



The eX 800 Series eMatrix System is a fully integrated and versatile public address system which is designed distinctively to fulfill the demands for both emergency and communication broadcasting. The eX 800 Series eMatrix System operates normally as a Public Address Management System. During emergency, the system shall transform into an Emergency Management System. AEX System provides three different types of system under the eX 800 Series which consists of Basic ( n + 2 - 1 ) Early Evacuation System, Internal Hazard Early Evacuation System and External Hazard Early Evacuation System.

The eX 800 Series is able to handle up to a maximum of 20 inputs which can be consisted of 12 messages / auxiliary inputs and 8 microphones while providing a maximum of 60 audio outputs . The 60 pure audio outputs are fully expandable to 188 speaker zones using relays, which enables the eX 800 Series to command an extensive area. The eMatrix System is able to handle up to 8 simultaneous inputs and 60 simultaneous outputs.

- Supports a maximum of 20 audio inputs and 60 audio outputs
  - The audio outputs are expandable to 188 speaker zones
  - Allows a maximum of 8 simultaneous paging at the same time
  - Supports up to 10 card slots per frame which can be configured to suite various applications
  - System configuration and monitoring can be done using the eX 800 Series Proprietary Graphic User Interface via a PC
  - Automatic system diagnosis to ensure that the system is working at an optimum condition
  - Supports up to a maximum of 128 control inputs and 128 control outputs
  - Built-in internal Timer to allow automatic event scheduling
  - Event logs up to 3500 events which can be used for future references
  - Features three levels of password protection for security purposes
  - Remote monitoring can be performed via WAN or LAN network system
  - The eX 800 Series eMatrix System features the following functions;
    - Weekly Programmable Time Scheduler, Daylight Saving Setting and Special Occasion.
    - Microphone Queue.
    - System Self Diagnosis (Hardware & Audio Path).
    - Remote monitoring, configuration upload and email on status monitoring.
    - Communicate with iX 100E Series peripheral panels such as iX 156E All Call Manual Line Selector, iX 157E Manual Line Selector, iX 158E Emergency Panel and iX 159E Mimic Panel Interface Unit.
- Allows a record of 2500 normal events and 1000 evacuation events.



eX 800



**eX 801**  
Single CPC Main Frame

The eX 801 Single CPC Main Frame houses all the module cards and distributes the incoming power supply to the frame's multi-voltage power supply rail. The main frame features ten card slots for various module cards, Central Processing Card (CPC), and the Power Supply Inlet Card. The eX 801 utilizes a CPC to control and monitor all operation. The front panel of the main frame is integrated with indicators to state the status of the units such as Power, CPU off, Fault and Status. The main frame also transmits audio and data information to the extension frame for additional module cards if required.

**eX 802**  
Dual CPC Main Frame

The eX 802 Dual CPC Main Frame has all the features found in the eX 801 Single CPC Main Frame except that it houses an additional Standby Central Processing Card (CPC) which automatically takes over the operation of the Main CPC in the event of a fault. This feature avoids operational down time and eliminates the need to have a fully redundant system as a backup which is much costlier and difficult to maintain. Operation automatically returns to normal when it is detected that the fault is rectified at the Main CPC.



**eX 803**  
Extension Frame

The Extension Frame is used when additional modules cards are needed to cater for a more extensive public address system. Similar to the main frame, the extension frame accepts power supply and converts it to a lower voltage for module cards usage. The eX 803 features ten card slots, Extension Card and Power Supply Inlet Card. Status indicator for Power is available on the front panel of the frame.



**eX 811**  
Control Manager

The eX 811 Control Manager is the proprietary software which is exclusively integrated with the eX 800 Series to enable the user to configure and customize the eMatrix System to suite its application. It allows user to configure input channel, output zones, time scheduler, failure output patterns, system diagnosis settings and many other functions. The Control Manager supports up to 3500 event logs which records the system's activities and faults.

Moreover, the software enables the user to perform tests to check the status of audio path, hardware cards and so on. It also provides a constant monitoring system so that the eMatrix System is in optimum working condition. For security reasons, the software provides 3-level password protection and any login will automatically be detected by the software when the password is entered.

