

Series 56

Intuitive and reliable. Worldwide.

<https://eao.com/56>



56 Information about the Series

Key advantages

- Unique tactile feedback
- Conform to TSI PRM
- Exceptional long-term reliability
- Wide product range
- Simple integration through mounting options
- Individually customisable

Typical application areas

Passenger access systems
Passenger information systems
Call for aid terminals
Emergency and emergency call systems
Toilet facilities on trains and buses
Lifting and moving systems
Access control systems

Functions

- Indicator
- Door opening pushbutton
- Lever switch
- Warning tone module (Multi-Tone Sound Module)
- Flashing warning beacon

Design

- Front mounting
- Rear mounting
- Glass mounting

IP front pRedection

- IP67

Raitings

- min. 5 VDC, 5 mA/max. 137 VDC/VAC, max. 200 mA
- min. 10 μ A/max. 250 mA (56 Access)

Mounting cut-outs

- \varnothing 42 mm

Terminal

- Cable with direct connection

Lens Material

- Aluminium
- Plastic

Markings

- Laser marking
- Milling

Approvals

- CQC
- e1
- TSI PRM (EBC)

Conformities

- CE
- 2014/30/EU (EMC)
- 1300/2014/EU (TSI PRM)
- 2011/65/EU (RoHS)
- 2014/35/EU (LVD)



Overview**Front mounting**

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Rear mounting

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Glass mounting

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Components

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Application guidelines

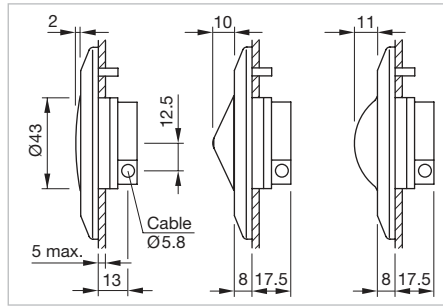
68

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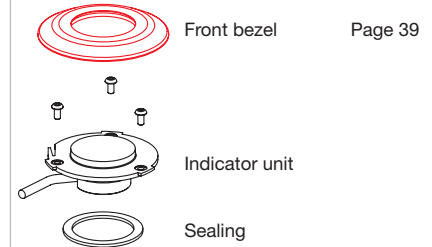
72

56 Front mounting

Single side indicator



Equipment consisting of



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

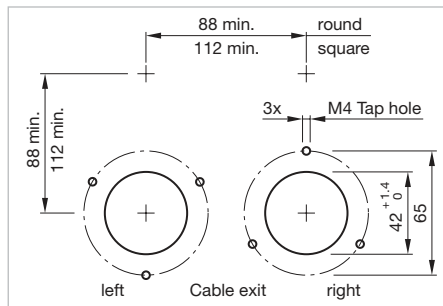
Dimensions [mm]

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

Additional Information

- 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

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



Mounting cut-outs [mm]

Front cap		
<input type="checkbox"/> Plastic smoke black flush	<input type="checkbox"/> Plastic colourless raised	<input type="checkbox"/> Plastic colourless half round

Marking (Text or symbol)				
<input type="checkbox"/> without marking				
<input type="checkbox"/> with marking	<input type="checkbox"/> 1 line	<input type="checkbox"/> 2 line	<input type="checkbox"/> 3 line	<input type="checkbox"/> line

Symbole							
<input type="checkbox"/>	<input type="checkbox"/> DOOR LOCKED	<input type="checkbox"/>	<input type="checkbox"/> DOOR OUT OF ORDER	<input type="checkbox"/> TOILET ENGAGED	<input type="checkbox"/> WC Defekt	<input type="checkbox"/> DOOR OUT OF USE	<input type="checkbox"/> USE OTHER DOOR
<input type="checkbox"/> Door Not In Use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> DOOR OUT OF SERVICE	<input type="checkbox"/> Door not in use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> HORS SERVICE
<input type="checkbox"/> OCCUPÉ	<input type="checkbox"/> LIBRE	<input type="checkbox"/>	<input type="checkbox"/> WC	<input type="checkbox"/> Door out of order	<input type="checkbox"/>		

Illumination				
<input type="checkbox"/> LED green	<input type="checkbox"/> LED red	<input type="checkbox"/> LED yellow	<input type="checkbox"/> LED white	<input type="checkbox"/> LED blue

Supply voltage illumination	
<input type="checkbox"/> 24 VDC	<input type="checkbox"/> 110 VDC

Tolerance -30 % ... +25 %

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

 2 x 0.24 mm²

Connector

 Core end-sleeves

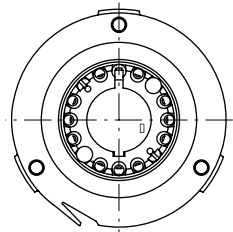
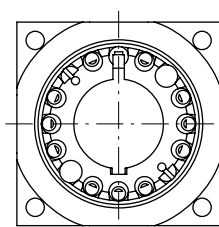
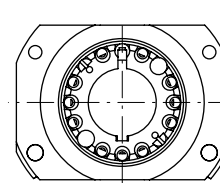
 AMP connector Mate-N-Lok (Wiring diagram 2)

 DEUTSCH Connector (Wiring diagram 2)

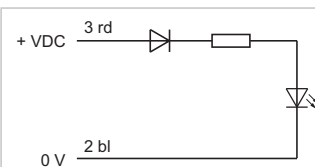
 AMP connector 2.8 mm x 0.8 mm (Wiring diagram 1)

 AMP connector 6.3 mm x 0.8 mm (Wiring diagram 2)

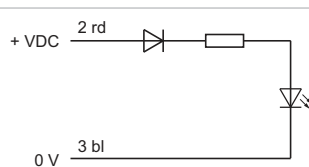
Housing

 Housing D73 (standard)

 Housing reworked 50 mm x 50 mm

 Housing reworked 68.5 mm x 50 mm


Wiring diagrams



Wiring diagram 1



Wiring diagram 2

Component layouts



Plug-in terminal
2.8 mm x 0.8 mm

Standard type

Component layout 1

56 Front mounting

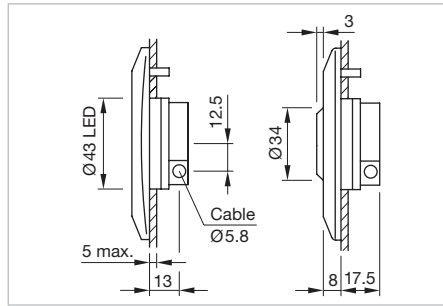
Single side pushbutton



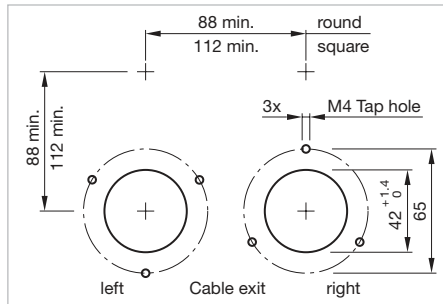
The preview is based on a sample product. This can differ from your current configuration.

Additional Information

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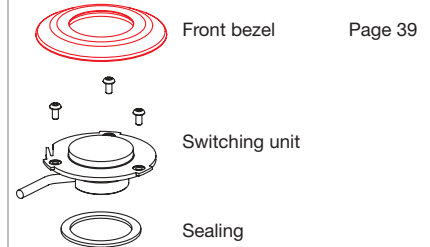


Dimensions [mm]



Mounting cut-outs [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.

Lens		
<input type="checkbox"/> flush, plastic, colour similar RAL	<input type="checkbox"/> flush, aluminium	<input type="checkbox"/> raised, aluminium
<input type="checkbox"/> green RAL 6024	<input type="checkbox"/> naturel	<input type="checkbox"/> naturel
<input type="checkbox"/> red RAL 3020	<input type="checkbox"/> green	<input type="checkbox"/> green
<input type="checkbox"/> blue RAL 5017	<input type="checkbox"/> red	<input type="checkbox"/> red
<input type="checkbox"/> yellow RAL 1023	<input type="checkbox"/> blue	<input type="checkbox"/> blue
<input type="checkbox"/> grey RAL 7040	<input type="checkbox"/> yellow	<input type="checkbox"/> yellow
		<input type="checkbox"/> black

Lens marking

- without symbol

<input type="checkbox"/> with symbol aluminium, raised (engraved)						
	<input type="checkbox"/> Symbol No. 00.835	<input type="checkbox"/> Symbol No. 00.836	<input type="checkbox"/> Symbol No. 00.868	<input type="checkbox"/> Symbol No. 00.869	<input type="checkbox"/> Symbol No. 40089	<input type="checkbox"/> Symbol No. 60523
	<input type="checkbox"/> Symbol No. WC	<input type="checkbox"/> Symbol No. 60034	<input type="checkbox"/> Symbol No. 01.590	<input type="checkbox"/> Symbol No. Wasserhahn	<input type="checkbox"/> Symbol No. Behinderten	

<input type="checkbox"/> with symbol aluminium, flat (engraved/lasered)						
<input type="checkbox"/> with symbol plastic, flat (engraved/lasered)	<input type="checkbox"/> Symbol No. 00.835	<input type="checkbox"/> Symbol No. 00.836	<input type="checkbox"/> Symbol No. 00.868	<input type="checkbox"/> Symbol No. 00.869	<input type="checkbox"/> Symbol No. 40089	<input type="checkbox"/> Symbol No. 60523

Symbol colour	<input type="checkbox"/> black	<input type="checkbox"/> white
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Illumination

- without illumination
- with illumination
 8 green
 8 red
 8 blue
 8 yellow
 8 green/2 red
 8 red/2 green

Supply voltage Illumination

- 24 VDC
 36 VDC
 48 VDC
 72 VDC
 110 VDC

Tolerance -30 % ... +25 %

Cable exit

- Cable exit right
 Cable exit left

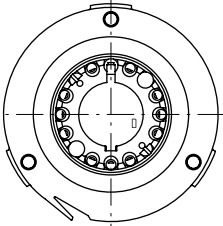
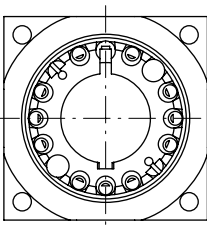
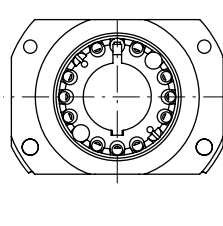
Cable length

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

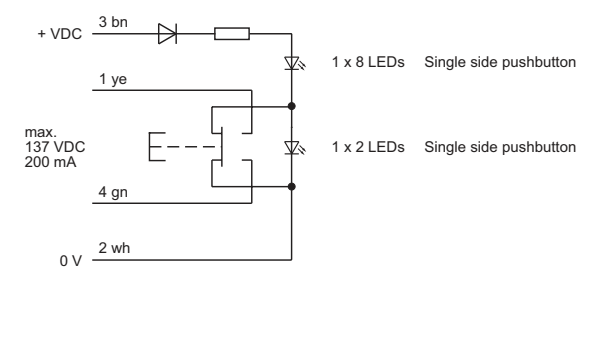
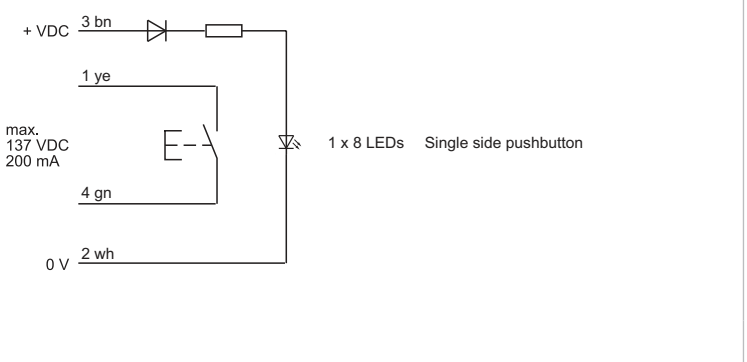
Cable and connector type

Cable	Connector
<input type="checkbox"/> 2x0.5mm ² (Wiring diagram 5)	<input type="checkbox"/> Core end-sleeves
<input type="checkbox"/> 4x0.5mm ² (Wiring diagram 1, 2, 3, 4)	<input type="checkbox"/> AMP connector Mate-N-Lok (Wiring diagram 3, 4)
	<input type="checkbox"/> DEUTSCH connector (Wiring diagram 3, 4)
	<input type="checkbox"/> AMP connector 2.8 mm x 0.8 mm (Wiring diagram 1, 2))
	<input type="checkbox"/> AMP connector 6.3 mm x 0.8 mm (Wiring diagram 3, 4)
	<input type="checkbox"/> _____

Housing

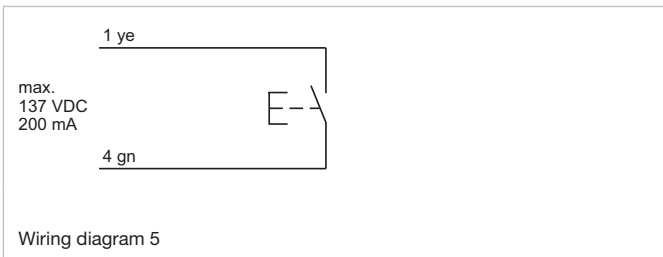
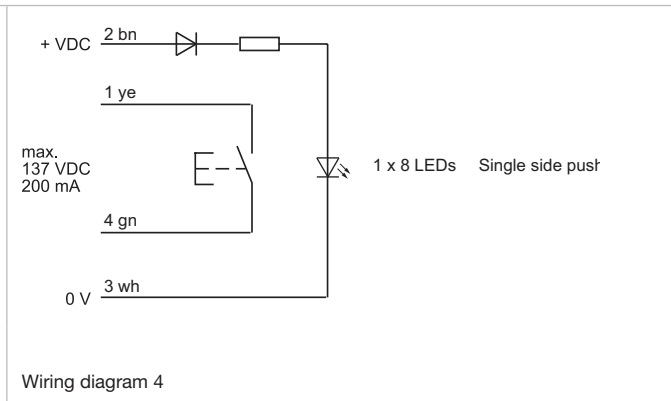
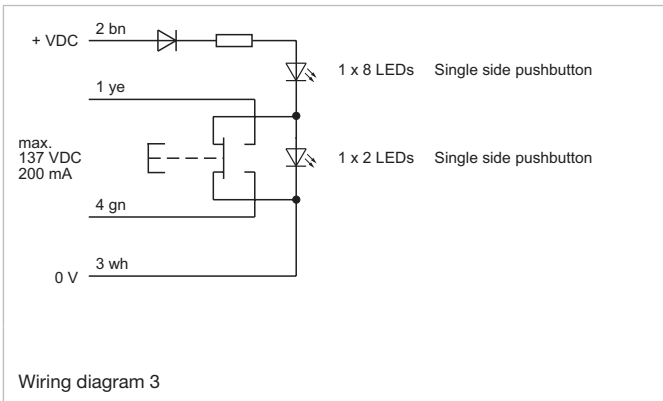
<input type="checkbox"/> Housing D73 (standard) 	<input type="checkbox"/> Housing reworked 50 mm x 50 mm 	<input type="checkbox"/> Housing reworked 68.5 mm x 50 mm 
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Wiring diagrams

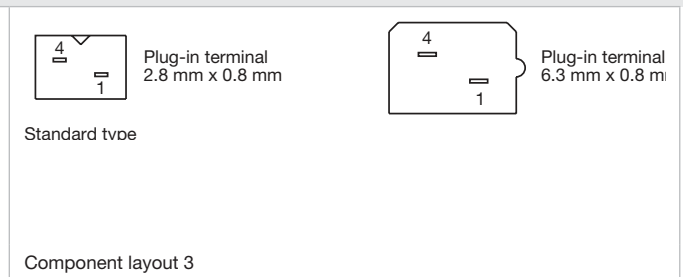
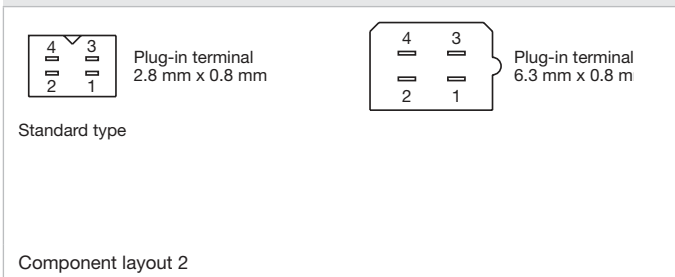
 <p>Wiring diagram 1</p>	 <p>Wiring diagram 2</p>
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56 Front mounting

Wiring diagrams

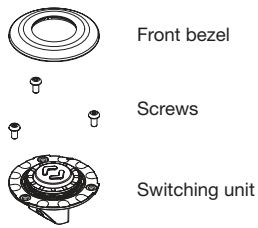


Component layouts

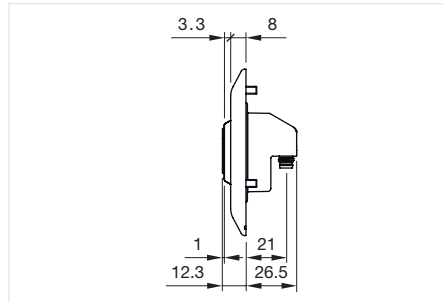


Single side pushbutton, 56 Access

Equipment consisting of (schematic overview)



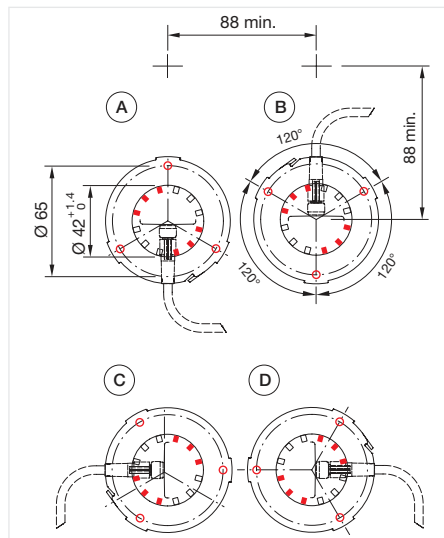
Each Part Number listed below includes all the black components shown in the 3D-drawing.



