TecnelSystem S.p.A.
equipaggiamenti elettrici industriali

UNI EN ISO9001:2015
Nr. 9101.TNLS

Series 56

Intuitive and reliable. Worldwide.

TECNEL SYSTEM S.p.A. - Via Brunico 15 - 20126 Milano - Tel. 02 2578803 (r.a.) Fax 02 27001038 -
Cert.CSQ-IQNet ISO9001:2015 N. 9101TNLS www.tecnelsystem.it e-mail: tecnel@tecnelsystem.it

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 µA/max. 250 mA (56 Access)

Mounting cut-outs

- Ø 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	
Single side indicator	4
Single side pushbutton	6
Lever switch	11
Multi-Tone Sound Module	12
Flashing Warning Beacon	15
Rear mounting	
Single side indicator	17
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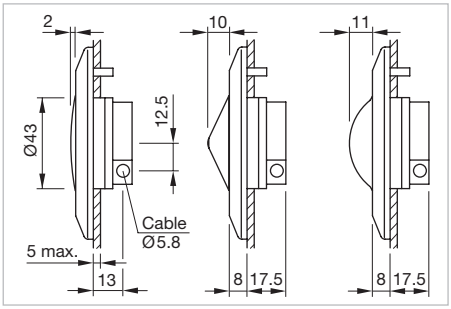
56 Front mounting

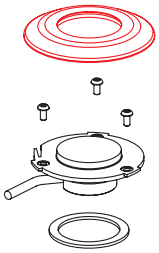
Single side indicator

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



Dimensions [mm]

Equipment consisting of

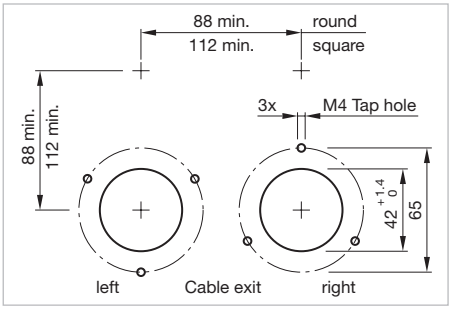


Each part listed below includes all the black components shown in the 3D-drawing.

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

Additional Information

- Please fill in the form and forward it to your local EAO partner by e-mail or fax. The electronic form is available at www.eao.com/downloads



Mounting cut-outs [mm]

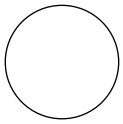
Front cap

☐ Plastic 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

Symbole

☐	☐	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐ 		

Illumination

☐ LED green	☐ LED red	☐ LED yellow	☐ LED white	☐ LED blue

Supply voltage illumination

☐ 24 VDC	☐ 110 VDC

Tolerance –30 % … +25 %

Cable exit

☐ Cable exit right	☐ Cable exit left

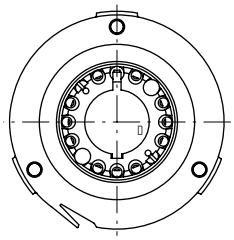
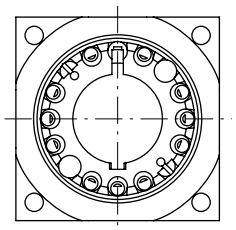
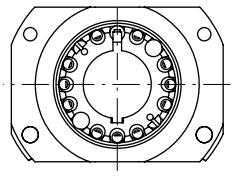
Cable length

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

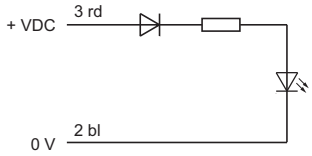
Cable and Connector type

Cable	Connector
☐ 2 x 0.24 mm²	☐ 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)
	☐ _____

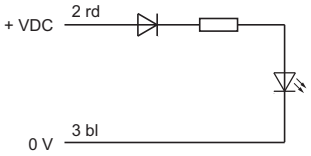
Housing

☐ Housing D73 (standard)	☐ Housing reworked 50 mm x 50 mm	☐ Housing reworked 68.5 mm x 50 mm
		

Wiring diagrams

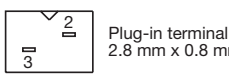


Wiring diagram 1



Wiring diagram 2

Component layouts



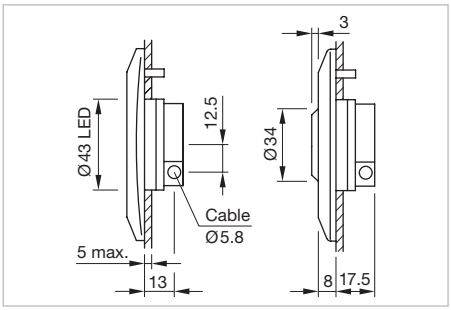
Standard type

Component layout 1

56 Front mounting

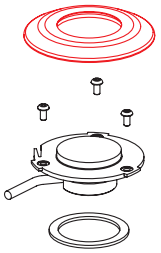
Single side pushbutton

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



Dimensions [mm]

Equipment consisting of



Front bezel Page 37

Switching unit

Sealing

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

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

Additional Information

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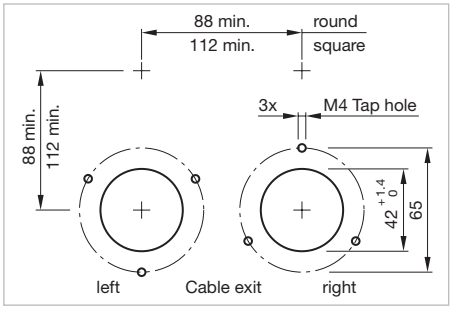
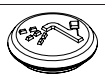


Mounting cut-outs [mm]

Lens		
☐ flush, plastic, colour similar RAL	☐ flush, aluminium	☐ raised, aluminium
☐ green RAL 6024	☐ naturel	☐ naturel
☐ red RAL 3020	☐ green	☐ green
☐ blue RAL 5017	☐ red	☐ red
☐ yellow RAL 1023	☐ blue	☐ blue
☐ grey RAL 7040	☐ yellow	☐ yellow
		☐ 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

Illumination						
☐ without illumination						
☐ with illumination	☐ 8 green	☐ 8 red	☐ 8 blue	☐ 8 yellow	☐ 8 green/2 red	☐ 8 red/2 green

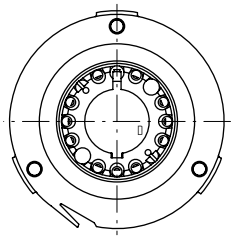
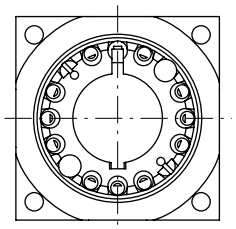
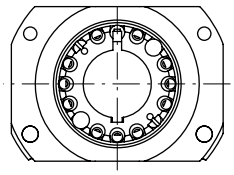
Supply voltage Illumination				
☐ 24 VDC	☐ 36 VDC	☐ 48 VDC	☐ 72 VDC	☐ 110 VDC

Tolerance –30 % … +25 %

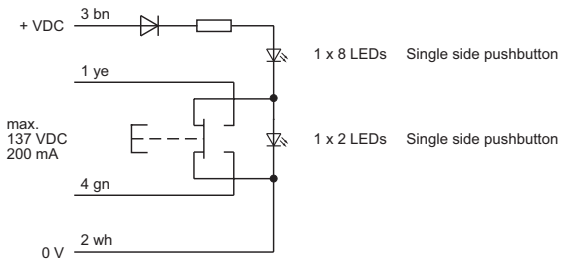
Cable exit	
☐ Cable exit right	☐ Cable exit left

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

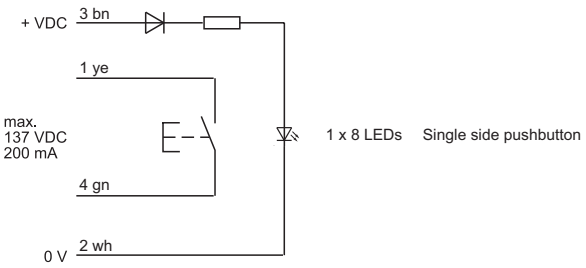
Cable and connector type	
Cable	Connector
☐ 2 x 0.5 mm² (Wiring diagram 5)	☐ Core end-sleeves
☐ 4 x 0.5 mm² (Wiring diagram 1, 2, 3, 4)	☐ AMP connector Mate-N-Lok (Wiring diagram 3, 4)
	☐ DEUTSCH connector (Wiring diagram 3, 4)
	☐ AMP connector 2.8 mm x 0.8 mm (Wiring diagram 1, 2))
	☐ AMP connector 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



