

# EVA 16 AUDIO MANAGEMENT SYSTEM





### EVA 16

UDIO MANAGEMENT SYSTEM / EN 54-16	
EVA 16 2.0	
EVALINE 2.0	
Expansion boards & accessories	

### EVA 8 EN

VA 8 EN VOICE ALARM SYSTEM	14

### EVA 16 Paging stations

EVA 16 2.0 Paging stations	8
EVA 16 Paging stations	19

### **SINUS Power Amplifiers**

SINUS 410 D / 420 D / 450 D	Digital Power Amplifiers
SINUS 10 / 20 / 40 / 220 / 410	Analog Power Amplifiers

### **Emergency Power Supply**

CHARGER 6 / CHARGER 12	8
EVA 24/54	

### 19" Racks & Accessories

RACK 625-Series	3 2	2
POWER SWITCH 6 / SWITCH 6		.33
TELA – Telephone Interface		3 4
ANALYZER MK 1		. 3 5







EN 54-16 EN 54-4

## AUDIO MANAGEMENT SYSTEM

System components to design certified Voice Alarm systems or Emergency Sound systems

For use in multiple applications like shopping centers, office buildings, sports facilities, schools and many more

Certified according EN 54-16: 2008 Fire detection and fire alarm systems - Part 16: Voice alarm control and indicating equipment

## EVA 16 AUDIO MANAGEMENT SYSTEM

Nowadays life safety is of the utmost importance. Wherever many people are present at the same time, it is extremely important to inform them quickly and reliably in case of danger and to evacuate them if necessary. For this reason, we develop and produce needsbased evacuation technology, combined with sophisticated communication technology.

Life safety of people as well as individual communication with them, is our main focus in our daily business.

Our development engineers are continuously striving to further development of new innovative products and improvements of existing systems to meet the constant increasing levels of safety standards and market requirements.

Base for our quality assurance is the consistent use of the European standards for Emergency Sound Systems and Voice Alarm Systems, which need to be implemented reliably, compentenly and cost-effectively.

The production facility of the GRÄF & MEYER products is subject to constant quality control according production regulations like ISO 9001 and DIN 14675. All safety-related Voice Alarm product lines have been certified according EN 54-16.



#### Key features of REDLINE series EVA 16 2.0 / EVA 8 EN

- Compact music, voice alarm and evacuation system
- Cost effective solution
- Easy to design and to configure
- Simple and intuitive controls
- without the use of a PC
- Flexible and expandable
- Efficient emergency power supplies
- Ergonomic designed 19" racks
- Robust and user-friendly paging panels
- Certified firepanel
- (Emergency microphone)
- Single and multi-channel power amplifiers

#### Additional features EVA 16 2.0

- For use in Master/Slave configuration up to 10 EVA 16 2.0 units in one system
- Loudspeakerline expansion via EVALINE 2.0
- System settings can be configured via a color touchscreen display
- Integrated loudspeaker to monitor the audio signals
- Error log with time stamp
- Software updates via serial port



### EVA 16 2.0 applications & system components

Applications can be found in those areas where many people are present at different times, for example:

- Shopping centers
- Office buildings
- Industrial plants
- Sports facilities
- Multi-purpose venues
- Hospitals
- Trainstations
- Airports
- Schools
- Universities
- Hotels
- Restaurants
- and many more

#### EVA 16 2.0 – System example

EVA 16 2.0	Voice Alarm System
EVALINE 2.0	Loudspeakerline expansion
SINUS 410D / 420D / 450D SINUS 10 / 20 / 40 SINUS 220 / 410	Class D multi-channel power amplifier Analog single-channel power amplifier Analog multi-channel power amplifier
EVA 16 FIRE-PANEL 2.0	Firemen's emergency panel
CHARGER 6 / CHARGER 12 EVA 24/54	Emergency power supply
SWITCH 6 POWER SWITCH 6	Mains power switch for Emergency Sound systems
EVA 16 TER 2.0	Monitored Paging station
EVA 16 SYS 80 2.0	Paging station





# EVA 16 2.0



## **VOICE ALARM SYSTEM**

Emergency Sound system to design Voice Alarm Systems (VAS) and other supervised Public address systems according to the latest European standards (EN 54-16 - Fire detection and fire alarm systems - Part 16: Voice alarm control and indicating equipment and EN 50849: 2017 - Sound System for emergency purposes)

# EVA 16 2.0

EN 54-16



#### **EVA 16 2.0 VOICE ALARM SYSTEM**

The EVA 16 2.0 Voice Alarm System unit is the heart of the Public Address / Emergency Sound System to control and monitor all required communication and safety functions in accordance with the current national and European standards for building safety.