**Technical Specifications**

Item	Specification
Power Requirement	24 Vdc (Regulated), 2.5 A
No. of Central Processing Card	1 no. eX 821
No. of Power Supply Inlet Card	1 no. eX 881
No. of Card Slot per Frame	10
Indication	Power, CPU OFF, Fault, Status
Material & Finish	Mild Steel; Epoxy Coated Steele Blue (RAL 5011)
Dimensions	483 x 133 x 200 mm
Weight	2.9 kg

**Technical Specifications**

Item	Specification
Power Requirement	24 Vdc (Regulated), 2.5 A
No. of Central Processing Card	2 nos. eX 821
No. of Power Supply Inlet Card	1 no. eX 881
No. of Card Slot per Frame	9
Indication	Power, CPU OFF, Fault, Status
Material & Finish	Mild Steel; Epoxy Coated Steele Blue (RAL 5011)
Dimensions	483 x 133 x 200 mm
Weight	2.9 kg

**Technical Specifications**

Item	Specification
Power Requirement	24 Vdc (Regulated), 2.5 A
No. of Power Supply Inlet Card	1 no. eX 881
No. of Extension Card	1 no. eX 824
No. of Card Slot per Frame	10
Material & Finish	Mild Steel; Epoxy Coated Steele Blue (RAL 5011)
Dimension ( W x H x D )	483 x 133 x 200 mm
Weight	2.7 kg

**eX 865 . eX 866 . eX 867 . eX 868**  
Remote Microphone

The Remote Microphone produces 0 dB Balanced Audio Output and communicates with the eX 834 Microphone Input Card via RS 485 communication. Each communication line can support up to 4 Emergency and 4 Remote Microphones or 8 Remote Microphones. Maximum cabling distance is 1.2 km (for a single Remote Microphone). The Remote Microphone features a built-in chime, audio gain control and 20 kHz pilot signal for audio path diagnosis and Auto Mic Off if left unattended for a preset period of time. The Remote Microphone are equipped with programmable function keys. These function keys can be programmed to perform zone selection, relay activation or any other matrix activities. There are four models for Remote Microphones, namely eX 865 (10 functions), eX 866 (20 functions), eX 867 (40 functions) and eX 868 (120 functions). The microphones can be desktop unit.



Technical Specifications

Item	eX 865	eX 866	eX 867	eX 868
Power Requirement	24 Vdc (Regulated), 180 mA	24 Vdc (Regulated), 200 mA	24 Vdc (Regulated), 200 mA	24 Vdc (Regulated), 250 mA
Output level & Impedance	0 dBV 600 $\Omega$ Balanced	0 dBV 600 $\Omega$ Balanced	0 dBV 600 $\Omega$ Balanced	0 dBV 600 $\Omega$ Balanced
Gooseneck Microphone	Unidirectional electret condenser microphone	Unidirectional electret condenser microphone	Unidirectional electret condenser microphone	Unidirectional electret condenser microphone
Distortion	< 1 %	< 1 %	< 1 %	< 1 %
Frequency Response	100 Hz - 20 kHz	100 Hz - 20 kHz	100 Hz - 20 kHz	100 Hz - 20 kHz
Signal-to-Noise Ratio	> 60 dB	> 60 dB	> 60 dB	> 60 dB
Internal Monitor Speaker	0.5 W	0.5 W	0.5 W	0.5 W
Volume Control	Microphone Level Control, Monitor Speaker Level Control, Chime Level Control, Pilot Tone Level Control	Microphone Level Control, Monitor Speaker Level Control, Chime Level Control, Pilot Tone Level Control	Microphone Level Control, Monitor Speaker Level Control, Chime Level Control, Pilot Tone Level Control	Microphone Level Control, Monitor Speaker Level Control, Chime Level Control, Pilot Tone Level Control
Auto Mic OFF	15 sec. to 2 min.	15 sec. to 2 min.	15 sec. to 2 min.	15 sec. to 2 min.
Number of Programmable Functions	10	20	40	120
Number of Connectable Units	8 (include Emergency Mic)	8 (include Emergency Mic)	8 (include Emergency Mic)	8 (include Emergency Mic)
Communication Protocol	RS 485	RS 485	RS 485	RS 485
Connector	RJ45, Panel Feed Through Connector	RJ45, Panel Feed Through Connector	RJ45, Panel Feed Through Connector	RJ45, Panel Feed Through Connector
Communication Distance	1.2 km	1.2 km	1.2 km	1.2 km
Material & Finish	ABS Resin & Aluminium Epoxy Powder Coated Steele Blue ( RAL 5011 )			
Dimension ( W x H x D )	210 x 64.5 x 185 mm	210 x 64.5 x 185 mm	210 x 64.5 x 185 mm	430 x 64.5 x 185
Weight	1.2 kg	1.2 kg	1.2 kg	1.8 kg



