

## TECHNICAL SPECIFICATIONS



### MATRIX ETERNITY MENX

ETERNITY MENX is the next-generation hardware platform, on which the SARVAM UCS ENT server software is hosted. This technologically advanced platform support up to 99 VOIP (SIP) trunks, 64 GSM# ports, 8/24 T1/E1 ISDN PRI ports, and 128 analog trunks with up to 2000 UC users, 128 digital users, and 512 analog users. SARVAM UCS ENT is a future-proof solution offering IP at the core with seamless connectivity to all-pervasive legacy and new-generation wireless telecom networks like POTS, ISDN, T1/E1, and GSM/3G/4G VoLTE.

BUILT-IN RESOURCES		
SYSTEM RESOURCES	DESCRIPTION	ETERNITY MENX16SAC/MENX16SDC
Compatible Software Server	Unified Communication Server	SARVAM UCS ENT
RS232C (COM) Ports	SMDR/PMS/CAS Interfaces	-
USB Ports	Internal USB 2.0 External USB 3.0	2
USB Storage	Internal USB - Up to 64GB (8GB - for Software Firmware and 260 Hours of Recording (Factory Fitted), 64GB Pen Drive can be used for	8 GB

	2170 Hours of Recording) External USB - for future use	
<b>Group Conference (3-Party)</b>	Numbers of 3-Party Conferences	15
<b>Maximum participants in Single Conference</b>	Maximum Participants in Single Conference	21
<b>Voice Messages (16 seconds each)</b>	Auto-Attendant, Voice Help, Voice Tones	15
<b>Ethernet Ports (Gigabit)</b>	Web-based Configuration, PMS, SMDR, System Log, VOIP (LAN and WAN) and VMS	2

<b>SYSTEM SCALABILITY</b>		
<b>SYSTEM RESOURCES</b>	<b>DESCRIPTION</b>	<b>SARVAM UCS ENT (ETERNITY MENX16SAC/MENX16SDC)</b>
<b>Universal Slots</b>	For Interface Expansion Cards (except VOIP and VMS)	16
<b>SLT/FXS Ports</b>	Single Line Analog Telephones	512
<b>DKP/DSS Ports</b>	Proprietary Digital Key Phones or DSS Consoles	128
<b>CO/FXO (TWT) Ports</b>	Two Wire Trunk (CO) Lines	128
<b>BRI Ports</b>	ISDN BRI Network or ISDN Compatible Devices	32
<b>T1/E1/PRI Ports</b>	T1 or E1 or ISDN PRI Network or Compatible Device	8
<b>GSM/3G/4G Ports</b>	GSM/3G/4G Ports	64
<b>UC (SIP/IP) Users</b>	Registration of Hard SIP/IP Phones, UC Client for Android/iOS and Windows PC using Business Application	2000
<b>SIP Trunks</b>	SIP Trunks (Clients) for ITSP or Peer-to-Peer	99

<b>VOIP Channels</b>	VOIP Channels for simultaneous calling with transcoding	248
<b>NX DBM VOCODER64</b>	DAUGHTER-BOARD MODULE on CPU for VOCODER (VOIP) Channels	4
<b>NX DBM VMS64</b>	DAUGHTER-BOARD MODULE on CPU for simultaneous Voice Mail sessions	1
<b>Voice Mail Channels (Sessions)</b>	Voice Mail System with Auto-Attendant and with dedicated Mailbox for each type of extension (Analog, Digital, IP)	64
<b>Radio Interface Ports</b>	Interface to HF/VHF/UHF Radio Transceiver	16
<b>E&amp;M Ports</b>	E&M Network	32

### NX DBM VOCODER AND NX DBM VMS – SYSTEM RESOURCES

SYSTEM RESOURCES	DESCRIPTION	SARVAM UCS ENT (ETERNITY MENX16SAC/MENX16SDC )
<b>Max. Concurrent calls from IP User to other IP User</b>	IP-IP Audio Calls without Transcoding	500
<b>Max. Concurrent calls from IP User to other IP User</b>	IP-IP Audio Calls with Transcoding	128
<b>Max Concurrent IP-TDM calls</b>	IP-TDM Audio Calls	248
<b>Concurrent Video Calls from IP User to other IP User</b>	VOCODER Channel will not be Occupied (Does not Support Transcoded Video Calls)	55

