EFDAU2000 - Distributed amplifier unit

The EFDAU2000 is a powerful, all-in-one, wall mounted voice alarm solution. It ships network ready and has capacity for up to 10 amplifier cards. Any mix of EF-D150 or EF-D500 amplifier card configuration is possible, allowing for maximum efficiency.

The EFDAU2000 has 12 audio inputs and internal storage for up to 64 recorded messages. Packaged into a compact wall-mounted enclosure and capable of delivering up to 2000 watts; the EFDAU2000 packs plenty of power into a reduced footprint - it is a voice alarm system which is both powerful and easy to install.

Equipped with integrated audio-over-IP networking and powerful audio processing capabilities, the EFDAU2000 is feature rich, whilst also including essentials such as, an integrated battery charger with dedicated battery mounting shelf.

Overall, the EFDAU2000 provides a complete voice alarm solution for a range of centralised and decentralised PAVA applications.

Network audio

Up to 32 x EFDAU2000 panels can be linked over IP to enable broadcasts from any location to any combination of selectable zones in large decentralised systems. Ethernet switches enable a voice alarm compliant ring network topology. Each EFDAU2000 can process up to 6 concurrent audio channels.

Features

• EN54-16 certified voice alarm

• Integrated IP audio networking

• Easy installation & configuration

• Maximum design efficiency

• Capacity for up to 10 amplifier cards (EF-D150 & EF-D500)

• Powerful 2000W total load per panel

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Amplification

The EFDAU2000 has capacity for 10 channels of amplification and provides the flexibility to use any permutation of EF-D150 and EF-D500 amplifier cards up to a maximum of 10 cards per panel.

Amplifiers can be configured by software to deliver the required power according to the speaker line load. The EF-D150 and the EF-D500 amplifier cards can deliver up to 150W and 500W respectively, with a total maximum overall load of 2000W per EFDAU2000 panel.

Audio inputs

EFDAU2000 supports both EF-MPS and EF-EMS paging microphones. Hardware bypass is included to ensure high availability of ALL CALL microphone operation, even in the event of a CPU failure. Up to 64 monitored recorded messages can be stored internally, with a total duration of up to 40 minutes.

Audio processing

Powerful DSP based audio processing includes input dynamics, individually adjustable digital output delay of up to 5 seconds, and 10 band parametric equalisation.
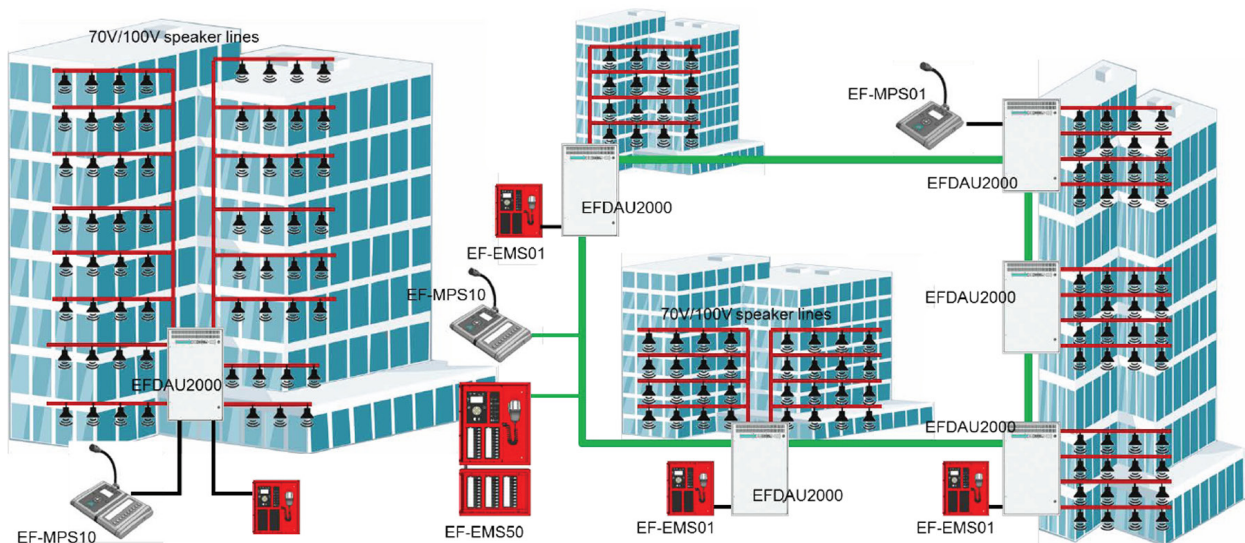
Control

The unit also includes 12 general purpose control inputs,12 general purpose control outputs and two relay outputs. Inputs are typically used to interface to the Fire Alarm System and can be substantially expanded to more than 100 GPIO connections using the EF-BMB01 unit, if required.

Networking

Each EFDAU2000 is equipped with an in-built network card which can be expanded using pluggable SFP modules. Further networking option are possible by using a dedicated Ethernet switch. Please see part codes in the optional accessories section below.

