

DAM-2500 A

Digital Audio Management Unit



EN 54 16



APPLICATION

- Public Address and Voice Alarm
- Background Music
- Audio Visual

AREA OF USE

- Health
- Education
- Retail
- Hospitality
- Stadiums
- Transportation
- Theme parks
- Military

OVERVIEW

The Digital Audio Management Unit DAM-2500 A is a digital signaling audio control unit used to initiate/manage live paging, audio signal routing and playing pre-recorded audio messages. The unit is ideal for different audio applications including the voice alarm, mass notification (general alarm), background music and professional public address. It is equipped with an internal monitoring of all alarm-relevant parts, internal error logging and permanent monitoring of all PADES® 2000 system buses as well as the audio signal path from the signal source to the loudspeaker line in accordance with the standard requirements of VDE 0828 and EN54 Part 16. In general, the unit is equipped with 8 independent (DSP based) audio input channels. On the output side, you can use eight independent preamplifier outputs. The digital audio management unit is used in combination with DAA amplifiers and DAM-2526B or (DMS-2022 A + DMS 2021 A) to power multi independent supervised loudspeakers outputs supporting class A or class A/B wiring .

DAM-2550A Ethernet based call paging station (PoE) can communicate with the DAM-2500 A audio controller through remote mic ports . Up to ten digital selective remote microphone units DPM-2550 A or DPM-2550 B can be operated with each DAM unit using one of the pre-configured emergency microphone port.

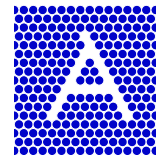
The audio signal processing allows simultaneous operation of 8 independent speech paths (8x8) matrix in connection with a supplementary software license. With the digital-analog input module, up to 8 monitored digital or analog inputs are available. In order to play a selected input channel with priority, the NF-Digital-1-Channel-Priority-Control-Module is used. Furthermore, an NF-Digital External Volume Control Module allows remote volume control of a selected input channel. On the input side, there are high-performance audio AD converters with 128x

oversampling and input channel gain adjustable in 6 dB steps (0 – 42 dB) and on the output side with high-performance audio DA converter with 128x oversampling and switchable output channel gain (0/6 dB) is available. For a professional, unadulterated reproduction of speech and music, each input/output features five bands parametric equalizer. Each audio input could be configured as Line or Mic input supporting Phantom power or VOX input type.

The digital signal processor (DSP part) supports a sampling frequency of 48 kHz. The current device configuration (commissioning presets) and the factory settings (delivery status) are stored in a non-volatile memory (EEPROM). The Digital Paging Management Control has integrated 32-bit ARM Cortex M3 digital processor (120 MHz) that offers sufficient computing power for real-time control of all processes. The unit is equipped with 4GB Inbuilt message storage (48 KHz /16 bits)

The digital control of all operating functions is carried out by 2 function keys, a rotary encoder, as well as through 8 additional, freely assignable rotary encoders (or alternatively with an optional RS-232 Interface Module). The graphic LCD display with 32 x 120 pixels and 16-bit 20MHz slave controller allows plain text display and the display of pictograms. The software license enables operation with a display in the respective national language. The special software license includes all user-specific factory programming of the system, e.g. the times for the start of periodically repeated announcements or going signals, as well as the group definitions for an alarm or a call announcement. The automatically changing background color of the display is used to visualize error states. The color of the backlighting of the display is switched depending on the activated operating mode.

PADES [®] 2000-Series



The colour assignments are as follows:

- 1) Green(Grey) color : Snooze mode is active
- 2) Blue color: Normal Operation
- 3) Yellow color: Fault status
- 4) Red color: Emergency status is active
- 5) Purple color: Service status is active

The watchdog-monitored alarm output (2-pole potential-free changeover contact) deliver a defined error status even if the processor fails . In the event of a power failure, there is an optional automatic switchover to emergency power operation with simultaneous actuation of the mains failure output (potential-free changeover contact). In the event of a total failure of the processors, an analog bypass is also available for signal transmission from the fire brigade call station (DAM- 2530 A) to

DAA amplifiers to initiate “ All Call” live paging.