<b>Concurrent Voice Module (Play Voice Messages)</b>	Concurrent calls management with Auto-attendant	11
<b>Features need transcoding channel (NX DBM – VOCODER Channels)</b>	Conference - for each IP call, Conversation Recording/Call Tapping - for each IP Call, Retrieval of Voice Mail - from each IP user, Trunk auto-answer/VMS Auto-attendant – for each incoming call on SIP Trunk, for each IP to non-IP call	

For redundancy, the equivalent software license (apart from the primary CPU) is to be procured additionally.

<b>LICENSES (SARVAM UCS ENT)</b>	
<b>APPLICATIONS</b>	<b>ETERNITY MENX16SAC/MENX16SDC</b>
<b>EXPANSION</b>	SARVAM EXP4 ENT
<b>IP CHANNEL</b>	SARVAM VOCODER CHNL4
	SARVAM VOCODER CHNL16
<b>VMS CHANNEL</b>	SARVAM VMS CHNL4
	SARVAM VMS CHNL16
<b>HOSPITALITY</b>	SARVAM HOSPITALITY ENT
<b>PMS</b>	SARVAM PMS ENT
<b>SMS GATEWAY</b>	SARVAM SMS GATEWAY ENT
<b>SMS SERVER</b>	SARVAM SMS SERVER ENT
<b>GATEWAY</b>	SARVAM GATEWAY ENT
<b>QSIG</b>	SARVAM QSIG ENT
<b>CTI</b>	SARVAM CTI ENT
<b>IP SUBSCRIBER</b>	SARVAM IPSUB5
	SARVAM IPSUB10
	SARVAM IPSUB50
	SARVAM IPSUB100
	SARVAM IPSUB500
<b>UC CLIENT</b>	SARVAM VARTA USER5E
	SARVAM VARTA USER10E
	SARVAM VARTA USER50E
	SARVAM VARTA USER100E
	SARVAM VARTA USER500E
	SARVAM VARTA USER5P
	SARVAM VARTA USER10P
	SARVAM VARTA USER50P
	SARVAM VARTA USER100P
	SARVAM VARTA USER500P
	SARVAM VARTA USER5C
	SARVAM VARTA USER10C
	SARVAM VARTA USER50C
SARVAM VARTA USER100C	

	SARVAM VARTA USER500C
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## TECHNOLOGY

Type of Switching	IP at Core
Processor Speed	900 MHz Dual Core
Slots Type	Universal

## VOIP

Type	DAUGHTER-BOARD MODULE on CPU
VOCODER Channels per DBM (DAUGHTER-BOARD MODULE)	64
VOIP Protocols	SIP v2, SIP over TCP, Symmetric RTP, RTCP, 100rel/PRACK
Network Protocol	IPv6, IPv4, TCP, UDP, SNTP, STUN, ARP, ICMP, PPP, DNS, SMTP
SIP	Maximum 99 SIP Accounts per System, Out Bound Proxy Support, Display Name, User Name, Password, URL, Proxy URL, Register Interval
VOIP Channels	128/248 VOIP Channels with 2/4 VOIP Daughter-Board Modules
Line Echo Cancellation	G.168 with 64/128ms Tail Length
Voice	Dynamic Jitter Buffer (Adaptive), Comfort Noise Generation and Voice Activity Detection
NAT	STUN and NAT Keep Alive
Voice CODECs	G.711 (A-law, $\mu$ -Law), G.723, G.729AB, GSM-FR, GSM-EFR and iLBC
Call Progress Tones	Dial tone, Ring Back Tone, Busy Tone, Error Tone
Fax	T.38 Relay and Pass Through
Quality of Service	SIP QoS and RTP QoS
Security	SRTP/TLS over SIP, MD5 Authentication for SIP, Password Protected Configuration by Admin and User
Physical Connector	Ethernet (RJ45) Gigabit Port, Auto MDIX (10/100/1000 base-T)

## VOICEMAIL

Type	DAUGHTER-BOARD MODULE on CPU
VMS Channels per DBM (DAUGHTER-BOARD MODULE)	64

