

Mentrix Series Keypanels

Touch & Tactile Intercom User Stations



Mentrix Series Keypanel

Key Features and Benefits

Hybrid Touch & Tactile Keypanel

- 16 Keysets
 - 8 Physical Lever Keys
 - 8 or 16 Rotaries
 - Touch Controls
- High Brightness Color Touch Display
- Future Software Application Options
 - Commentator Application
- Flexible Mounting
 - Desk Stand included
 - VESA Universal Mount

Connectivity - Local

- External Inputs & Outputs
- USB Audio & Power Delivery
- Logic GPIO
- PoE + Powered

Connectivity - System

- Local Networks - AES67 Capable Networks
- Global Network - I.V. Port
- Redundant Networks* - 2022-7
- Direct Connection* - Eclipse MVX

Eclipse Digital Matrix System

- Channel, Group, IFB, Role, Interface, Sort Group, Dynam-EC Key Group, Control, Telephone
- Separate Talk/Listen Key Assignment
- Key Stacking
- Shift Pages
- Local Mixer with Adjustable Routing, Filters, Dynamics & Remote IFB Controls
- Hosted IP Direct Ports
- Latin, Cyrillic, Hangul, Kanji, Katakana and Arabic fonts
- Fast Key & Local Assignments
- Listen Again

Arcadia Central Station – Essential

- Channel, Group, IFB**, Role, Interface
- Combined Talk/Listen Key Assignment
- Single Page
- Second Headset Listen
- Local Mixer with Fixed Configuration
- Listen Again

Mentrix Series Keypanels are a range of versatile touch and tactile intercom user stations for the Eclipse® HX Digital Matrix System and Arcadia® Central Station.

Description

Mentrix Series is a range of versatile keypanel intercom user stations for use with the Eclipse Digital Matrix or Arcadia Central Station. Mentrix Series panels have 16 keysets on a large high brightness touch screen with 8 tactile lever keys and either 8 or 16 rotary controls. Each keyset includes a 10-character label, visual volume bar and lights to display the configuration or status of the capability assigned to the keyset from the host intercom system. Mentrix Series panels are supplied with a desk stand using a standard VESA mount pattern enabling its use with a limitless number of third-party mounting options.

Technical Specifications

Connectors

Headset: 4-pin XLR-M (X4), 5-pin XLR-F (X5), 7-pin XLR-M (X7 – 2 PTT Parallel with GPI 1-2)

Gooseneck Mic: 3-pin Tuchel

Auxiliary Audio: (2) RJ45 (External I/O 1 & 2)

AES-72 Type 3M Pinout - 1: In, 2: Out

GPIO: (1) DB9F (2 GPI, 2 GPO)

USB: Type A, C

Analog: (1) RJ45 for Eclipse MVX*

LAN: (2) RJ45

DC Power Connector: KPJX-4S-S

Controls and Indicators

Front Panel

- (1) Mic mute Button
- (1) Headset/Gooseneck Mic Input Select Button
- (1) Touchscreen Button
- (1) Main Level Control
- (1) Aux Level Control

Rear Panel

- (2) LAN RJ45 Link/Activity LEDs

Microphone

Input Type: Dynamic/Electret – Selectable

Microphone Voltage: 5V

Frequency Response: 150Hz to 20kHz ±3dB

Impedance (Electret): 1700 Ω +/- 10%

Impedance (Dynamic): 1000 Ω +/- 10%

Headset

Earphone Impedance: >= 32Ω

Output: 75mW into 50Ω @ <1% THD

Loudspeaker

Frequency Response: 200Hz-20kHz +/- 3dB

4-Wire Aux Line Level Interfaces

Electrically balanced input and output

Input:

Nominal Level: 0dBu

Maximum Level: +18dBu

Frequency Response: 30Hz to 22kHz ±3dB

Noise: <-70 dBu RMS

THD: <0.02% @ 1kHz

Impedance: >= 120KΩ

Output:

Nominal Level: 0dBu

Maximum Level: +18dBu

Frequency Response: 30Hz to 22kHz ±3dB

Noise: <-70 dBu RMS

THD: <0.02% @ 1kHz

Impedance: <=50Ω

USB Audio

For 3rd-party USB Audio Devices & Dongles

*Eclipse features

Mentrix Series Keypanels

Touch & Tactile Intercom User Stations

Technical Specifications

Logic Power Output

To power Logic Inputs
Output: 5V, separate pin
Current (Max): 0.5A

Power Logic Inputs – GPI

See Host System for configuration options
Input: 2
Style: Opto-Isolated
Input Voltage Range: 4 - 30V DC or AC
Input Current: >=10mA required