- 6 Audio inputs (4 music sources and 2 AUX inputs) with separate volume control for each input and for the five audio outputs (4 zone/ amplifier outputs and 1 Backup amp) per EVA 16 2.0 main unit; to connect up to eight 100V power amplifiers (up to 500W per channel)
- Four transformer isolated audio outputs (including backup amplifier output), with volume, bass and treble control, to connect to amplifiers; simultaneous routing of audio sources to each of the 4 outputs
- Monitored message memory with four selectable alarm messages, stored on SD card
- Cross-system programming of the alarm messages (EVA 16 2.0 Master / Slaves)

- Additional message (for example: school pause-tone), controlled by external contact
- Additional message for general announcements, controlled by exter-nal contact
- Parametric audio filter for high and low cut off
- Main (Master) unit expandable with up to nine EVA 16 2.0 Slave units, allowing to configure up to 80 A&B 100V loudspeaker lines (160 in total)
- Contact closure output for norm-conform standby control during emergency power operation of the connected digital power amplifier models SINUS 410 D, SINUS 420D and SINUS 450 D
- Energy-efficient loudspeaker line monitoring for Short circuit, short to ground, open line and impedance deviation

# EVA 16 2.0

- Inaudible disconnection of loudspeaker lines in case a short circuit is found
- Monitoring of connected power amplifiers using a 22kHz pilot tone
- Automatic switching to a backup amplifier channel in case an amplifier channel is broken
- Expansion to a large, more complex system through integrated G&M interfaces
- Norm-conform continuous, inaudible functional monitoring, also during announcements or music playback
- Failures are recognized within 100 seconds, displayed and stored in a log-file (with time stamp)
- Monitoring of up to 16 paging panels like EVA 16 TER 2.0 and EVA 16 SYS 80 2.0 (partially monitored) for up to 80 paging zones
- Suitable for connection of the Emergency microphone (Fireman's mic) EVA 16 2.0 FP
- Multiple programmable EVA SYS 4+1 paging panels (not monitored) can be connected

- Option to expand loudspeaker lines using the EVALINE 2.0 (with 8 A&B / 16 single 100V loudspeaker lines)
- DSP Firmware updates and configuration up- and downloads via serial connection (RS232)
- SD card to store messages and other announcements, accessible via the front panel (meeting access level requirement according the standard)

#### **TECHNICAL SPECIFICATIONS**

EVA 16 2.0				
Inputs	<ul> <li>4x 0dB unbalanced (source)</li> <li>2x 0dB unbalanced (AUX)</li> <li>2x Firemans microphone (500 ohm dynamic) transformer-balanced</li> <li>1x digital panel bus (80 ch)</li> <li>1x analog panel bus</li> </ul>			
Outputs	5x; 0db (+10db maximum) transformer-balanced outputs			
Pilot tone- measurement- frequency	22 kHz (fade in/fade out)			
100V-Switching relay	Vmax. 160V (AC); Imax. 8A (AC)			
Display	front mounted 4.5" color- touchscreen display with plain text			
Operating voltage	230VAC/50-60Hz and 24VDC			
Emergency power	via 24VDC			
Power consumption	24VA max.			
Operating temperature	-5°C to + 55°C			
Housing & Color	steel sheet, black			
Dimensions (WxHxD)	483 x 88 x 302 mm (19"; 2U)			
Weight	4,7kg			
Article no.	ART05987			

## **EVALINE 2.0**

EN 54-16



### **EVALINE 2.0 Loudspeakerline expansion**

The EVALINE 2.0 unit is an expansion unit for the emergency sound system EVA 16 2.0 VOICE ALARM SYSTEM to connect, control and monitoring of all security related function meeting both the national and European standards for building safety.

- Loudspeaker line expansion of up to 8 A&B / 16 single 100V loudspeaker lines
- Failures are recognized within 100 seconds, displayed and stored in the log-file
- Simple expansion of amplifier and loudspeakerline quantities by adding additional EVALINE 2.0 units
- Firmware updates and configuration up- and downloads via serial connection (RS232)
- Both audio inputs of the EVALINE 2.0 are linked to the two audio outputs (with independent level setting), which can be distributed along the connected power amplifiers
- Two line inputs to connect audio signals
- Monitoring of up to 8 connected 100V amplifiers via galvanic isolated audio line outputs
- When connecting to the EVA 16 2.0, one or two of the line outputs will be connected with the audio inputs of the EVALINE 2.0 unit. In addition the EVALINE 2.0 can be configured to monitor these audio connections