Dimensions [mm]



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



Mounting cut-outs [mm]

- A = Cable exit bottom
- B = Cable exit top
- C = Cable exit left
- D = Cable exit right

Cable 6-pole with M8x1, socket straight female, according to EN 61076-2-104

Additional information

- Standard device plug M8x1, 6-pole
- Raised symbols comply with TSI PRM
- User-friendly, large Ø 33 mm actuating surface
- Highly visible LED illumination green/red
- Operating voltage 10–30 VDC
- Scope of delivery without cable
- 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



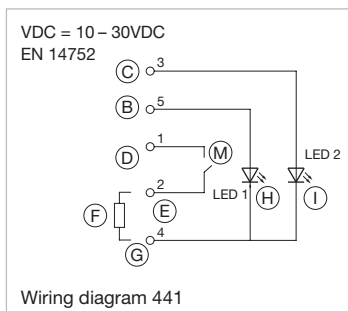
Single side pushbutton, 56 Access, Frontdimension Ø 87 mm

Lens material	Lens shape	Symbol	Cable output	Front bezel colour	Colour similar RAL	Part No.	Wiring diagram	Component layout
<input type="checkbox"/> Aluminium	raised		bottom or top	Black	9017 RAL	56-1520.1501	441	106
<input type="checkbox"/> Aluminium	raised		bottom or top	Red	3020 RAL	56-1520.1502	441	106
<input type="checkbox"/> Aluminium	raised		bottom or top	Yellow	1023 RAL	56-1520.1503	441	106
<input type="checkbox"/> Aluminium	raised		bottom or top	Green	6024 RAL	56-1520.1504	441	106
<input type="checkbox"/> Aluminium	raised		bottom or top	Blue	5017 RAL	56-1520.1505	441	106
<input type="checkbox"/> Aluminium	raised		bottom or top	Light grey	7040 RAL	56-1520.1506	441	106
<input type="checkbox"/> Aluminium	raised		left or right	Black	9017 RAL	56-1520.1601	441	106
<input type="checkbox"/> Aluminium	raised		left or right	Red	3020 RAL	56-1520.1602	441	106
<input type="checkbox"/> Aluminium	raised		left or right	Yellow	1023 RAL	56-1520.1603	441	106
<input type="checkbox"/> Aluminium	raised		left or right	Green	6024 RAL	56-1520.1604	441	106
<input type="checkbox"/> Aluminium	raised		left or right	Blue	5017 RAL	56-1520.1605	441	106
<input type="checkbox"/> Aluminium	raised		left or right	Light grey	7040 RAL	56-1520.1606	441	106
<input type="checkbox"/> Aluminium	raised		bottom or top	Black	9017 RAL	56-1520.2501	441	106
<input type="checkbox"/> Aluminium	raised		bottom or top	Red	3020 RAL	56-1520.2502	441	106
<input type="checkbox"/> Aluminium	raised		bottom or top	Yellow	1023 RAL	56-1520.2503	441	106
<input type="checkbox"/> Aluminium	raised		bottom or top	Green	6024 RAL	56-1520.2504	441	106
<input type="checkbox"/> Aluminium	raised		bottom or top	Blue	5017 RAL	56-1520.2505	441	106

56 Front mounting

Lens material	Lens shape	Symbol	Cable output	Front bezel colour	Colour similar RAL	Part No.	Wiring diagram	Component layout
<input type="checkbox"/> Aluminium	raised		bottom or top	Light grey	7040 RAL	56-1520.2506	441	106
<input type="checkbox"/> Aluminium	raised		left or right	Black	9017 RAL	56-1520.2601	441	106
<input type="checkbox"/> Aluminium	raised		left or right	Red	3020 RAL	56-1520.2602	441	106
<input type="checkbox"/> Aluminium	raised		left or right	Yellow	1023 RAL	56-1520.2603	441	106
<input type="checkbox"/> Aluminium	raised		left or right	Green	6024 RAL	56-1520.2604	441	106
<input type="checkbox"/> Aluminium	raised		left or right	Blue	5017 RAL	56-1520.2605	441	106
<input type="checkbox"/> Aluminium	raised		left or right	Light grey	7040 RAL	56-1520.2606	441	106
<input type="checkbox"/> Aluminium	raised		bottom	Black	9017 RAL	56-1520.3101	441	106
<input type="checkbox"/> Aluminium	raised		bottom	Red	3020 RAL	56-1520.3102	441	106
<input type="checkbox"/> Aluminium	raised		bottom	Yellow	1023 RAL	56-1520.3103	441	106
<input type="checkbox"/> Aluminium	raised		bottom	Green	6024 RAL	56-1520.3104	441	106
<input type="checkbox"/> Aluminium	raised		bottom	Blue	5017 RAL	56-1520.3105	441	106
<input type="checkbox"/> Aluminium	raised		bottom	Light grey	7040 RAL	56-1520.3106	441	106
<input type="checkbox"/> Aluminium	raised		top	Black	9017 RAL	56-1520.3201	441	106
<input type="checkbox"/> Aluminium	raised		top	Red	3020 RAL	56-1520.3202	441	106
<input type="checkbox"/> Aluminium	raised		top	Yellow	1023 RAL	56-1520.3203	441	106
<input type="checkbox"/> Aluminium	raised		top	Green	6024 RAL	56-1520.3204	441	106
<input type="checkbox"/> Aluminium	raised		top	Blue	5017 RAL	56-1520.3205	441	106
<input type="checkbox"/> Aluminium	raised		top	Light grey	7040 RAL	56-1520.3206	441	106
<input type="checkbox"/> Aluminium	raised		left	Black	9017 RAL	56-1520.3301	441	106
<input type="checkbox"/> Aluminium	raised		left	Red	3020 RAL	56-1520.3302	441	106
<input type="checkbox"/> Aluminium	raised		left	Yellow	1023 RAL	56-1520.3303	441	106
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<input type="checkbox"/> Aluminium	raised		right	Black	9017 RAL	56-1520.3401	441	106
<input type="checkbox"/> Aluminium	raised		right	Red	3020 RAL	56-1520.3402	441	106
<input type="checkbox"/> Aluminium	raised		right	Yellow	1023 RAL	56-1520.3403	441	106
<input type="checkbox"/> Aluminium	raised		right	Green	6024 RAL	56-1520.3404	441	106
<input type="checkbox"/> Aluminium	raised		right	Blue	5017 RAL	56-1520.3405	441	106
<input type="checkbox"/> Aluminium	raised		right	Light grey	7040 RAL	56-1520.3406	441	106

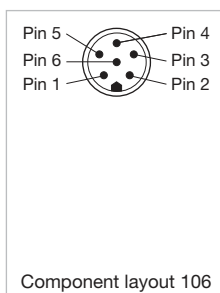
Wiring diagrams



Legend

- B = VDC illumination green
- C = VDC illumination red
- D = VDC
- E = Switch (not potential-free)
- F = Load (max. 250 mA)
- G = 0 V
- H = Illumination green
- I = Illumination red
- M = High Side Switch

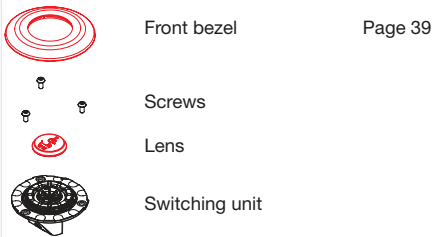
Component layouts



Pin Assignment
Front View
M8 male A-Coding 6 Pin
according to EN 61076-2-104

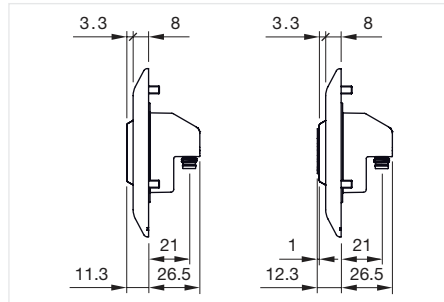
Single side pushbutton 56 Universal

Equipment consisting of (schematic overview)



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

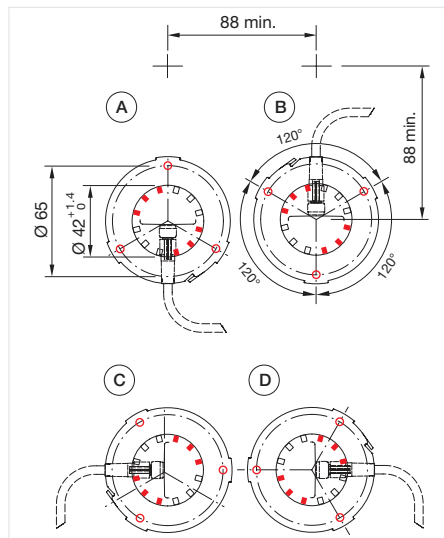
To obtain a complete unit, please select the red components from the pages shown.



Dimensions [mm]



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



Mounting cut-outs [mm]

- A = Cable exit bottom
- B = Cable exit top
- C = Cable exit left
- D = Cable exit right

Additional information

- Laser engraving on lens possible
- 14 standard symbols
- ISO 7000 symbols on request
- Other symbols available on request (minimum order quantity 50 pcs.)
- Standard device plug M8×1, 6-pole
- User-friendly, large Ø 33 mm actuating surface
- Highly visible LED illumination green/red
- Operating voltage 10–30VDC
- Scope of delivery without cable
- 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




















Switching unit, without lens, without front bezel

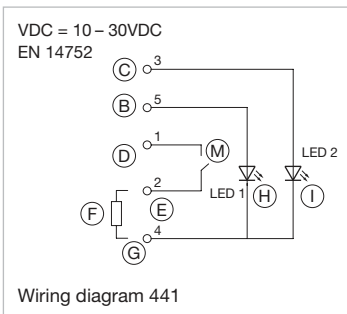
Housing colour	Housing material	Part No.	Wiring diagram	Component layout
<input type="checkbox"/> Black	Plastic	56-1520.0000	441	106

56 Front mounting

Lens aluminium	Artikel-No.
<input type="checkbox"/> without symbol	56-4.00001

<input type="checkbox"/> with symbol, black, laser engraved	 <input type="checkbox"/> Part No. 56-6.00001	 <input type="checkbox"/> Part No. 56-6.00002	 <input type="checkbox"/> Part No. 56-6.00003	 <input type="checkbox"/> Part No. 56-6.00004	 <input type="checkbox"/> Part No. 56-6.00005	 <input type="checkbox"/> Part No. 56-6.00006
	 <input type="checkbox"/> Part No. 56-6.00007	 <input type="checkbox"/> Part No. 56-6.00008	 <input type="checkbox"/> Part No. 56-6.00009	 <input type="checkbox"/> Part No. 56-6.00010	 <input type="checkbox"/> Part No. 56-6.00011	 <input type="checkbox"/> Part No. 56-6.00012
	 <input type="checkbox"/> Part No. 56-6.00013	 <input type="checkbox"/> Part No. 56-6.00014				
<input type="checkbox"/> with symbol plastic, black raised	 <input type="checkbox"/> Part No. 56-1.00001	 <input type="checkbox"/> Part No. 56-2.00001	 <input type="checkbox"/> Part No. 56-3.00001			

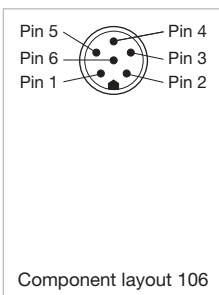
Wiring diagrams



Legend

- B = VDC illumination green
- C = VDC illumination red
- D = VDC
- E = Switch (not potential-free)
- F = Load (max. 250 mA)
- G = 0 V
- H = Illumination green
- I = Illumination red
- M = High Side Switch

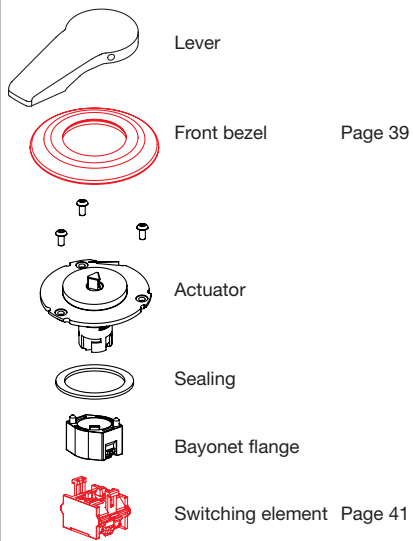
Component layouts



Pin Assignment
Front View
M8 male A-Coding 6 Pin
according to EN 61076-2-104

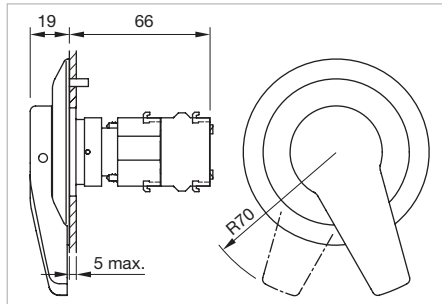
Lever Switch

Equipment consisting of

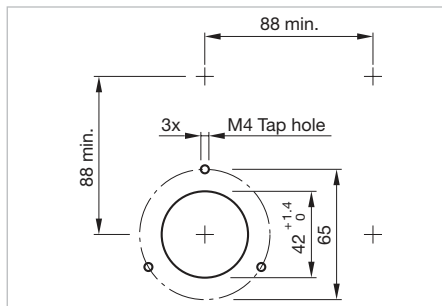


Each part listed below includes all the black components shown in the 3D-drawing.

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



Dimensions [mm]



Mounting cut-outs [mm]



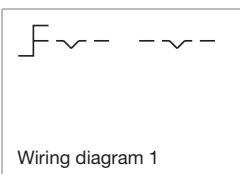
The preview is based on a sample product. This can differ from your current configuration.

Additional Information

- Lever aluminium naturel anodized
- Two switching positions
- Switching action: 0-maintain

Switching angle	Part No.
45°	704.107.1

Wiring diagrams



56 Front mounting

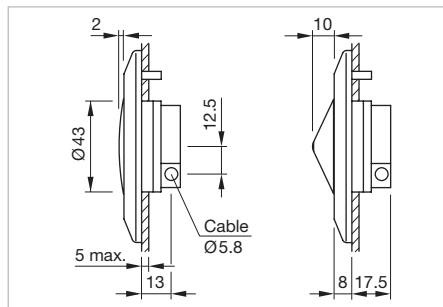
Multi-Ton Sound Modul



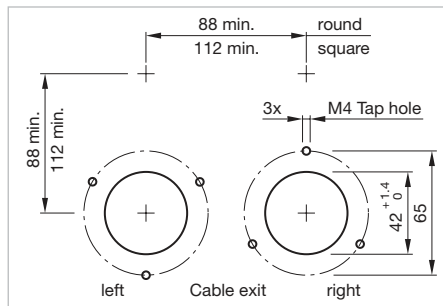
The preview is based on a sample product. This can differ from your current configuration.

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

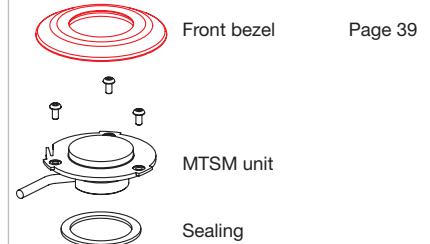


Dimensions [mm]



Mounting cut-outs [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.

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 $\pm 30\%$

Cable exit

cable exit right

cable exit left

Cable length

A = 200 mm

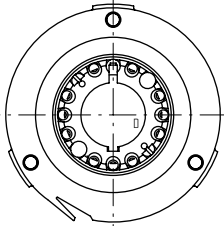
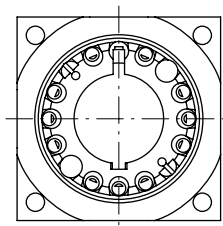
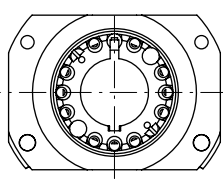
A = 500 mm

A = 1000 mm

A = 1500 mm

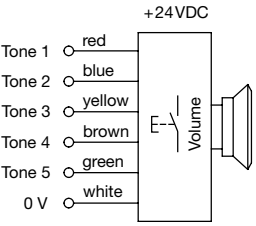
_____ mm

Cable and connector type	
Cable	Connector
<input type="checkbox"/> 4x0.25 mm ²	<input type="checkbox"/> Core end-sleeves
<input type="checkbox"/> 4x0.5 mm ²	<input type="checkbox"/> AMP connector Mate-N-Lok (Wiring diagram 3, 4)
<input type="checkbox"/> 6x0.5 mm ²	<input type="checkbox"/> DEUTSCH connector (Wiring diagram 3, 4)
	<input type="checkbox"/> AMP connector 2.8 mm x 0.8 mm (Wiring diagram 1, 2))
	<input type="checkbox"/> AMP connector 6.3 mm x 0.8 mm (Wiring diagram 3, 4)
	<input type="checkbox"/> _____

Housing		
<input type="checkbox"/> Housing D73 (standard)	<input type="checkbox"/> Housing reworked 50 mm x 50 mm	<input type="checkbox"/> Housing reworked 68.5 mm x 50 mm
		

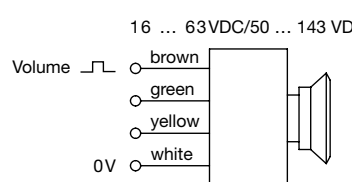
Wiring diagrams

5-Tone sequence



Wiring diagram 1

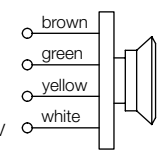
3-Tone sequence



Wiring diagram 2

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

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

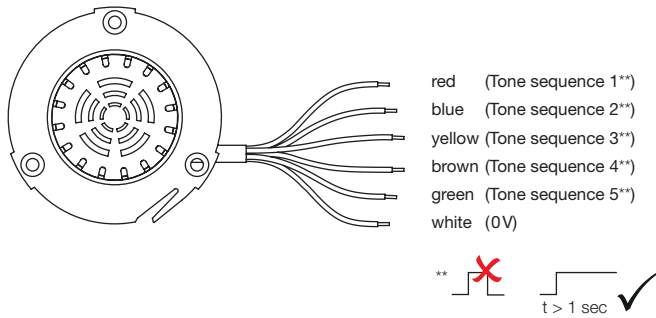
50 ... 143 VDC			
Tone	green	yellow	brown
1	50 – 143 VDC	0V	0V
2	0 V	50 – 143 VDC	0V
3	50 – 143 VDC	50 – 143 VDC	0V
4	0 V	0 V	50 – 143 VDC
5	50 – 143 VDC	0 V	50 – 143 VDC
6	0 V	50 – 143 VDC	50 – 143 VDC

Wiring diagram 3

56 Front mounting

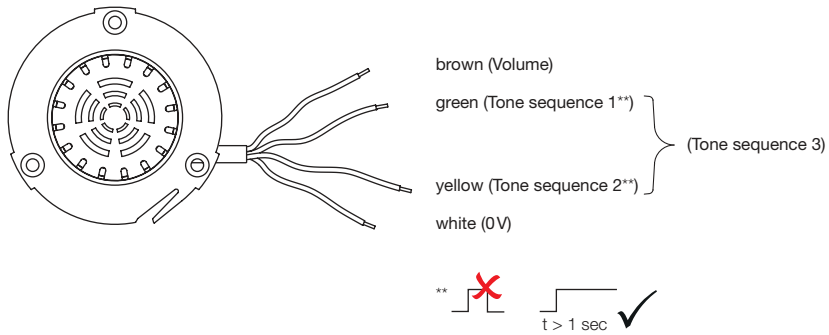
Component layouts

5-Tone sequence



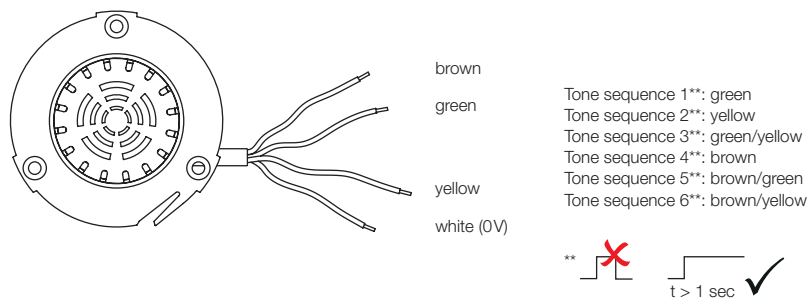
Bauteilelayout 4

3-Tone sequence



Bauteilelayout 5

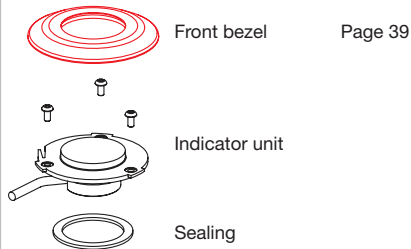
6-Tone sequence, self-adjusting



Bauteilelayout 6

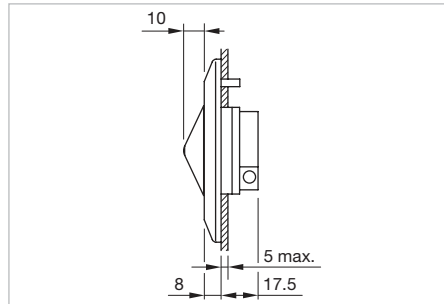
Flashing warning beacon

Equipment consisting of



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

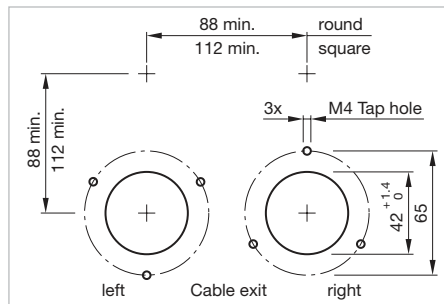
To obtain a complete unit, please select the red components from the pages shown.