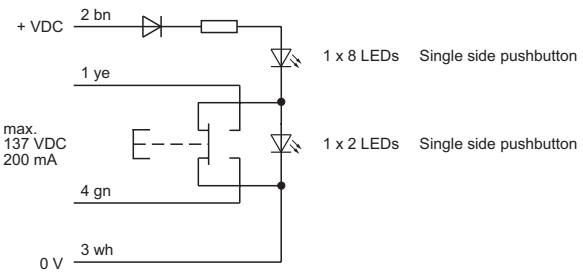
Wiring diagram 1



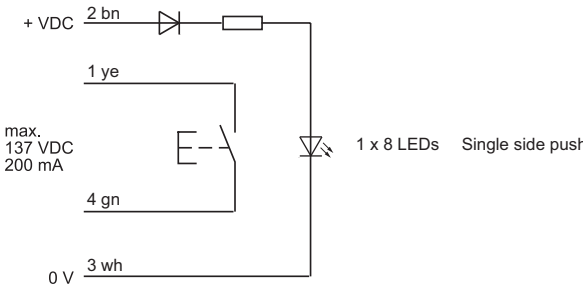
Wiring diagram 2

56 Front mounting

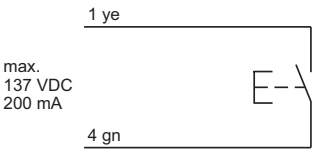
Wiring diagrams



Wiring diagram 3



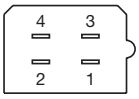
Wiring diagram 4



Wiring diagram 5

Component layouts

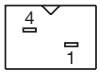
Plug-in terminal
2.8 mm x 0.8 mm



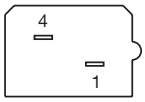
Plug-in terminal
6.3 mm x 0.8 m

Standard type

Component layout 2



Plug-in terminal
2.8 mm x 0.8 mm



Plug-in terminal
6.3 mm x 0.8 m

Standard type

Component layout 3

Single side pushbutton, 56 Access

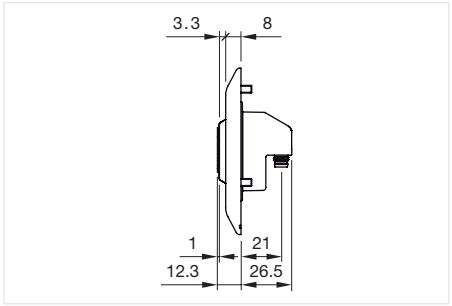
Equipment consisting of (schematic overview)

Front bezel

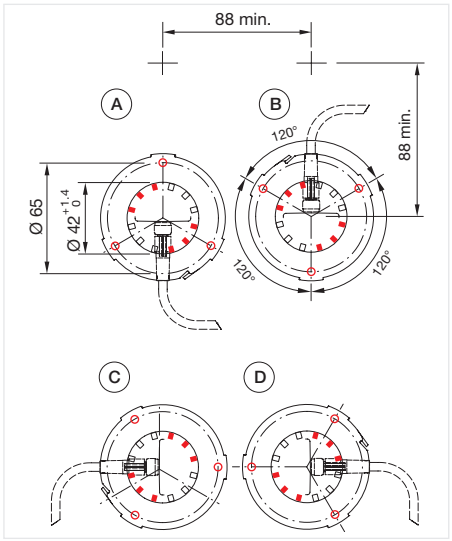
Screws

Switching unit

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



Dimensions [mm]



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 M8×1, 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

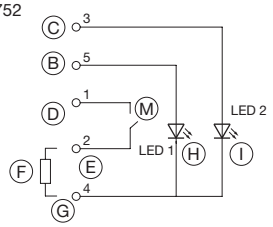
Lens material	Lens shape	Symbol	Cable output	Front bezel colour	Colour similar RAL	Part No.	Wiring diagram	Component Layout
☐ Aluminium	raised		bottom or top	Black	9017 RAL	56-1520.1501	441	106
☐ Aluminium	raised		bottom or top	Red	3020 RAL	56-1520.1502	441	106
☐ Aluminium	raised		bottom or top	Yellow	1023 RAL	56-1520.1503	441	106
☐ Aluminium	raised		bottom or top	Green	6024 RAL	56-1520.1504	441	106
☐ Aluminium	raised		bottom or top	Blue	5017 RAL	56-1520.1505	441	106
☐ Aluminium	raised		bottom or top	Light grey	7040 RAL	56-1520.1506	441	106
☐ Aluminium	raised		left or right	Black	9017 RAL	56-1520.1601	441	106
☐ Aluminium	raised		left or right	Red	3020 RAL	56-1520.1602	441	106
☐ Aluminium	raised		left or right	Yellow	1023 RAL	56-1520.1603	441	106
☐ Aluminium	raised		left or right	Green	6024 RAL	56-1520.1604	441	106
☐ Aluminium	raised		left or right	Blue	5017 RAL	56-1520.1605	441	106
☐ Aluminium	raised		left or right	Light grey	7040 RAL	56-1520.1606	441	106
☐ Aluminium	raised		bottom or top	Black	9017 RAL	56-1520.2501	441	106
☐ Aluminium	raised		bottom or top	Red	3020 RAL	56-1520.2502	441	106
☐ Aluminium	raised		bottom or top	Yellow	1023 RAL	56-1520.2503	441	106
☐ Aluminium	raised		bottom or top	Green	6024 RAL	56-1520.2504	441	106
☐ 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
☐ Aluminium	raised		bottom or top	Light grey	7040 RAL	56-1520.2506	441	106
☐ Aluminium	raised		left or right	Black	9017 RAL	56-1520.2601	441	106
☐ Aluminium	raised		left or right	Red	3020 RAL	56-1520.2602	441	106
☐ Aluminium	raised		left or right	Yellow	1023 RAL	56-1520.2603	441	106
☐ Aluminium	raised		left or right	Green	6024 RAL	56-1520.2604	441	106
☐ Aluminium	raised		left or right	Blue	5017 RAL	56-1520.2605	441	106
☐ Aluminium	raised		left or right	Light grey	7040 RAL	56-1520.2606	441	106
☐ Aluminium	raised		bottom	Black	9017 RAL	56-1520.3101	441	106
☐ Aluminium	raised		bottom	Red	3020 RAL	56-1520.3102	441	106
☐ Aluminium	raised		bottom	Yellow	1023 RAL	56-1520.3103	441	106
☐ Aluminium	raised		bottom	Green	6024 RAL	56-1520.3104	441	106
☐ Aluminium	raised		bottom	Blue	5017 RAL	56-1520.3105	441	106
☐ Aluminium	raised		bottom	Light grey	7040 RAL	56-1520.3106	441	106
☐ Aluminium	raised		top	Black	9017 RAL	56-1520.3201	441	106
☐ Aluminium	raised		top	Red	3020 RAL	56-1520.3202	441	106
☐ Aluminium	raised		top	Yellow	1023 RAL	56-1520.3203	441	106
☐ Aluminium	raised		top	Green	6024 RAL	56-1520.3204	441	106
☐ Aluminium	raised		top	Blue	5017 RAL	56-1520.3205	441	106
☐ Aluminium	raised		top	Light grey	7040 RAL	56-1520.3206	441	106
☐ Aluminium	raised		left	Black	9017 RAL	56-1520.3301	441	106
☐ Aluminium	raised		left	Red	3020 RAL	56-1520.3302	441	106
☐ Aluminium	raised		left	Yellow	1023 RAL	56-1520.3303	441	106
☐ Aluminium	raised		left	Green	6024 RAL	56-1520.3304	441	106
☐ Aluminium	raised		left	Blue	5017 RAL	56-1520.3305	441	106
☐ Aluminium	raised		left	Light grey	7040 RAL	56-1520.3306	441	106
☐ Aluminium	raised		right	Black	9017 RAL	56-1520.3401	441	106
☐ Aluminium	raised		right	Red	3020 RAL	56-1520.3402	441	106
☐ Aluminium	raised		right	Yellow	1023 RAL	56-1520.3403	441	106
☐ Aluminium	raised		right	Green	6024 RAL	56-1520.3404	441	106
☐ Aluminium	raised		right	Blue	5017 RAL	56-1520.3405	441	106
☐ Aluminium	raised		right	Light grey	7040 RAL	56-1520.3406	441	106

Wiring diagrams

VDC = 10 – 30VDC
EN 14752

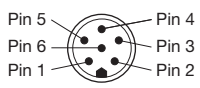


Wiring diagram 441

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

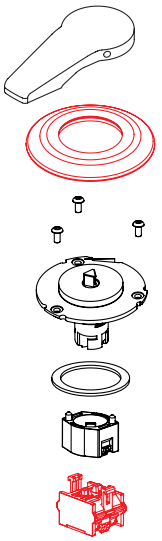


Component layout 106

Pin Assignment
Front View
M8 male A-Coding 6 Pin

Lever Switch

Equipment consisting of



Lever

Front bezel Page 37

Actuator

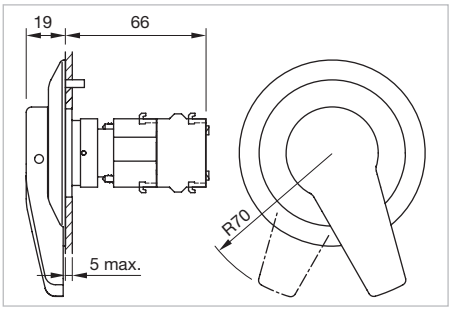
Sealing

Bayonet flange

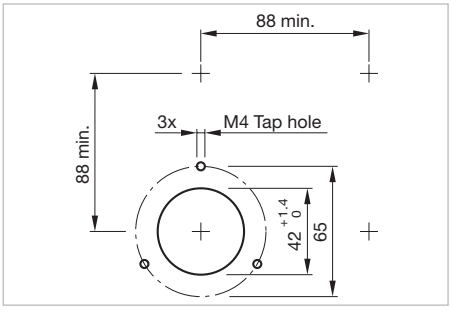
Switching element Page 41

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]

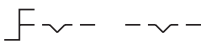
The preview is based on a sample product. This can differ from your current configuration.