- Energy efficient loudspeaker line monitoring for short to ground, short circuits, open line and impedance deviation
- Inaudible disconnection of loudspeaker lines in case a short circuit is found
- Monitoring of connected power amplifiers using a 22kHz pilot tone
- Automatic switching to a backup amplifier in case an amplifier channel is broken
- Up to 80 paging zones can be realized when connected with EVA 16 2.0, using the EVA 16 SYS 80 2.0 or EVA 16 TR 2.0 paging panels
- Simple configuration directly at the front panel using buttons and display
- Serial connection to connect with a PC is available; PC is not required for the configuration
- Error relay to forward system relevant errors

# **EVALINE 2.0**

### **TECHNICAL SPECIFICATIONS**

#### **EVALINE 2.0**

Inputs	2x 0dB unbalanced (source)	Power consumption	24VA max.
Outputs	3x 0dB (+10dB maximum) transformer-balanced outputs	Operating temperature	-5°C < T < + 55°C
Measurement-fre- quency	22 kHz (fade in/ fade out)	Housing & Color	steel sheet, black
100V-Switch-relay	Vmax. 160V (AC); Imax. 8A (AC)	Dimensions (WxHxD)	483 x 45 x 305 mm (19"; 1U)
Display	front mounted character LC- display	Weight	4,5 kg
Operating voltage	230VAC/50-60Hz and 24VDC	Article no.	ART00436
Emergency power	via 24VDC		

# **EVA 16 – Expansion boards**



## EVA 8 EN

#### EN 54-16

#### **VOICE ALARM SYSTEM** IUSIK EVAS SYSTEM: OK : EVA 8 EN front panel: 1. Firemans microphone connection 5. Buttons B1 - B4 3. ERROR LED, yellow 2. POWER LED, green 4. Buttons PRG, VOL, UP, DOWN 6. LC- display 13 CE **EVA 8 EN rear panel:** 1. 4 x amp in / A&B out 4. Text start 7. Error contacts (output) 11. AUX- in (audio) 2. Backup amp input 4. ALARM 1/2 start Backup amp line output 12. 24VDC in 8. 13. Power switch RS232 port 5. Fire mic2 Line output 1-4 3. 9. AUX 1/2 (Request) 6. Analog panel bus 10. Source input 14. 230VAC in 4.

### EVA 8 EN VOICE ALARM SYSTEM

The EVA 8 EN Voice Alarm System unit is the heart of the Public Address / Emergency Sound System to control and monitor all required communication and safety functions in accordance with the current national and European standards for building safety.

- Two audio inputs (1x music source & 1x AUX input) with separate vol-ume control for each input and for each of the five audio outputs (4 zone/amplifier outputs and 1 Backup amp) per EVA 8 EN main unit; to connect up to four 100V power amplifiers (up to 500W per channel)
- Four transformer isolated audio outputs (including backup amplifier output), with volume, bass and treble control, to connect to amplifiers; simultaneous routing of audio sources to each of the outputs
- Monitored message memory for alarm messages and other announcements, stored on an integrated SD card
- Energy-efficient loudspeaker line monitoring for Short circuit, short to ground, open line and impedance deviation
- Monitoring of connected power amplifiers using a 22kHz pilot tone
- Automatic switching to a backup amplifier channel in case an amplifier channel is broken

- Expansion to a larger system through integrated G&M interfaces
- Norm-conform continuous, inaudible functional monitoring, also during announcements or music playback
- Failures are recognized within 100 seconds, displayed and stored in a log-file
- Suitable for connection of the Emergency microphone (Fireman's mic) EVA 16 FH

# EVA 8 EN

#### **TECHNICAL SPECIFICATIONS**

### EVA 8 EN

Inputs	1x Source input; 0dB; unbalanced 1x AUX input; 0dB; unbalanced 2x Firemans microphone; transformer-balanced 1x Microphone-bus (EVA SYS 4+1, EYA SYS 2)
Outputs	5x; Line outputs; 0dB (+10db maximum)
Pilot-tone measurement frequency	22 kHz
Measurement-frequency Fire mic	1kHz
100V-Switching-relay	Switching voltage 160VAC (max.) Switching current 4A AC (max.) (Pmax. 800W / 100V)
Additional relay contacts	120VAC (max.); 2A AC (max.)
Display	two line alphanumeric LC- display
Message storage	SD-card
Operating voltage	230VAC/50-60Hz and 24VDC
Housing & Color	steel sheet, black
Dimensions (WxHxD)	483 x 45 x 305 mm (19"; 1U)
Weight	4,25kg
Article no.	ART02394









