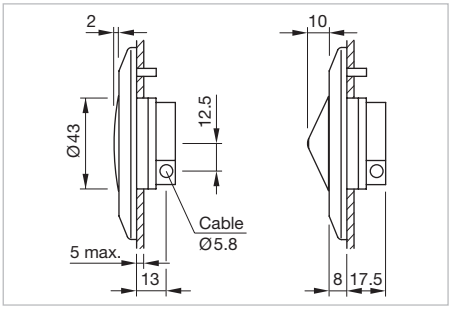
56 Front mounting

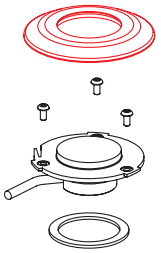
Multi-Ton Sound Modul

The preview is based on a sample product. This can differ from your current configuration.



Dimensions [mm]

Equipment consisting of

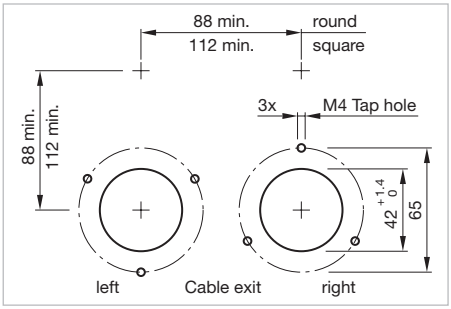


Each part listed below includes all the black components shown in the 3D-drawing.

To obtain a complete unit, please select the red components from the pages shown.

Additional Information

- The descriptions of the standard tone sequences see «Application guidelines»
- After completion of the interior work, we recommend performing acoustic measurements of the sound level inside or outside the car (TSI PRM)
- Please fill in the form and forward it to your local EAO partner by e-mail or fax. The electronic form is available at www.eao.com/downloads



Mounting cut-outs [mm]

Front cap

☐ Plastic black flush	☐ Plastic black raised

Front cap marking

☐ without symbol	☐ with symbol

Volume adjustment

☐ Manually (3-/5-Tone Sequences Module)	☐ Automatically (6-Tone Sequences Module)

Tone sequence

☐ 3-tone	☐ 5-tone	☐ 6-tone

Supply voltage

☐ 24 VDC (5-Tone Sequences Module)	☐ 16 … 63 VDC (3-/6-Tone Sequences Module)	☐ 50 … 143 VDC (3-/6-Tone Sequences Module)

Tolerance ±30 %

Cable exit

☐ cable exit right	☐ cable exit left

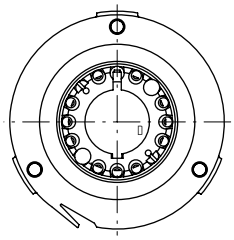
Cable length

☐ A = 200 mm	☐ A = 500 mm	☐ A = 1000 mm	☐ A = 1500 mm	☐ _____ mm

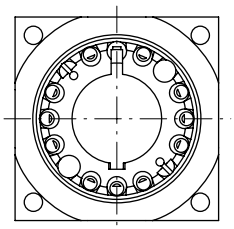
Cable and connector type	
Cable	Connector
☐ 4 x 0.25 mm²	☐ Core end-sleeves
☐ 4 x 0.5 mm²	☐ AMP connector Mate-N-Lok (Wiring diagram 3, 4)
☐ 6 x 0.5 mm²	☐ DEUTSCH connector (Wiring diagram 3, 4)
	☐ AMP connector 2.8 mm x 0.8 mm (Wiring diagram 1, 2))
	☐ AMP connector 6.3 mm x 0.8 mm (Wiring diagram 3, 4)
	☐ _____

Housing

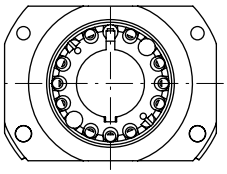
☐ Housing D73 (standard)