Dimensions [mm]



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



Mounting cut-outs [mm]

Additional Information

- 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 colourless raised

Illumination

LED white

Supply voltage Illumination

24 VDC

Tolerance $\pm 30\%$

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

2 x 0.24 mm²

Connector

Core end-sleeves

AMP connector Mate-N-Lok (Wiring diagram 2)

DEUTSCH connector (Wiring diagram 2)

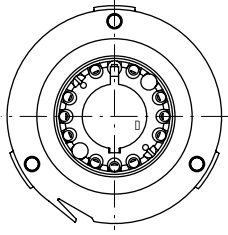
AMP connector 2.8 mm x 0.8 mm (Wiring diagram 1)

AMP connector 6.3 mm x 0.8 mm (Wiring diagram 2)

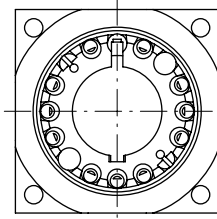
56 Front mounting

Housing

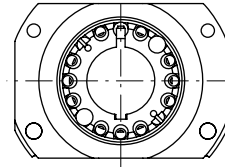
Housing D73 (standard)



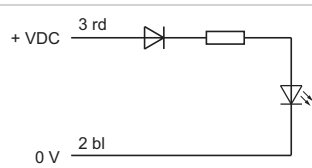
Housing reworked 50 mm x 50 mm



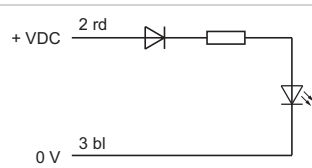
Housing reworked 68.5 mm x 50 mm



Wiring diagrams



Wiring diagram 1



Wiring diagram 2

Component layouts



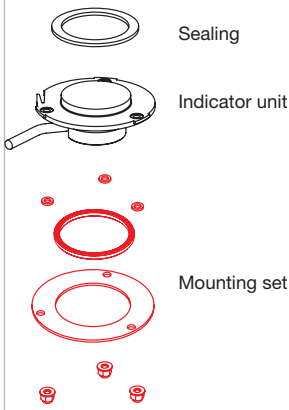
Plug-in terminal
2.8 mm x 0.8 m

Standard type

Component layout 1

Single side indicator

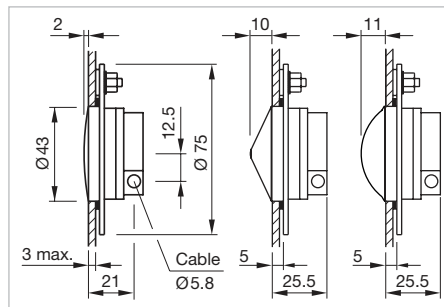
Equipment consisting of



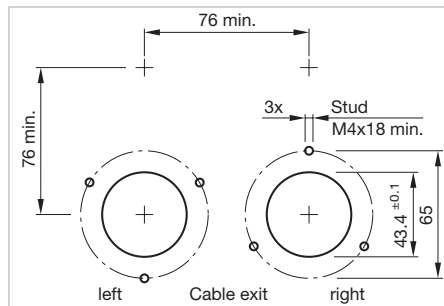
Page 40

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]



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Additional Information

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Front cap

- Plastic smoke black flush Plastic colourless raised Plastic colourless half round

Marking (Text or symbol)

- without marking
- with marking 1 line 2 line 3 line line

Symbols

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Illumination

- LED green LED red LED yellow LED white LED blue

Supply voltage

- 24 VDC 110 VDC

Tolerance -30 % ... +25 %

56 Rear mounting

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

 2x0.24 mm²

Connector

 Core end-sleeves

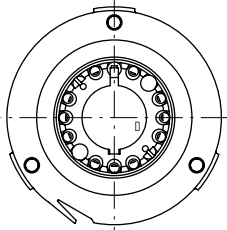
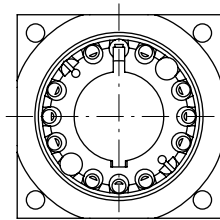
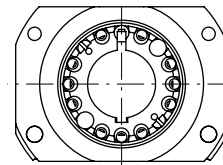
 AMP connector Mate-N-Lok (Wiring diagram 2)

 DEUTSCH connector (Wiring diagram 2)

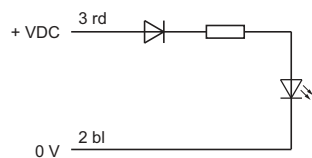
 AMP connector 2.8 mm x 0.8 mm (Wiring diagram 1)

 AMP connector 6.3 mm x 0.8 mm (Wiring diagram 2)

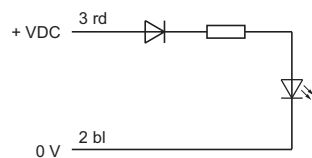
Housing

 Housing D73 (standard)

 Housing reworked 50 mm x 50 mm

 Housing reworked 68,5 mm x 50 mm


Wiring diagrams

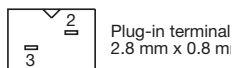


Wiring diagram 1



Wiring diagram 2

Component layouts

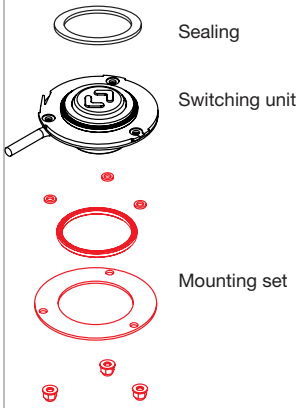


Standard type

Component layout 1

Single side pushbutton

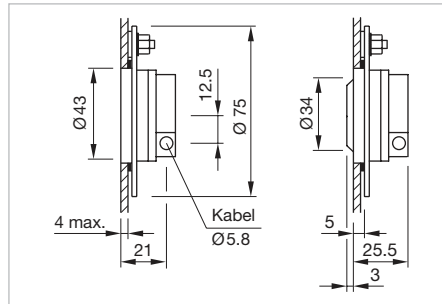
Equipment consisting of



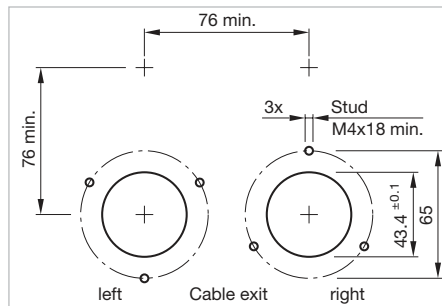
Page 40

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Dimensions [mm]



Mounting cut-outs [mm]



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Additional Information

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Lens

<input type="checkbox"/> flush, plastic, colour similar RAL	<input type="checkbox"/> flush, aluminium	<input type="checkbox"/> raised, aluminium
<input type="checkbox"/> green RAL 6024	<input type="checkbox"/> naturel	<input type="checkbox"/> naturel
<input type="checkbox"/> red RAL 3020	<input type="checkbox"/> green	<input type="checkbox"/> green
<input type="checkbox"/> blue RAL 5017	<input type="checkbox"/> red	<input type="checkbox"/> red
<input type="checkbox"/> yellow RAL 1023	<input type="checkbox"/> blue	<input type="checkbox"/> blue
<input type="checkbox"/> grey RAL 7040	<input type="checkbox"/> yellow	<input type="checkbox"/> yellow
		<input type="checkbox"/> black

Lens marking

without symbol

with symbol aluminium, raised (engraved)



Symbol No. 00.835

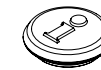
Symbol No. 00.836

Symbol No. 00.868

Symbol No. 00.869

Symbol No. 40089

Symbol No. 60523



Symbol No. WC

Symbol No. 60034

Symbol No. 01.590

Symbol No. Wasserhahn

Symbol No. Behinderten

with symbol aluminium, flat (engraved/lasered)

with symbol plastic, flat (engraved/lasered)



Symbol No. 00.835

Symbol No. 00.836

Symbol No. 00.868

Symbol No. 00.869

Symbol No. 40089

Symbol No. 60523

Symbol colour

black

white

56 Rear mounting

Illumination

- without illumination
- with illumination
- 8 green
- 8 red
- 8 blue
- 8 yellow
- 8 green/2 red
- 8 red/2 green

Supply voltage Illumination

- 24 VDC
- 36 VDC
- 48 VDC
- 72 VDC
- 110 VDC

Tolerance -30 % ... +25 %

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

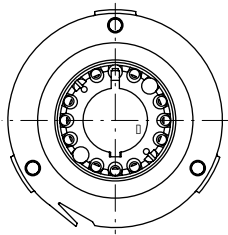
- 2x0.5mm² (Wiring diagram 5)
- 4x0.5mm² (Wiring diagram 1, 2, 3, 4)

Connector

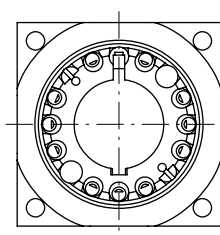
- Core end-sleeves
- AMP connector Mate-N-Lok (Wiring diagram 3, 4)
- DEUTSCH connector (Wiring diagram 3, 4)
- AMP connector 2.8 mm x 0.8 mm (Wiring diagram 1, 2))
- AMP connector 6.3 mm x 0.8 mm (Wiring diagram 3, 4)
- _____

Housing

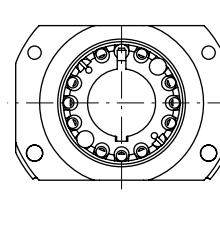
- Housing D73 (standard)



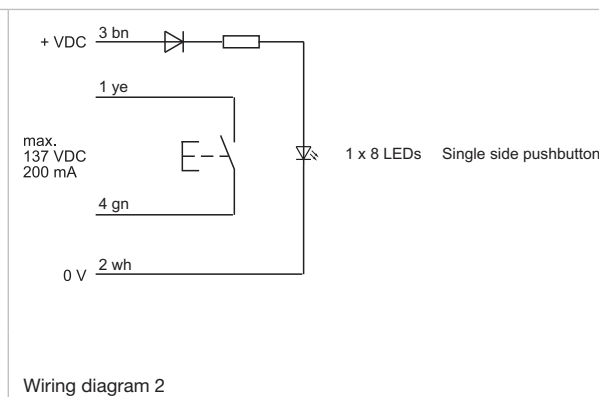
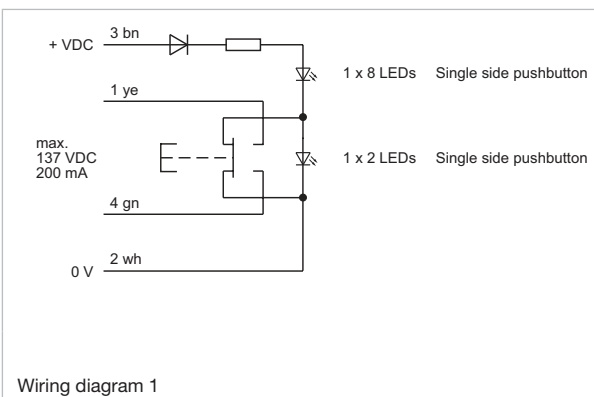
- Housing reworked 50 mm x 50 mm



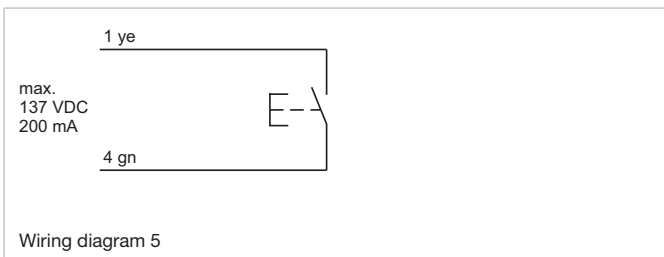
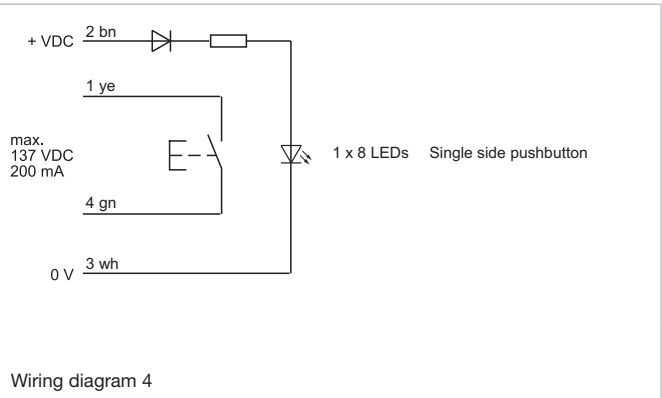
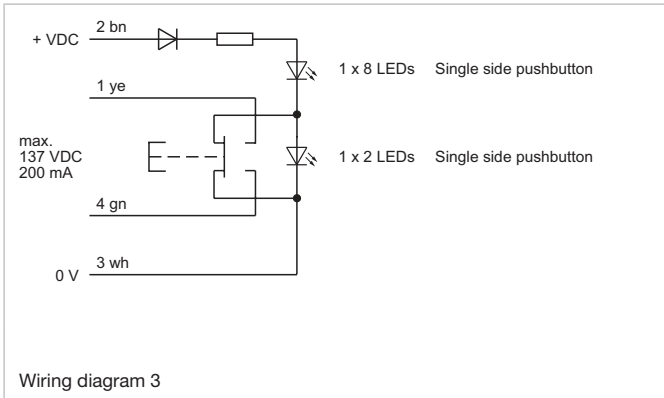
- Housing reworked 68.5 mm x 50 mm



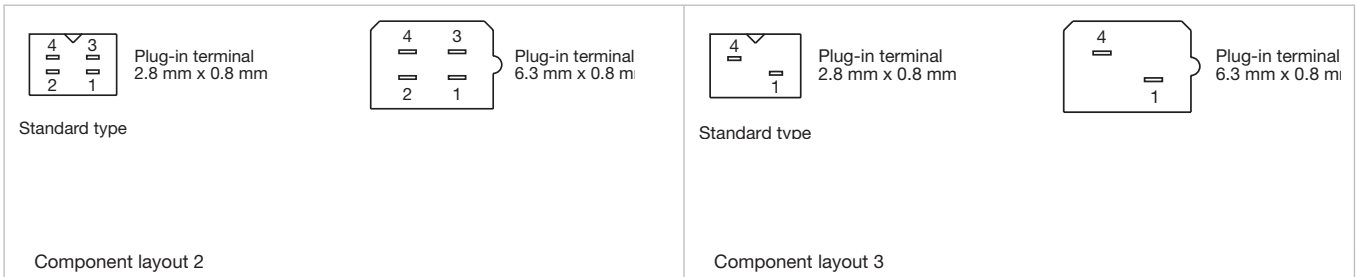
Wiring diagrams



Wiring diagrams

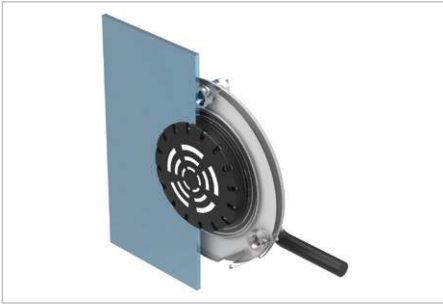


Component layouts



56 Rear mounting

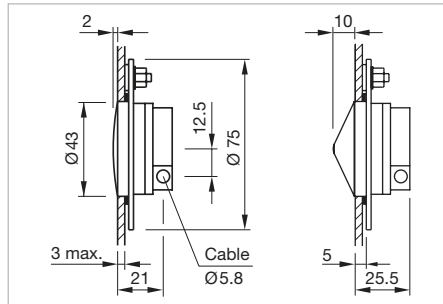
Multi-Ton Sound Modul



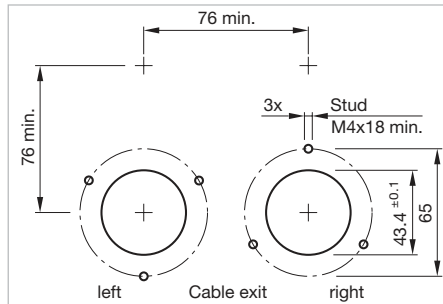
The preview is based on a sample product. This can differ from your current configuration.

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

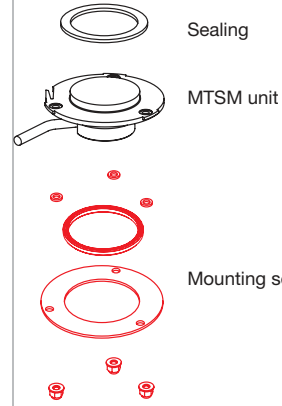


Dimensions [mm]



Mounting cut-outs [mm]

Equipment consisting of



Page 40

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.

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

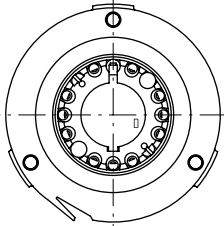
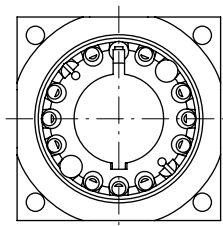
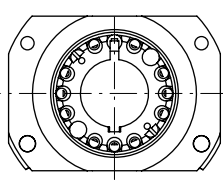
A = 500 mm

A = 1000 mm

A = 1500 mm

_____ mm

Cable and connector type	
Cable	Connector
<input type="checkbox"/> 4x0.25 mm ²	<input type="checkbox"/> Core end-sleeves
<input type="checkbox"/> 4x0.5 mm ²	<input type="checkbox"/> AMP connector Mate-N-Lok (Wiring diagram 3, 4)
<input type="checkbox"/> 6x0.5 mm ²	<input type="checkbox"/> DEUTSCH connector (Wiring diagram 3, 4)
	<input type="checkbox"/> AMP connector 2.8 mm x 0.8 mm (Wiring diagram 1, 2))
	<input type="checkbox"/> AMP connector 6.3 mm x 0.8 mm (Wiring diagram 3, 4)
	<input type="checkbox"/> _____

Housing		
<input type="checkbox"/> Housing D73 (standard)	<input type="checkbox"/> Housing reworked 50 mm x 50 mm	<input type="checkbox"/> 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	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

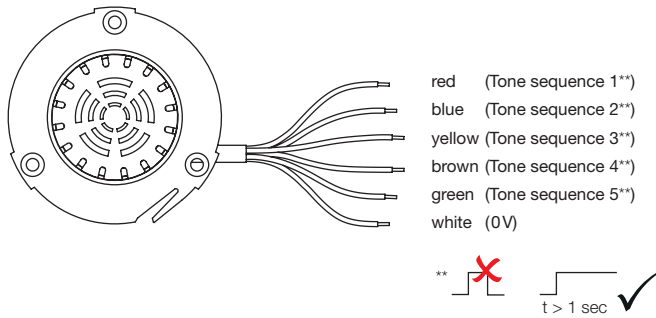
50 ... 143 VDC			
Tone	green	yellow	brown
1	50 – 143 VDC	0V	0V
2	0 V	50 – 143 VDC	0V
3	50 – 143 VDC	50 – 143 VDC	0V
4	0 V	0 V	50 – 143 VDC
5	50 – 143 VDC	0 V	50 – 143 VDC
6	0 V	50 – 143 VDC	50 – 143 VDC

Wiring diagram 3

56 Rear mounting

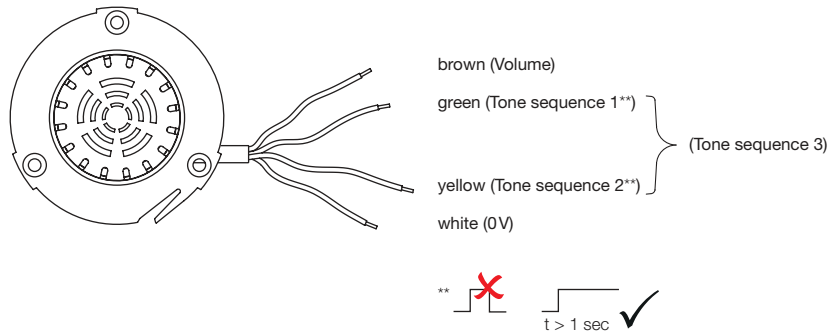
Component layouts

5-Tone sequence



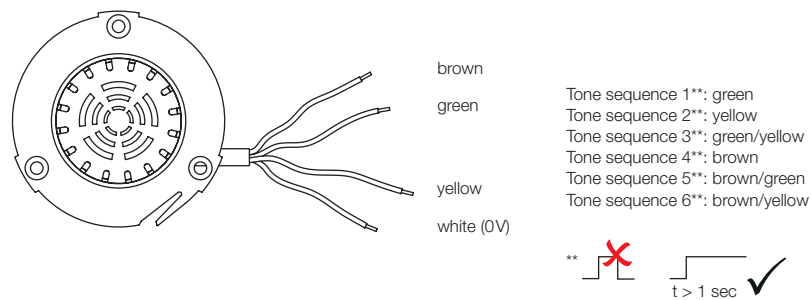
Bauteilelayout 4

3-Tone sequence



Bauteilelayout 5

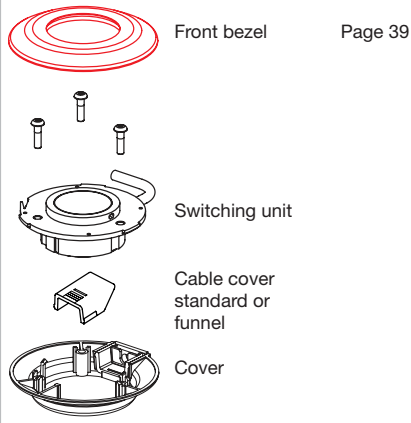
6-Tone sequence, self-adjusting



Bauteilelayout 6

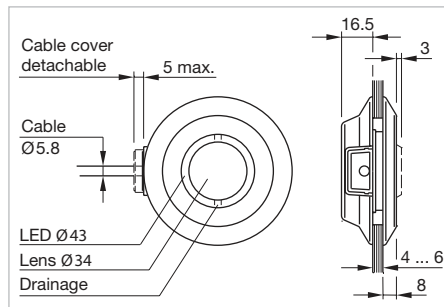
Single side pushbutton

Equipment consisting of

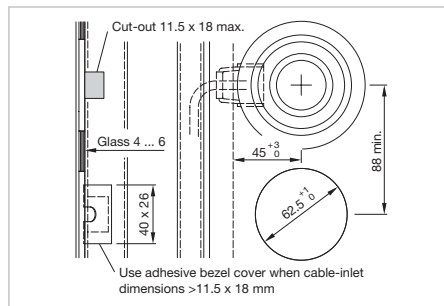


Each part listed below includes all the black components shown in the 3D-drawing.