Additional Information

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

Switching angle	Part No.
45°	**704.107.1**

Wiring diagrams

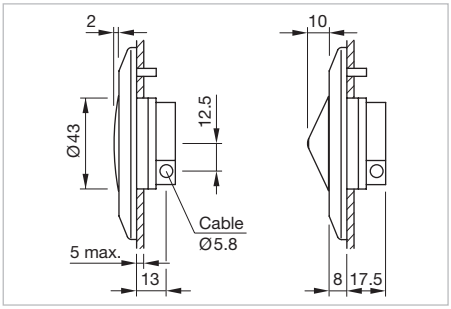


Wiring diagram 1

56 Front mounting

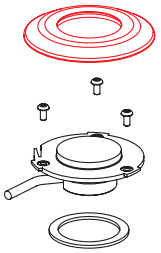
Multi-Ton Sound Modul

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



Dimensions [mm]

Equipment consisting of

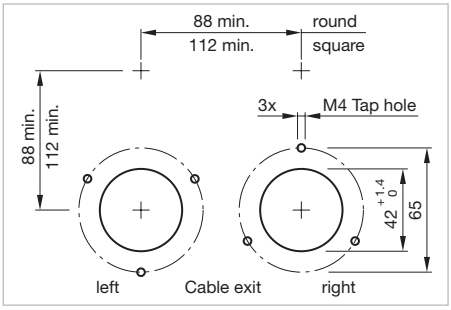


Each part listed below includes all the black components shown in the 3D-drawing.

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

Additional Information

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



Mounting cut-outs [mm]

Front cap

☐ Plastic black flush	☐ Plastic black raised

Front cap marking

☐ without symbol	☐ with symbol

Volume adjustment

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

Tone sequence

☐ 3-tone	☐ 5-tone	☐ 6-tone

Supply voltage

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

Tolerance ±30 %

Cable exit

☐ cable exit right	☐ cable exit left

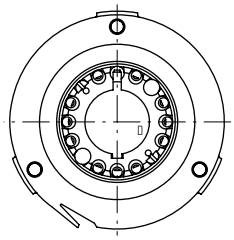
Cable length

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

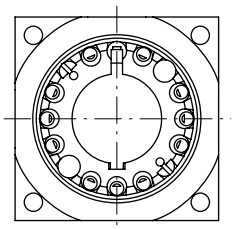
Cable and connector type	
Cable	Connector
☐ 4 x 0.25 mm²	☐ Core end-sleeves
☐ 4 x 0.5 mm²	☐ AMP connector Mate-N-Lok (Wiring diagram 3, 4)
☐ 6 x 0.5 mm²	☐ DEUTSCH connector (Wiring diagram 3, 4)
	☐ AMP connector 2.8 mm x 0.8 mm (Wiring diagram 1, 2))
	☐ AMP connector 6.3 mm x 0.8 mm (Wiring diagram 3,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

Housing

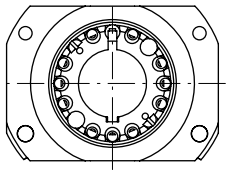
☐ Housing D73 (standard)



☐ Housing reworked 50 mm x 50 mm

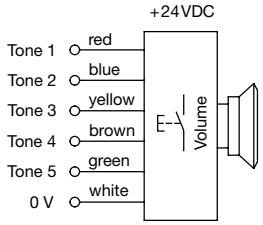


☐ Housing reworked 68.5 mm x 50 mm



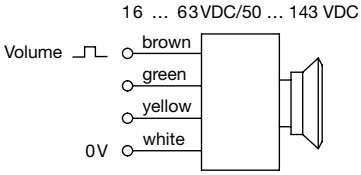
Wiring diagrams

5-Tone sequence



Wiring diagram 1

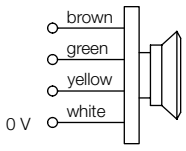
3-Tone sequence



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

Wiring diagram 2

6-Tone sequence



16 … 63 VDC

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

50 … 143 VDC

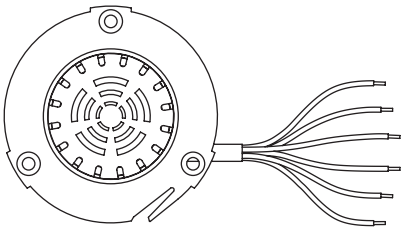
Tone	green	yellow	brown
1	50 – 143 VDC	0 V	0 V
2	0 V	50 – 143 VDC	0 V
3	50 – 143 VDC	50 – 143 VDC	0 V
4	0 V	0 V	50 – 143 VDC
5	50 – 143 VDC	0 V	50 – 143 VDC
6	0 V	50 – 143 VDC	50 – 143 VDC

Wiring diagram 3

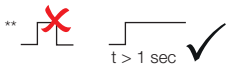
56 Front mounting

Component layouts

5-Tone sequence

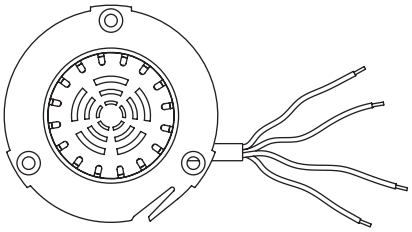


red (Tone sequence 1**)
blue (Tone sequence 2**)
yellow (Tone sequence 3**)
brown (Tone sequence 4**)
green (Tone sequence 5**)
white (0V)

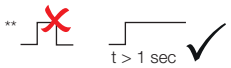


Bauteilelayout 4

3-Tone sequence

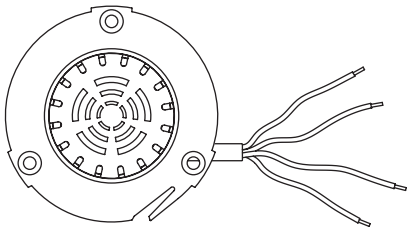


brown (Volume)
green (Tone sequence 1**)
yellow (Tone sequence 2**)
(Tone sequence 3)
white (0V)



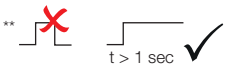
Bauteilelayout 5

6-Tone sequence



brown
green
yellow
white (0V)

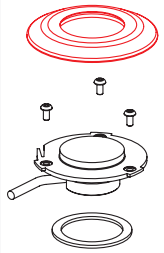
Tone sequence 1**: green
Tone sequence 2**: yellow
Tone sequence 3**: green/yellow
Tone sequence 4**: brown
Tone sequence 5**: brown/green
Tone sequence 6**: brown/yellow



Bauteilelayout 6

Flashing warning beacon

Equipment consisting of



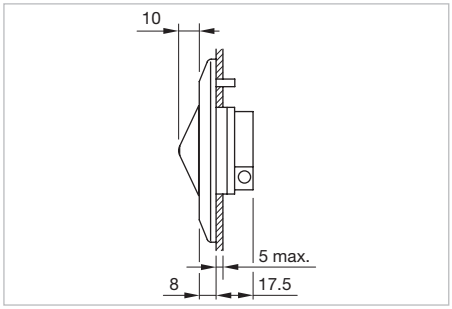
Front bezel Page 37

Indicator unit

Sealing

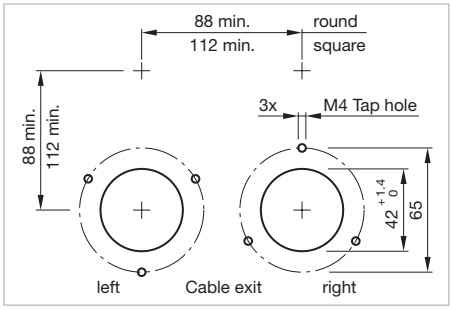
Each part listed below includes all the black components shown in the 3D-drawing.