☐ Housing reworked 50 mm x 50 mm

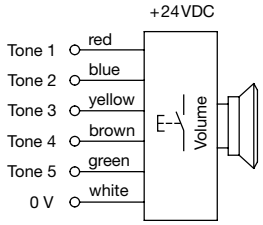


☐ Housing reworked 68.5 mm x 50 mm



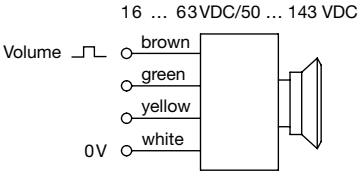
Wiring diagrams

5-Tone sequence



Wiring diagram 1

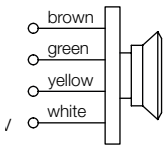
3-Tone sequence



	Tone sequence		
Wire	1	2	3
green	VDC	0 V	VDC
yellow	0 V	VDC	VDC

Wiring diagram 2

Tone sequence, self-adjusting



16 … 63 VDC

Tone	green	yellow	brown
1	16 – 63 VDC	0 V	0 V
2	0 V	16 – 63 VDC	0 V
3	16 – 63 VDC	16 – 63 VDC	0 V
4	0 V	0 V	16 – 63 VDC
5	16 – 63 VDC	0 V	16 – 63 VDC
6	0 V	16 – 63 VDC	16 – 63 VDC

50 … 143 VDC

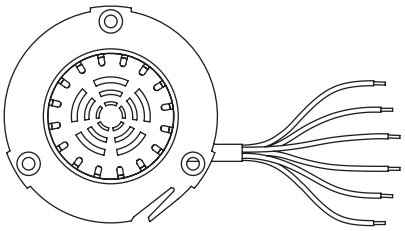
Tone	green	yellow	brown
1	50 – 143 VDC	0 V	0 V
2	0 V	50 – 143 VDC	0 V
3	50 – 143 VDC	50 – 143 VDC	0 V
4	0 V	0 V	50 – 143 VDC
5	50 – 143 VDC	0 V	50 – 143 VDC
6	0 V	50 – 143 VDC	50 – 143 VDC

Wiring diagram 3

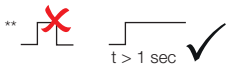
56 Front mounting

Component layouts

5-Tone sequence

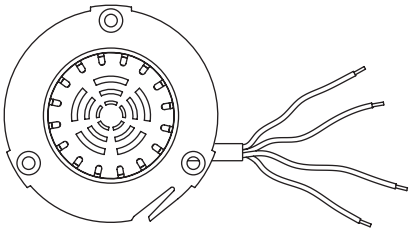


red (Tone sequence 1**)
blue (Tone sequence 2**)
yellow (Tone sequence 3**)
brown (Tone sequence 4**)
green (Tone sequence 5**)
white (0V)

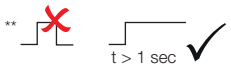


Bauteilelayout 4

3-Tone sequence

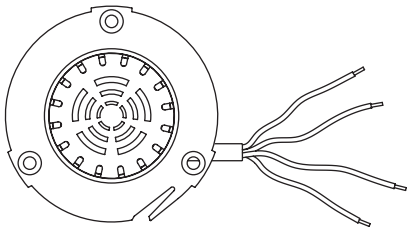


brown (Volume)
green (Tone sequence 1**)
yellow (Tone sequence 2**)
(Tone sequence 3)
white (0V)



Bauteilelayout 5

6-Tone sequence, self-adjusting



brown
green
yellow
white (0V)

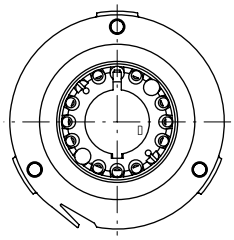
Tone sequence 1**: green
Tone sequence 2**: yellow
Tone sequence 3**: green/yellow
Tone sequence 4**: brown
Tone sequence 5**: brown/green
Tone sequence 6**: brown/yellow

Bauteilelayout 6

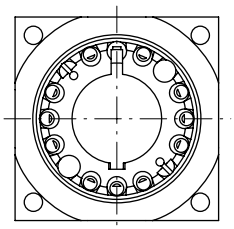
Cable and connector type	
Cable	Connector
☐ 4 x 0.25 mm²	☐ Core end-sleeves
☐ 4 x 0.5 mm²	☐ AMP connector Mate-N-Lok (Wiring diagram 3, 4)
☐ 6 x 0.5 mm²	☐ DEUTSCH connector (Wiring diagram 3, 4)
	☐ AMP connector 2.8 mm x 0.8 mm (Wiring diagram 1, 2))
	☐ AMP connector 6.3 mm x 0.8 mm (Wiring diagram 3, 4)
	☐ _____