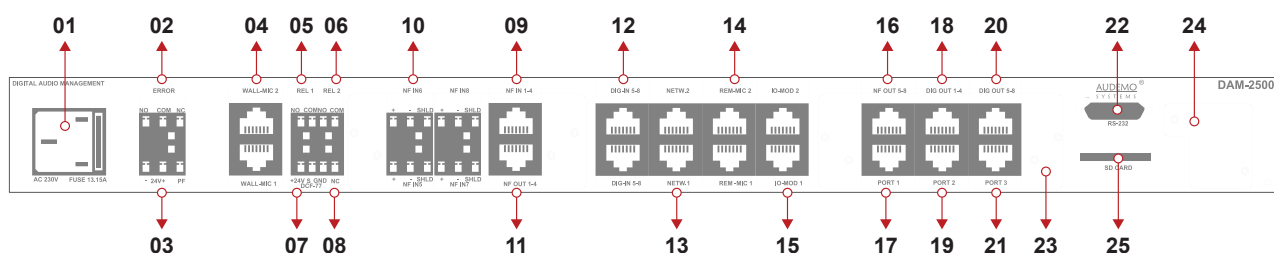
The DAM 2500A is triggered from the Fire Detection or Gas Detection Panel through the digital and analog control ports.

The DAM- 2500 A unit can be equipped with two optional digital interface module for networking:

- 1) DMS-2034 A: Digital Media Network Module (Dante)
- 2) DMS-2036 A: Digital Ethernet Network Module

The audio sampling rate over the Ethernet media is 48 KHz with bit depth of 24 bits. Each unit can transmit up to eight simultaneous audio channels on the TCP/IP network.

REAR PANEL CONNECTIONS:



1 **Mains Plug Input and main fuse**
Power connection to 230 V AC mains. Replace the fuse only with the same type and rating.

2 **Connector ERROR**
Fault indication (isolated switchover contact).

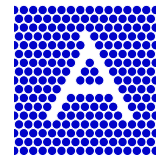
3 **Connector for Emergency Power and Power Fail**
To connect the 24V DC-Emergency Power and control a DEU-2700 A unit in case of power fail.

4 **Connector for Fire Brigade Remote Microphone Bus 1 and 2**
At each RJ45 connector an independent monitored fire brigade remote microphone-bus can be connected (emergency microphones). EMERG.-MIC1 bus can be switched to passive mode to allow failsafe operation (analog bypass) of one passive fire brigade remote microphone. This port can be configured to drive combination of DAM2550A+ DPM2550A + DAM 2570 using RS485 protocol.

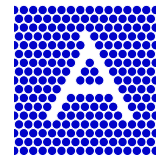
5 **Connector REL. 1**
Programmable isolated switchover contact (COM, NO). (Reserved for future use)

6, 8 **Connector REL. 2**
Programmable isolated switchover contact (NC, COM, NO). (Reserved for future use)

7 **Connector DCF-77 (Time signal input)**
Connection of an external DCF-77 or a GPS-radio receiver for inputting a time signal.
Connect the DCF-77 receiver between S and GND.
Connect the GPS receiver by using +24V, S, and GND