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 ±30 %

Cable exit

☐ Cable exit right	☐ Cable exit left

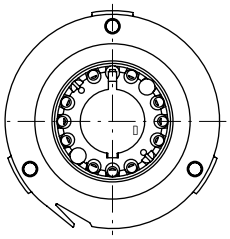
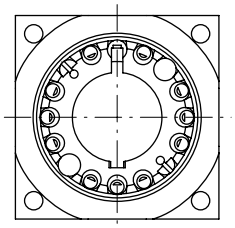
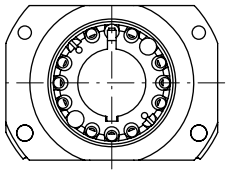
Cable length

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

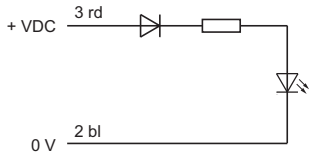
Cable and connector type

Cable	Connector
☐ 2 x 0.24 mm²	☐ 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)
	☐ _____

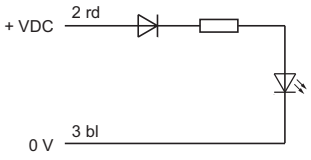
56 Front mounting

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

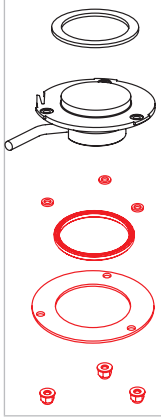
Component layouts

Standard type

Component layout 1

Single side indicator

Equipment consisting of



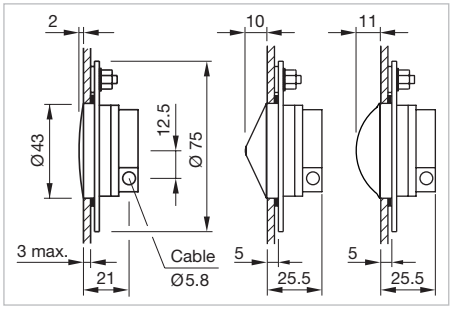
Sealing

Indicator unit

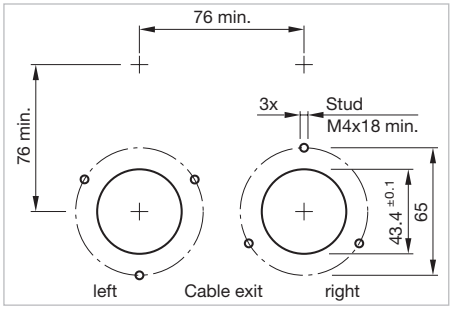
Mounting set Page 40

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]

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

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 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

☐	☐ DOOR LOCKED	☐ kg	☐ DOOR OUT OF ORDER	☐ TOILET ENGAGED	☐ WC Defekt	☐ DOOR OUT OF USE	☐ USE OTHER DOOR
☐ Door Not In Use	☐	☐	☐ DOOR OUT OF SERVICE	☐ Door not in use	☐	☐	☐ HORS SERVICE
☐ OCCUPÉ	☐ LIBRE	☐	☐ WC	☐ Door out of order	☐		

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

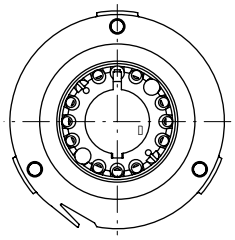
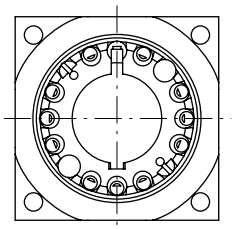
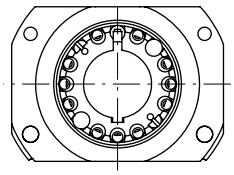
Cable length

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

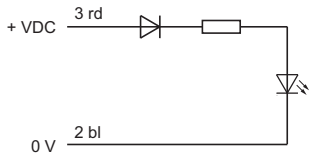
Cable and connector type

Cable	Connector
☐ 2 x 0.24 mm²	☐ 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)
	☐ _____

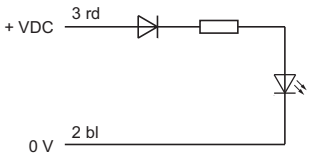
Housing

☐ Housing D73 (standard)	☐ Housing reworked 50 mm x 50 mm	☐ Housing reworked 68,5 mm x 50 mm
		

Wiring diagrams

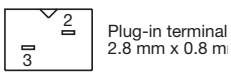


Wiring diagram 1



Wiring diagram 2

Component layouts

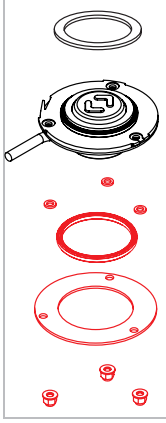


Standard type

Component layout 1

Single side pushbutton

Equipment consisting of



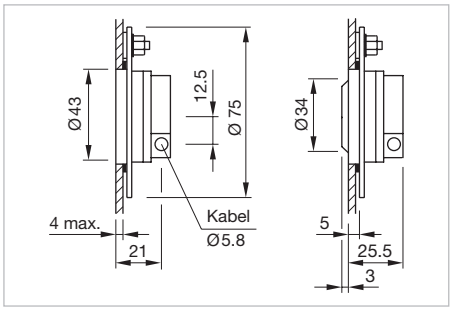
Sealing

Switching unit

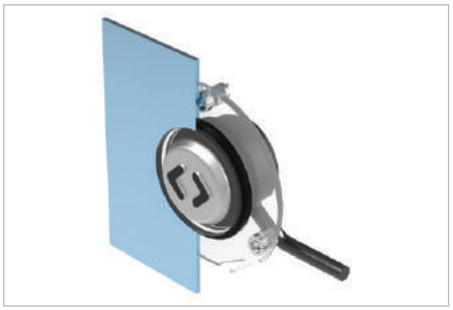
Mounting set Page 40

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

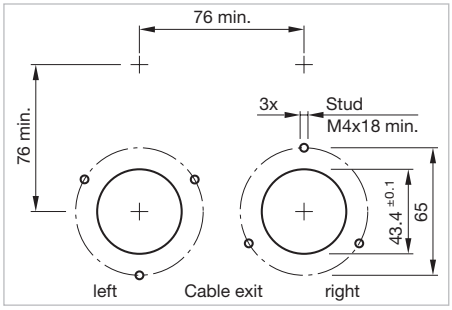
To obtain a complete unit, please select the red components from the pages shown.



Dimensions [mm]



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



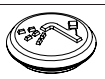
Mounting cut-outs [mm]

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

Lens		
☐ flush, plastic, colour similar RAL	☐ flush, aluminium	☐ raised, aluminium
☐ green RAL 6024	☐ naturel	☐ naturel
☐ red RAL 3020	☐ green	☐ green
☐ blue RAL 5017	☐ red	☐ red
☐ yellow RAL 1023	☐ blue	☐ blue
☐ grey RAL 7040	☐ yellow	☐ yellow
		☐ 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

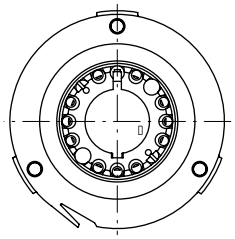
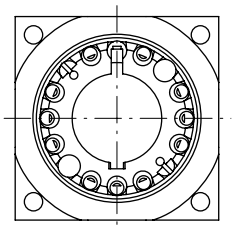
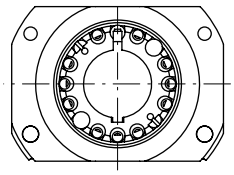
Supply voltage Illumination				
☐ 24 VDC	☐ 36 VDC	☐ 48 VDC	☐ 72 VDC	☐ 110 VDC

Tolerance –30 % … +25 %

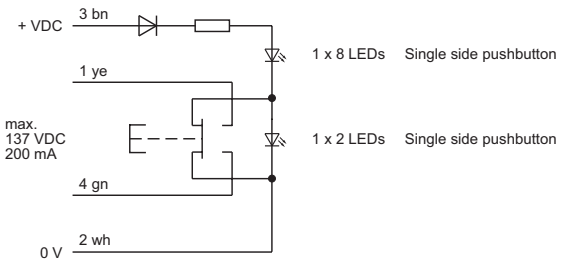
Cable exit	
☐ Cable exit right	☐ Cable exit left

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

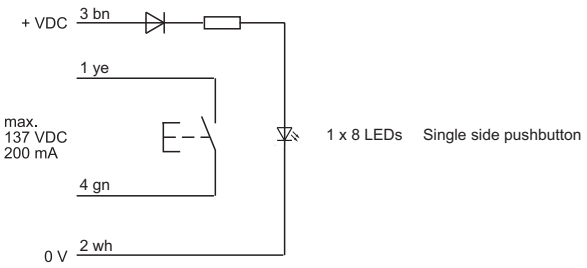
Cable and connector type	
Cable	Connector
☐ 2 x 0.5 mm² (Wiring diagram 5)	☐ Core end-sleeves
☐ 4 x 0.5 mm² (Wiring diagram 1, 2, 3, 4)	☐ AMP connector Mate-N-Lok (Wiring diagram 3, 4)
	☐ DEUTSCH connector (Wiring diagram 3, 4)
	☐ AMP connector 2.8 mm x 0.8 mm (Wiring diagram 1, 2))
	☐ AMP connector 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