**eX 881**  
Power Supply Inlet Card

The eX 881 Power Supply Inlet Card accepts regulated 24 Vdc power supply through its 3 pin terminal block, which includes an earth termination.

Technical Specifications

Item	Specification
Power Handling	24 Vdc (Regulated), 3 A
Connector	1 No. 3 Pin Terminal Block
Material & Finish	Mild Steel; Epoxy Coated Steele Blue (RAL 5011)
Dimension ( W x H x D )	19.5 x 128 x 173 mm
Weight	100 g





**eX 842**  
Control Output Card

The eX 842 Control Output Card provides up to 16 make/break relay contact outputs where it transmits output signal to any external system. Each card channel is able to withstand voltage of 24 Vdc / 120 Vac and control current of 250mA.

**Technical Specifications**

Item	Specification
No. of Channel	16
Triggering Method	NO or NC Dry Contact ( jumper selectable )
Withstand Voltage	30 Vdc, 250 mA
Connector	4 nos. RJ45 Connector
Power Requirement	24 Vdc (From Backplane), 320 mA
Material & Finish	Mild Steel; Epoxy Coated Steele Blue (RAL 5011)
Dimension ( W x H x D )	35.5 x 128 x 173 mm
Weight	230 g

**eX 861 . eX 862 . eX 863 . eX 864**  
Emergency Microphone

The Emergency Microphone produces 0 dB Audio Balanced Output and communicates with eX 834 Microphone Input Card via RS 485 Communication line. Each communication line is able to connect 4 Emergency and 4 Remot Microphones or 8 Remote Microphones. It has a maximum distance of 1.2 km for a single Emergency Microphone. The Emergency Microphone features a built-in siren, audio gain control, 20 kHz pilot signal for audio path diagnosis and auto mic OFF when it is left unattended. The Emergency Microphones are equipped with programmable function keys. These function keys can be programmed to perform zone selection, relay activation or any other matrix activities. There are four models for Emergency Microphones, namely eX 861 (10 functions), eX 862 (20 functions), eX863 (40 functions) and eX 864 (120 functions). the microphones can be desktop unit.



**Technical Specifications**

Item	eX 861	eX 862	eX 863	eX 864
Output Level & Impedance	0 dBV 600 Ω Balanced	0 dBV 600 Ω Balanced	0 dBV 600 Ω Balanced	0 dBV 600 Ω Balanced
Gooseneck Mircophone	Unidirectional electret condenser microphone	Unidirectional electret condenser microphone	Unidirectional electret condenser microphone	Unidirectional electret condenser microphone
Distortion	< 1 %	< 1 %	< 1 %	< 1 %
Frequency Response	100 Hz - 20 kHz	100 Hz - 20 kHz	100 Hz - 20 kHz	100 Hz - 20 kHz
Signal-to-Noise Ratio	> 60 dB	> 60 dB	> 60 dB	> 60 dB
Internal Monitor Speaker	0.5 W	0.5 W	0.5 W	0.5 W
Volume Control	Microphone Level Control, Monitor Speaker Level Control, Siren Level Control, Pilot Tone Level Control	Microphone Level Control, Monitor Speaker Level Control, Siren Level Control, Pilot Tone Level Control	Microphone Level Control, Monitor Speaker Level Control, Siren Level Control, Pilot Tone Level Control	Microphone Level Control, Monitor Speaker Level Control, Siren Level Control, Pilot Tone Level Control
Auto Mic OFF	15 sec. to 2 min.	15 sec. to 2 min.	15 sec. to 2 min.	15 sec. to 2 min.
Number of Programmable Functions	10	20	40	120
Number of Connectable Units	4	4	4	4
Communication Protocol	RS 485	RS 485	RS 485	RS 485
Connector	RJ45, plug-in screw connector	RJ45, plug-in screw connector	RJ45, plug-in screw connector	RJ45, plug-in screw connector
Communication Distance	1.2 km	1.2 km	1.2 km	1.2 km
Power Requirement	24 Vdc (Regulated), 250 mA	24 Vdc (Regulated), 270 mA	24 Vdc (Regulated), 270 mA	24 Vdc (Regulated), 320 mA
Material & Finish	ABS Resin & Aluminium, Epoxy Powder Coated Steele Blue ( RAL 5011 )			
Dimension ( W x H x D )	265 x 64.5 x 185 mm	265 x 64.5 x 185 mm	265 x 64.5 x 185 mm	475 x 64.5 x 185 mm
Weight	1.3 kg	1.3 kg	1.3 kg	2.0 kg