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



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)
- Other cable cover are available
- 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

Lens

<input type="checkbox"/> flush, plastic, colour similar RAL	<input type="checkbox"/> flush, aluminium	<input type="checkbox"/> raised, aluminium
<input type="checkbox"/> green RAL 6024	<input type="checkbox"/> naturel	<input type="checkbox"/> naturel
<input type="checkbox"/> red RAL 3020	<input type="checkbox"/> green	<input type="checkbox"/> green
<input type="checkbox"/> blue RAL 5017	<input type="checkbox"/> red	<input type="checkbox"/> red
<input type="checkbox"/> yellow RAL 1023	<input type="checkbox"/> blue	<input type="checkbox"/> blue
<input type="checkbox"/> grey RAL 7040	<input type="checkbox"/> yellow	<input type="checkbox"/> yellow
		<input type="checkbox"/> black

Lens marking

without symbol

<input type="checkbox"/> with symbol aluminium, black anodised, raised (engraved)						
	<input type="checkbox"/> Symbol No. 00.835	<input type="checkbox"/> Symbol No. 00.836	<input type="checkbox"/> Symbol No. 00.868	<input type="checkbox"/> Symbol No. 00.869	<input type="checkbox"/> Symbol No. 40089	<input type="checkbox"/> Symbol No. 60523
	<input type="checkbox"/> Symbol No. WC	<input type="checkbox"/> Symbol No. 60034	<input type="checkbox"/> Symbol No. 01.590	<input type="checkbox"/> Symbol No. Wasserhahn	<input type="checkbox"/> Symbol No. Behinderten	

<input type="checkbox"/> with symbol aluminium, flat (engraved/lasered)						
<input type="checkbox"/> with symbol plastic, flat (engraved/lasered)	<input type="checkbox"/> Symbol No. 00.835	<input type="checkbox"/> Symbol No. 00.836	<input type="checkbox"/> Symbol No. 00.868	<input type="checkbox"/> Symbol No. 00.869	<input type="checkbox"/> Symbol No. 40089	<input type="checkbox"/> Symbol No. 60523

Symbol colour	<input type="checkbox"/> black	<input type="checkbox"/> white
---------------	--------------------------------	--------------------------------

56 Glass mounting

Illumination						
<input type="checkbox"/> without illumination						
<input type="checkbox"/> with illumination	<input type="checkbox"/> 8 green	<input type="checkbox"/> 8 red	<input type="checkbox"/> 8 blue	<input type="checkbox"/> 8 yellow	<input type="checkbox"/> 8 green/2 red	<input type="checkbox"/> 8 red/2 green

Supply voltage Illumination				
<input type="checkbox"/> 24 VDC	<input type="checkbox"/> 36 VDC	<input type="checkbox"/> 48 VDC	<input type="checkbox"/> 72 VDC	<input type="checkbox"/> 110 VDC

Tolerance -30 % ... +25 %

Cable length				
<input type="checkbox"/> A = 200 mm	<input type="checkbox"/> A = 500 mm	<input type="checkbox"/> A = 1000 mm	<input type="checkbox"/> A = 1500 mm	<input type="checkbox"/> _____ mm

Cable and connector type	
Cable	Connector
<input type="checkbox"/> 2x0.5mm ² (Wiring diagram 5)	<input type="checkbox"/> Core end-sleeves
<input type="checkbox"/> 4x0.5mm ² (Wiring diagram 1, 2, 3, 4)	<input type="checkbox"/> AMP connector Mate-N-Lok (Wiring diagram 3, 4)
	<input type="checkbox"/> DEUTSCH connector (Wiring diagram 3, 4)
	<input type="checkbox"/> AMP connector 2.8 mm x 0.8 mm (Wiring diagram 1, 2))
	<input type="checkbox"/> AMP connector 6.3 mm x 0.8 mm (Wiring diagram 3, 4)
	<input type="checkbox"/> _____



Cable cover standard

Product attribute	Cable cover	Part No.
<input type="checkbox"/> Included in standard delivery	standard 0°	56-992

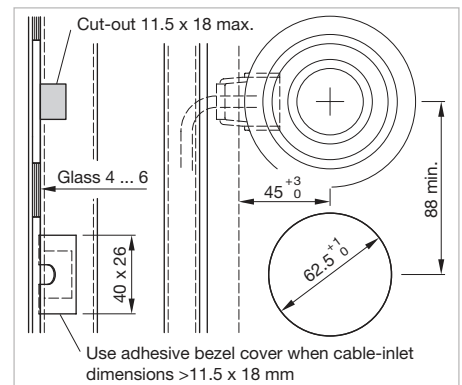


Cable cover standard

<input type="checkbox"/> Specify Part No. in purchase order	standard 45°	56-992A
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Additional Information

- Additional cable covers are available on request.



Mounting cut-outs [mm]

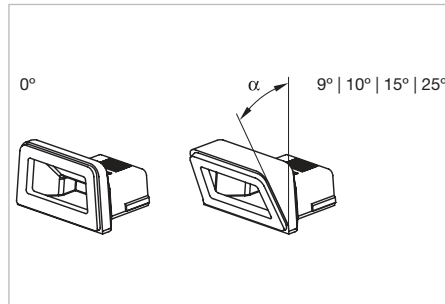


Cable cover funnel

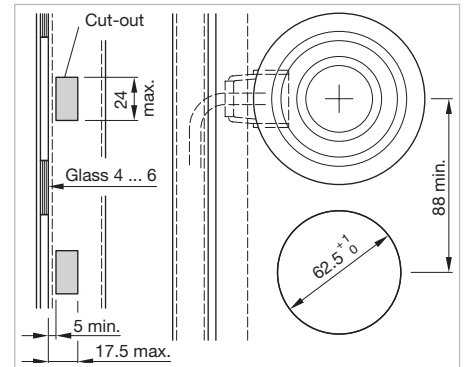
Cable cover	Part No.
<input type="checkbox"/> Funnel 0°	56-992B
<input type="checkbox"/> Funnel 10°	56-992C
<input type="checkbox"/> Funnel 15°	56-992D
<input type="checkbox"/> Funnel 25°	56-992E
<input type="checkbox"/> Funnel 9°	56-992F

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

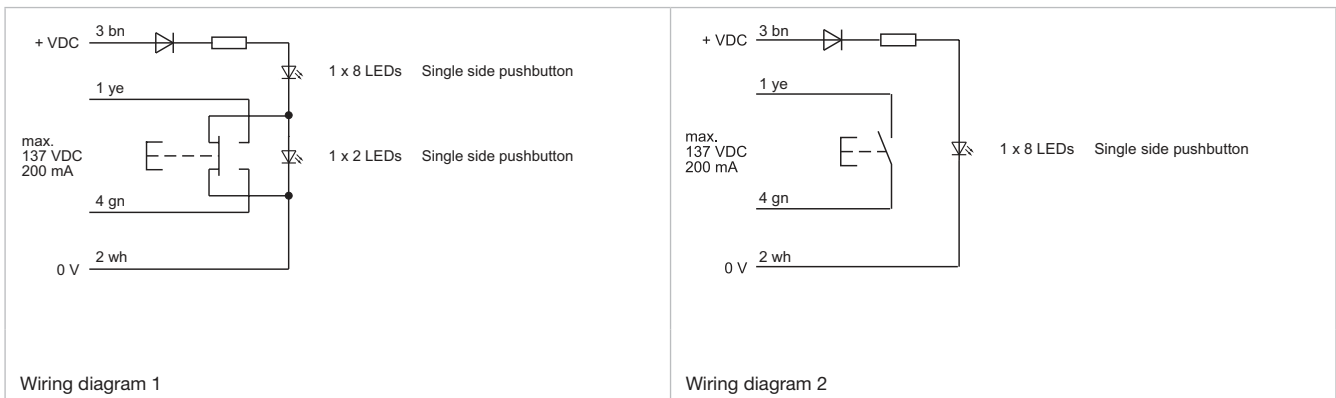


Dimensions [mm]



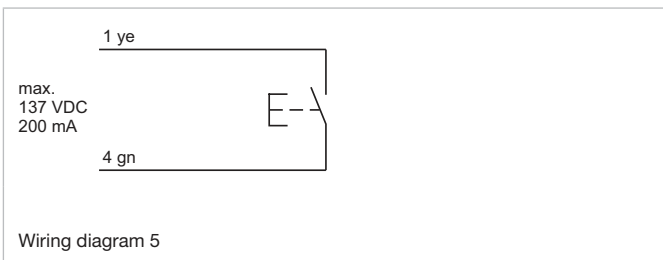
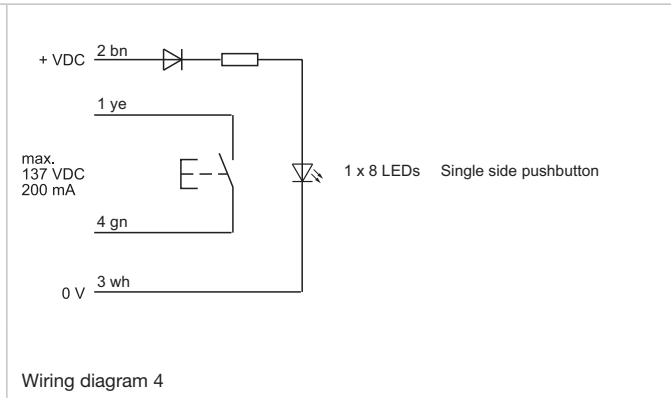
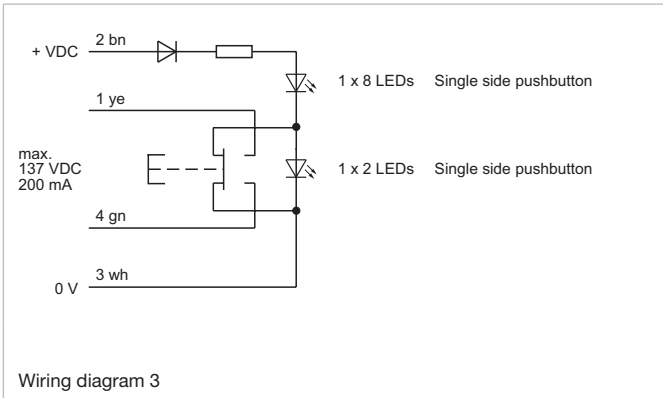
Mounting cut-outs [mm]

Wiring diagrams

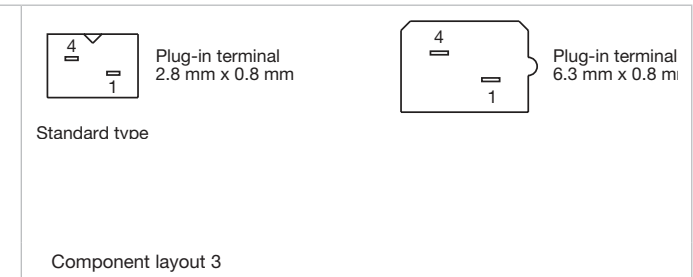
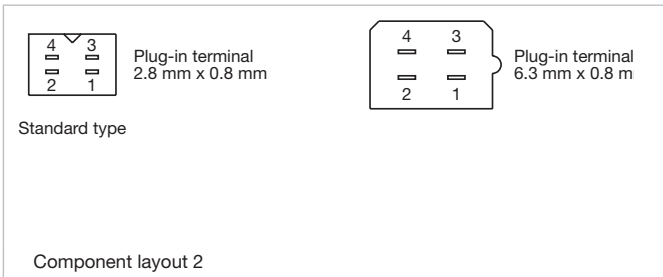


56 Glass mounting

Wiring diagrams

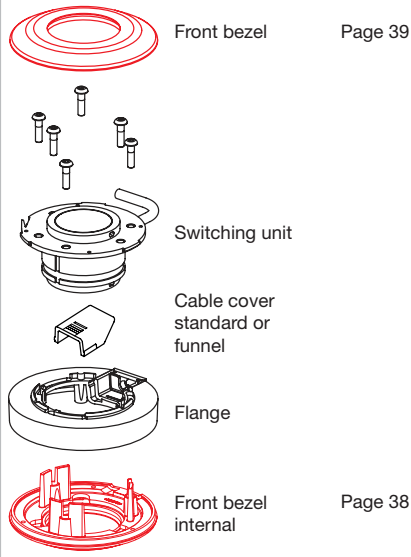


Component layouts



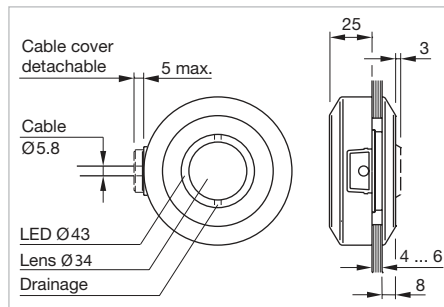
Double side pushbutton

Equipment consisting of

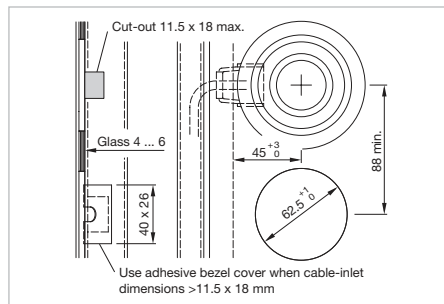


Each part listed below includes all the black components shown in the 3D-drawing.

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



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)
- 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

Lens		
<input type="checkbox"/> flush, plastic, colour similar RAL	<input type="checkbox"/> flush, aluminium	<input type="checkbox"/> raised, aluminium
<input type="checkbox"/> green RAL 6024	<input type="checkbox"/> naturel	<input type="checkbox"/> naturel
<input type="checkbox"/> red RAL 3020	<input type="checkbox"/> green	<input type="checkbox"/> green
<input type="checkbox"/> blue RAL 5017	<input type="checkbox"/> red	<input type="checkbox"/> red
<input type="checkbox"/> yellow RAL 1023	<input type="checkbox"/> blue	<input type="checkbox"/> blue
<input type="checkbox"/> grey RAL 7040	<input type="checkbox"/> yellow	<input type="checkbox"/> yellow
		<input type="checkbox"/> black

Lens marking						
<input type="checkbox"/> without symbol						
<input type="checkbox"/> with symbol aluminium, black anodised, raised (engraved)						
	<input type="checkbox"/> Symbol No. 00.835	<input type="checkbox"/> Symbol No. 00.836	<input type="checkbox"/> Symbol No. 00.868	<input type="checkbox"/> Symbol No. 00.869	<input type="checkbox"/> Symbol No. 40089	<input type="checkbox"/> Symbol No. 60523
<input type="checkbox"/> with symbol aluminium, flat (engraved/lasered) <input type="checkbox"/> with symbol plastic, flat (engraved/lasered)						
	<input type="checkbox"/> Symbol No. WC	<input type="checkbox"/> Symbol No. 60034	<input type="checkbox"/> Symbol No. 01.590	<input type="checkbox"/> Symbol No. Wasserhahn	<input type="checkbox"/> Symbol No. Behinderten	
<input type="checkbox"/> with symbol aluminium, flat (engraved/lasered) <input type="checkbox"/> with symbol plastic, flat (engraved/lasered)						
	<input type="checkbox"/> Symbol No. 00.835	<input type="checkbox"/> Symbol No. 00.836	<input type="checkbox"/> Symbol No. 00.868	<input type="checkbox"/> Symbol No. 00.869	<input type="checkbox"/> Symbol No. 40089	<input type="checkbox"/> Symbol No. 60523
Symbol colour	<input type="checkbox"/> Black			<input type="checkbox"/> white		

56 Glass mounting

Illumination						
<input type="checkbox"/> without illumination						
<input type="checkbox"/> with illumination	<input type="checkbox"/> 8 green	<input type="checkbox"/> 8 red	<input type="checkbox"/> 8 blue	<input type="checkbox"/> 8 yellow	<input type="checkbox"/> 8 green/2 red	<input type="checkbox"/> 8 red/2 green

Supply voltage illumination				
<input type="checkbox"/> 24 VDC	<input type="checkbox"/> 36 VDC	<input type="checkbox"/> 48 VDC	<input type="checkbox"/> 72 VDC	<input type="checkbox"/> 110 VDC

Tolerance -30 % ... +25 %

Cable length				
<input type="checkbox"/> A = 200 mm	<input type="checkbox"/> A = 500 mm	<input type="checkbox"/> A = 1000 mm	<input type="checkbox"/> A = 1500 mm	<input type="checkbox"/> _____ mm

Cable and connector type	
Cable	Connector
<input type="checkbox"/> 2x0.5mm ² (Wiring diagram 5)	<input type="checkbox"/> Core end-sleeves
<input type="checkbox"/> 4x0.5mm ² (Wiring diagram 1, 2, 3, 4)	<input type="checkbox"/> AMP connector Mate-N-Lok (Wiring diagram 3, 4)
	<input type="checkbox"/> DEUTSCH connector (Wiring diagram 3, 4)
	<input type="checkbox"/> AMP connector 2.8 mm x 0.8 mm (Wiring diagram 1, 2))
	<input type="checkbox"/> AMP connector 6.3 mm x 0.8 mm (Wiring diagram 3, 4)
	<input type="checkbox"/> _____



Cable cover standard

Product attribute	Cable cover	Part No.
<input type="checkbox"/> Included in standard delivery	standard 0°	56-992

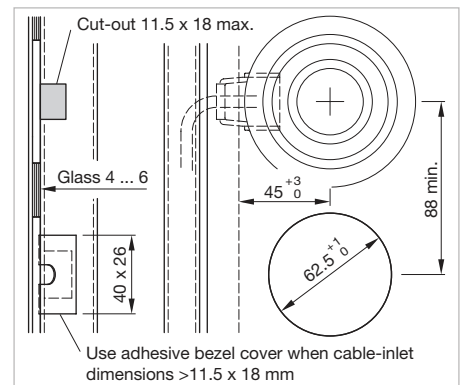


Cable cover standard

<input type="checkbox"/> Specify Part No. in purchase order	standard 45°	56-992A
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Additional Information

- Additional cable covers are available on request.