Housing

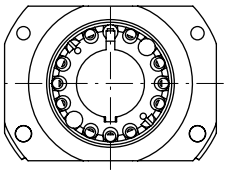
☐ Housing D73 (standard)



☐ Housing reworked 50 mm x 50 mm

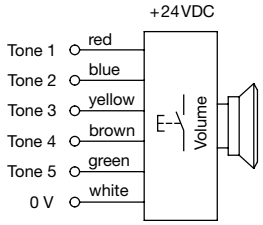


☐ Housing reworked 68.5 mm x 50 mm



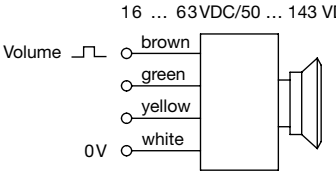
Wiring diagrams

5-Tone sequence



Wiring diagram 1

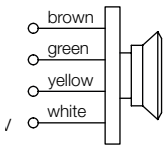
3-Tone sequence



	Tone sequence		
Wire	1	2	3
green	VDC	0 V	VDC
yellow	0 V	VDC	VDC

Wiring diagram 2

Tone sequence, self-adjusting



16 … 63 VDC

Tone	green	yellow	brown
1	16 – 63 VDC	0 V	0 V
2	0 V	16 – 63 VDC	0 V
3	16 – 63 VDC	16 – 63 VDC	0 V
4	0 V	0 V	16 – 63 VDC
5	16 – 63 VDC	0 V	16 – 63 VDC
6	0 V	16 – 63 VDC	16 – 63 VDC

50 … 143 VDC

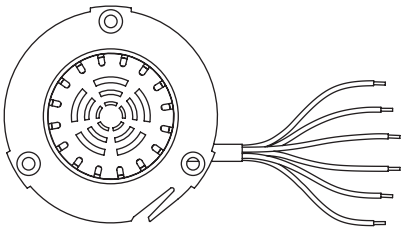
Tone	green	yellow	brown
1	50 – 143 VDC	0 V	0 V
2	0 V	50 – 143 VDC	0 V
3	50 – 143 VDC	50 – 143 VDC	0 V
4	0 V	0 V	50 – 143 VDC
5	50 – 143 VDC	0 V	50 – 143 VDC
6	0 V	50 – 143 VDC	50 – 143 VDC

Wiring diagram 3

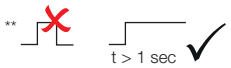
56 Rear mounting

Component layouts

5-Tone sequence

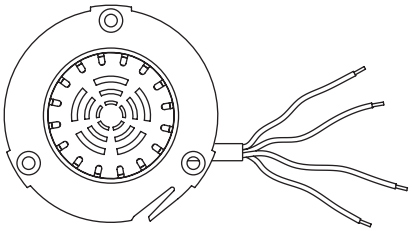


red (Tone sequence 1**)
blue (Tone sequence 2**)
yellow (Tone sequence 3**)
brown (Tone sequence 4**)
green (Tone sequence 5**)
white (0V)

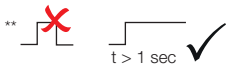


Bauteilelayout 4

3-Tone sequence

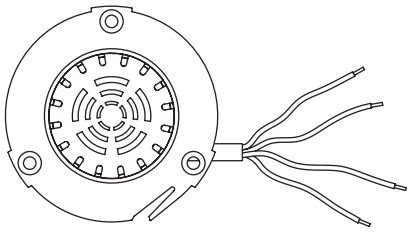


brown (Volume)
green (Tone sequence 1**)
yellow (Tone sequence 2**)
(Tone sequence 3)
white (0V)



Bauteilelayout 5

6-Tone sequence, self-adjusting



brown
green
yellow
white (0V)

Tone sequence 1**: green
Tone sequence 2**: yellow
Tone sequence 3**: green/yellow
Tone sequence 4**: brown
Tone sequence 5**: brown/green
Tone sequence 6**: brown/yellow