**eX 821**  
Central Processing Card

The Central Processing Card has a built-in Real Time Clock and a CPU fault detection circuit. The Central Processing Card main function is to coordinate the activities of the module cards as well as process the configuration from Control Manager to the respective module cards. The card is integrated with various connectors to allow it to communicate with other system such as the iX 156E, ix 157E and iX 159E. The eX 821B card is also able to coordinate a simultaneous voice evacuation process using its onboard Evacuation Management System.

### Technical Specifications

Item	Specification
Connector	1 No. RJ45 Connector 1 No. DB9 Male Connector 1 No. DB9 Female Connector
Power Requirement	24 Vdc (From Backplane), 650 mA
Material & Finish	Mild Steel; Epoxy Coated Steele Blue (RAL 5011)
Dimension ( W x H x D )	45 x 128 x 173 mm
Weight	160 g
Switch	Day Light Saving Setting, ICP/PC Setting



**eX 823**  
Main Frame Extension Card

This card serves as a data and audio signal transmission link to the extension frame via 4 pieces of RJ45 connectors. It enables the main frame to communicate with the extension frame.

### Technical Specifications

Item	Specification
Connector	4 Nos. RJ45 Connector
Power Requirement	24 Vdc (From Backplane), 100 mA
Material & Finish	Mild Steel; Epoxy Coated Steele Blue (RAL 5011)
Dimension ( W x H x D )	35.5 x 128 x 173 mm
Weight	310 g



**eX 824**  
Extension Frame Extension Card

This card provides data and audio signal receive from the main frame via 8 pieces of RJ45 connectors. The eX 824 card also supports data and audio signal transmission to other extension frame if required.

### Technical Specifications

Item	Specification
Connector	8 Nos. RJ 45 Connector
Power Requirement	24 Vdc (From Backplane), 80 mA
Material & Finish	Mild Steel; Epoxy Coated Steele Blue (RAL 5011)
Dimension ( W x H x D )	45 x 128 x 173 mm
Weight	190 g



**eX 874**  
Blank Panel

The blank panel is used to cover any unused slots in the frame to prevent foreign objects from entering the enclosure space.

### Technical Specifications

Item	Specification
Material & Finish	Mild Steel; Epoxy Coated Steele Blue (RAL 5011)
Dimension ( W x H x D )	35.5 x 128 x 5 mm
Weight	20 g



### eX 831 Auxiliary Input Card

The eX 831 Auxiliary Input Card serves as the pre-amplifier for sources like background music, digital messages and microphones. Each card features two Auxiliary Inputs with Control Input. The audio inputs feature jumper settings for either microphone (-70dB to -45dB) or line in (-20dB to 8dB). The Auxiliary inputs are stereo inputs for background music player and individual gain via recessed potentiometer. The card can also provide phantom power if connected to a condenser microphone. The eX 831 card utilises RJ45 connectors for both audio input and control input. This card is to be installed in the eX 801 Main Frame only.