Mounting cut-outs [mm]

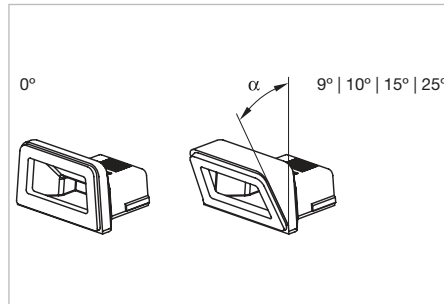


Cable cover funnel

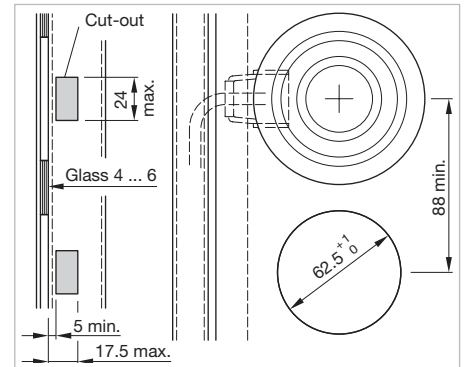
Cable cover	Part No.
<input type="checkbox"/> Funnel 0°	56-992B
<input type="checkbox"/> Funnel 10°	56-992C
<input type="checkbox"/> Funnel 15°	56-992D
<input type="checkbox"/> Funnel 25°	56-992E
<input type="checkbox"/> Funnel 9°	56-992F

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

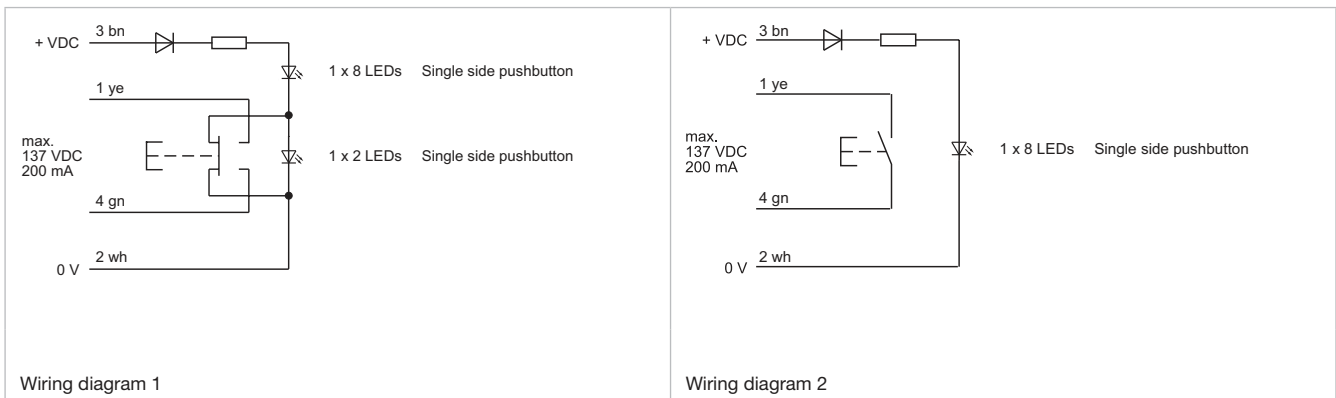


Dimensions [mm]



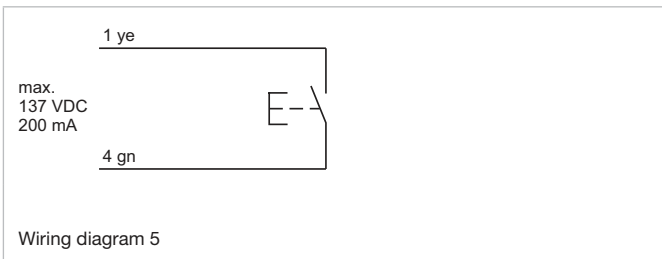
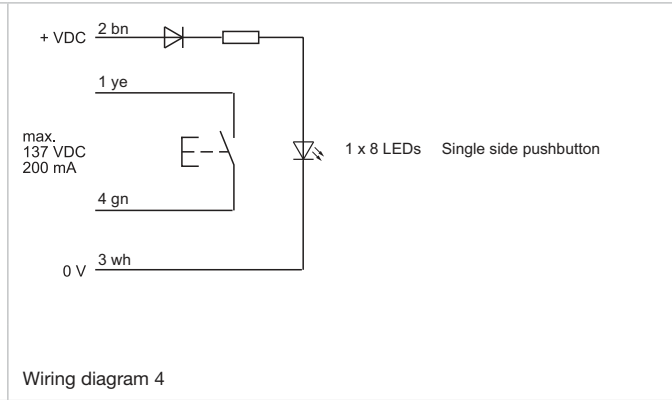
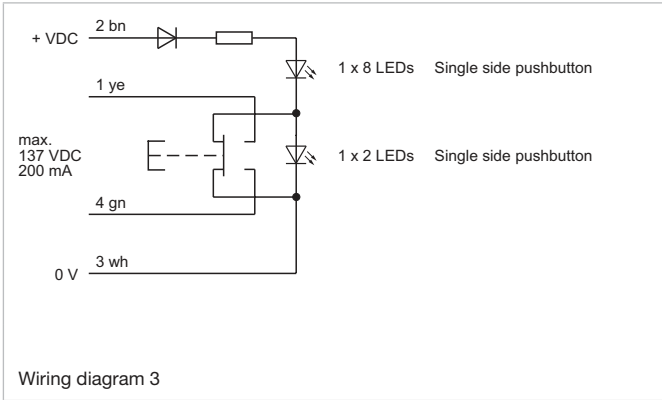
Mounting cut-outs [mm]

Wiring diagrams

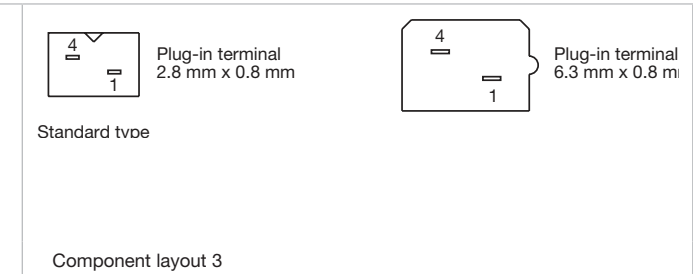
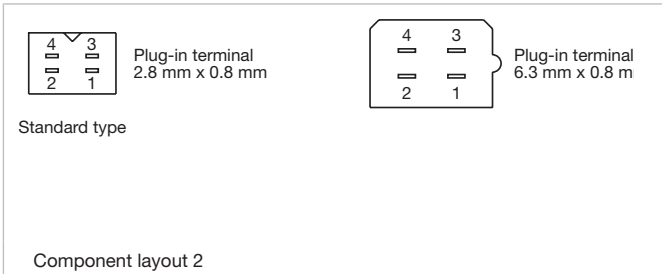


56 Glass mounting

Wiring diagrams

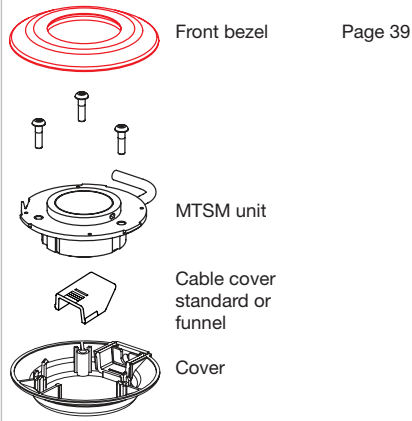


Component layouts



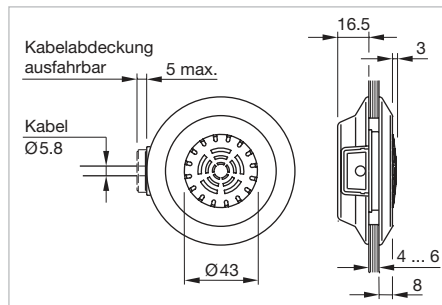
Multi-Ton Sound Modul

Equipment consisting of

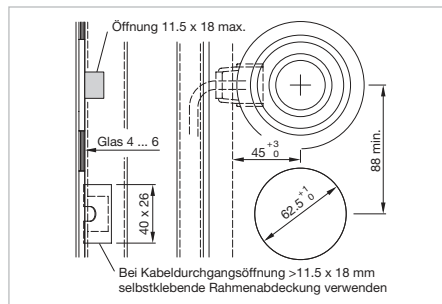


Each part listed below includes all the black components shown in the 3D-drawing.

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



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
<input type="checkbox"/> 4 x 0.5 mm ²	<input type="checkbox"/> Core end-sleeves
	<input type="checkbox"/> AMP connector Mate-N-Lok
	<input type="checkbox"/> DEUTSCH connector
	<input type="checkbox"/> AMP connector 2.8 mm x 0.8 mm
	<input type="checkbox"/> AMP connector 6.3 mm x 0.8 mm
	<input type="checkbox"/> _____

56 Glass mounting



Cable cover standard

Product attribute	Cable cover	Part No.
<input type="checkbox"/> Included in standard delivery	standard 0°	56-992

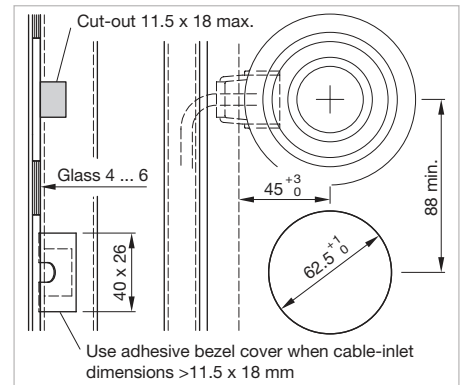


Cable cover standard

<input type="checkbox"/> Specify Part No. in purchase order	standard 45°	56-992A
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Additional Information

- Additional cable covers are available on request.



Mounting cut-outs [mm]

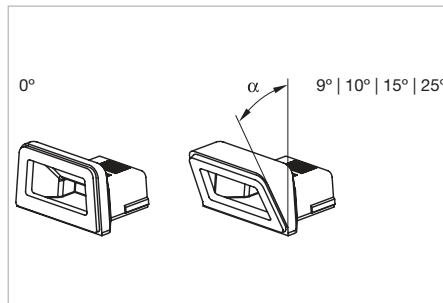


Cable cover funnel

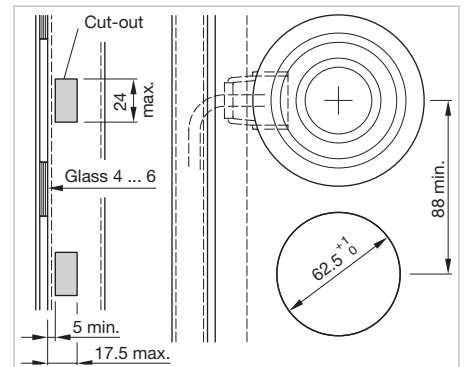
Cable cover	Part No.
<input type="checkbox"/> Funnel 0°	56-992B
<input type="checkbox"/> Funnel 10°	56-992C
<input type="checkbox"/> Funnel 15°	56-992D
<input type="checkbox"/> Funnel 25°	56-992E
<input type="checkbox"/> Funnel 9°	56-992F

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



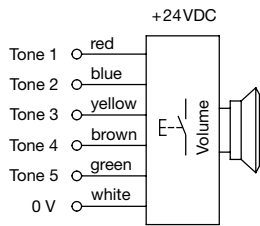
Dimensions [mm]



Mounting cut-outs [mm]

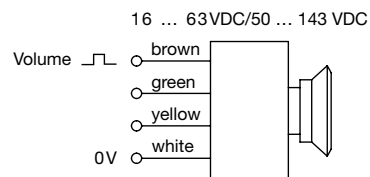
Wiring diagrams

5-Tone sequence



Wiring diagram 1

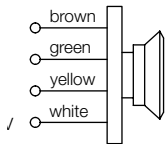
3-Tone sequence



Wiring diagram 2

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

Tone sequence, self-adjusting



16 ... 63 VDC

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

50 ... 143 VDC

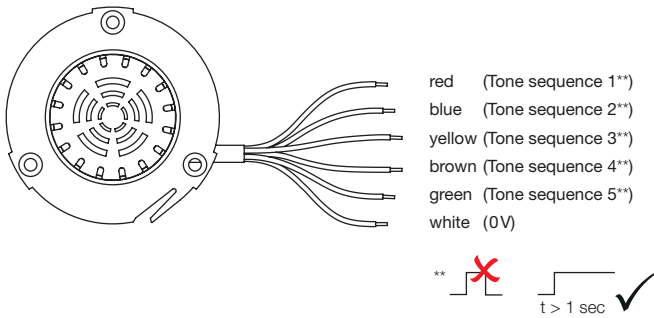
Tone	green	yellow	brown
1	50 – 143 VDC	0V	0V
2	0V	50 – 143 VDC	0V
3	50 – 143 VDC	50 – 143 VDC	0V
4	0V	0V	50 – 143 VDC
5	50 – 143 VDC	0V	50 – 143 VDC
6	0V	50 – 143 VDC	50 – 143 VDC

Wiring diagram 3

56 Glass mounting

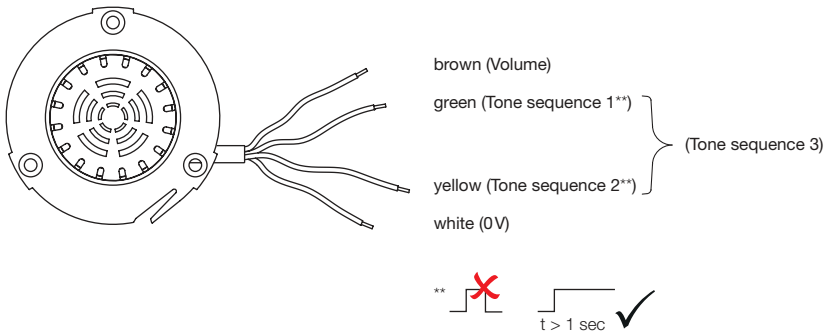
Component layouts

5-Tone sequence



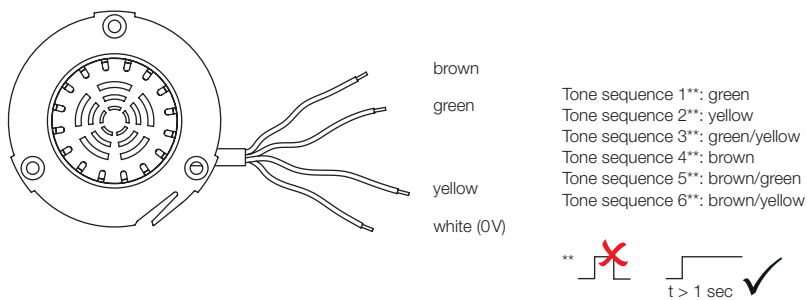
Bauteilelayout 4

3-Tone sequence



Bauteilelayout 5

6-Tone sequence, self-adjusting



Bauteilelayout 6



Front bezel, Front dimension 87 x 87 mm

Product attribute	Colour similar RAL	Front bezel colour	Front bezel material	Part No.
For single side indicator and single side pushbutton, front mounting	RAL 3020	Red	Plastic	56-2200
	RAL 1023	Yellow	Plastic	56-2400
	RAL 6024	Green	Plastic	56-2500
	RAL 5017	Blue	Plastic	56-2600
	–	Chrome	Metal matt	56-4600

Additional Information

- Special colours for front bezel on request



Front bezel, Front dimension Ø 87 mm

Product attribute	Colour similar RAL	Front bezel colour	Front bezel material	Part No.
For single side indicator and single side pushbutton; double side pushbutton external	RAL 9017	Black	Plastic	56-1000
	RAL 3020	Red	Plastic	56-1200
	RAL 1023	Yellow	Plastic	56-1400
	RAL 6024	Green	Plastic	56-1500
	RAL 5017	Blue	Plastic	56-1600
	RAL 7043	Dark grey	Plastic	56-1800
	RAL 7040	Light grey	Plastic	56-1800A
	–	Chrome	Metal matt	56-3600

Additional Information

- Special colours for front bezel on request



Front bezel raised, Front dimension Ø 87 mm

Product attribute	Colour similar RAL	Front bezel colour	Front bezel material	Part No.
For single side pushbutton, front mounting, height 13 mm	RAL 1023	Yellow	Plastic	56-1400.2714
	RAL 7040	Light grey	Plastic	56-1800.2715
	RAL 3020	Red	Plastic	56-1200.2713

Additional Information

- Special colours for front bezel on request

56 Components



Front bezel internal

Dimension	Colour similar RAL	Front bezel colour	Front bezel material	Part No.
Ø 87 mm	RAL 3020	Red	Plastic	56-5200
	RAL 1023	Yellow	Plastic	56-5400
	RAL 6024	Green	Plastic	56-5500
	RAL 5017	Blue	Plastic	56-5600
	RAL 7043	Dark grey	Plastic	56-5800
	RAL 7040	Light grey	Plastic	56-5800A
	-	Chrome	Metal matt	56-7600

Additional Information

- For double side pushbutton



Front bezel for blind and visually impaired persons round, Front dimension Ø 87 mm

Marking	Colour similar RAL	Front bezel Colour	Front bezel Material	Part No.
Braille + Open	RAL 3020	Red	Plastic	56-1291
	RAL 2003	Orange	Plastic	56-1391
Braille + Close	RAL 2003	Orange	Plastic	56-1392
Braille + Open	RAL 1023	Yellow	Plastic	56-1491
Braille + Close	RAL 1023	Yellow	Plastic	56-1492
Braille + Open	RAL 5017	Blue	Plastic	56-1691

Additional Information

- For single side pushbutton, double side pushbutton external
- Special colours for front bezel on request



Front bezel for blind and visually impaired persons triangular, Front dimension 106 x 101 mm

Marking	Colour similar RAL	Front bezel Colour	Front bezel Material	Part No.
Braille + SOS	RAL 1023	Yellow	Plastic	56-8000.A
	RAL 1028	Melone yellow	Plastic	56-8000.1A
	RAL 3020	Red	Plastic	56-8000.3A
	RAL 6024	Green	Plastic	56-8000.5A

Additional Information

- For single side pushbutton
- SOS character height 15 mm, black printed according TSI PRM and braille SOS as per DIN 32976
- Special colours for front bezel on request



Front bezel triangular, Front dimension 106 x 101 mm

Colour similar RAL	Front bezel colour	Material	Part No.
RAL 1023	Yellow	Plastic	56-8400
RAL 1028	Melone yellow	Plastic	56-8700
RAL 3020	Red	Plastic	56-8200
RAL 6024	Green	Plastic	56-8500

Additional Information

- For single side pushbutton
- Special colours for front bezel on request



Cable cover standard

Product attribute	Cablecover	Part No.
<input type="checkbox"/> Included in standard delivery	standard 0°	56-992

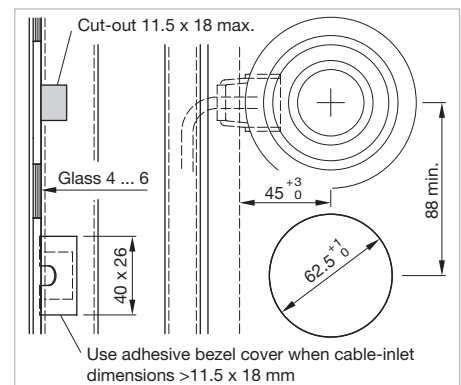


Cable cover standard

<input type="checkbox"/> Specify Part No. in purchase order	standard 45°	56-992A
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Additional Information

- Additional cable covers are available on request



Mounting cut-outs [mm]

56 Components

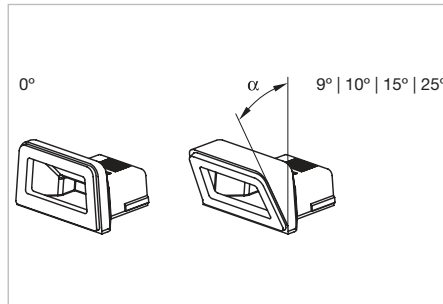


Cable cover funnel

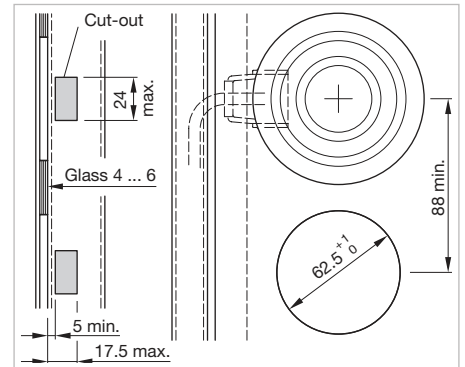
Cable cover	Part No.
<input type="checkbox"/> Funnel 0°	56-992B
<input type="checkbox"/> Funnel 10°	56-992C
<input type="checkbox"/> Funnel 15°	56-992D
<input type="checkbox"/> Funnel 25°	56-992E
<input type="checkbox"/> Funnel 9°	56-992F

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]



Mounting set for rear mounting

Product attribute	Part No.
For front panel thickness 2 mm	56-991
For front panel thickness 3 mm	56-991D



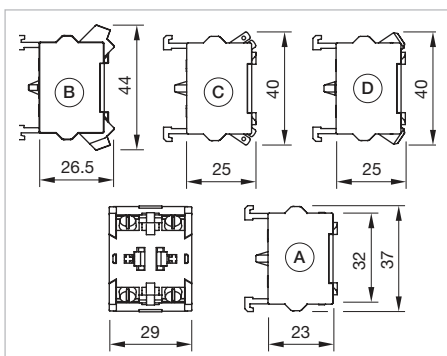
Snap-action switching element with push-in terminal

Switching voltage	Switching current	Contacts	Contact material	Part No.	Wiring diagram
250 V	6 A	1 NO	Gold-plated silver	704.907.1	376
	6 A	1 NC	Gold-plated silver	704.907.2	377
	6 A	2 NO	Gold-plated silver	704.907.3	378
	6 A	2 NC	Gold-plated silver	704.907.4	379
	6 A	1 NC / 1 NO	Gold-plated silver	704.907.5	380
	6 A	1 NO	Silver	704.908.1	376
	6 A	1 NC	Silver	704.908.2	377
	6 A	2 NO	Silver	704.908.3	378
	6 A	2 NC	Silver	704.908.4	379
	6 A	1 NC / 1 NO	Silver	704.908.5	380

Contacts: NC = Normally closed, NO = Normally open

Additional information

- For the third switching element the terminal marking insert is to be ordered separately
- The switching element is used for the lever switch



Dimensions [mm]