Partially certified according EN 54-16: 2008 (Fire detection and fire alarm systems - Part 16: Voice alarm control and indicating equipment) and for use in Sound System for emergency purposes according EN 50849: 2017

# EVA 16 2.0 Paging panels

#### EVA 16 TER 2.0



### EVA 16 TER 2.0 – Paging panel for EVA 16 2.0 VOICE ALARM SYSTEM

- Monitored microprocessor controlled paging panel specially to connect to EVA 16 2.0. Announcements in up to 80 freely configurable zones
- Integrated 2-line character display to indicate system status
- Operator specific programmable functionality: Single call, Group call, ALL call and Emergency announcements with associated priority levels
- Covered button for security related announcement like pre-announcements, ALL zones and other
- Depending on the configuration (partial) functionality is monitored



### EVA 16 SYS 80 2.0 – Paging panel for EVA 16 2.0 VOICE ALARM SYSTEM

- Microprocessor controlled paging panel to connect to the EVA 16 2.0 Audio Management System, for announcements in up to 80 freely selectable loudspeaker zones
- Modern and robust keypad
- Integrated 2-line character display to indicate system status
- Separate button to start alarm message
- Operator specific programming: ALL call and single call function with associated priority levels
- Depending on the configuration (partial) functionality is monitored

Article no. ART00199

Article no. ART00439

#### EVA 16 FIRE-PANEL 2.0



EVA 16 FIRE-PANEL 2.0 Emergency Microphone for EVA 16 2.0 VOICE ALARM SYSTEM meeting EN 54-16

Monitored according the required communication and safety functionality as mentioned in the national and European standards for building safety.

The Fireman's microphone was specially developed for use by rescue workers, to ensure the evacuation of people can be organized safely and effectively in case of an alarm situation.

### EN 54-16

Robust construction and simple & intuitive operation; the red wall mount housing features a window and rotary lock, which can be replaced with a lock having a standard half-cylinder (EVA 16 FP SSP).

The EVA 16 FIRE PANEL 2.0 - in combination with the EVA 16 2.0 system - is used to start and stop alarm pre-recorded messages and to transmit highest priority microphone announcements into four freely programmable zones.

The alarm messages can be started and stopped manually by using the buttons or automatically when controlled from the fire alarm system. To connect to a fire alarm system, contact closure inputs are available.

Article no. ART00438

# EVA 16 Paging panels





#### EVA SYS EMERGENCY MICROPHONE

Monitored emergency microphone (Fireman's microphone) for emer-gency calls, including 2 Alarm message buttons for use with EVA 16 2.0, EVA 16 M/S EN and EVA 8 EN.

Red wall mounted housing with window and rotary lock, which can be replaced with a lock having a standard half-cylinder (EVA 16 FP SSP).

Article no. ART02818











## **Power amplifiers**

Sophisticated, high efficient 100V power amplifiers according EN 54-16: 2008 and EN 50849: 2017. In the power range from 120W up to 500W Analog & Digital models, single channel and multi-channel models

# SINUS 410 D / 420 D / 450 D

### Digital multi-channel power amplifiers



#### SINUS 410 D / 420 D / 450 D

Sophisticated, high efficient 4-channel class D amplifiers according EN 54-16. SINUS 410 D - 4 x 120 W / SINUS 420 D - 4 x 240W / SINUS 450 D - 4 x 500W continuous output power at 100Volt.

#### Key features:

- Galvanic isolated outputs (Ground free)
- Each of the four independent digital amplifier channels is powered by its own switch mode power supply, allowing to use one of these channels as backup amplifier
- In case of a mains power failure, the power is supplied via the 24VDC inputs, one for each amplifier channel
- If one amplifier channel fails this does not influence the operation of the other channels (also not when powered from 24VDC)
- Each amplifier channel is protected against damage due to thermal overload, DC input, Low frequency input signals as well as overload or short circuit

When connected to a system controller (eg. EVA 16 2.0 or EVALINE 2.0), each amplifier channel can be assigned with its own audio signal