<b>Voicemail Box</b>	Dedicated Mail Box for each type of Extension (Analog, Digital, IP)
<b>Voice Messages</b>	15 Voice Messages of 16 seconds each
<b>Voice Recording</b>	Recording up to 2,170 hours with 64 GB USB Pen Drive

<b>GSM</b>	
<b>Type</b>	Expansion Card for GSM Interface
<b>GSM Band (MHz)</b>	Quad-Band: GSM850, EGSM900, DCS1800, PCS1900
<b>Compliant</b>	ETSI GSM Phase 2/2+
<b>SIM Card</b>	One SIM per GSM Port
<b>SIM Interface</b>	1.8V, 3V
<b>Transmission Power</b>	Class 4 (2W) at GSM850 MHz and EGSM900 MHz Band
	Class 1 (1W) at DCS1800 MHz and PCS1900 MHz Band
<b>RF Sensitivity</b>	Better than -102dBm
<b>Protocol</b>	AT Command Interface
<b>External Antenna</b>	One Antenna per 4 GSM Ports, 1.8/3.0*dBi, 50Ω SMA (Male) Connector, Omni Directional with Cable of 3 Meters Length

\*Depends on GSM Frequency Band

<b>3G/4G</b>	
<b>Type</b>	Expansion Card for GSM 3G/4G Interface
<b>GSM Band (MHz)</b>	Quad-Band: GSM850, EGSM900, DCS1800, PCS1900 Penta-Band: GSM: 850/900/1800/1900 and UMTS: 800/850/900/1900/2100
<b>Compliant</b>	ETSI GSM Phase 2/2+
<b>SIM Card</b>	One SIM per GSM Port
<b>SIM Interface</b>	1.8V, 3V
<b>Transmission Power</b>	Output Power
<b>RF Sensitivity</b>	< -106dBm at GSM850, EGSM900, DCS1800, PCS1900 < -108dBm at WCDMA2100, WCDMA1900 < -106dBm at WCDMA850
<b>Protocol</b>	At Command Interface
<b>External Antenna</b>	One Antenna per 4 3G/4G GSM Ports, 1.8/3.0*dBi, 50Ω SMA (Male) Connector, Omni Directional with Cable of 3 Meters Length

\* Depends on GSM/3G/4G Frequency Band

<b>ISDN BRI</b>	
<b>Type</b>	Expansion Card for ISDN BRI Interface
<b>Channels</b>	2B + D
<b>Personality</b>	Network (NT) and Terminal (TE)
<b>Switch Variant</b>	AT&T 4ESS, DMS-100, ETSI NET3, ITU-T Q.921, ITU-T Q.931, NTT INS64, US NI1 (National ISDN 1) France VNx
<b>Protocol</b>	Solid State (Over Voltage and Over Current) Built-In Secondary Protection
<b>Physical Connector</b>	RJ45 (120Ω)

<b>ISDN PRI</b>	
<b>Type</b>	Expansion Card for ISDN PRI Interface
<b>Channels</b>	23B + D and 30B + D
<b>Personality</b>	Network (NT) and terminal (TE)
<b>Line Coding</b>	AMI/B8ZS for T1 and HDB3 for E1
<b>Framing</b>	ESF for T1 and CEPT1 (with/without CRC) for E1
<b>Switch Variant</b>	AT&T 4ESS, AT&T 5ESS, DMS-100, ETSI NET5, ITU-T Q.921, ITU-T Q.931, NTT INS64, US NI2 (National ISDN 2), QSIG ECMA, France VN
<b>Protection</b>	Solid State (Over Voltage and Over Current) Built-in Secondary Protection
<b>Supplementary Services</b>	QSIG ECMA
<b>Physical Connector</b>	RJ45 (Impedance Selectable)/Mono-mode Fiber Optic*