Power Logic Inputs – PTT (-X7 Variant)

See Host System for configuration options
Input: 2
Style: Current-Sink
Input Voltage Active: ≤1.0V DC
Input Voltage Inactive: ≥2.0 V DC
Input Voltage (Max): +60 V

Logic Outputs – GPO/Relay

See Host System for configuration options
Output: 2
Style: SPDT / Power Relay
Normalized: Open or Closed, separate pins
Switching Voltage (Max): 60V DC
Switching Current (Max): 250mA

Power Delivery

Charging or powering a 3rd-party device when panel is locally powered
USB-A: 2.5W @ 5V DC
USB-C: 15W @ 5V DC, 27W @ 9V DV**

Power

DC Power Input:
Voltage: 12V DC ± 5%
Current (Max): 5A
Power (Max): 60W
BTU (Max): 205 BTU/hr
Input Power Connector: KPJX-4S-S

This unit is powered via DC input using:

AC Adapter - Inline:

Type: PSU-EXT-002 (supplied)
Input Voltage Range: 100 - 240V AC
Input Frequency Range: 50 - 60Hz
Input Power Connector: IEC-C14
Output Voltage: 12V DC ± 5%
Output Current (Max): 5A
Output Power (Max): 60W
Output Power Connector: KPPX-4-P
Ground: Isolated

PoE+ - Power over Ethernet

IEEE 802.3at - Class 4
PSE: 30.0W DC max @ Power Source Req.
PD: 25.5W DC max @ Powered Device Draw

Mounting

VESA Sockets Center-to-Center: 2.95in (75mm)
VESA Thread Type: M4x10

Environmental

Operating: -4°-113°F (-20°-45°C)
Storage: -22° to 158°F (-30°-70°C)
Humidity: 20-90%, Non-Condensing @ 104°F (40°C)
Vibration: ETSI 300-019-2-7 V3.0.1 class 7M3
Compass Safety: IEC 60945 Section 11

Dimensions

12.8 x 5.7 x 5.5in (WxHxD)
(325 x 145 x 140mm)

Weight

3lbs (1.36kg)

*Eclipse features

**Pending

Mentrix Series Keypanels

Touch & Tactile Intercom User Stations

Network Specifications | Firmware Release

Mentrix Series keypanels include 2 physical LAN connections that are used bridged or separated depending on configuration and network traffic used. Parameters for different traffic types are displayed below.

Administration

For CCM Management

Network Protocols

Ethernet IPv4–Unicast Audio & Control
DHCP–Dynamic IP Addressing
mDNS–Multicast Device Discovery
HTTP–Management
HTTPS–Secured Management

Network Ports

Unicast:

Ports 67, 68 UDP–Dynamic IP Addressing
Port 80 TCP–Web Interface, System Management
Port 443 TCP - Secured Web interface, System Management

Multicast:

Port 5353 UDP–mDNS, Names, Discovery, Pairing

Network Parameters

MAC Address Prefix: 00:0e:98:...

Link-Local Default IP Address Range: 169.254.0.0/16

System Reserved IP Ranges:

10.0.0.0-7 Internal Systems
127.0.0.0/8 Local Host
172.23.0.0/16 Link Group
224 -239.0.0.0/8 Multicast
Above addresses cannot be assigned

Recommended Ethernet Switches:

- Managed Ethernet Switch
- 100/1000 Base-T Ports
- 1000 Base IP Switch Trunks
- QoS Configuration
- Energy Efficient Ethernet bypass option
- IGMP Snooping options

I.V. Port

For system connectivity over LAN/WAN/Internet

Network Protocols

Ethernet IPv4–Unicast Audio & Control
DHCP–Dynamic IP Addressing
Layer 3–IP Routable
DNS–Domain Name Server
IVP–Proprietary intercom Audio and Control
G722–Audio Codec
AES-128–Audio and Control Encryption
Network Connectivity: Ethernet, Wi-Fi, 3G, 4G, LTE (as available on 3rd-party infrastructure)

Network Ports

Unicast:

Ports 67, 68 UDP–Dynamic IP Addressing
Ports 6001 or 6002 (host system default) TCP–System Management
Ports 6001 or 6002 (host system default) UDP–IVP Audio Streams

Multicast:

No multicast ports are used for I.V. Ports

Broadcast:

Port 5000 UDP- Keypanel Legacy Discovery Method

Audio

Audio Encoding: G.722 Fixed Wideband 7kHz within 64kbit/s

Frequency Response: 50Hz-7kHz

Silence Suppression: Optional in LAN & WAN modes. Enabled in Internet mode.

