 cm (19.0" x 12.9" x 11.7") Eternity ME16S - 52.3 x 33.0 x 29.9 cm (20.5" x 12.9" x 11.7")
Unit Weight	: Eternity ME10S - 8.3 kg (18.3 lb) Eternity ME16S - 10.5 kg (23.1 lb)
Shipping Weight	: Eternity ME10S - 12.3 kg (27.1 lb) Eternity ME16S - 15.0 kg (33.0 lb)
Installation	: Eternity ME10S - Wall Mount, Table Top, 19" Rack (Optional) Eternity ME16S - Wall Mount, Table Top

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

Compliances	
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
FCC	
Conducted Emission	: FCC Part 15 Sub Part B Class A
Radiated Emission	: FCC Part 15 Sub Part B Class A
EC Directives	
R&TTE 1999/5/EC	
LVD 73/23/EEC	
EMC 89/336EEC	
Safety	
IEC 60950 3rd Edition (1999)	

SYSTEM CAPACITY AND RESOURCES

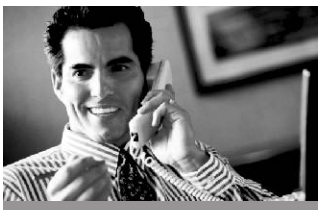
Hardware	Application	Eternity ME10S	Eternity ME16S
Total Card Slots		16	19
Total Universal Card Slots		10	16
Total Ports		512	512
Maximum User Ports		272+4	464+4
Maximum TWT Trunks	PSTN/CO Line Connectivity	80	128
Maximum DS1 Trunks	PRI/T1/E1 Line Connectivity	8	8
Maximum BRI Trunks	BRI Line Connectivity	32	32
Maximum Analog Phone	Phone, Fax, Modem Connectivity	272	464
Maximum Digital Phones (DKP)	Digital Key Phone Connectivity	128	128
Maximum DSS64/DSS72 Console per DKP	Direct Station Selection Console to Connect with Digital Key Phone	2	2
Maximum E&M Trunks	E&M Line (Type IV / V) Connectivity	80	128
Maximum GSM Ports	GSM Network Connectivity using SIM Card	16	16
Maximum Magneto Trunks	Magneto Signaling Trunk Lines	80	128
Maximum VoIP Channels	Internet Network Connectivity for VoIP	120	192
Maximum SIP Accounts	Provided by ITSP for Calling on Internet	32	32
RS-232C COMM Ports	Computer Connectivity	2	2
Ethernet Port	Web Programming	1	1
USB Port	Computer Programming	1	1
Parallel Printer Port	Printer Connectivity	1	1
Analog Input Port (AIP)	External 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
Security Dialer	Emergency Dialing	1	1
Voice Modules	Auto Attendant & Other Voice based Applications	16 modules of 16 seconds each	
DTMF Decoders		Separate for each Analog Port	
DTMF Encoders		Separate for each Analog Port	
Redundancy	Automated switch over to redundant Master Card, Switch Card and Power Supply Card	Yes	—

EXPANSION CARDS FOR ETERNITY

SLT32	32 SLT Ports Card
SLT16	16 SLT Ports Card
SLT8	8 SLT Ports Card
DKP16	16 DKP Ports Card
DKP8	8 DKP Ports Card
TRK8	8 TRK Ports Card
TRK8+SLT24	8 TRK Ports and 24 SLT Ports Card
TRK4+SLT12	4 TRK Ports and 12 SLT Ports Card
BRI8	8 ISDN BRI Ports Card
BRI4	4 ISDN BRI Ports Card
DS1 DUAL	2 DS1 Ports Card
DS1 SINGLE	1 DS1 Port Card
E&M8	8 E&M Ports Card
E&M4	4 E&M Ports Card
GSM8	8 GSM Ports Card
GSM4	4 GSM Ports Card
VoIP	12 VoIP Channels Card
MAG8*	8 Magneto Trunk Ports Card
VMS	8 port Voice Mail Card

ENTERPRISE RANGE PRODUCTS FROM MATRIX

Eternity GE6S	: With 6 Universal Slots expandable to a maximum of 124 user ports
Eternity GE12S	: With 12 Universal Slots expandable to a maximum of 220 user ports
Eternity ME10S	: With 10 Universal Slots expandable to a maximum of 276 user ports
Eternity ME16S	: With 16 Universal Slots expandable to a maximum of 468 user 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 keeping pace with revolutions in the telecom industry. This has resulted in bringing forth of 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