Bauteilelayout 6

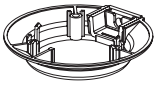
Multi-Ton Sound Modul

Equipment consisting of


Front bezel Page 39

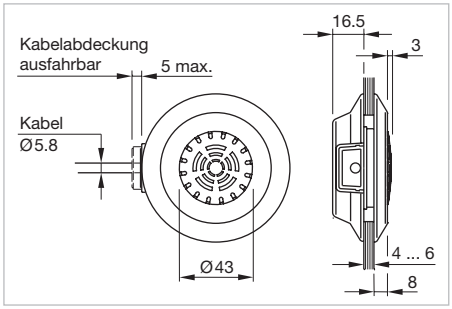

MTSM unit


Cable cover standard or funnel

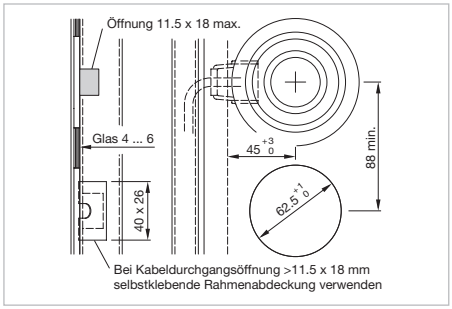

Cover

Each part listed below includes all the black components shown in the 3D-drawing.

To obtain a complete unit, please select the red components from the pages shown.



Dimensions [mm]



Mounting cut-outs [mm]

The preview is based on a sample product. This can differ from your current configuration.

Additional Information

- Front bezel Ø 87 mm
- Cable exit left
- Housing D73 (standard)
- Die Beschreibung der Standard-Töne finden Sie in den «Anwendungsrichtlinien»
- After completion of the interior work, we recommend performing acoustic measurements of the sound level inside or outside the car (TSI PRM)
- Please fill in the form and forward it to your local EAO partner by e-mail or fax. The electronic form is available at www.eao.com/downloads

Front cap	
☐ Plastic black flush	☐ Plastic black raised

Front cap marking	
☐ without symbol	☐ with symbol

Volume adjustment	
☐ Manually (3-/5-Tone Sequences Module)	☐ Automatically (6-Tone Sequences Module)

Tone sequence		
☐ 3-tone	☐ 5-tone	☐ 6-tone

Supply voltage		
☐ 24 VDC (5-Tone Sequences Module)	☐ 16…63 VDC (3-/6-Tone Sequences Module)	☐ 50…143 VDC (3-/6-Tone Sequences Module)

Tolerance ±30 %

Cable exit	
☐ cable exit right	☐ cable exit left

Cable length				
☐ A = 200 mm	☐ A = 500 mm	☐ A = 1000 mm	☐ A = 1500 mm	☐ _____ mm

Cable and connector type	
Cable	Connector
☐ 4 x 0.5 mm²	☐ Core end-sleeves
	☐ AMP connector Mate-N-Lok
	☐ DEUTSCH connector
	☐ AMP connector 2.8 mm x 0.8 mm
	☐ AMP connector 6.3 mm x 0.8 mm
	☐ _____

56 Glass mounting

Cable cover standard

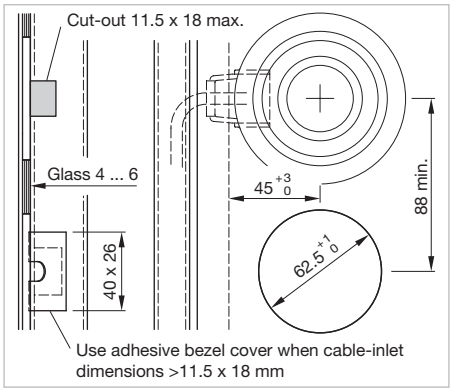
Product attribute	Cable cover	Part No.
☐ Included in standard delivery	standard 0°	**56-992**

Cable cover standard

☐ Specify Part No. in purchase order	standard 45°	**56-992A**

Additional Information

- Additional cable covers are available on request.