### eX 832 Auxiliary Input and Digital Source Card

The eX 832 Auxiliary Input and Digital Source Card is a 2-in-1 card which features an auxiliary input (switchable between MIC and LINE level) as well as a digital source module which stores and play audio files in MP3 format. The digital source module utilizes Multimedia Card (MMC) as a storage medium which is able to store up to 128 background music (BGM) or messages in a single card. Similar to the eX 831, the eX 832 features jumper selection settings, stereo inputs, phantom power and individual gain control. The eX 832 provides an RJ45 connector for Audio and Control Input for Auxiliary Input and a USB port for file transfer to the MMC. This card is to be installed in the eX 801 Main Frame only.



### eX 833 Dual Channel Digital Source Card

The eX 833 Dual Channel Digital Source Card provides 2 channels of digital source for both messages and audio files. It is able to store and playback up to 128 BGM or messages per card and uses Multimedia Card (MMC) as a storage medium. Moreover, the card is integrated with two USB ports for file transfer to the MMC via a personal computer. This card is to be installed in eX 801 Main Frame only.

### Technical Specifications

Item	Specification
No. of Channel	2
Input Sensitivity	MIC: -70 to -45 dB (adjustable) with built in Audio Limiter, 600 Ω, unbalanced LINE: -20 to +8 dB (adjustable), 10 kΩ, balanced MIC or LINE selectable by the built-in jumper
Low Frequency Filter (100 Hz)	-15 dB to + 15 dB Boost & Cut (adjustable)
High Frequency Filter (10 kHz)	-15 dB to + 15 dB Boost & Cut (adjustable)
Distortion	< 0.5%
Frequency Response	20 Hz - 20 kHz
Phantom Power	7.5 V
Control Input	Dry Contact Activation
Control	2 Nos. Volume Control
Connector	2 Nos. RJ45 Connector
Power Requirement	24 Vdc (From Backplane), 30 mA
Material & Finish	Mild Steel; Epoxy Coated Steele Blue (RAL 5011)
Dimension ( W x H x D )	35.5 x 128 x 173 mm
Weight	157 g

### Technical Specifications

Item	Specification
No. of Channel	1 Channel - AUX Input 1 Channel - Digital Source
Input Sensitivity for AUX Input	MIC: -70 to -45 dB (adjustable) with built in Audio Limiter, 600 Ω, unbalanced LINE: -20 to +8 dB (adjustable), 10 kΩ, balanced MIC or LINE selectable by the built-in jumper
Low Frequency Filter ( 100 Hz ) - for AUX Input	-15 dB to +15 dB Boost & Cut (adjustable)
High Frequency Filter ( 10 kHz ) - for AUX Input	-15 dB to +15 dB Boost & Cut (adjustable)
Distortion	< 0.5 % - AUX Input < 0.5 % - Digital Source
Frequency Response	20 Hz - 20 kHz - AUX Input 20 Hz - 20 kHz ( 44.1 kHz sampling ) - Digital Source
Control Input	Dry Contact Activation
Control	1 No. Volume Control
Connector	1 No. RJ45 Connector - AUX Input 1 No. USB Connector - Digital Source
External Storage - ( DS )	Multimedia Card (MMC)
Playback Mode - ( DS )	Single Source Playback
No. of Playback Program - ( DS )	128 Programs
Power Requirement	24 Vdc (From Backplane), 30 mA
Material & Finish	Mild Steel; Epoxy Coated Steele Blue (RAL 5011)
Dimension ( W x H x D )	35.5 x 128 x 173 mm
Weight	200 g

### Technical Specifications

Item	Specification
No. of Channel	2
Distortion	< 0.5 %
Frequency Response	20 Hz - 20 kHz
Playback Mode	Dual source playback
No. of Playback Program	128 Program - each CH
Connector	2 Nos. USB Connector
Power Requirement	24 Vdc (From Backplane), 100 mA
Material & Finish	Mild Steel; Epoxy Coated Steele Blue (RAL 5011)
Dimension ( W x H x D )	35.5 x 128 x 173 mm
Weight	220 g

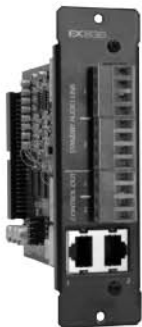


### eX 834 Microphone Input Card

The eX 834 Microphone Input Card provides two inputs for Remote Microphones and Emergency Microphones. Each input channel is able to communicate with eight Remote Microphones or a combination of four Remote Microphones and 4 Emergency Microphones. The eX 834 utilizes RJ45 connectors for Audio and Data Input. This card is to be installed in eX 801 Main Frame only.