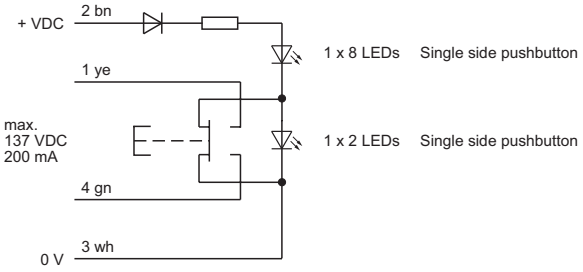


Wiring diagram 1

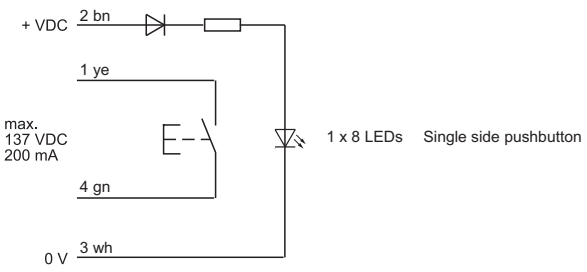


Wiring diagram 2

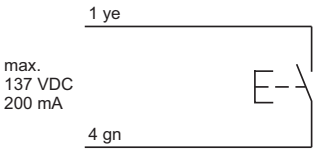
Wiring diagrams



Wiring diagram 3



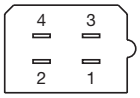
Wiring diagram 4



Wiring diagram 5

Component layouts

Plug-in terminal
2.8 mm x 0.8 mm

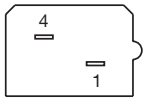


Plug-in terminal
6.3 mm x 0.8 mi

Standard type

Component layout 2

Plug-in terminal
2.8 mm x 0.8 mm



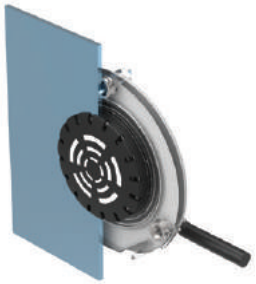
Plug-in terminal
6.3 mm x 0.8 mi

Standard type

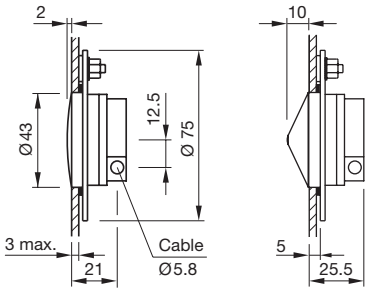
Component layout 3

56 Rear mounting

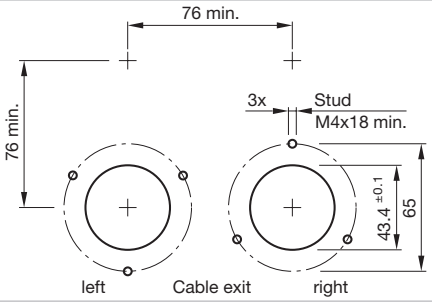
Multi-Ton Sound Modul



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



Dimensions [mm]

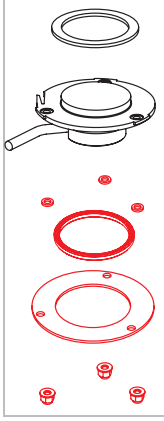


Mounting cut-outs [mm]

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

Equipment consisting of



Sealing

MTSM unit

Mounting set 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

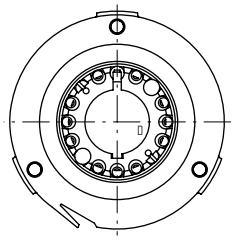
Cable length

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

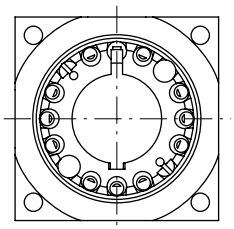
Cable and connector type	
Cable	Connector
☐ 4 x 0.25 mm²	☐ Core end-sleeves
☐ 4 x 0.5 mm²	☐ AMP connector Mate-N-Lok (Wiring diagram 3, 4)
☐ 6 x 0.5 mm²	☐ DEUTSCH connector (Wiring diagram 3, 4)
	☐ AMP connector 2.8 mm x 0.8 mm (Wiring diagram 1, 2))
	☐ AMP connector 6.3 mm x 0.8 mm (Wiring diagram 3,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

Housing

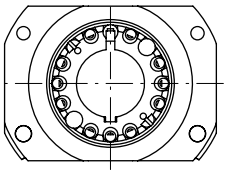
☐ Housing D73 (standard)



☐ Housing reworked 50 mm x 50 mm

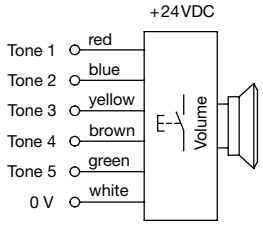


☐ Housing reworked 68.5 mm x 50 mm



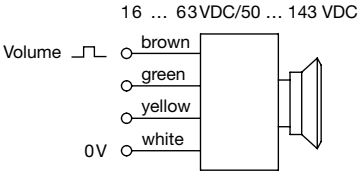
Wiring diagrams

5-Tone sequence



Wiring diagram 1

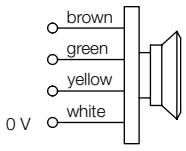
3-Tone sequence



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

Wiring diagram 2

6-Tone sequence



16 … 63 VDC

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

50 … 143 VDC

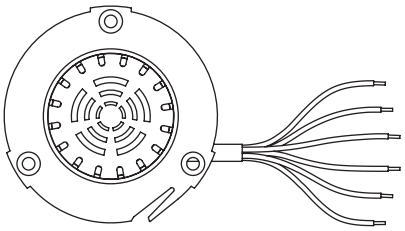
Tone	green	yellow	brown
1	50 – 143 VDC	0 V	0 V
2	0 V	50 – 143 VDC	0 V
3	50 – 143 VDC	50 – 143 VDC	0 V
4	0 V	0 V	50 – 143 VDC
5	50 – 143 VDC	0 V	50 – 143 VDC
6	0 V	50 – 143 VDC	50 – 143 VDC

Wiring diagram 3

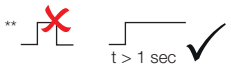
56 Rear mounting

Component layouts

5-Tone sequence

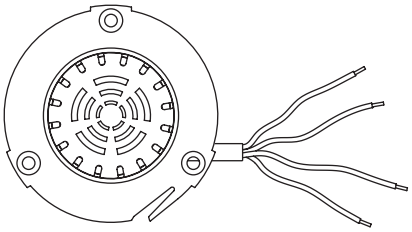


red (Tone sequence 1**)
blue (Tone sequence 2**)
yellow (Tone sequence 3**)
brown (Tone sequence 4**)
green (Tone sequence 5**)
white (0V)

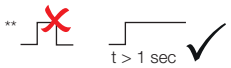


Bauteilelayout 4

3-Tone sequence

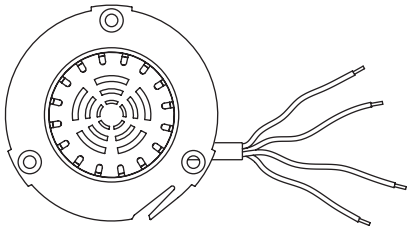


brown (Volume)
green (Tone sequence 1**)
yellow (Tone sequence 2**)
(Tone sequence 3)
white (0V)



Bauteilelayout 5

6-Tone sequence



brown
green
yellow
white (0V)

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

Bauteilelayout 6

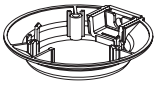
Single side pushbutton

Equipment consisting of

Front bezel Page 37

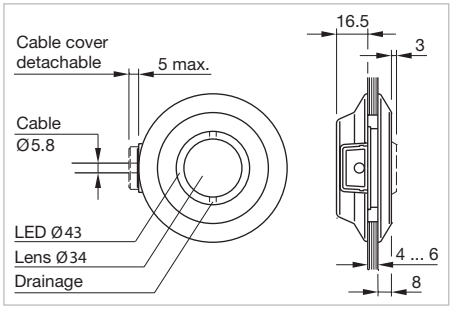
Switching unit

Cable cover standard or funnel

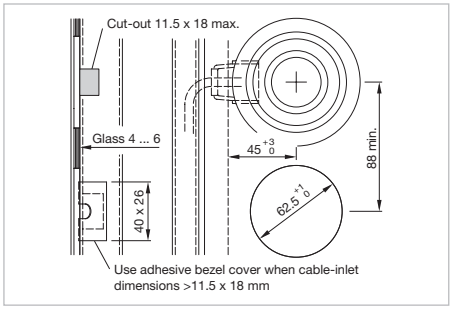

Cover

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

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



Dimensions [mm]



Mounting cut-outs [mm]

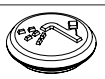
The preview is based on a sample product. This can differ from your current configuration.