EN 54-16

The audio connection is analog, using common shielded cable

# SINUS 410 D / 420 D / 450 D

#### TECHNICAL SPECIFICATIONS

SINUS	410 D	420 D	450 D
Outputs	4 x 100V	4 x 100V	4 x 100V
Channel separation	≥ 85dB	≥ 85dB	≥ 85dB
Input sensitivity	1V/20k ohm, balanced	1V/20k ohm, balanced	1V/20k ohm, balanced
THD	≤ 0,5% at 1kHz and 30% output power	≤ 0,5% at 1kHz and 30% output power	≤ 0,5% at 1kHz and 30% output power
Indicators	Standby, AC Power, 24VDC & per channel: Inputs signal, Clipping, Protect	Standby, AC Power, 24VDC & per channel: Inputs signal, Clipping, Protect	Standby, AC Power, 24VDC &per channel: Inputs signal, Clipping, Protect
Power consumption	650VA @ rated power	1250VA @ rated power	2600VA @ rated power
Output power	4 x 120W / 100V	4 x 240W / 100V	4 x 500W / 100V
Operating voltage	230VAC/50-60Hz;	230VAC/50-60Hz; 24VDC	230VAC/50-60Hz; 24VDC
Housing & color	24VDC Steel, black	Steel, black	Steel, black
Dimensions (WxHxD)	485 x 66 x 425 mm; 19"; 1,5 U	485 x 66 x 425 mm; 19"; 1,5 U	485 x 66 x 425 mm; 19"; 1,5 U
Weight	9,3 kg	9,3 kg	9,3 kg
Article no.	ART05788	ART05787	ART05789

# SINUS 10/20/40/220/410

EN 54-16

## Analog single and multi-channel power amplifier 1 6 ۲ 6 SINUS 220 front panel: equal for SINUS 10/20/40/410 1. OVERLOAD LED, green 2. SIGNAL LED, green 3. POWER LED, green CF SINUS 220 rear panel: equal for SINUS 10/20/40/410 1. Mains power fuse 4. Power switch 7. Amplifier outputs 10. Audio input (balanced) 2. Mains power input (230VAC) 5. Mains error contact 8. Audio Link Out

- 3. Grounding
- 6. DC input (24VDC)
- - 9. Input level
- SINUS 10 / 20 / 40 / 220 / 410 according EN 54-16

Cost-effective and robust single and multi-channel analog power amplifiers meeting EN 54-16 requirements.

- The power amplifiers are protected for thermal overload, DC on inputs, low frequency input signals, output overload and short circuits. The 100V outputs are galvanically isolated from ground
- The 2 (SINUS 220) and 4 (SINUS 410) independent amplifier channels of the multichannel power amplifiers are powered from by a separate power supply each, which allows the use of one of these channels as a backup amplifier channel
- In case of a mains power failure the secondary 24VDC power supply takes over for each of the individual amplifier channels

# SINUS 10/20/40/220/410

### **TECHNICAL SPECIFICATIONS**

SINUS	10	20	40
Outputs	1x 100V / 70V / 80hm	1x 100V / 70V / 80hm	1x 100V / 70V / 80hm
Signal-to-noise-ratio (SNR)	≥ 86dB	≥ 86dB	≥ 86dB
Input sensitivity	1V/10k ohm, balanced	1V/10k ohm, balanced	1V/10k ohm, balanced
Distortion	≤1% at 1kHz at nominal power	≤1% at 1kHz at nominal power	≤1% at 1kHz at nominal power
Indicators	Signal, Overload, Power Status	Signal, Overload, Power Status	Signal, Overload, Power Status
Power consumption	~ 320VA at nominal power	~ 640VA at nominal power	~ 1280VA at nominal power
Output power	1 x 120W / 100V	1 x 240W / 100V	1 x 480W / 100V
Operating voltage	230VAC/50-60Hz; 24VDC	230VAC/50-60Hz; 24VDC	230VAC/50-60Hz; 24VDC
Housing	steel sheet, black	steel sheet, black	steel sheet, black
Dimensions	485 x 88 x 305 mm (19"; 2U)	485 x 88 x 305 mm (19"; 2U)	485 x 88 x 355 mm (19"; 3U)
Weight	8,5 kg	10,5 kg	16,0 kg
Article-no.	ART00905	ART00907	ART00910

SINUS	220	410
Outputs	2x 100V / 70V / 80hm	4x 100V / 70V / 80hm
Signal-to-noise-ratio (SNR)	≥ 86dB	≥ 86dB
Input sensitivity	1V bei 10k ohm, balanced ≤1%	1V bei 10k ohm, balanced
Distortion	at 1kHz at nominal power	≤1% at 1kHz at nominal power
Indicators	Signal, Overload, Power status	Signal, Overload, Power status
Power consumption	~ 1280VA at nominal power	~1820VA at nominal power
Output power	2 x 240W / 100V	4 x 120W / 100V
Operating voltage	230VAC/50-60Hz; 24VDC	230VAC/50-60Hz; 24VDC
Housing & Color	steel sheet, black	steel sheet, black
Dimensions (WxHxD)	485 x 88 x 305 mm (19"; 2U)	485 x 88 x 355 mm (19"; 3U)
Weight	18,0 kg	22,0 kg
Article-no.	ART00908	ART00906