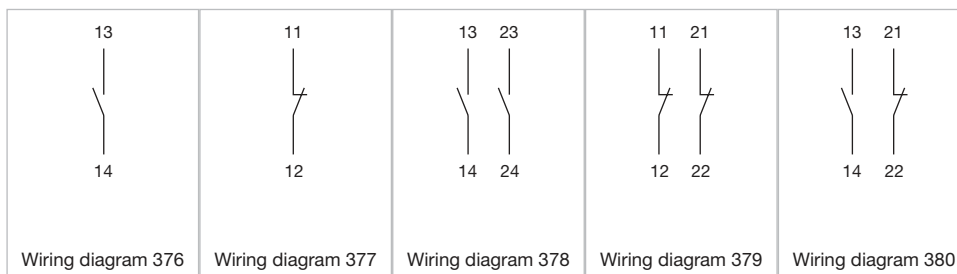
A = Screw terminal

B = Push-in terminal (PIT)

C = Plug-in terminal 6.3 mm x 0.8 mm

D = Double plug-in terminal 6.3 mm x 0.8 mm

Wiring diagrams



56 Components



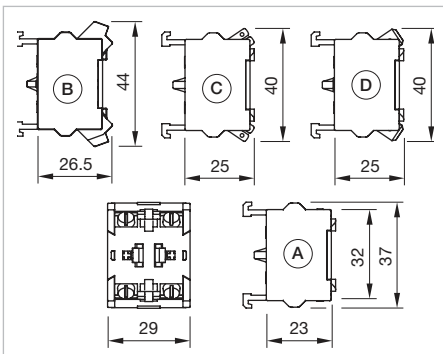
Slow-make switching element with push-in terminal

Switching voltage	Switching current	Contacts	Contact material	Part No.	Wiring diagram
250 V	6 A	1 NO	Gold-plated silver	704.917.1	376
	6 A	1 NC	Gold-plated silver	704.917.2	377
	6 A	2 NO	Gold-plated silver	704.917.3	378
	6 A	2 NC	Gold-plated silver	704.917.4	379
	6 A	1 NC / 1 NO	Gold-plated silver	704.917.5	380
	6 A	1 NO	Silver	704.918.1	376
	6 A	1 NC	Silver	704.918.2	377
	6 A	2 NO	Silver	704.918.3	378
	6 A	2 NC	Silver	704.918.4	379
	6 A	1 NC / 1 NO	Silver	704.918.5	380

Contacts: NC = Normally closed, NO = Normally open

Additional information

- For the third switching element the terminal marking insert is to be ordered separately
- The switching element is used for the lever switch



Dimensions [mm]

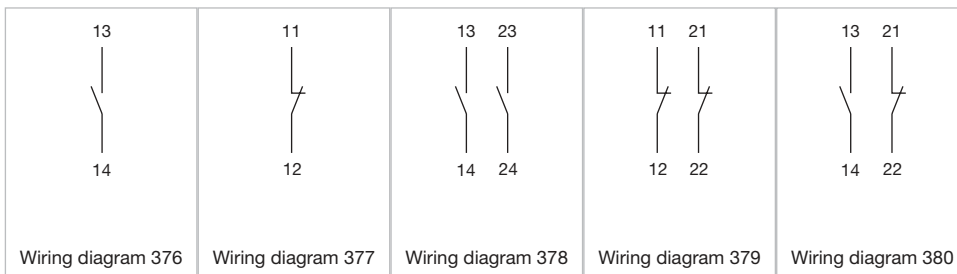
A = Screw terminal

B = Push-in terminal (PIT)

C = Plug-in terminal 6.3 mm x 0.8 mm

D = Double plug-in terminal 6.3 mm x 0.8 mm

Wiring diagrams





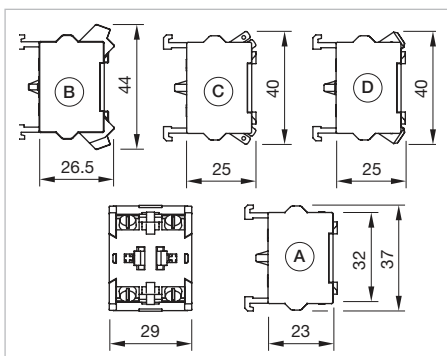
Snap-action switching element with plug-in terminal

Switching voltage	Switching current	Contacts	Contact material	Part No.	Wiring diagram
500 V	6 A	1 NO	Silver	704.905.1	376
	6 A	1 NC	Silver	704.905.2	377
	6 A	2 NO	Silver	704.905.3	378
	6 A	2 NC	Silver	704.905.4	379
	6 A	1 NC / 1 NO	Silver	704.905.5	380

Contacts: NC = Normally closed, NO = Normally open

Additional information

- For the third switching element the terminal marking insert is to be ordered separately
- The switching element is used for the lever switch



Dimensions [mm]

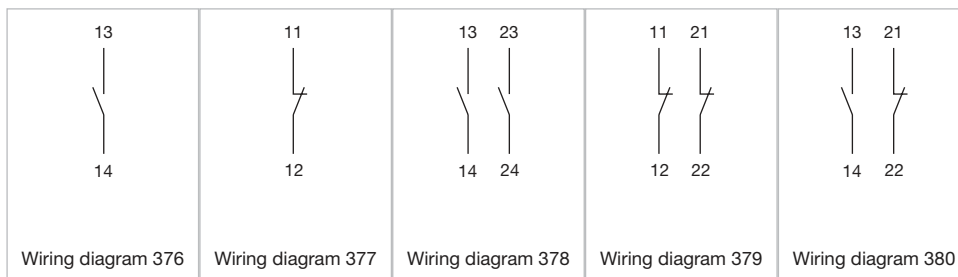
A = Screw terminal

B = Push-in terminal (PIT)

C = Plug-in terminal 6.3 mm x 0.8 mm

D = Double plug-in terminal 6.3 mm x 0.8 mm

Wiring diagrams



56 Components



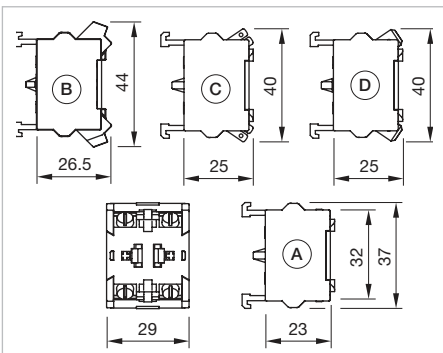
Slow-make switching element with plug-in terminal

Switching voltage	Switching current	Contacts	Contact material	Part No.	Wiring diagram
500 V	6 A	1 NO	Silver	704.915.1	376
	6 A	1 NC	Silver	704.915.2	377
	6 A	2 NO	Silver	704.915.3	378
	6 A	2 NC	Silver	704.915.4	379
	6 A	1 NC / 1 NO	Silver	704.915.5	380

Contacts: NC = Normally closed, NO = Normally open

Additional information

- For the third switching element the terminal marking insert is to be ordered separately
- The switching element is used for the lever switch



Dimensions [mm]

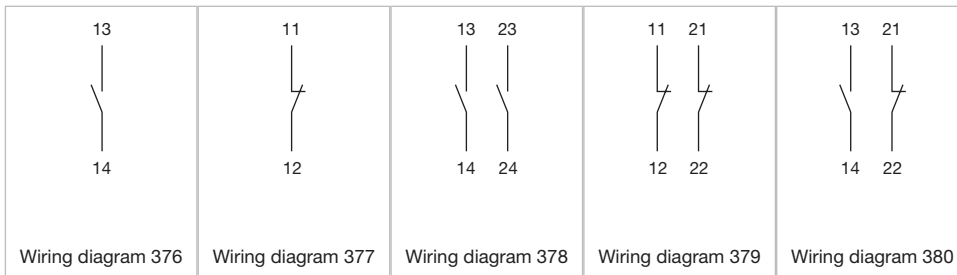
A = Screw terminal

B = Push-in terminal (PIT)

C = Plug-in terminal 6.3 mm x 0.8 mm

D = Double plug-in terminal 6.3 mm x 0.8 mm

Wiring diagrams





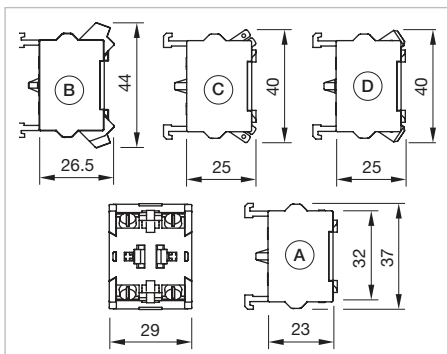
Snap-action switching element with double plug-in terminal

Switching voltage	Switching current	Contacts	Contact material	Part No.	Wiring diagram
500 V	6 A	1 NO	Gold-plated silver	704.901.1/D	376
	6 A	1 NC	Gold-plated silver	704.901.2/D	377
	6 A	2 NO	Gold-plated silver	704.901.3/D	378
	6 A	2 NC	Gold-plated silver	704.901.4/D	379
	6 A	1 NC / 1 NO	Gold-plated silver	704.901.5/D	380
	6 A	1 NO	Silver	704.905.1/D	376
	6 A	1 NC	Silver	704.905.2/D	377
500 V	6 A	2 NC	Silver	704.905.4/D	379
	6 A	1 NC / 1 NO	Silver	704.905.5/D	380

Contacts: NC = Normally closed, NO = Normally open

Additional information

- For the third switching element the terminal marking insert is to be ordered separately
- The switching element is used for the lever switch



Dimensions [mm]

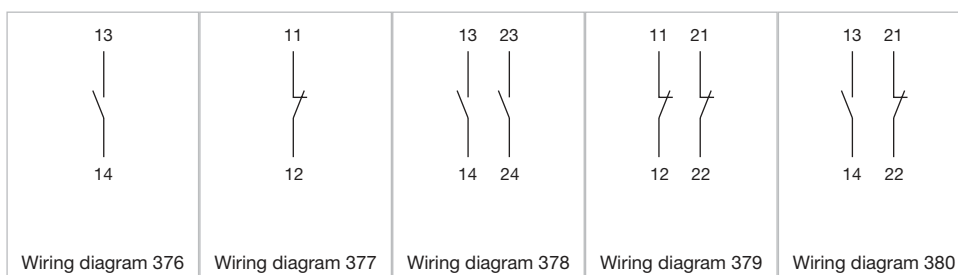
A = Screw terminal

B = Push-in terminal (PIT)

C = Plug-in terminal 6.3 mm x 0.8 mm

D = Double plug-in terminal 6.3 mm x 0.8 mm

Wiring diagrams



56 Components



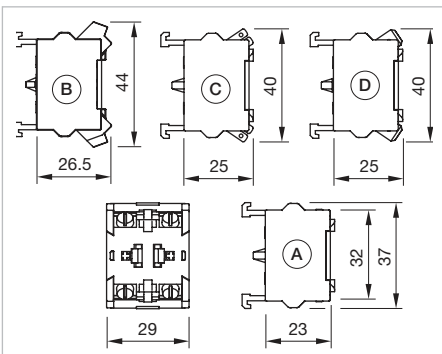
Slow-make switching element with double plug-in terminal

Switching voltage	Switching current	Contacts	Contact material	Part No.	Wiring diagram
500 V	6 A	1 NO	Silver	704.915.1/D	376
	6 A	1 NC	Silver	704.915.2/D	377
	6 A	2 NO	Silver	704.915.3/D	378
	6 A	2 NC	Silver	704.915.4/D	379
	6 A	1 NC / 1 NO	Silver	704.915.5/D	380

Contacts: NC = Normally closed, NO = Normally open

Additional information

- For the third switching element the terminal marking insert is to be ordered separately
- The switching element is used for the lever switch



Dimensions [mm]

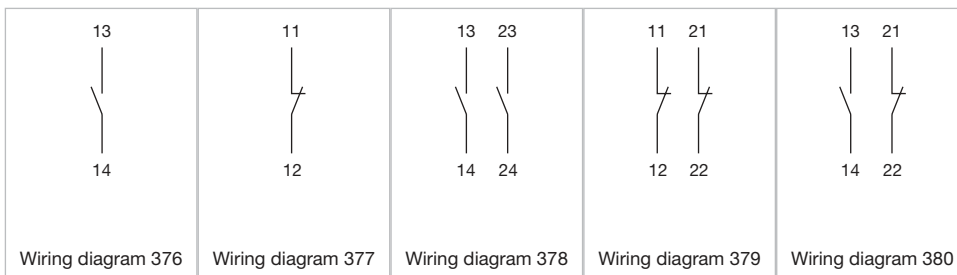
A = Screw terminal

B = Push-in terminal (PIT)

C = Plug-in terminal 6.3 mm x 0.8 mm

D = Double plug-in terminal 6.3 mm x 0.8 mm

Wiring diagrams





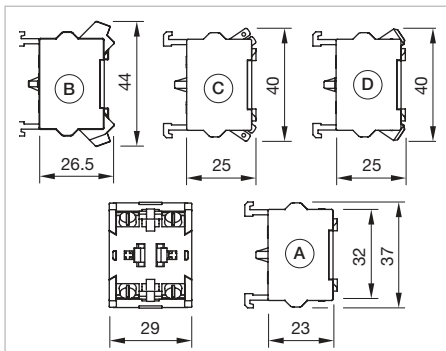
Snap-action switching element with screw terminal

Switching voltage	Switching current	Contacts	Contact material	Part No.	Wiring diagram
500 V	10 A	1 NO	Silver	704.900.1	376
	10 A	1 NC	Silver	704.900.2	377
	10 A	2 NO	Silver	704.900.3	378
	10 A	2 NC	Silver	704.900.4	379
	10 A	1 NC / 1 NO	Silver	704.900.5	380
	10 A	1 NO	Gold-plated silver	704.901.1	376
	10 A	1 NC	Gold-plated silver	704.901.2	377
	10 A	2 NO	Gold-plated silver	704.901.3	378
	10 A	2 NC	Gold-plated silver	704.901.4	379
	10 A	1 NC / 1 NO	Gold-plated silver	704.901.5	380
	10 A	1 NO	Palladium	704.902.1	376
	10 A	1 NC	Palladium	704.902.2	377
	10 A	2 NO	Palladium	704.902.3	378
	10 A	2 NC	Palladium	704.902.4	379
	10 A	1 NC / 1 NO	Palladium	704.902.5	380

Contacts: NC = Normally closed, NO = Normally open

Additional information

- For the third switching element the terminal marking insert is to be ordered separately
- The switching element is used for the lever switch



Dimensions [mm]

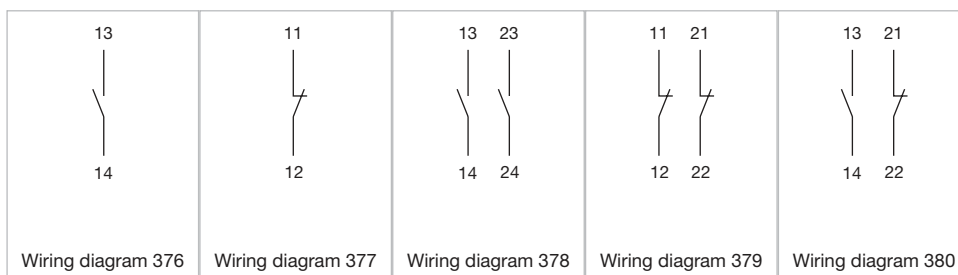
A = Screw terminal

B = Push-in terminal (PIT)

C = Plug-in terminal 6.3 mm x 0.8 mm

D = Double plug-in terminal 6.3 mm x 0.8 mm

Wiring diagrams



56 Components



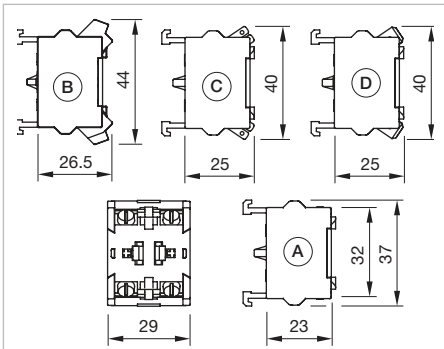
Slow-make switching element with screw terminal

Switching voltage	Switching current	Contacts	Contact material	Part No.	Wiring diagram
500 V	10 A	1 NO	Silver	704.910.1	376
	10 A	1 NC	Silver	704.910.2	377
	10 A	2 NO	Silver	704.910.3	378
	10 A	2 NC	Silver	704.910.4	379
	10 A	1 NC / 1 NO	Silver	704.910.5	380
	10 A	1 NO	Gold-plated silver	704.911.1	376
	10 A	1 NC	Gold-plated silver	704.911.2	377
	10 A	2 NO	Gold-plated silver	704.911.3	378
	10 A	2 NC	Gold-plated silver	704.911.4	379
	10 A	1 NC / 1 NO	Gold-plated silver	704.911.5	380
	10 A	1 NO	Palladium	704.912.1	376
	10 A	2 NO	Palladium	704.912.3	378
	10 A	2 NC	Palladium	704.912.4	379
	10 A	1 NC / 1 NO	Palladium	704.912.5	380

Contacts: NC = Normally closed, NO = Normally open

Additional information

- For the third switching element the terminal marking insert is to be ordered separately
- The switching element is used for the lever switch



Dimensions [mm]

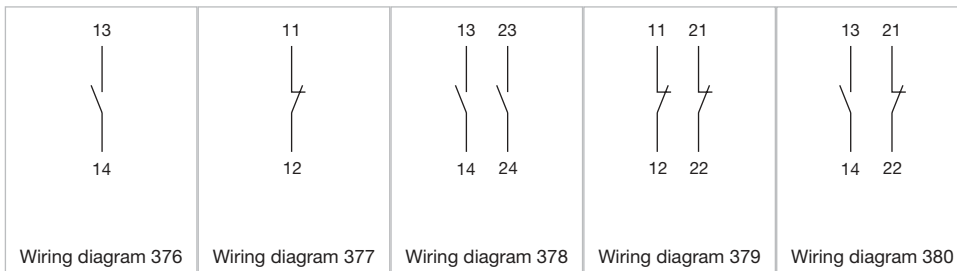
A = Screw terminal

B = Push-in terminal (PIT)

C = Plug-in terminal 6.3 mm x 0.8 mm

D = Double plug-in terminal 6.3 mm x 0.8 mm

Wiring diagrams

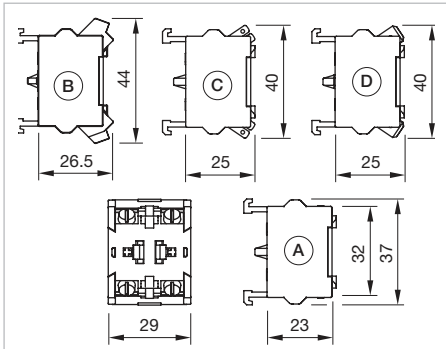




Snap-action switching element for ring cable shoe with screw terminal

Switching voltage	Switching current	Contacts	Contact material	Part No.	Wiring diagram
500 V	10 A	1 NO	Silver	704.900.1B	376
	10 A	1 NC	Silver	704.900.2B	377
	10 A	2 NO	Silver	704.900.3B	378
	10 A	2 NC	Silver	704.900.4B	379
	10 A	1 NC / 1 NO	Silver	704.900.5B	380

Contacts: NC = Normally closed, NO = Normally open



Dimensions [mm]

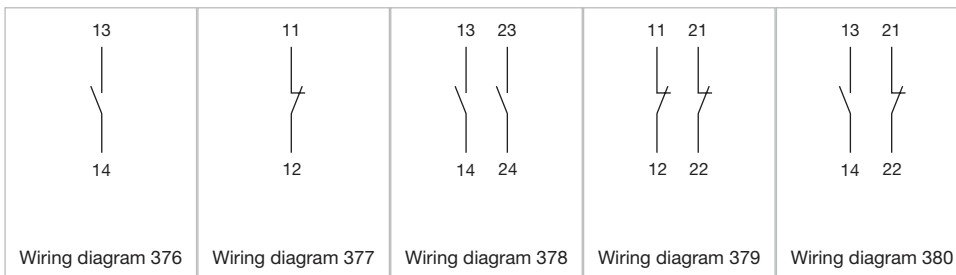
A = Screw terminal

B = Push-in terminal (PIT)

C = Plug-in terminal 6.3 mm x 0.8 mm

D = Double plug-in terminal 6.3 mm x 0.8 mm

Wiring diagrams



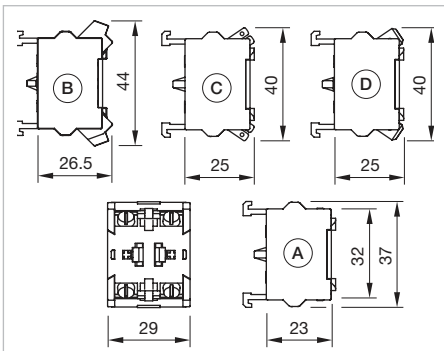
56 Components



Slow-make switching element for ring cable shoe with screw terminal

Switching voltage	Switching current	Contacts	Contact material	Part No.	Wiring diagram
500 V	10 A	1 NO	Silver	704.910.1B	376
	10 A	1 NC	Silver	704.910.2B	377
	10 A	2 NO	Silver	704.910.3B	378
	10 A	2 NC	Silver	704.910.4B	379
	10 A	2 NO	Gold-plated silver	704.911.3B	378
	10 A	2 NC	Gold-plated silver	704.911.4B	379
	10 A	1 NC / 1 NO	Gold-plated silver	704.911.5B	380