Additional Information

- Front bezel Ø 87 mm
- Cable exit left
- Housing D73 (standard)
- 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		
☐ flush, plastic, colour similar RAL	☐ flush, aluminium	☐ raised, aluminium
☐ green RAL 6024	☐ naturel	☐ naturel
☐ red RAL 3020	☐ green	☐ green
☐ blue RAL 5017	☐ red	☐ red
☐ yellow RAL 1023	☐ blue	☐ blue
☐ grey RAL 7040	☐ yellow	☐ yellow
		☐ black

Lens marking
☐ without symbol

☐ with symbol aluminium, black anodised, 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 Glass 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 length				
☐ A = 200 mm	☐ A = 500 mm	☐ A = 1000 mm	☐ A = 1500 mm	☐ _____ mm

Cable and connector type	
Cable	Connector
☐ 2 x 0.5 mm² (Wiring diagram 5)	☐ Core end-sleeves
☐ 4 x 0.5 mm² (Wiring diagram 1, 2, 3, 4)	☐ 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)
	☐ _____

Cable cover standard

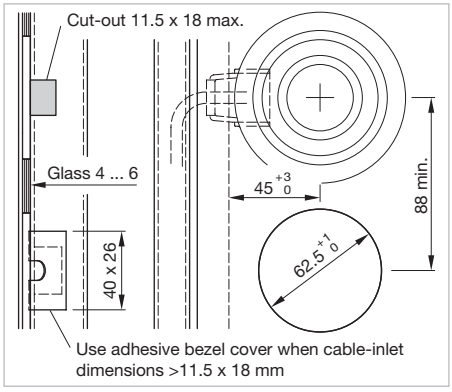
Product attribute	Cable cover	Part No.
☐ Included in standard delivery	standard 0°	56-992

Cable cover standard

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

Additional Information

- Additional cable covers are available on request.



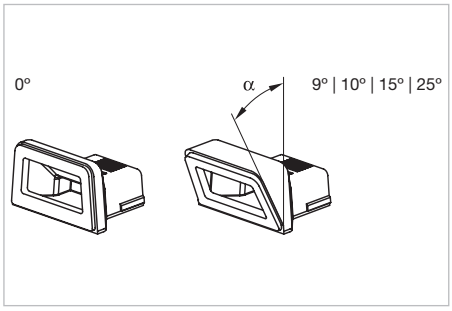
Mounting cut-outs [mm]

Cable cover funnel

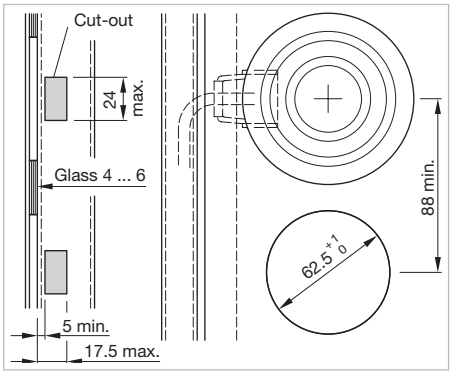
Cable cover	Part No.
☐ Funnel 0°	56-992B
☐ Funnel 10°	56-992C
☐ Funnel 15°	56-992D
☐ Funnel 25°	56-992E
☐ Funnel 9°	56-992F

Additional Information

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

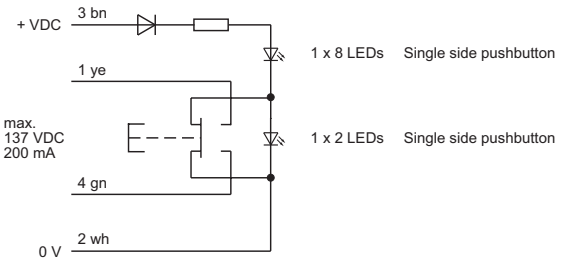


Dimensions [mm]

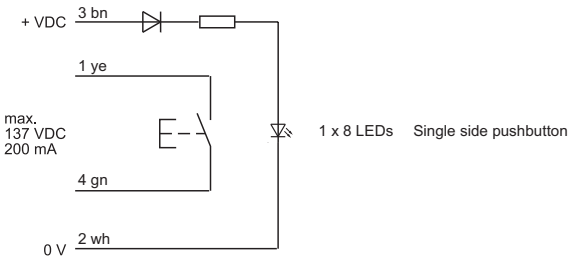


Mounting cut-outs [mm]

Wiring diagrams



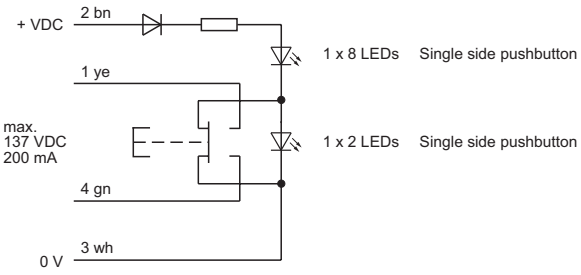
Wiring diagram 1



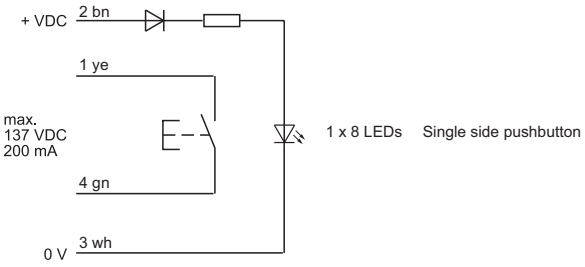
Wiring diagram 2

56 Glass mounting

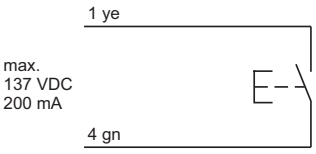
Wiring diagrams



Wiring diagram 3



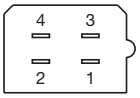
Wiring diagram 4



Wiring diagram 5

Component layouts

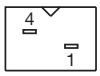
Plug-in terminal
2.8 mm x 0.8 mm



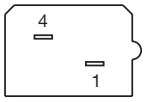
Plug-in terminal
6.3 mm x 0.8 m

Standard type

Component layout 2



Plug-in terminal
2.8 mm x 0.8 mm



Plug-in terminal
6.3 mm x 0.8 m

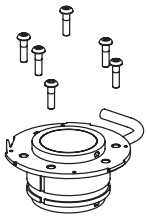
Standard type

Component layout 3

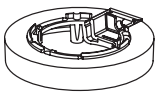
Double side pushbutton

Equipment consisting of

Front bezel Page 37


Switching unit

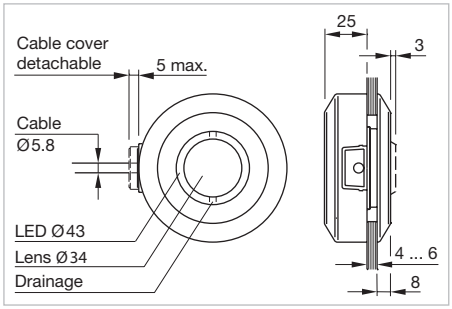
Cable cover standard or funnel


Flange

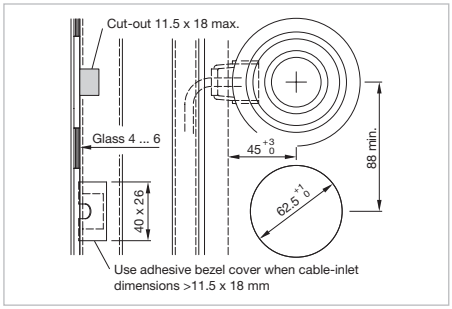
Front bezel internal Page 38

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		
☐ flush, plastic, colour similar RAL	☐ flush, aluminium	☐ raised, aluminium
☐ green RAL 6024	☐ naturel	☐ naturel
☐ red RAL 3020	☐ green	☐ green
☐ blue RAL 5017	☐ red	☐ red
☐ yellow RAL 1023	☐ blue	☐ blue
☐ grey RAL 7040	☐ yellow	☐ yellow
		☐ black

Lens marking						
☐ without symbol						
☐ with symbol aluminium, black anodised, 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 Glass 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 length				
☐ A = 200 mm	☐ A = 500 mm	☐ A = 1000 mm	☐ A = 1500 mm	☐ _____ mm

Cable and connector type	
Cable	Connector
☐ 2 x 0.5 mm² (Wiring diagram 5)	☐ Core end-sleeves
☐ 4 x 0.5 mm² (Wiring diagram 1, 2, 3, 4)	☐ 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)
	☐ _____

Cable cover standard

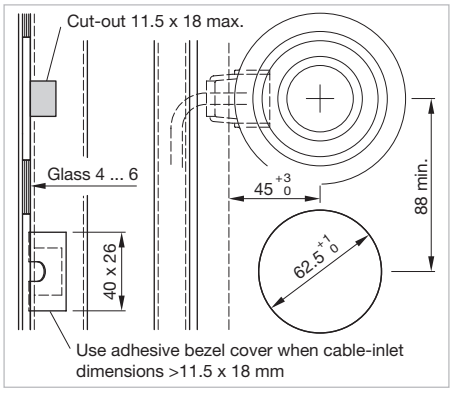
Product attribute	Cable cover	Part No.
☐ Included in standard delivery	standard 0°	56-992

Cable cover standard

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

Additional Information

- Additional cable covers are available on request.