Emergency power supply for use in certified Voice Alarm systems according EN 54-16: 2008 and EN 50849: 2017

Approved according EN 54-4: 1997/A1:2002/A2:2006 (Fire detection and fire alarm systems – Part 4: Power supply equipment)

# CHARGER 6 / CHARGER 12

EN 54-4

### **Emergency power supply** \$ CHARGER 6 front panel: equal for CHARGER 12 1. Display Indicators 3. Selection button 5. USB-port 2. LC-display 4. Status Indicators CHARGER 6 rear panel: equal for CHARGER 12 1. Battery connection (+) 6. Mains power fuse 11. Remote control (in/out) 2. Main DC outputs 12. Optional Ethernet port 7. Temperature sensor connector Battery connection (-) 24VDC error contact 13. 230VAC Mains power input 3. 8.

- 4. Auxiliary DC outputs
- Status LED fuse 5.

- 9. 230VAC error contact
- 10. General error contact

#### CHARGER 6 / CHARGER 12 according EN 54-4

Microprocessor controlled emergency power supply according EN 54-4 (fire alarm systems Part 4: Power supply equipment), used to realize a secondary backup power source in an Emergency Warning or Voice Alarm System (VAS).

- The CHARGER 6 can supply up to six, while the CHARGER 12 can supply up to 12 power amplifiers with 24VDC. In addition two/four 24VDC Auxiliary outputs are available to power system controllers or other pre-amplifiers
- Both CHARGER units include mandatory indications at the front panel for; 230 VAC operation, Battery operation, Charging condition and Error status. In addition, a USB connection is available at the front to configure the emergency power supply
- The rear panel features terminals to connect four/eight batteries, a connection for a temperature sensor and error contacts to forward the error status

- All primary and secondary input voltages are constantly monitored
- Network connection (Ethernet) for additional external monitoring of the system status (optional)
- The open architecture allows connection of non emergency related devices also

# CHARGER 6 / CHARGER 12

### **TECHNICAL SPECIFICATIONS**

	CHARGER 6	CHARGER 12
Power factor	0.94 (in operating mode)	0.94 (in operating mode)
Efficiency	84% (during charging process)	84% (during charging process)
Output voltage stability	0,5%	0,5%
Leak-current (earth conductor)	< 1.5 mA	< 3 mA
AC power consumption	2,7A (max.)	5,4A (max.)
Rated voltage	External battery: 24V Buffer mode @ 25OC: 27,1V Quick charging @ 25OC: 28,3V	External battery: 24V Buffer mode @ 25OC: 27,1V Quick charging @ 25OC: 28,3V
Temperature compensation factor at buffer and fast charging mode	-48mV/°C	-48mV/°C
Battery capacity	430Ah *2 (max.)	860Ah *2 (max.)
Charge current	16A	32A
Internal battery resistance *1	25m ohm (max.)	25m ohm (max.)
No. of connected battery banks	2	4
Load / Output current	6 x 30ADC / 1 x 6ADC	12 x 30ADC / 2 x 6ADC
Power consumption from battery for internal power supply	< 400mA	< 800mA
Power consumption after activation of deep discharge protection	< 5mA	< 5mA
DC output voltage range *3	21,0V-28,8V	21,0V-28,8V
Maximum available current, after the mains power is disconnected	90A (max .)	90A (max .)
Relative humidity	80% (max.)	80% (max.)
Operating temperature	Class 3K5 according EN 60721-3-3; -5°C to +45°C	Class 3K5 according EN 60721-3-3; -5°C to +45°C
Operating voltage	230VAC (+10% -15%); 50 Hz	230VAC (+10% -15%); 50 Hz
Housing & color	Steel, black	Steel, black
Dimensions (WxHxD)	485x44x320mm (19"; 1U)	485x80x320mm (19"; 2U)
Weight	5,1 kg	8,8 kg
Article no.	ART05119	ART05133

\* 1 Guaranteed Internal resistance of battery for which the indication of a failure for each battery connection is activated.

\* 2 The mentioned battery capacities are without power consumption by the Voice Alarm system on any of the 24 V connections.

\* 3 The mentioned output voltage range shows the voltage range between discharged batteries (at the end of the operating cycle) and the voltage during quick charge taking the temperature compensation into account.