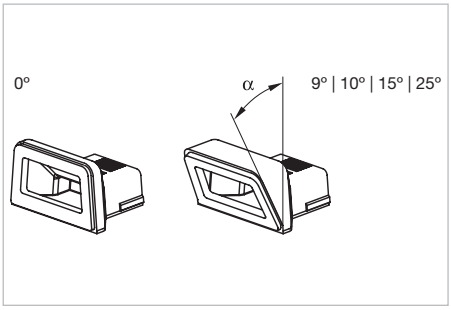
Mounting cut-outs [mm]

Cable cover funnel

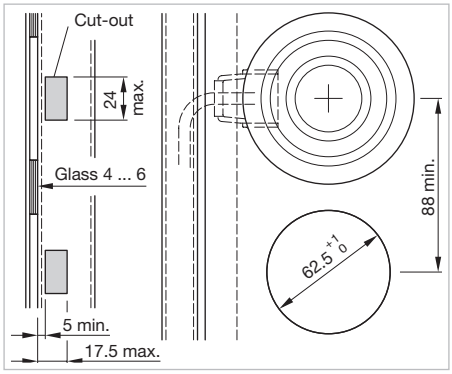
Cable cover	Part No.
☐ Funnel 0°	**56-992B**
☐ Funnel 10°	**56-992C**
☐ Funnel 15°	**56-992D**
☐ Funnel 25°	**56-992E**
☐ Funnel 9°	**56-992F**

Additional Information

- Specify Part No. in purchase order
- **Caution:** Funnel shaped cable cover Part No. 56-992B, C, D, E, F are not replacable after first mounting



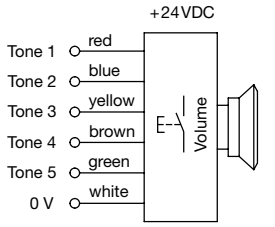
Dimensions [mm]



Mounting cut-outs [mm]

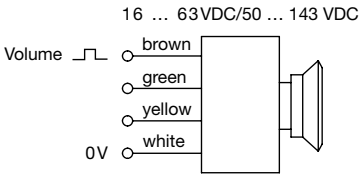
Wiring diagrams

5-Tone sequence



Wiring diagram 1

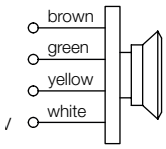
3-Tone sequence



	Tone sequence		
Wire	1	2	3
green	VDC	0V	VDC
yellow	0V	VDC	VDC

Wiring diagram 2

Tone sequence, self-adjusting



16 … 63 VDC

Tone	green	yellow	brown
1	16 – 63 VDC	0V	0V
2	0 V	16 – 63 VDC	0V
3	16 – 63 VDC	16 – 63 VDC	0V
4	0 V	0 V	16 – 63 VDC
5	16 – 63 VDC	0 V	16 – 63 VDC
6	0 V	16 – 63 VDC	16 – 63 VDC

50 … 143 VDC

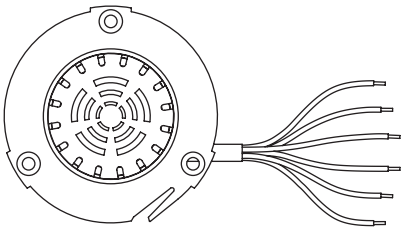
Tone	green	yellow	brown
1	50 – 143 VDC	0V	0V
2	0 V	50 – 143 VDC	0V
3	50 – 143 VDC	50 – 143 VDC	0V
4	0 V	0 V	50 – 143 VDC
5	50 – 143 VDC	0 V	50 – 143 VDC
6	0 V	50 – 143 VDC	50 – 143 VDC

Wiring diagram 3

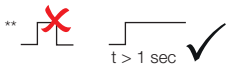
56 Glass mounting

Component layouts

5-Tone sequence

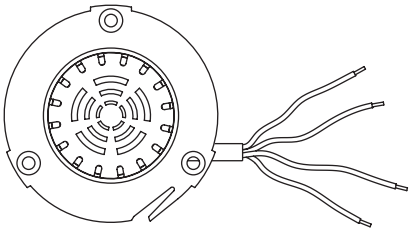


red (Tone sequence 1**)
blue (Tone sequence 2**)
yellow (Tone sequence 3**)
brown (Tone sequence 4**)
green (Tone sequence 5**)
white (0V)

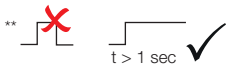


Bauteilelayout 4

3-Tone sequence

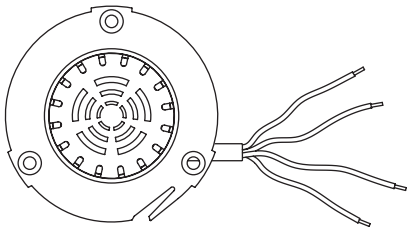


brown (Volume)
green (Tone sequence 1**)
yellow (Tone sequence 2**)
(Tone sequence 3)
white (0V)