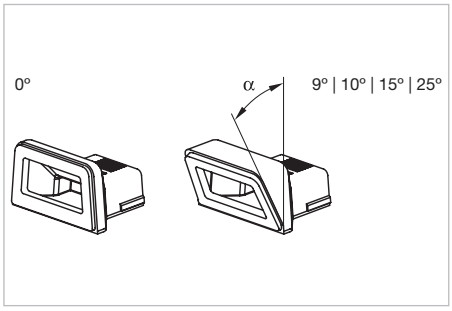
Mounting cut-outs [mm]

Cable cover funnel

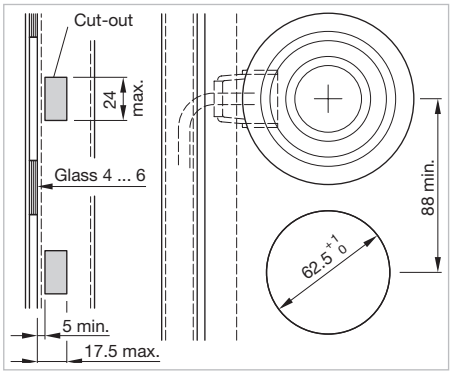
Cable cover	Part No.
☐ Funnel 0°	56-992B
☐ Funnel 10°	56-992C
☐ Funnel 15°	56-992D
☐ Funnel 25°	56-992E
☐ Funnel 9°	56-992F

Additional Information

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

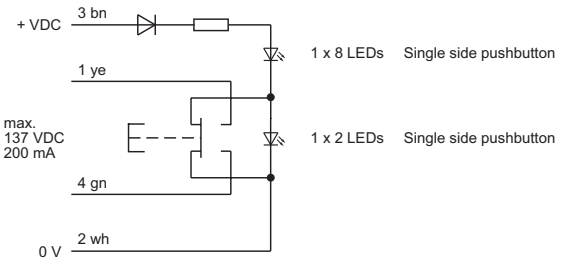


Dimensions [mm]

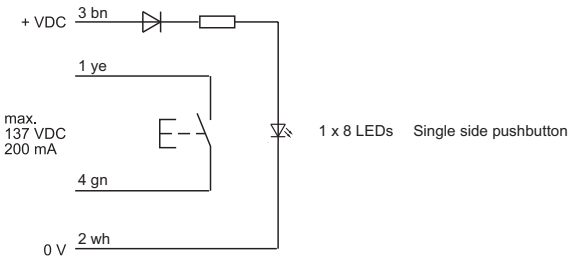


Mounting cut-outs [mm]

Wiring diagrams



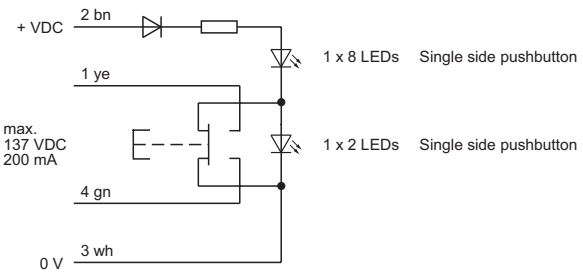
Wiring diagram 1



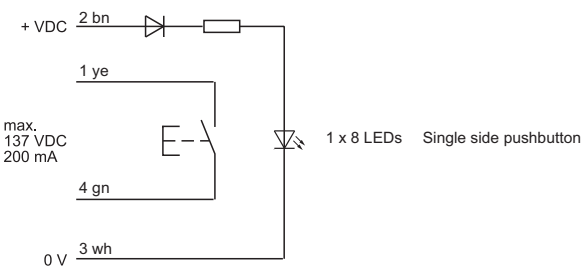
Wiring diagram 2

56 Glass mounting

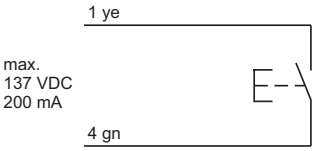
Wiring diagrams



Wiring diagram 3

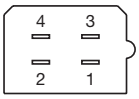


Wiring diagram 4



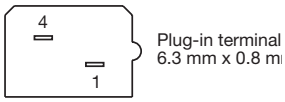
Wiring diagram 5

Component layouts



Standard type

Component layout 2



Standard type

Component layout 3

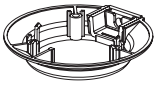
Multi-Ton Sound Modul

Equipment consisting of

Front bezel Page 37

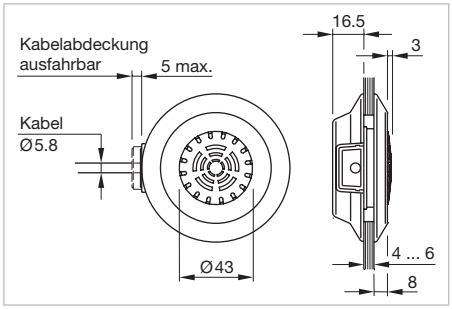
MTSM unit

Cable cover standard or funnel

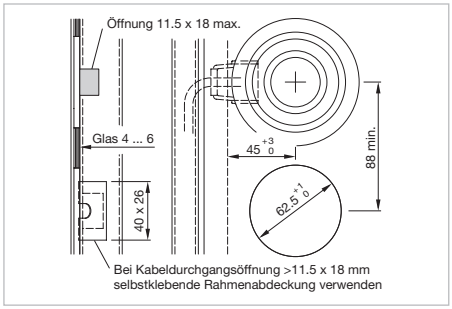

Cover

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

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



Dimensions [mm]



Mounting cut-outs [mm]

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

Additional Information

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

Front cap	
☐ Plastic black flush	☐ Plastic black raised

Front cap marking	
☐ without symbol	☐ with symbol

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

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

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

Tolerance ±30 %

Cable exit	
☐ cable exit right	☐ cable exit left

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

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

56 Glass mounting

Cable cover standard

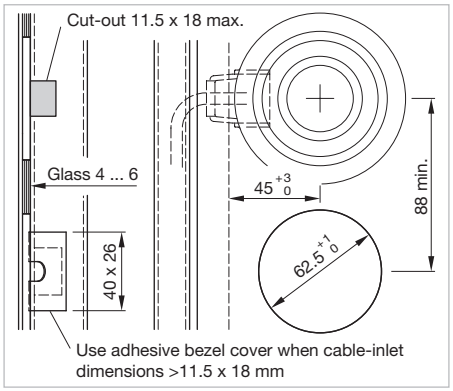
Product attribute	Cable cover	Part No.
☐ Included in standard delivery	standard 0°	**56-992**

Cable cover standard

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

Additional Information

- Additional cable covers are available on request.



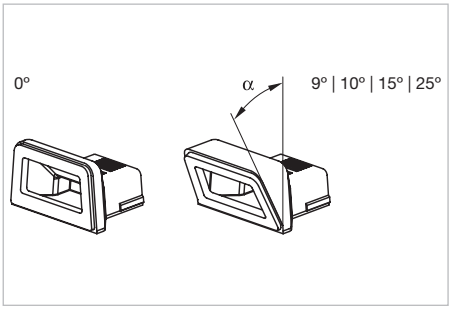
Mounting cut-outs [mm]

Cable cover funnel

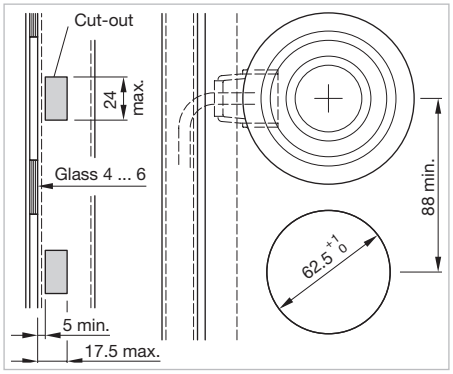
Cable cover	Part No.
☐ Funnel 0°	**56-992B**
☐ Funnel 10°	**56-992C**
☐ Funnel 15°	**56-992D**
☐ Funnel 25°	**56-992E**
☐ Funnel 9°	**56-992F**

Additional Information

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



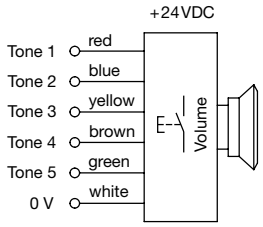
Dimensions [mm]



Mounting cut-outs [mm]

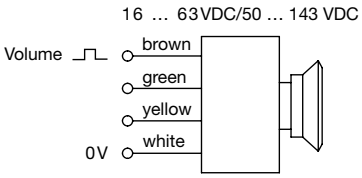
Wiring diagrams

5-Tone sequence



Wiring diagram 1

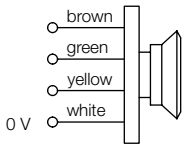
3-Tone sequence



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

Wiring diagram 2

6-Tone sequence



16 … 63 VDC

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

50 … 143 VDC

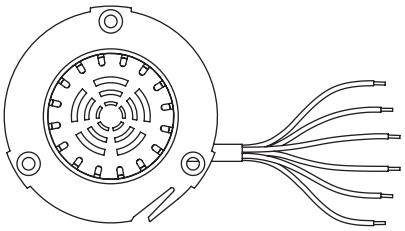
Tone	green	yellow	brown
1	50 – 143 VDC	0V	0V
2	0 V	50 – 143 VDC	0V
3	50 – 143 VDC	50 – 143 VDC	0V
4	0 V	0 V	50 – 143 VDC
5	50 – 143 VDC	0 V	50 – 143 VDC
6	0 V	50 – 143 VDC	50 – 143 VDC