Contacts: NC = Normally closed, NO = Normally open



Dimensions [mm]

A = Screw terminal

B = Push-in terminal (PIT)

C = Plug-in terminal 6.3 mm x 0.8 mm

D = Double plug-in terminal 6.3 mm x 0.8 mm

Wiring diagrams

Wiring diagram 376	Wiring diagram 377	Wiring diagram 378	Wiring diagram 379	Wiring diagram 380

Mounting



Bezel cover

Product attribute	Dimension	Material	Colour	Mounting type	Part No.
0.8 mm thick	40 x 26 mm	Aluminium	natur eloxiert	selbstklebend	56-993



Dismantling tool

Product attribute	Part No.
For front bezel	56-998



Anti-slip mat

Dimension	Colour	Part No.
100 x 100 mm	white	56-999

Additional Information

- For dismantling of front bezel
- 3 mm thick



Counterpart set for plug-in housing 2.8 mm x 0.8 mm

Material	Product attribute	Part No.
Metal/Plastic	Set of 10 pieces	56-994



Counterpart set for plug-in housing 6.3 mm x 0.8 mm

Material	Product attribute	Part No.
Metal/Plastic	Set of 10 pieces	56-945



Sealing black, for glass mounting

Material	Part No.
Rubber	56-990

56 Technical data

Indicator

Material

Connection cable

Halogene free plastic mixture

Cap

Plastic, as per UL94 V0

Frontrahmen

Zinc matt chromium plated or plastic, as per UL94 V0

Housing

Plastic, as per UL94 V0

Mechanical characteristics

Terminals

Cable 2-poles with plug-in connection 2,8 mm x 0,8 mm
Flat plug-in housing rectangular, AMP-Nr. 626 057-0

Counterpart to AMP Flat plug-in housing
(not part of delivery)

Receptacle housing AMP No. 626 056-0

Receptacle socket AMP No. 160 655-2

Wire cross-section

0.24 mm²

Wire length

200 mm

Fixing screws

For front mounting M4 x 8 mm

Tightening torque

For screws for front mounting 0,8 Nm ... 1 Nm

Key (mounting and dismantling)

Hexagon socket wrench size 2.5 mm

Electrical characteristics

Illumination

15 LED green, red, yellow, white or blue

Supply voltage 24, 110 VDC

Tolerance -30 % ... +25 %

Current consumption < 50 mA

Luminosity and wave length variations caused by LED manufacturing processes may cause slight differences regarding the illumination

Units compliant to

EN 61058-1

EN 50081-1

EN 50082-1

EN 50082-2

EN 50121-3-2

EN 50155

Environmental conditions

Storage temperature

-45 °C ... +90 °C

Operating temperature

-40 °C ... +80 °C

Protection degree

Front side IP67

Rear side IP65

Climate resistance

Damp heat, cyclic

96 hours, +25 °C/97 %, +55 °C/93 % relative humidity, as per EN IEC 60068-2-30

Damp heat, state

56 days, +40 °C/93 % relative humidity, as per EN IEC 60068-2-78

Rapid change of temperature

100 cycles, -40 °C ... +80 °C, as per EN IEC 60068-2-14

Shock resistance

(semi-sinusoidal)

max. 250 m/s², pulse width 11 ms, as per EN IEC 60068-2-27

Vibration resistance

(sinusoidal)

max. 100 m/s² at 10 Hz ... 2000 Hz, as per EN IEC 60068-2-6

Approvals

Approbations

CQC

Conformities

CE

Pushbutton

Switching system

Self-cleaning, double-breaking snap-action switching system
1 Normally Open contact, momentary function

Material

Connection cable

Halogene free plastic mixture

Lens

Aluminium anodized or plastic, as per UL94 V0

Front bezel

Zinc matt chromium plated or plastic, as per UL94 V0

Actuator

Plastic, as per UL94 V0

Material of contact

Gold plated silver

Mechanical characteristics

Terminals

Cable 4-poles with plug-in connection 2.8 mm x 0.8 mm
Flat plug-in housing rectangular, AMP No. 626 057-0

Counterpart to AMP Flat plug-in housing
(not part of delivery)

Receptacle housing AMP No. 626 056-0

Receptacle socket AMP No. 160 655-2

Other version :

Cable 4 poles with plug-in connection 6.3 mm x 0.8 mm

Flat plug-in housing rectangular, AMP No. 180 901-0

Counterpart to AMP Flat plug-in housing
(not part of delivery)

Receptacle housing AMP No. 180 900-0

Receptacle socket AMP No. 160 860-2

Wire cross-section

0.5 mm²

Wire length

200 mm

Fixing screws

Single side pushbutton for front mounting M4 x 8 mm

Double side pushbutton for glass mounting M4 x 25 mm

Single side pushbutton for glass mounting M4 x 20 mm
(for glass ≥ 5 mm)

Single side pushbutton for glass mounting M4 x 16 (for 4 mm glass)

Tightening torque

Screws for single side pushbutton for front mounting

0.80 Nm ... 1 Nm

Screws for single side- and double side pushbutton for glass mounting 0.5 Nm

Key (mounting and dismantling)

Hexagon socket wrench size 2.5 mm

Actuating force

6 N ... 12 N

Actuating travel

~0.5 mm

Mechanical lifetime

2 million cycles operation

Electrical characteristics

Illumination

Ready status, 8 LED green, red or yellow

Optical switch on status, 2 LED green or red

(3 LED for special versions)

Supply voltage 24, 36, 48, 72, 110 VDC

Tolerance +25 % ... -30 %

Current consumption < 50 mA

Luminosity and wave length variations caused by LED manufacturing processes may cause slight differences regarding the illumination

Units compliant to

EN 14752

EN 50155

EN 61000-6-2

EN 61000-6-3

EN 61058-1

Switching voltage and switching current

min. 5 VDC, 5 mA

max. 137 VDC/VAC, max. 200 mA

Electric strength

4000 VAC, 50 Hz, 1 minute, between all terminals and mounting plate/front element

Environmental conditions

Storage temperature

-45 °C ... +90 °C

Operating temperature

-40 °C ... +80 °C

56 Technical data

Protection degree

Front side IP67
Rear side IP65

Climate resistance

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

Damp heat, state

56 days, +40 °C/93 % relative humidity, as per EN IEC 60068-2-78

Rapid change of temperature

100 cycles, -40 °C ... +80 °C, as per EN IEC 60068-2-14

Shock resistance

(semi-sinusoidal)
max. 250m/s², pulse width 11 ms, as per EN IEC 60068-2-27

Vibration resistance

(sinusoidal)
max. 100m/s² at 10Hz... 500Hz, as per EN IEC 60068-2-6

Approvals

Approbations

CQC
TSI PRM (EBC)

Conformities

CE

Pushbutton 56 Access

Single side pushbutton with M8×1 connector, 6-pin

Switching system

The Series 56 Access pushbutton is equipped with an electronic high side switch, is short circuit proof and overload protected. In case of over current the switch opens automatically (protection against destruction). The pushbutton is not potential-free.

Material

Lens

Aluminium, Symbol Plastic

Front bezel

Plastic

Switch housing

Plastic

Mechanical characteristics

Terminals

Device plug M8×1, 6-pin (according to EN 61076-2-104)
For locking the cable plug connection, the thread ring "hand-tight" (approx. 0.5Nm) tightened.
Suitable for screw locking (cable side),
Snap-in locking (cable side) with reduced IP protection class.

Cable recommendation

6-pole with coupling socket M8×1 straight, according to EN 61076-2-104 and EN 45545 for railway application.

Fixing screws

Single side pushbutton for front mounting M4 × 8mm

Tightening torque

Screws for one-sided button for front mounting 0.8...1 Nm

Key (mounting and dismantling)

Inside 6-kt Width across flats 2.5 mm

Actuating force

max. 15N

Actuating travel

~0.5mm

Mechanical life

>5 million switching cycles

Electrical characteristics

Illumination

Standby, 6 lighting points green

6 lighting points red

Optical switching indicator (wiring diagram according to EN 14752)

Operating voltage 24 VDC

Tolerance range -30 % ... +25 %

Current consumption < 50 mA

Luminosity and wave length variations caused by LED manufacturing processes may cause slight differences regarding the illumination.

Devices correspond

EN 50155

EN 14752

EN 45545

EN 61373

EMV

EN 61000-6-2

EN 61000-6-3

EN 50121-3-2

ESD according to EN 61000-4-2 ±20 kV

Regulation No. EMV 06 (radio compatibility of Deutsche Bahn)

Symbols

TSI PRM (EBC)

Operating voltage

10-30 VDC

Switching current

max. 250 mA

min. 10 µA

Quiescent current

< 10 µA @ 24 VDC

Note: Only pin 1 (VDC) and pin 4 (0 V) connected

Electric strength

4000 VAC, 50 Hz, 1 minute, between all terminals and mounting plate/front element

Ambient conditions

Storage temperature

-45 °C ... +90 °C

Operating temperature

-45 °C ... +85 °C

Protection degree

IP66, IP67 front side

IP65 rear side with device plug M8×1 straight, 6-pin with snap-in locking (cable side)

IP67 rear side with device plug M8×1 straight, 6-pin with screw locking (cable side)

Impact resistance

IK07

Climate resistance

Damp heat, cyclic

48 hours, +25 °C/97 %, +55 °C/93 % relative humidity, according to EN IEC 60068-2-30

Damp heat, state

56 days, +40 °C/93 % relative humidity, according to EN IEC 60068-2-78

Rapid change of temperature

5 cycles, -45 °C...+90 °C, according to EN IEC 60068-2-14

Shock resistance

Semi-sinusoidal

500 m/s², pulse width 11 ms, 6 shocks/axis, according to DIN EN 60068-2-27

Vibration strength

(sinusoidal)

max. 100 m/s² from 10 Hz ... 500 Hz, according to EN IEC 60068-2-6

Broad band noise according to EN 61373 class 1B

7.9 m/s² 5 h per axis, according to EN IEC 60068-2-6

Approvals

Approbations

TSI PRM (EBC)

Conformities

CE

2014/30/EU (EMC)

1300/2014/EU (TSI PRM)

2011/65/EU (RoHS)

56 Technical data

Pushbutton 56 Universal

Single side pushbutton with M8×1 connector, 6-pin

Switching system

The Series 56 Universal pushbutton is equipped with an electronic high side switch, is short circuit proof and overload protected. In case of over current the switch opens automatically (protection against destruction). The pushbutton is not potential-free.

Material

Lens

Aluminium, Symbol Plastic

Front bezel

Plastic

Switch housing

Plastic

Mechanical characteristics

Terminals

Device plug M8×1, 6-pin (according to EN 61076-2-104)
For locking the cable plug connection, the thread ring “hand-tight” (approx. 0.5Nm) tightened.
Suitable for screw locking (cable side),
Snap-in locking (cable side) with reduced IP protection class.

Cable recommendation

6-pole with coupling socket M8×1 straight
(according to EN 61076-2-104)

Fixing screws

Single side pushbutton for front mounting M4 × 8 mm

Tightening torque

Screws for one-sided button for front mounting 0.8...1 Nm

Key (mounting and dismantling)

Inside 6-kt Width across flats 2.5 mm

Actuating force

max. 15 N

Actuating travel

~0.5 mm

Mechanical life

>5 million switching cycles

Electrical characteristics

Illumination

Standby, 6 lighting points green
6 lighting points red
Optical switching indicator (wiring diagram according to EN 14752)
Operating voltage 24 VDC
Tolerance range –30 % ... +25 %
Current consumption <50 mA

Luminosity and wave length variations caused by LED manufacturing processes may cause slight differences regarding the illumination.

Devices correspond

EN 50155
EN 14752
EN 45545
EN 61373

EMV

EN 61000-6-2
EN 61000-6-3
EN 50121-3-2
ESD according to EN 61000-4-2 ±20 kV
Regulation No. EMV 06 (radio compatibility of Deutsche Bahn)

Operating voltage

10–30 VDC

Switching current

max. 250 mA
min. 10 µA

Quiescent current

<10 µA @24 VDC
Note: Only pin 1 (VDC) and pin 4 (0 V) connected

Electric strength

4000 VAC, 50 Hz, 1 minute, between all terminals and mounting plate/front element

Ambient conditions

Storage temperature

–45 °C ... +90 °C

Operating temperature

–45 °C ... +85 °C

Protection degree

IP66, IP67 front side
IP65 rear side with device plug M8×1 straight, 6-pin with snap-in locking (cable side)
IP67 rear side with device plug M8×1 straight, 6-pin with screw locking (cable side)

Impact resistance

IK07

Climate resistance

Damp heat, cyclic

48 hours, +25 °C/97 %, +55 °C/93 % relative humidity, according to EN IEC 60068-2-30

Damp heat, state

56 days, +40 °C/93 % relative humidity, according to EN IEC 60068-2-78

Rapid change of temperature

5 cycles, -45 °C...+90 °C, according to EN IEC 60068-2-14

Shock resistance

Semi-sinusoidal

500 m/s², pulse width 11 ms, 6 shocks/axis, according to DIN EN 60068-2-27

Vibration strength

(sinusoidal)

max. 100 m/s² from 10 Hz ... 500 Hz, according to EN IEC 60068-2-6

Broad band noise according to EN 61373 class 1B

7.9 m/s² 5 h per axis, according to EN IEC 60068-2-6

Approvals

Conformities

CE

2014/30/EU (EMC)

2011/65/EU (RoHS)

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.

56 Technical data

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 \pm 1 %

480 Hz ... 3000 Hz \pm 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

Flashing warning beacon

Material

Connection cable

Halogene free plastic mixture

Lens

Plastic, as per UL94 V0

Front bezel

Zinc matt chromium plated or plastic, as per UL94 V0

Actuator

Plastic, as per UL94 V0

Mechanical characteristics

Terminals

Cable 2-poles with plug-in connection 2.8 mm x 0.8 mm
Flat plug-in housing rectangular, AMP No. 626 057-0

Counterpart to AMP Flat plug-in housing
(not part of delivery)

Receptacle housing AMP No. 626 056-0
Receptacle socket AMP No. 160 655-2

Wire cross-section

0.24 mm²

Wire length

200 mm

Fixing screws

For front mounting M4 x 8 mm

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

Illumination

3 LED white

Supply voltage 24 VDC ± 30 %

Current consumption < 500 mA

Blitzfrequenz 1 Hz

Impulsdauer 50 ms

Pausendauer 950 ms

Einschaltdauer 5 %

Luminosity and wave length variations caused by LED manufacturing processes may cause slight differences regarding the illumination

Units compliant to

EN 61000-6-2

EN 61000-6-3

EN 50121-3-2

Environmental conditions

Storage temperature

-45 °C ... +90 °C

Operating temperature

-40 °C ... +80 °C

Protection degree

Front side IP67

Rear side IP65

Climate resistance

Damp heat, cyclic

96 hours, +25 °C/97 %, +55 °C/93 % relative humidity, as per EN IEC 60068-2-30

Damp heat, state

56 days, +40 °C/93 % relative humidity, as per EN IEC 60068-2-78

Rapid change of temperature

100 cycles, -40 °C ... +80 °C, as per EN IEC 60068-2-14

Shock resistance

(semi-sinusoidal)

max. 250 m/s², pulse width 11 ms, as per EN IEC 60068-2-27

Vibration resistance

(sinusoidal)

max. 100 m/s² at 10 Hz ... 2000 Hz, as per EN IEC 60068-2-6

Approvals

Approbations

CQC

Conformities

CE

56 Technical data

Slow-make switching element for lever switch

When using the switching element, the application guidelines must be observed.

Switching system

The double-break, slow-make switching element is equipped with one or two independent contact systems, acting as normally open or normally closed contact. The normally closed contact has forced opening.

Slow-make contacts with forced action are ideal for high switch ratings.

Up to three switching elements can be snapped to each actuator.

For the emergency-stop switch use the slow-make switching element (max. 2).

Special requirements for positive-opening auxiliary current switches

Positive opening travel	Emergency stop 12.5 mm
Minimum force	Emergency stop 50 N (actuating force at which is safely switched)
Max. travel	Emergency stop 12.5 mm

Material

Housing

The indicator lights/switches may be installed in enclosures with protection class 2 according to DIN EN 61140.

The enclosure must at least have enclosure class 2 according to UL50E.

Material of contact

Hard silver, gold-silver, silver-palladium (for aggressive atmospheres)

Switch housing

Plastic

Mechanical characteristics

Terminals

Screw terminal	
- max. wire cross section	2.5 mm ²
- stripping length wire	10 mm
- max. number of wire	2
- max. strand cross section	1.5 mm ²
- stripping strands	use stranded wires only with wire end ferrules of 10 mm length
- max. number of strands	2

Only one polarity is allowed on each side when wiring.

Plug-in terminal 1 x 6.3 mm x 0.8 mm or 2 x 2.8 mm x 0.8 mm
For devices with plug-in connections, insulating sleeves are required and the mounting cut-out of 65 mm must be observed.

Double plug-in terminal 2 x 6.3 mm x 0.8 mm
For units with plug-in connections, insulating sleeves are required and the mounting cut-out of 65 mm must be observed.

Tightening torque

Screws at the plastic mounting flange max. 0.4...0.5 Nm
Screws at the metal mounting flange max. 0.25...0.3 Nm
Screws at switching element max. 0.8 Nm

Actuating force

1 Normally closed 2 N
1 Normally open 3 N

Actuating travel

Approx. 5.8 mm ± 0.2 mm

Mechanical lifetime

(with 1 switching element)	
Pushbutton maintained action	1.5 million cycles of operation
Pushbutton momentary action	3 million cycles of operation
Selector switch maintained action	1.25 million cycles of operation
Selector switch momentary action	2.5 million cycles of operation
Emergency-stop switch	50 000 cycles of operation
Keylock switch maintained action	25 000 cycles of operation
Keylock switch momentary action	50 000 cycles of operation

Electrical characteristics

Standards

The switches comply with the "Standards for low-voltage switching devices" DIN EN 60947-5-1

Rated Insulation Voltage U_i

500 V, as per DIN EN 60947-5-1

Rated impulse withstand voltage U_{imp}

4 kV, according to EN/IEC 60947-5-1

Electrical life

50 000 cycles of operation

Thermal current I_{th}

Max. current at continuous operation and limit temperatures which do not exceed the specified max. values.

10 A

Switching voltage and switching current

as per EN IEC 60947-5-1

voltage	DC13	AC15
24V	4.0A	10.0A
48V	–	10.0A
60V	1.5A	–
110V	1.0A	–
120V	–	10.0A
230V	0.4A	7.0A
400V	0.2A	5.0A
500V	0.15A	4.0A

Recommended minimum operational data

Gold-silver contacts:

Voltage 24VDC 110VDC

Current 5mA 2mA

Hard silver contacts:

Voltage 24VDC 110VDC

Current 50mA 10mA

Protection class

Indicators and switches, fit for mounting into devices with protection class II

Ambient conditions

Storage temperature

–40 °C ... +85 °C

Operating temperature

–40 °C ... +55 °C

(other temperatures on request)

Protection degree

IP00

Shock resistance

(single impacts, semi-sinusoidal)

300 m/s² pulse width 11 ms, as per EN IEC 60068-2-27

Vibration resistance

(sinusoidal)

100 m/s² at 10 Hz ... 500 Hz, amplitude 0.75 mm, as per EN IEC 60068-2-6

Pollution degree

3

Climatic resistance

Relative humidity

10 ... 95 % non-condensing

Approvals

Conformities

CE

2014/35/EU (LVD)

2011/65/EC (RoHS)

Snap-action switching element for lever switch

When using the switching element, the application guidelines must be observed.

Switching system

The double-break, snap-action switching element is equipped with one or two independent contact systems, acting as normally open or normally closed contact. The snap-action switching element is fitted with self-cleaning contacts.

Up to three switching elements can be snapped to each actuator.

Snap-action switching elements are not permissible for emergency-stop pushbuttons!

Material

Housing

The indicator lights/switches may be installed in enclosures with protection class 2 according to DIN EN 61140.

The enclosure must at least have enclosure class 2 according to UL50E.