Bauteilelayout 5

6-Tone sequence, self-adjusting



brown
green
yellow
white (0V)

Tone sequence 1**: green
Tone sequence 2**: yellow
Tone sequence 3**: green/yellow
Tone sequence 4**: brown
Tone sequence 5**: brown/green
Tone sequence 6**: brown/yellow

Bauteilelayout 6

Multi-Tone Sound Module

Material

Connection cable
Halogene free plastic mixture
Housing switching unit and speaker cap plastic, as per UL94 V0

Front bezel
Zinc matt chromium plated or plastic, as per UL94 V0

Housing
Plastic

Mechanical characteristics

Terminals
200 mm with crimped metal sleeves
3-tone sequences module: 4 x 0.5 mm² or 4 x 0.25 mm²
5-tone sequences module: 6 x 0.5 mm²
6-tone sequences module: 6 x 0.5 mm²

Fixing screws
For front mounting M4 x 8 mm (3x)

Tightening torque
For screws for front mounting 0.80 Nm … 1 Nm
Key (mounting and dismantling)
Hexagon socket wrench size 2.5 mm

Electrical characteristics

Units compliant to
EN 61000-6-2
EN 61000-6-3
EN 50121-3-2

Operating voltage/-current
Operation voltage 24 VDC ±30 %, 5-tone sequences module
Operation voltage range 16 … 63 / 50 … 143 VDC, 3-tone sequences module / 6-tone sequences module
Current rating < 50 mA depending on voltage and volume

Electric strength
4000 VAC, 50 Hz, 1 min, between all terminals and mounting plate/front element

Acoustic characteristics

5-tone sequences:
The volume of each tone sequence is configured in five steps by 6 dB, adjustable from the rear side. All sounds are controlled using a wire cable.
The tones can be played in any sequence at different volumes, durations and intervals.

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3-tone sequences:
The volume of each tone sequence can be changed in 17 steps of 1.5 dB each, by means of the tone-editing programme or “external” by wire. Tone sequence 1 and 2 are being activated by wire, whereby sequence 3 is being activated binarily. All sounds are controlled using a wire cable. In order to symplify the definition of the Multi-Tone Sound Module, a “volume control box” is at EAO customer’s disposal as an accessory.
The tones can be played in any sequence at different volumes, durations and intervals.

6-tone sequences:
The «MTSM self-adjusting» offers six individual tone sequences that can be emitted at different frequencies, number of repeats and durations. The volume can be pre-set so it is always a specified number of decibels above the ambient noise. The six tone sequences are controlled in a binary manner, via three wires.

Frequency range
500 Hz … 3000 Hz ± 1 %
480 Hz … 3000 Hz ± 1 % (6-tone sequences module)

Measuring window (6-tone sequences module)
Time period until sound output 750 ms

Time range of tone sequence
0 … ∞ (endless)

Acoustic pressure level
3-/5-tone sequences module:
90 dB (A) 10 cm @ 1 kHz
Level 17 for 3-tone sequences module
Level 5 for 5-tone sequences module
6-tone sequences module:
Max. 100 db @ 10 cm @ 1 kHz

Self-adjusting Modul:
Max. 72 dB (A) @ 1.5 m @ 1 kHz
Max. 95.52 dB (A) @ 0.1 m @ 1 kHz

Environmental conditions

Storage temperature
-45 °C … +90 °C

Operating temperature
-40 °C … +85 °C

Protection degree
Front side IP69K
Rear side IP65

Climate resistance
Damp heat, cyclic
48 hours, +25 °C/97 %, +55 °C/93 % relative humidity, as per EN IEC 60068-2-30

Saline mist 96 hours, as per EN IEC 60068-2-11

Shock resistance
(semi-sinusoidal)
max. 50 m/s², pulse width 30 ms, as per EN 61373

Vibration resistance
Max. 7.9 m/s² at 10 Hz … 150 Hz, as per EN 61373

Approvals

Approbations
CQC
TSI PRM

Conformities
CE