\*Option available with ETERNITY E1F0 PRI SINGLE

<b>E1 CAS</b>	
<b>Type</b>	Expansion Card for T1 E1 ISDN PRI
<b>Bit Rate</b>	2048 kbps +/- 50ppm
<b>Line Coding</b>	HDB3
<b>Framing</b>	CEPT1 (with/without CRC) with CAS MF
<b>Line Signaling</b>	ITU-T Q.400 – Q.490
<b>Register Signaling</b>	MFC-R2
<b>Alarms</b>	I.431, G.732, ETSI 300-233
<b>Protection</b>	Solid State (Over Voltage and Over Current) Built-In Secondary Protection
<b>Physical Connector</b>	RJ45 (Impedance Selectable)/Mono-mode Fiber Optic

## T1 RBS

<b>Type</b>	Expansion Card for T1 E1 ISDN PRI
<b>Bit Rate</b>	1544 kbps +/- 50ppm
<b>Line Coding</b>	AMI and B8ZS
<b>Framing</b>	D4, ESF
<b>Line Signaling</b>	FXS Loop Start, FXO Loop Start, FXS Ground Start, FXO Ground Start, E&M (Immediate, Wink Start, Wink Start FGD)
<b>Digit Dialing</b>	DTMF
<b>Alarms</b>	ANSI T1.231
<b>Performance</b>	Solid State (Over Voltage and Over Current) Built-In Secondary Protection
<b>Physical Connector</b>	RJ45 (Impedance Selectable)

## CO (TWT- Two Wire Trunk)

<b>Type</b>	Expansion Card for CO/FCO Interface
<b>Signaling</b>	Loop Start
<b>Loop Limit</b>	1200 $\Omega$
<b>Off Hook AC Impedance</b>	600/900/Complex
<b>Pulse Dialing</b>	10/20PPS
<b>DTMF Dialing and Reception</b>	ITU-T Q.23 & Q.24
<b>Return Loss</b>	>18dB
<b>Longitudinal Balance</b>	>50dB
<b>Transmission Level Adjust</b>	Tx Gain: -15dB to +10 dB, Rx Gain: -15dB to +10dB
<b>CLI Reception</b>	DTMF, FSK ITU-T V.23 and FSK Bellcore 202
<b>Call Maturity</b>	Delay and Polarity Reversal
<b>Protection</b>	Over Voltage and Over Current Secondary Protection
<b>Physical Connector</b>	RJ45

## COMBAT NET RADIO (RADIO INTERFACE GRID)

<b>Type</b>	Expansion Card for Radio Interface
<b>Line Inputs</b>	Balanced, Transformer Isolated 1Vrms, 600 $\Omega$
<b>Line Outputs</b>	Balanced, Transformer Isolated 1Vrms, 600 $\Omega$
<b>PTT Output</b>	Opto-Isolated Normally OPEN, 1A max
<b>Physical Connector</b>	Centronix



## E&M

<b>Type</b>	Expansion Card for E&M Interface
<b>E&amp;M Signaling</b>	Type IV (Originated on E-lead or on M-lead) and Type V
<b>Speech Interface</b>	2-Wire or 4-Wire
<b>Trunk Seizure Type</b>	Immediate, Immediate + Wink, Seizure Pulse, Seizure Pulse + Wink, Express, Compander Control Signal (CCS)
<b>Signaling</b>	Pulse Dial - Pulse 10PPS, Pulse 20PPS Tone Dial - DTMF
<b>AC Impedance</b>	600Ω
<b>Return Loss</b>	20 dB
<b>Transhybrid Loss</b>	20dB against Configurable Balance of 600Ω or AT&T Complex Impedance
<b>Transmit Gain</b>	+/- 1 dB
<b>Receive Gain</b>	+/- 1 dB
<b>Physical Connector</b>	RJ45

## DKP (DIGITAL STATION)

<b>Type</b>	Expansion Card for Digital Key Phone Ports
<b>Signaling</b>	Proprietary Digital (2B + D)
<b>Interface</b>	Single pair for Speech, Signaling and Power
<b>Loop Limit</b>	100Ω
<b>Speech Level</b>	Adjustable Tx and Rx Gain for Handset and Hands-Free
<b>Protection</b>	Over Voltage Secondary Protection
<b>Physical Connector</b>	RJ45

## ENVIRONMENTAL

<b>Operating Temperature</b>	0°C to +45°C (32°F to 113°F)
<b>Operating Humidity</b>	5-95% RH, Non-Condensing
<b>Storage Temperature</b>	-20°C to +70°C (-4°F to +158°F)
<b>Storage Humidity</b>	0-95% RH, Non-Condensing