### Technical Specifications

Item	Specification
No. of Channel	2
Connectable Microphone	eX 865, eX 866, eX 867, eX 868 eX 861, eX 862, eX 863, eX 864
Connector	2 Nos. RJ45 Connector
Power Requirement	24 Vdc (From Backplane), 100 mA
Material & Finish	Mild Steel; Epoxy Coated Steele Blue (RAL 5011)
Dimension ( W x H x D )	35.5 x 128 x 173 mm
Weight	158 g



### eX 836 Audio Output Card

The eX 836 Audio Output Card consist of dual 0 dB balanced outputs. The card receives input from the backplane and outputs signal to other devices such as the power amplifiers. The output signal's gain can be individually set using the Control Manager software. The card features a single Control Output which can be used for overriding audio attenuators during an emergency. The eX 836 utilizes RJ45 connectors for audio signal output with a 4-pin Panel Feed Through Connector for the Control Outputs.

### Technical Specifications

Item	Specification
No. of Channel	2
Output Level & Impedance	0 dBV 600 $\Omega$ , Balanced
Control Output	NO or NC Dry contact (max. 30 Vdc, 250 mA)
Connector	2 Nos. RJ45 Connector 1 Nos. 4 Pin Panel Feed Through Connector
Power Requirement	24 Vdc (From Backplane), 150 mA
Material & Finish	Mild Steel; Epoxy Coated Steele Blue (RAL 5011)
Dimension ( W x H x D )	35.5 x 128 x 173 mm
Weight	202 g



### eX 841 Control Input Card

The eX 841 Control Input Card provides up to 16 control sensor inputs where it is able to receive dry contact signals provided by any external system. All the inputs are opto-isolated. These sensor inputs data will be transmitted to the Central Processing Unit for further processing.

### Technical Specifications

Item	Specification
No. of Channel	16
Sensing Method	Dry Contact or Current Loop ( jumper selectable )
Dry Contact Method	NO or NC ( jumper selectable )
Current Loop Method	Released Voltage 24 Vdc, 5 mA
Connector	4 Nos. RJ45 connector
Power Requirement	24 Vdc (From Backplane), 100 mA
Material & Finish	Mild Steel; Epoxy Coated Steele Blue (RAL 5011)
Dimension ( W x H x D )	35.5 x 128 x 173 mm
Weight	158 g



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Australia

Singapore

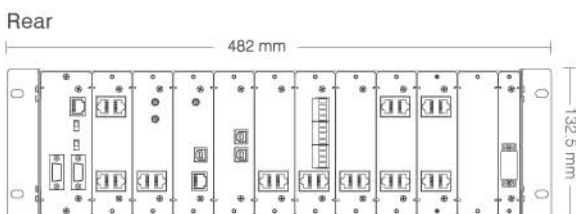
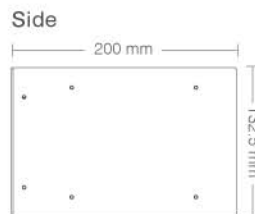
China

Hong Kong

Thailand

Malaysia

### Physical Dimensions



### Engineers' Specifications

The eMatrix shall be modular in design and all module cards shall be inserted from the rear. The system shall be able to accommodate 10 module cards in a single frame besides the Central Processing Card and Power Supply Inlet card. The system shall be able to support up to a maximum of 20 audio inputs and 60 audio outputs. It shall allow 8 simultaneous broadcast to any of its 60 audio outputs. The audio outputs shall be expandable to 188 loudspeaker zones. The system shall accept up to a maximum of 128 Dry-contact control inputs and 128 Relay control outputs. The system shall be configured through a Window-based Graphic User Interface software via PC. After configuration, the system shall be a stand-alone system that does not need any PC connected. The configuration software shall have 3 levels of password protection. The system shall provide a built-in internal timer for automatic

event scheduling. The system shall automatically perform self-diagnosis and any fault detected shall be recorded or notified. The system shall be able to record up to 3500 events. The eMatrix System shall also feature remote monitoring via WAN or LAN. The system shall accept regulated DC power supply from an external power supply.