# EVA 24/54

#### EN 54-4

#### **Emergency power supply**



#### EVA 24/54 front panel:

- 1. Mains faults: Green is OK, yellow indicates multiple types of errors
- 2. Battery faults: Green is OK, yellow indicates multiple types of errors
- 3. Output voltage: Green is OK, yellow indicates multiple types of errors



•

#### EVA 24/54 rear panel:

- 1. Mains power input 230VAC
- 2. Auxiliary outputs 24VDC (5A)
- Error contacts

2

- 4. Main 24VDC outputs 1 3
- 5. Main 24VDC utputs 4 6
- 6. Temperature sensor input
- 7. Battery connection

#### Emergency power supply EVA 24/54

Rugged uninterruptible emergency power supply according EN 54-4 (fire alarm systems Part 4: Power supply equipment), used to realize a secondary backup power source in an Emergency Warning or Voice Alarm System (VAS).

- EVA 24/54 allows connection of up to 6 power amplifiers having 24VDC power supply inputs. In additional 3 auxiliary outputs are available to connect system controllers and other pre-amplifiers
- EVA 24/54 features norm conform indicators at the front for mains-& battery power operation, charging condition and error status.
- Rear located connections for (2) batteries, temperature sensor and error contacts to forward error status

- All primary and secondary input voltages are constantly monitored
- The open architecture allows connection of non emergency related devices also

# EVA 24/54

### **TECHNICAL SPECIFICATIONS**

	EVA 24/54	
Input	Mains input voltage (single-phase): 195VAC to 264VAC Frequency: 47 to 63Hz Class I protection, Neutral and earth system: TT. TN, IT Primary current @ 195VAC: 2A max. use of a 2-pole circuit breaker (D curve) is required	
Output	Rated output voltage: 24VDC; floating voltage (half load): 27,2VDC /- 5% 6 Main outputs; 40A max. 3 Auxiliary; 5A max. Output current all outputs: 150A max. Power supply operation without load current: Imin = 0A Grounding of the DC-circuit is possible through the positive or negative pole of the battery Rated output current of the rectifier: 12A	
Operating relative humidity	20%-95%; without condensation	
Operating temperature	-5°C to +45°C at 12A load; over 2000m height, the max. operating temperature will decrease with 5°C every 1000m	
Operating voltage	230VAC / 50-60Hz; 24VDC	
Maximum available current, after the mains power is disconnected	150A (MAX .)	
Relative humidity	80% (max.)	
Operating temperature	Class 3K5 according EN 60721-3-3; -5°C to +45°C	
Operating voltage	230VAC (+10% -15%) / 50Hz	
Housing & color	Steel, black	
Dimensions (WxHxD)	483x88x395mm (19"; 2U)	
Weight	6,7 kg	
Article no.	ART02827	

# **RACK 625-Series**

EN 54-16

## Rack System / according EN 54-16 / IEC - 297 19" Rack 42U 19" Rack 34U 19" Rack 24U the month finner mine THE REAL PROPERTY AND 42U (W:600 x H:2066 x D:600 mm) 34U (W:600 x H:1710 x D:600 mm) 24U (W:600 x H:1270 x D:600 mm) . Ventilated steel rear door Ventilated steel rear door . Ventilated steel rear door Ventilated steel front door (optional) Ventilated steel front door (optional) Ventilated steel front door (optional) Article no. ART02943 Article no. ART02941 Article no. ART02848

#### **RACK 625-Series**

Ergonomic designed and stable 19" rack according to IEC - 297, IP 30 approved according to EN 54-16. Ideally suited for applications in which optimum accessibility is required, both during installation and future maintenance.

- The 19" racks can be put next to each other, consist of a base frame with side panels, ventilated and lockable steel rear door, removable flange plate with two ventilation grilles and brushes for cable entry. In addition, grounding bolts are equipped on each rack part
- The 19" rack includes hinges which allow the ventilated front and rear doors to open  $180^\circ$
- The side panels are lockable and can be removed without the use of tools

- The (optional) front door can be equipped with a security lock or a swivel lever with DIN half-cylinder
- Due to the modular, bolted construction, the cabinets can even be used under difficult mounting and transport conditions
- The racks are available in different heights: 24U, 34U and 42U, all with 600 x 600 mm base dimension
- Optional accessories: ventilated steel front doors RACK ST 625 24U / 34U / 42U (glass doors on request), ventilation sets VEN 625 series, wheels LKR 625, heavy duty mounting rails GLT 625 or GLT 625 L, rack shelfs ABF 2U/3U, various front panels and 19" power strips

# **SYSTEM ACCESSORIES**



#### POWER SWITCH 6 / SWITCH 6 (without picture) Power switches & distribution according EN 54-4

POWER SWITCH 6 is ideally suitable as a power distributor to provide up to 6 power amplifiers with 230VAC (20A max, per outputp) and features 2 additional 230VAC (max. 20A total) connections to power system controllers and other pre-amplifiers.