## POWER SUPPLY

<b>Product</b>	SARVAM UCS ENT (ETERNITY MENX)
<b>Inputs</b>	ETERNITY MENX16SAC: 100-240 VAC, 47-60 Hz (500W) ETERNITY MENX16SDC: 48VDC + 20% to -15% (500W)
<b>LED Indications</b>	4 LEDs for Power Supply Health Status

## MECHANICAL

<b>Specifications</b>	SARVAM UCS ENT (ETERNITY MENX)
<b>Dimensions (W x H x D)</b>	612 x 315.5 x 405 mm
<b>Type of Shipping Material</b>	Corrugated Box
<b>Installation</b>	7U Enclosure Wall Mount Table Top

## SLT (ANALOG STATION)

<b>Type</b>	Expansion Card for Analog Extensions
<b>Signaling</b>	Loop Start
<b>Dialing</b>	DTMF and Pulse (10/20PPS)
<b>Off Hook AC Impedance</b>	600/900/Complex
<b>Off Hook Current</b>	39mA Max
<b>Loop Limit</b>	1800Ω Max (Excluding Telephone)
<b>On-Hook Voltage (Tip/Ring)</b>	-48V Nominal
<b>DTMF Detection</b>	ITU-T Q.24
<b>Return Loss</b>	>18dB
<b>Longitudinal Balance</b>	>50dB
<b>Transmission Level Adjust</b>	Tx Gain: -3dB to +6dB, Rx Gain: -3dB to +6dB
<b>Ringling</b>	Trapezoidal 60VRMS/25Hz and Sinusoidal 52VRMS/25Hz
<b>REN</b>	3
<b>CLI Presentation</b>	DTMF, FSK ITU-T V.23 and FSK Bellcore 202
<b>Protection</b>	Over Voltage Secondary Protection
<b>Physical Connector</b>	RJ45/Centronix* <small>*For ETERNITY LE CARD SLT48</small>

## COMPLIANCES

<b>EMI/EMC</b>	Conducted Emission	CISPR 22
	Radiated Emission	CISPR 22
	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 and Dips	IEC 61000-4-11
<b>FCC</b>	Conducted Emission	FCC Part 15 Sub-Part B
	Radiated Emission	FCC Part 15 Sub-Part B
<b>EC Directives</b>	R&TTE 1999/5/EC	
	LVD 2014/35/EU	
	EMC 2014/30/EU	
<b>Safety</b>	EN 60950-1:2006 + AM1:2010 + AM12:2011 + AM2:2013	
<b>Environment Test</b>	Cold Test	IS:9000 Part 2/Section 4
	Dry Heat Test	IS:9000 Part 3/Section 5
	Damp test	IS:9000 Part 5/Section 1

**#: For compatibility and use of Matrix GSM products (2G and 4G) in Russia and Iran province connect with Matrix sales or technical support team**

**Note: Specifications are subject to change without prior notice**

## About Matrix

Established in 1991, Matrix is a leader in Security and Telecom solutions for modern businesses and enterprises. As a technology-driven, and customer-focused organization, the company is committed to keeping pace with the revolutions in the Security and Telecom industries.

With around 40% of its human resources dedicated to the development of new products, Matrix has launched cutting-edge products like Video Surveillance Systems – Video Management Systems, Network Video Recorders and IP Camera, Access Control and Time-Attendance Systems as well as Telecom Solutions such as Unified Communications, IP-PBX, Universal Gateways, VoIP and GSM Gateways and Communication Endpoints. These solutions are feature-rich, reliable, and conform to international standards.

Having global footprints in Asia, Europe, North America, South America, and Africa through an extensive network of more than 4000+ channel partners, Matrix ensures that the products serve the needs of its customers faster and longer.

Matrix has ISO 27001: 2013, 20000-1 2018, 14001- 2015, and 9001: 2015 certifications for quality management standards. Matrix has also been awarded ZED Quality Certification, and DSIR Certification for indigenous R&D and Manufacturing. Matrix has gained the trust and admiration of customers representing the entire spectrum of industries.



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