Network Parameters

Resource Use:

Arcadia: 1 Licensed Port

Eclipse: 1 Port on IPA/IVC card

Bandwidth:

140 kbps to/from

With far-end silence suppression & bi-directional forward error correction

Latency (typ.): ~40 ms per direction using I.V. Port

Package size:

LAN: 8ms

WAN: 24ms

Internet: 40ms

Network Jitter Tolerance: Rx: Selectable

LAN: <=12ms

WAN: <= 120ms

Internet: <=200ms

Forward Error Correction: Enabled in Internet mode

Encryption: AES-128 enabled in WAN & Internet modes

QoS Tags: DSCP=34, Assured Forwarding (AF41)

MAC Address Prefix: 00:0e:98:...

Link-Local Default IP Address Range: 169.254.0.0/16

System Reserved IP Ranges:

10.0.0.0-7 Internal Systems
127.0.0.0/8 Local Host
172.23.0.0/16 Link Group
224 -239.0.0.0/8 Multicast
Above addresses cannot be assigned

Mentrix Series Keypanels

Touch & Tactile Intercom User Stations

Network Specifications | Firmware Release

AES67

For system connectivity over Local high-bandwidth networks

Network Protocols

Ethernet IPv4– Unicast Audio & Control
 DHCP–Dynamic IP Addressing
 DNS-SD - Service Discovery
 mDNS–Multicast Device Discovery
 Layer 3 Routable*
 HTTP–Management
 PCM–Audio
 DiffServ–QoS
 IGMPv3–Multicast Management for PTP
 PTPv2–Synchronization
 SAP-Session Announce Protocol
 SDP - Session Description Protocol
 RTP - Real Time Protocol
 RTSP-Real Time Streaming Protocol
 SMPTE 2022-7 –Network Redundancy*

Network Ports

Unicast:

Ports 67, 68 UDP–Dynamic IP Addressing
 Port 6001 TCP – System Connection
 Port 9875 UDP – SAP/SDP advertisement
 Port 15000-15525 UDP – Audio Media

Multicast:

IP 224.0.1.129 Ports 319, 320 – PTP Synchronization
 IP 224.0.0.251 Port 5353 UDP – mDNS, Names, Discovery, Pairing

Network Parameters

Bandwidth: ~ 5-9.6 Mbs (max)

Latency (typ.): <10 ms per direction using AES67 Port

Network Jitter Tolerance: < 2ms @ 125µs package size,
 < 20ms @ 1ms package size

QoS Tags:

Clock: DSCP=46, Expedited Forwarding (EF)

Media: DSCP=34, Assured Forwarding (AF41)

Management: DSCP=0, Best Effort (DF)

PTP Parameters: (host system configured)

Sync: PTP v2 (IEEE 1588-2) (target offset ±100 ns)

PTP domain: 0

Priority 1: 127

Priority 2: 128

Announce interval: +1 (2s) (1/2s)

Sync Rate: -3 (125ms) (1/8s)

Package Size: 125µs, 1ms (host system configured)

MTU: Jumbo frames ≥ 9000 bytes (recommended)

Media Profile: AES67

IGMP: Snooping Enabled & Querier on Network

Multicast: Enabled

MAC Address Prefix: 00:0e:98:....

Link-Local Default IP Address Range: 169.254.0.0/16

System Reserved IP Ranges:

10.0.0.0-7 Internal Systems
 127.0.0.0/8 Local Host
 172.23.0.0/16 Link Group
 224 -239.0.0.0/8 Multicast
 Above addresses cannot be assigned

Further Details: Refer to the [AES67 Network Recommendations](#) for further information, for network performance and use on converged networks.

Mentrix Series Keypanels

Touch & Tactile Intercom User Stations