SWITCH 6 is ideally suitable as a power switch & distributor to provide up to 6 power amplifiers with 230VAC (8A max. per output) and features 2 additional 230VAC (max. 8A total) connections to power system controllers and other pre-amplifiers.

By pressing the power switch, or when power is restored after a power failure, the Mains outputs 0 to 6 are switched on one by one with time delay,

in order to avoid excessive high loads from the primary power supply. Both power switches feature a contact closure output for error forwarding as well as a remote switch option.

The 19" 2U (88mm) high and 80mm deep POWER SWITCH 6 and the 19" 1U (44mm) high and 70mm deep SWITCH 6, are designed for rear mounting in 19" racks.

Using the POWER SWITCH 6 considerably simplifies the AC mains cabling in 19" Voice Alarm system cabinets.

#### **TECHNICAL SPECIFICATIONS**

	POWER SWITCH 6	SWITCH 6
Main outputs	6x 230VAC / 20A max. each	6x 230VAC / 8A max. each
Auxiliary outputs	2x 230VAC / 20A max. total	2x 230VAC / 8A max. total
Relative humidity	80% (max.)	80% (max.)
Operating temperature	Klasse 3K5 according EN 60721-3-3: -5°C to +45°C	Klasse 3K5 according EN 60721-3-3: -5°C to +45°C
Operating voltage	3x 230VAC (-15%/+10%) 50Hz	230VAC (-15%/+10%) 50Hz
Housing & Color	Steel / Grey	Steel / Grey
Dimensions (WxHxD)	485 x 89 x 80 mm (19"; 2U)	483 x 45 x 70 mm (19"; 1U)
Weight	2,3 kg	1,4kg
Article no.	ART05865	ART05120

## SYSTEM ACCESSORIES

#### **TELA – Telephone Interface**



#### **TELA – Telephone Interface**

TELA easily realizes an analog audio link between the telephone system and the PA system, enabling routing of telephone announcements into the PA system.

#### Key features:

- Applications for use of TELA can be found wherever voice messaging needs to be routed into the PA system by telephone as an alternative for a paging station
- TELA eliminates the need for long cabling connections of paging stations, allowing different buildings to be interconnected cost efficiently
- The level of the phone call and listening level can be adjusted

- A sound signal indicates when TELA is connected to the PA system and when the anouncement can start
- A 'busy' signal indicates an active anouncement in the system (optional)
- By entering a key code combination before the anouncement, access by unauthorized users can be prevented

Article no. ART00963

# **SYSTEM ACCESSORIES**

#### **ANALYZER MK 1**



- 1. T1 Frequency Preset selection[Hz] : 50 / 1k / 10k / 16k / 20k / 22k
- 2. T2 (button has no function in Version 1.1)
- 3. FREQU + Frequency setting 'fine' up

#### **ANALYZER MK 1**

Impedance analyzer for measurement of 100V Loudspeaker lines in the 25Hz to 25kHz range.

Conventional impedance analyzer for PA systems usually work with a frequency of 1kHz only. However, the majority of PA system providers, including GRÄF & MEYER, use the so-called pilot tone measurement method, which operate with a non-audible frequency of 16 to 22kHz. For this measurement method, the impedance and the cable-capacitance of the speaker line plays an important role for the interpretation of the measurement result.

The impedance or 'watt' specification of the loudspeakers is usually specified by the loudspeaker manufacturers at 1KHz, while at 20KHz, most loudspeakers have a higher impedance, while the cable has a lower impedance. Therefore, the measurement of a loudspeaker line at 20KHz cannot be ignored. In general, if the 20kHz pilot tone is applied to the output permanently, an overload of the connected amplifier cannot be prevented.

- 4. OFF (AUS) Turn unit OFF
- 5. ON (EIN) Turn unit ON / Display backlight ON/OFF
- 6. FREQU Frequency setting 'fine' down

Only when the impedance of the loudspeakers is known at 20KHz and is compared with the impedance value of the line stored during calibration of the system, fault detection can be ensured.

In order to be able to install and maintain Public Address & Emergency Sound systems, in accordance with current standards, the ANALYZER MK1 should be a standard tool for every specialist, planner or technician.

Article no. ART02901