Implementation options

Specification

Power

AC Supply Voltage	230V (+25% / -16%)
AC Supply Frequency	50 / 60 Hz
Quiescent Current (no amplifiers)	525mA
Quiescent Current (per amplifier)	23mA
Maximum Audio Output Power	2000W

Battery pack

Capacity (Ah)	75AH
Capacity (T)	24 hours (quiescent) + 30 mins (full power)

Audio - general

Digital Format	48kHz / 24-bit PCM
THD	<0.01% at 1 kHz
Crosstalk	>70 dB at 1 kHz
Residual Noise	<90 dBu (A)
Frequency Response	20 Hz to 20 kHz ±0.5 dB

Audio - inputs

Analogue Input Channels	12
Input Sensitivity	-60 / - 40 / -20 / 0 dBu
Max Input Level	+20 dBu
Input Trim	−90 dB to +10 dB (1 dB steps)
Switchable HPF	20 to 500 Hz / Slope: 12 dB/oct
EQ	4 Band Parametric
Dynamics	Gate/Compressor/Limiter
Chime	Off / 1 note / 2 note / 3 note / Custom
Chime Level	-60 dB to +10 dB (1 dB steps)
Hardware bypass broadcast capability	2 inputs

Environmental

Operating	-10°C to +40°C
Storage	-20°C to +55°C
Humidity Range	0% to 93% non-condensing
Ingress Protection	IP32

Mechanical

Finish	Low Smoke Zero Halogen (LSZH)
Dimensions (H x W x D)	980mm x 600mm x 220mm
Weight (no amplifiers)	40kg
Weight (with 75Ah batteries)	46kg

Amplification

Type	Transformerless Class D
Amplifier Channels	2 / 5 / 7/ 10
Standby Amplifiers	1 (Standard) 2 (with option card)
Max power output per channel	500W
Efficiency	>=85%
Frequency response	100Hz to 20kHz +/- 3dB
THD	< 0.5%
Output Noise	85dB below full output

Audio processing

Delay (per output)	1 ms to 5000 ms (1 ms steps)
EQ	10 Band Parametric
Dynamics	Limiter / Hard Clipper
Loudspeaker Monitoring	DC, Impedance, Loop Return

Control interfaces

Inputs	12
Outputs	12 (open-collector)
General Fault Relay (With N/O, COM, connections)	1
Voice Alarm Indicator Relay	1
EF-BMB01 IO Expansion Interface	1

Eaton order codes

EFDAU2000	1 x Wall mount voice alarm system with capacity for up to 10 amplifier cards
EF-D150	1 x 150 watt amplifier card (50V/70V/100V)
EF-D500	1 x 500 watt amplifier card (50V/70V/100V)
EF-V2000-STBY	Standby amplifier interface card
EF-LSZDC	Surveillance Interface Card

Optional accessories

Networking

EF-VIPEDIA-NET-4GB	Network card
EF-SFP-MM	MM (multimode fiber) module / LC duplex
EF-SFP-SM	SM (singlemode fiber) module / LC duplex
EF-NETWORK-SWITCH-MM4	Dual Multimode Fibre + 2 RJ45
EF-NETWORK-SWITCH-SM4	Dual Single Mode Fibre + 2 RJ45
EF-DAU2000-SWITCH-MOUNT	Network Switch mounting kit

Additional GPIO

EF-BMB01	Remote I/O Unit
EFDAU2000-DIN-KIT	Expansion DIN rail and mounting kit
EF-BOA01	RJ45 Break Out Adaptor (single port)
EF-BOA02	RJ45 Break Out Adaptor (four ports)

Desktop microphones
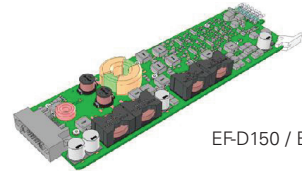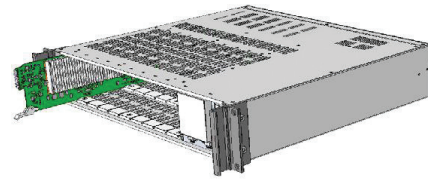
EF-MPS01-G	Paging & Emergency Mic - 01 Button - Analogue
EF-MPS10-G	Paging & Emergency Mic - 10 Button - Analogue
EF-MPS01-G-IP	Paging & Emergency Mic - 01 Button - IP
EF-MPS10-G-IP	Paging & Emergency Mic - 10 Button - IP
EF-MPX10	10-button expansion module

Wall mount microphones
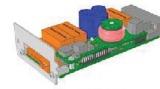
EF-EMS01	Emergency Microphone Station – IP & Analogue
EF-EMS10	Emergency Microphone Station - 10 Button – IP & Analogue
EF-EMS20	Emergency Microphone Station - 20 Button – IP & Analogue
EF-EMX30	Emergency Microphone Station - 30 Button – Expansion module for EF-EMS20

End of Line monitoring units

EF-EOL10K-10PK	DC Monitoring End Of Line Resistor (10 pack)
EF-EOLZ01-10PK	Impedance Monitoring End of Line (10 pack)

EF-D150 / EF-D500

EF-LSZDC

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This equipment is designed and manufactured to conform to the following EC standards:
EMC: EN55103-1/E1, EN55103-2/ E5, EN50121-4, ENV50204
Safety: EN60065

LPCB

UKAS PRODUCT CERTIFICATION
0007
Assessed to ISO 9001