Material of contact

Hard silver, gold-silver, silver-palladium (for aggressive atmospheres)

Switch housing

Plastic

Mechanical characteristics

Terminals

Screw terminal

- max. wire cross section 2.5 mm²

- stripping length wire 10 mm

- max. number of wire 2

- max. strand cross section 1.5 mm²

- stripping strands use stranded wires only with wire end ferrules of 10 mm length

- max. number of strands 2

Only one polarity is allowed on each side when wiring.

56 Technical data

Plug-in terminal 1 x 6.3 mm x 0.8 mm or 2 x 2.8 mm x 0.8 mm
For devices with plug-in connections, insulating sleeves are required and the mounting cut-out of 65 mm must be observed.

Double plug-in terminal 2 x 6.3 mm x 0.8 mm
For units with plug-in connections, insulating sleeves are required and the mounting cut-out of 65 mm must be observed.

Tightening torque

Screws at the plastic mounting flange max. 0.4–0.5 Nm
Screws at the metal mounting flange max. 0.25–0.3 Nm
Screws at switching element max. 0.8 Nm

Actuating force

1 Normally closed 1.9 N
1 Normally open 2 N

Actuating travel

Approx. 5.8 mm ± 0.2 mm

Mechanical lifetime

(with 1 switching element)
Pushbutton maintained action 1.5 million cycles of operation
Pushbutton momentary action 3 million cycles of operation
Selector switch maintained action 1.25 million cycles of operation
Selector switch momentary action 2.5 million cycles of operation
Keylock switch maintained action 25 000 cycles of operation
Keylock switch momentary action 50 000 cycles of operation

Electrical characteristics

Standards

The switches comply with the “Standards for low-voltage switching devices” DIN EN 60947-5-1

Rated Insulation Voltage U_i

500 V, as per DIN EN 60947-5-1

Rated impulse withstand voltage U_{imp}

4 kV, according to EN/IEC 60947-5-1

Electrical life

50 000 cycles of operation

Thermal current I_{th}

Max. current at continuous operation and limit temperatures which do not exceed the specified max. values.

10 A

Switching voltage and switching current

as per EN IEC 60947-5-1

voltage	DC13	AC15
24 V	2.5 A	6.0 A
48 V	–	6.0 A
60 V	0.8 A	–
110 V	0.6 A	–

120 V	–	6.0 A
230 V	0.2 A	6.0 A
400 V	0.15 A	4.0 A
500 V	0.07 A	2.5 A

Recommended minimum operational data

Gold-silver contacts:

Voltage	5 VDC	24 VDC	110 VDC
Current	15 mA	5 mA	2 mA

Hard silver contacts:

Voltage	24 VDC	110 VDC
Current	50 mA	10 mA

Protection class

Indicators and switches, fit for mounting into devices with protection class II.

Ambient conditions

Storage temperature

–40 °C ... +85 °C

Operating temperature

–40 °C ... +55 °C

(other temperatures on request)

Protection degree

IP00

Shock resistance

(single impacts, semi-sinusoidal)

300 m/s² pulse width 11 ms, as per DIN EN 60068-2-27

Vibration resistance

(sinusoidal)

100 m11/s² at 10 Hz ... 500 Hz, amplitude 0.75 mm, as per DIN EN 60068-2-6

Pollution degree

3

Climatic resistance

Relative humidity

10 ... 95 % non-condensing

Approvals

Conformities

CE

2014/35/EU (LVD)

2011/65/EC (RoHS)

Slow-make switching element PIT for lever switch

When using the switching element, the application guidelines must be observed.

Switching system

The double-break, slow-make switching element is equipped with one or two independent contact systems, acting as normally open or normally closed contact. The normally closed contact has forced opening.

Slow-make contacts with forced action are ideal for high switch ratings.

Up to three switching elements can be snapped to each actuator.

For the emergency-stop pushbutton use the slow-make switching element (max. 2).

Special requirements for positive-opening auxiliary current switches

Positive opening travel	Emergency stop 12.5 mm
Minimum force	Emergency stop 50 N (actuating force at which is safely switched)
Max. travel	Emergency stop 12.5 mm

Material

Housing

The indicator lights/switches may be installed in enclosures with protection class 2 according to DIN EN 61140.

The enclosure must at least have enclosure class 2 according to UL50E.

Material of contact

Hard silver and gold-silver

Switch housing

Plastic

Mechanical characteristics

Terminals

PIT push-in terminal	
- max. wire cross section	1.0 mm ²
- stripping length wire	8 mm
- max. number of wire	2
- max. strand cross section	0.75 mm ²
- stripping strands	use stranded wires only with wire end ferrules of 8 mm length
- max. number of strands	2

Only one polarity is allowed on each side when wiring.

Tightening torque

Screws at the plastic mounting flange max. 0.4–0.5 Nm

Screws at the metal mounting flange max. 0.25–0.3 Nm

Actuating force

1 Normally closed 2 N
1 Normally open 3 N

Actuating travel

approx. 5.8 mm ± 0.2 mm

Mechanical lifetime

(with 1 switching element)

Pushbutton maintained action	1.5 million cycles of operation
Pushbutton momentary action	3 million cycles of operation
Selector switch maintained action	1.25 million cycles of operation
Selector switch momentary action	2.5 million cycles of operation
Emergency-stop switch	50 000 cycles of operation
Keylock switch maintained action	25 000 cycles of operation
Keylock switch momentary action	50 000 cycles of operation

Electrical characteristics

Standards

The switches comply with DIN EN 60947-1/EN IEC 60947-5-1

Rated Insulation Voltage U_i

500 V, as per DIN EN 60947-5-1

Rated impulse withstand voltage U_{imp}

4 kV, according to EN/IEC 60947-5-1

Electrical life

50 000 cycles of operation

Thermal current I_{th}

Max. current at continuous operation and limit temperatures which do not exceed the specified max. values.

6 A

Switching voltage and switching current

as per DIN EN 60947-5-1

voltage	DC13	AC15
24 V	4,0 A	6,0 A
48 V	–	6,0 A
60 V	1,5 A	–
110 V	1,0 A	–
120 V	–	6,0 A
230 V	–	7,0 A

Recommended minimum operational data

Gold-silver contacts:

Voltage 24 VDC

Current 5 mA

Hard silver contacts:

Voltage 24 VDC

Current 50 mA

56 Technical data

Protection class

Indicators and switches, fit for mounting into devices with protection class II

Ambient conditions

Storage temperature

-40 °C ... +85 °C

Operating temperature

-40 °C ... +55 °C

(other temperatures on request)

Protection degree

IP20

Shock resistance

(single impacts, semi-sinusoidal)

300 m/s² pulse width 11 ms, as per DIN EN 60068-2-27

Pollution degree

3

Climatic resistance

Relative humidity

10 ... 95 % non-condensing

Approvals

Conformities

CE

2014/35/EU (LVD)

2011/65/EC (RoHS)

Snap-action switching element PIT for lever switch

When using the switching element, the application guidelines must be observed.

Switching system

The double-break, snap-action switching element is equipped with one or two independent contact systems, acting as normally open or normally closed contact. The snap-action switching element is fitted with self-cleaning contacts.

Up to three switching elements can be snapped to each actuator.

Snap-action switching elements are not permissible for emergency stop pushbuttons!

Material

Housing

The indicator lights/switches may be installed in enclosures with protection class 2 according to DIN EN 61140.

The enclosure must at least have enclosure class 2 according to UL50E.

Material of contact

Hard silver and gold-silver

Switch housing

Plastic

Mechanical characteristics

Terminals

PIT push-in terminal

- max. wire cross section 1.0 mm²

- stripping length wire 8 mm

- max. number of wire 2

- max. strand cross section 0.75 mm²

- stripping strands use stranded wires only with wire end ferrules of 8 mm length

- max. number of strands 2

Only one polarity is allowed on each side when wiring.

Tightening torque

Screws at the plastic mounting flange max. 0.4–0.5 Nm

Screws at the metal mounting flange max. 0.25–0.3 Nm

Actuating force

1 Normally closed 1.9 N

1 Normally open 2 N

Actuating travel

Approx. 5.8 mm ± 0.2 mm

Mechanical lifetime

(with 1 switching element)

Pushbutton maintained action	1.5 million cycles of operation
Pushbutton momentary action	3 million cycles of operation
Selector switch maintained action	1.25 million cycles of operation
Selector switch momentary action	2.5 million cycles of operation
Keylock switch maintained action	25 000 cycles of operation
Keylock switch momentary action	50 000 cycles of operation

Electrical characteristics

Standards

The switches comply with DIN EN 60947-1/DIN EN 60947-5-1

Rated Insulation Voltage U_i

500 V, as per DIN EN 60947-5-1

Rated impulse withstand voltage U_{imp}

4 kV, according to EN/IEC 60947-5-1

Electrical life

50 000 cycles of operation

Thermal current I_{th}

Max. current at continuous operation and limit temperatures which do not exceed the specified max. values.

6 A

Switching voltage and switching current

as per DIN EN 60947-5-1

voltage	DC13	AC15
24 V	2,5 A	6,0 A
48 V	–	6,0 A
60 V	0,8 A	–
110 V	0,6 A	–
120 V	–	6,0 A
230 V	–	6,0 A

Recommended minimum operational data

Gold-silver contacts:

Voltage 24 VDC

Current 5 mA

Hard silver contacts:

Voltage 24 VDC

Current 50 mA

Protection class

Indicators and switches, fit for mounting into devices with protection class II

Ambient conditions

Storage temperature

–40 °C ... +85 °C

Operating temperature

–40 °C ... +55 °C

(other temperatures on request)

Protection degree

IP20

Shock resistance

(single impacts, semi-sinusoidal)

300 m/s² pulse width 11 ms, as per DIN EN 60068-2-27

Vibration resistance

(sinusoidal)

100 m/s² at 10 Hz ... 500 Hz, as per DIN EN 60068-2-6 and EN 61373 Increased broad band noise, class 1B

Pollution degree

3

Climatic resistance

Relative humidity

10 ... 95 % non-condensing

Approvals

Conformities

CE

2014/35/EU (LVD)

2011/65/EC (RoHS)

56 Application guidelines

Suppressor circuits

When switching inductive loads such as relays, DC motors, and DC solenoids, it is always important to absorb surges (e.g. with a diode) to protect the contacts. When these inductive loads are switched off, a counter emf can severely damage switch contacts and greatly shorten lifetime.

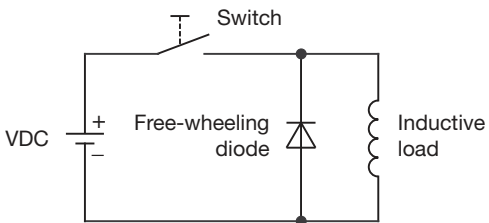
Fig. 1 shows an inductive load with a free-wheeling diode connected in parallel. This free-wheeling diode provides a path for the inductor current to flow when the current is interrupted by the switch. Without this free-wheeling diode, the voltage across the coil will be limited only by dielectric breakdown voltages of the circuit or parasitic elements of the coil. This voltage can be kilo-

volts in amplitude even when nominal circuit voltages are low (e.g. 12VDC) see Fig. 2.

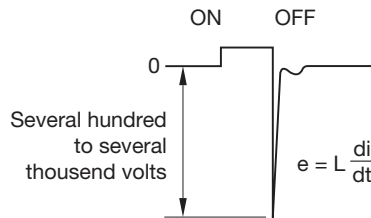
The free-wheeling diode should be chosen so that the reverse breakdown voltage is greater than the voltage driving the inductive load. The DC blocking voltage (V_R) of the free-wheeling diode can be found in the datasheet of a diode. The forward current should be equal or greater than the maximum current flowing through the load.

To get an efficient protection, the free-wheeling diode must be connected as close as possible to the inductive load!

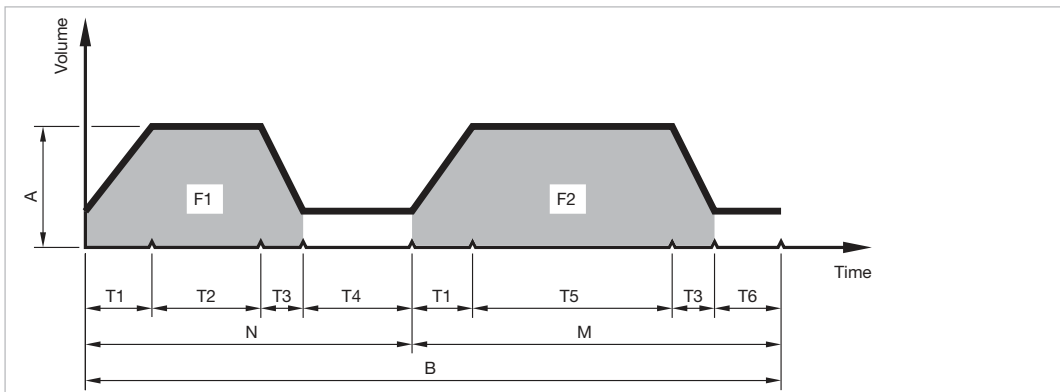
Switching with inductive load
Fig. 1



Counter EMF
over load without free-wheeling diode
Fig. 2



Multi-Tone Sound Module, standard tone sequence (3-Tone/5-Tone)



Diagram

F1	Frequency 1 of a tone sequence
T2	Playing time tone 1
T4	Break
N	Number of repetitions of tone 1
F2	Frequency 2 of a tone sequence
T5	Playing time tone 2
T6	Break
M	Number of repetitions of tone 2
A	Volume level (± 8 dB) @ 10 cm
B	Number of repetitions of the complete tone sequence, or blockage of the tone sequence
T1	Fade-in tone 1 and 2
T3	Fade-out tone 1 and 2

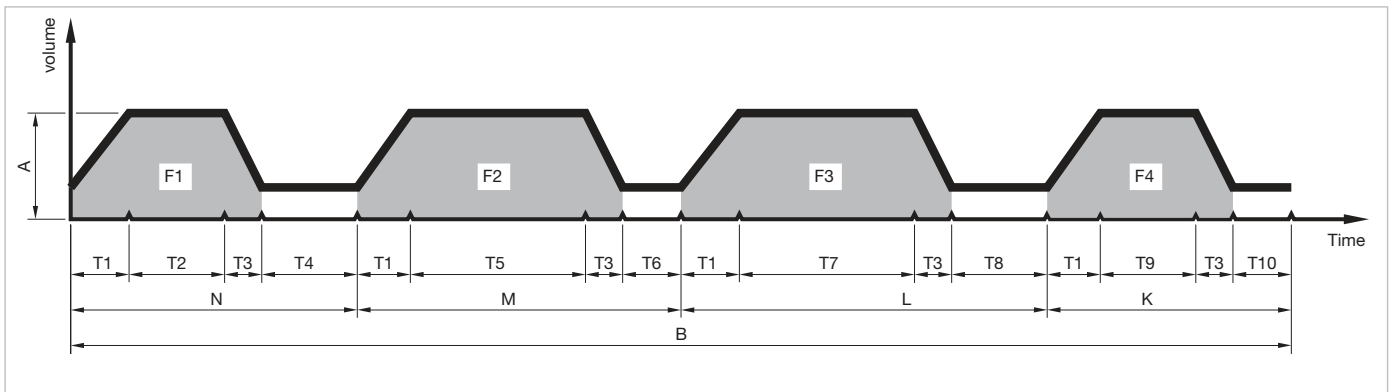
Tone sequences 1-3 Transportation (T1)				
	Parameter	Sequence 1 Door enabled	Sequence 2 Door closing	Sequence 3 Signal for visual impaired people
Tone 1	F1	1500 Hz	1900 Hz	600 Hz
	T2	∞	50 ms	50 ms
	T4	250 ms	50 ms	20 ms
	N	∞	∞	2
Tone 2	F2	deactivated	deactivated	500 Hz
	T5	deactivated	deactivated	1000 ms
	T6	deactivated	deactivated	900 ms
	M	deactivated	deactivated	1
General	A	17 / 90 db (A)	17 / 90 dB (A)	9 / 78 dB (A)
	B	∞	∞	∞
	T1	0 ms	0 ms	0 ms
	T3	0 ms	0 ms	0 ms

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Tone sequences 1-5 Transportation (T)						
	Parameter	Sequence 1 Door orientation signal	Sequence 2 Door opening signal	Sequence 3 Warning signal for door closing	Sequence 4 Door out of order signal	Sequence 5 Hussle Alarm
Tone 1	F1	500 Hz	800 Hz	2000 Hz	1400 Hz	875 Hz
	T2	500 ms	300 ms	500 ms	50 ms	1000 ms
	T4	900 ms	700 ms	200 ms	100 ms	250 ms
	N	∞	1	∞	3	3
Tone 2	F2	deactivated	830 Hz	deactivated	deactivated	deactivated
	T5	deactivated	500 ms	deactivated	deactivated	deactivated
	T6	deactivated	0 ms	deactivated	deactivated	deactivated
	M	deactivated	1	deactivated	deactivated	deactivated
General	A	3 / 78 dB (A)	3 / 78 dB (A)	5 / 90 dB (A)	3 / 78 dB (A)	3 / 78 dB (A)
	B	∞	∞	1	1	1
	T1	0 ms	0 ms	0 ms	0 ms	0 ms
	T3	0 ms	0 ms	0 ms	0 ms	0 ms

Tone sequences 6-10 Machinery (M)						
	Parameter	Sequence 6	Sequence 7	Sequence 8	Sequence 9	Sequence 10
Tone 1	F1	750 Hz	2500 Hz	2000 Hz	2500 Hz	1000 Hz
	T2	100 ms	300 ms	250 ms	100 ms	500 ms
	T4	200 ms	500 ms	200 ms	100 ms	100 ms
	N	1	1	1	2	1
Tone 2	F2	500 Hz	2000 Hz	1000 Hz	2000 Hz	1500 Hz
	T5	450 ms	500 ms	250 ms	100 ms	500 ms
	T6	100 ms	400 ms	200 ms	100 ms	100 ms
	M	1	1	1	2	1
General	A	4 / 84 dB (A)	4 / 84 dB (A)	5 / 90 dB (A)	5 / 90 dB (A)	4 / 84 dB (A)
	B	∞	∞	∞	∞	∞
	T1	0 ms	0 ms	0 ms	0 ms	0 ms
	T3	200 ms	0 ms	500 ms	0 ms	0 ms

Multi-Tone Sound Modul, self adjusting, standard Tone sequence (6-Tone)



Diagram

F1	Frequency 1 of a tone sequence
T2	Playing time tone 1
T4	Break
N	Number of repetitions of tone 1
F2	Frequency 2 of a tone sequence
T5	Playing time tone 2
T6	Break
M	Number of repetitions of tone 2
F3	Frequency 3 of a tone sequence
T7	Playing time tone 3
T8	Break

L	Number of repetitions of tone 3
F4	Frequency 4 of a tone sequence
T9	Playing time tone 4
T10	Break
K	Number of repetitions of tone 4
A	Basic volume level
D	Acoustic pressure difference
B	Number of repetitions of the complete tone sequence, or blockage of the tone sequence
T1	Fade-in tone 1 to 4
T3	Fade-out tone 1 to 4

Note

We recommend taking acoustic measurements of the sounder volume from the outside and inside of the coach after the installation of the interior has been completed (TSI PRM).

Tone sequences 6 1-6							
	Parameter	Sequence 1 Door enabled	Sequence 2 Door closing	Sequence 3 Customer specific	Sequence 4 Customer specific	Sequence 5 Customer specific	Sequence 6 Customer specific
Tone 1	F1	1500 Hz	1900 Hz	-	-	-	-
	T2	250 ms	100 ms	-	-	-	-
	T4	250 ms	50 ms	-	-	-	-
	N	∞	1	-	-	-	-
Tone 2	F2	deactivated	deactivated	-	-	-	-
	T5	deactivated	deactivated	-	-	-	-
	T6	deactivated	deactivated	-	-	-	-
Tone 3	M	deactivated	deactivated	-	-	-	-
	F3	deactivated	deactivated	-	-	-	-
	T7	deactivated	deactivated	-	-	-	-
	T8	deactivated	deactivated	-	-	-	-
Tone 4	L	deactivated	deactivated	-	-	-	-
	F4	deactivated	deactivated	-	-	-	-
	T9	deactivated	deactivated	-	-	-	-
	T10	deactivated	deactivated	-	-	-	-
General	K	deactivated	deactivated	-	-	-	-
	A	48 dB (A) @ 1.5m	48 dB (A) @ 1.5m	-	-	-	-
	D	+5 db	+5 db	-	-	-	-
	B	∞	∞	-	-	-	-
	T1	0 ms	0 ms	-	-	-	-
	T3	0 ms	0 ms	-	-	-	-

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