9	Connector NF IN 1 – 4 on RJ45 connector To connect up to four independent A.F. input signals. The inputs are symmetrical and have the possibility of additional input gain and phantom power independent for each input.
10	Connector NF IN 5 – 8 on separate connectors To connect up to four independent A.F. input signals. The inputs are symmetrical and have the possibility of additional input gain and phantom power independent for each input.
11	Connector NF OUT 1 – 4 on RJ45 connector To connect up to four independent A.F. output signals. These 4 outputs can be connected directly to the power amplifiers.
12	Connector DIG-IN 1 – 4, 5 - 8 Digital 8-channel audio input (optional). Proprietary connection for AUDEMO-SYSTEMS pre-amplifier
13	Connector NETW. 1, 2 Ethernet connection for connecting to a controlling system or for configuration. It is also possible to connect a remote microphone DAM-2550 A. These ports have PoE capability. The NETW port can be used for Modbus Integration.
14	Connector Remote-Microphone-Interface Ethernet connection for connecting a remote microphone DAM-2550 A. These ports have PoE capability. If more than two remote microphones shall be connected, an external Ethernet switch with PoE has to be used.
15	Connector IO-MOD 1, 2 Two independent busses for connecting external peripherals of the DMS-Module-System.
16	Connector NF OUT 5 – 8 on RJ45 connector To connect up to four independent A.F. output signals. These 4 outputs can be connected directly to the power amplifiers.
17, 19	Connector for Digital Network Extension Module Connector for internal network extension modules like DANTE®-Network. By using both connectors a redundant DANTE network can be achieved or Ethernet connection using AUDEMO Proprietary protocol
18, 20	Connector DIG-OUT 1-4, 5-8 Two Digital 4-channel audio outputs. Proprietary connection for AUDEMO-SYSTEMS (Future use)
21	Connector PORT 3 on RJ45 connector Connector for internal extension module (Future use).
22	Connector RS-232 DAM-2587 A Digital-Interface-Module RS-232 for firmware-update and system configuration.
23	SD-Card slot (external) External SD-Card slot for future use.
24	Compartment for optional RS-485 Bus interface module DMS-2064 A Digital-Network-Extension-Module (optional).
25	SD-Card slot (internal) Internal SD-Card slot for system configuration and voice messages. Only accessible by unmounting the module (protected against manipulation).



TECHNICAL DATA

Audio matrix	8 in x 8 out
Digital audio matrix	8 in x 8 out in addition to the analog ones
Frequency response	20 - 20,000 Hz
Signal to noise ratio	> 92 dB
Gain control	- 42 dB
Distortion	< 0.01 %
Inputs (Mic)	-50 dBu, 600 Ohm, Balanced
VOX input	-10 dBu, 600 Ohm, Balanced
Control port	Programmble
GPS port	1
Digital analog control inputs	20 programmble and monitorable inputs module using IO- MOD ports.(Expandable)
IO-MOD control port	2 X RJ45 for control of amplifiers and peripherals devices
Paging microphone connecting	Ethernet Based and RS485 type
DSP	Mixer and equalizer
Type of equalizer	HPF, LPF, BF, Notch, Low/High Shelf (5 band EQ for each input and each output)
Automatic gain control	Supported by DMS- 2064A
Third-party integration	ModBus and AV control through the Network port
Delay synchronization	Up to 50 milliseconds
Error outputs	One
Faults log	2047 faults
Timer and scheduler	Up to 8000 events defined by date, duration and time
Digital voice memory control module	Up to 4 GB or 11 hours of WAV messages Using 48 KHz/16 bits
RS485 Port (DMS-2064)	Driving up to 20 units of DPA -2774 A /B and DMS- 2041A and DMS-2042 A
Bus type	RS- 485, galvanically isolated
Analog signal	Bidirectional, differential, digital (AES3), galvanically isolated
Control signal	Bidirectional, digital, galvanically isolated
Network connectivity	Ethernet network card with sampling rate of 48 KHz and 24 bit depth
Dante connection	8 x 8 digital audio matrix using Ethernet bus of 1GB with sampling rate of 48 KHz and resolution of 16/24/32 Bit
Operating temperature	-5° C to + 55° C
Power supply (main supply)	220-240 VAC, 50/60 Hz
Emergency input voltage	24 VDC
IP rating	IP 30
Dimensions (W x H x D) mm	483 x 44 x 300 mm (1U)
Weight	5.4 KG without DMS- 2034A/ without DMS-2036A/ without DMS-2064A

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