Wiring diagram 3

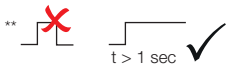
56 Glass mounting

Component layouts

5-Tone sequence

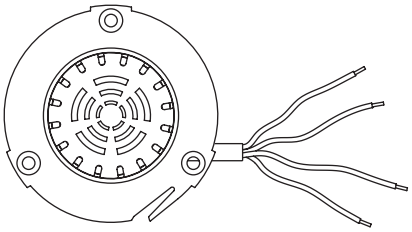


red (Tone sequence 1**)
blue (Tone sequence 2**)
yellow (Tone sequence 3**)
brown (Tone sequence 4**)
green (Tone sequence 5**)
white (0V)

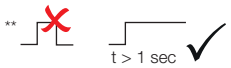


Bauteilelayout 4

3-Tone sequence

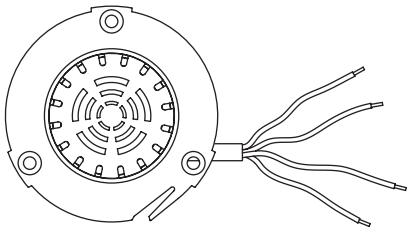


brown (Volume)
green (Tone sequence 1**)
yellow (Tone sequence 2**)
(Tone sequence 3)
white (0V)



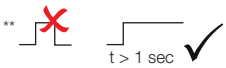
Bauteilelayout 5

6-Tone sequence



brown
green
yellow
white (0V)

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



Bauteilelayout 6

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, hight 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

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 6020	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

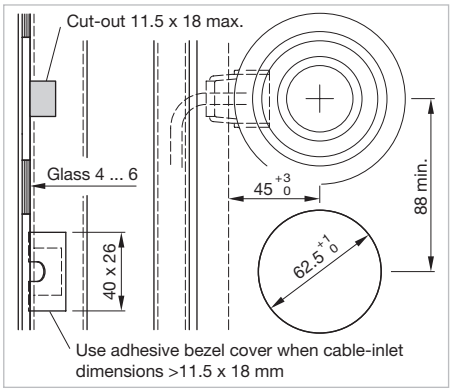
Product attribute	Cablecover	Part No.
☐ Included in standard delivery	standard 0°	56-992

Cable cover standard

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

Additional Information

- Additional cable covers are available on request



Mounting cut-outs [mm]

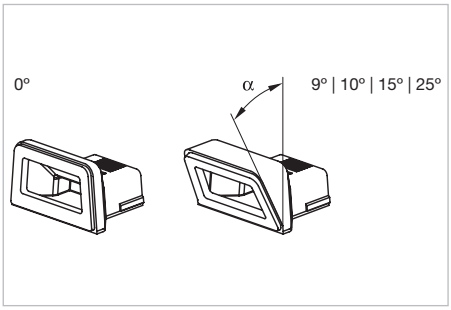
56 Components

Cable cover funnel

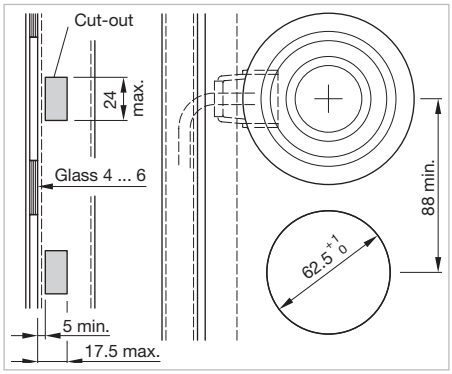
Cable cover	Part No.
☐ Funnel 0°	56-992B
☐ Funnel 10°	56-992C
☐ Funnel 15°	56-992D
☐ Funnel 25°	56-992E
☐ Funnel 9°	56-992F

Additional Information

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



Dimensions [mm]



Mounting cut-outs [mm]

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

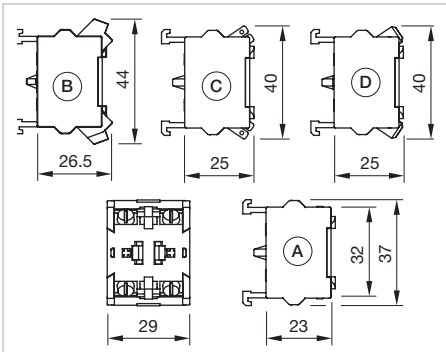
Snap-action switching element with push-in terminal

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

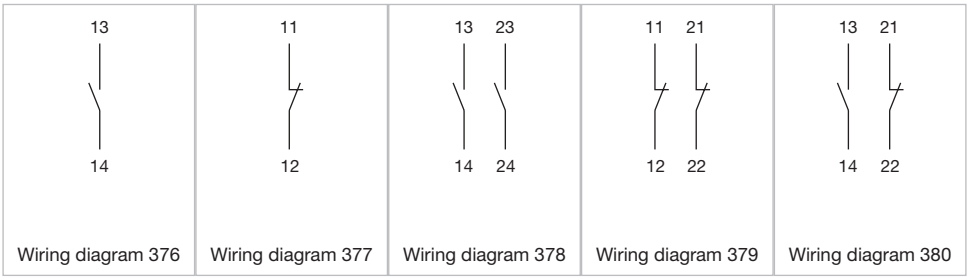
Additional information

- 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



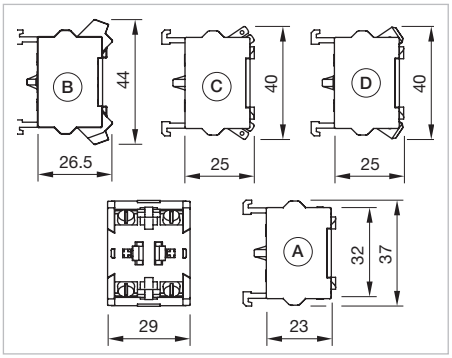
Slow-make switching element with push-in terminal

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

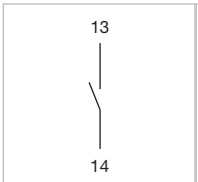
Additional information

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

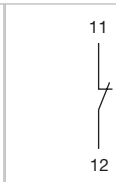


Dimensions [mm]
A = Screw terminal
B = Push-in terminal (PIT)
C = Plug-in terminal 6.3 mm x 0.8 mm
D = Double plug-in terminal 6.3 mm x 0.8 mm

Wiring diagrams

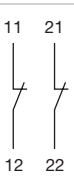


Wiring diagram 376

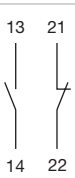


Wiring diagram 377

Wiring diagram 378



Wiring diagram 379



Wiring diagram 380

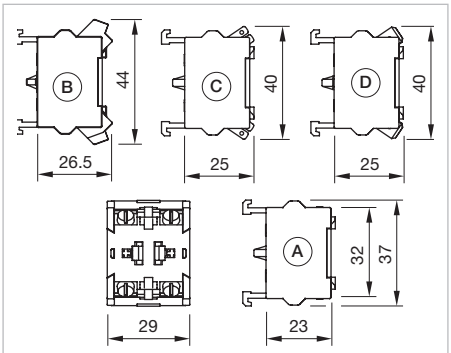
Snap-action switching element with plug-in terminal

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



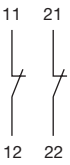
Dimensions [mm]
A = Screw terminal
B = Push-in terminal (PIT)
C = Plug-in terminal 6.3 mm x 0.8 mm
D = Double plug-in terminal 6.3 mm x 0.8 mm

Wiring diagrams

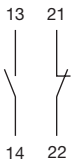
Wiring diagram 376

Wiring diagram 377

Wiring diagram 378



Wiring diagram 379



Wiring diagram 380

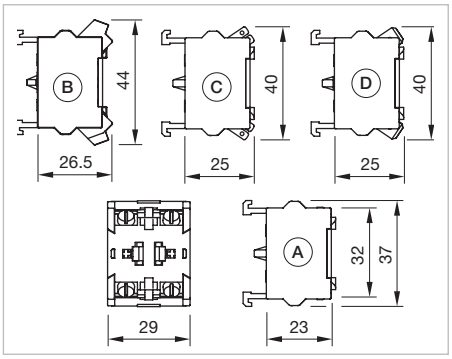
Slow-make switching element with plug-in terminal

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

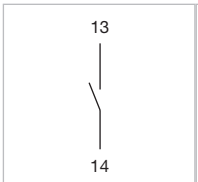
Additional information

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

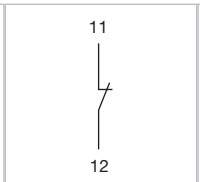


Dimensions [mm]
A = Screw terminal
B = Push-in terminal (PIT)
C = Plug-in terminal 6.3 mm x 0.8 mm
D = Double plug-in terminal 6.3 mm x 0.8 mm

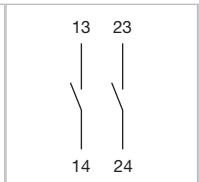
Wiring diagrams



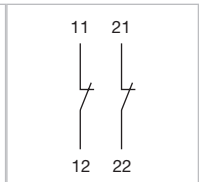
Wiring diagram 376



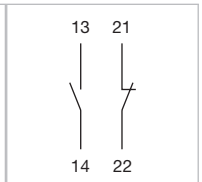
Wiring diagram 377



Wiring diagram 378



Wiring diagram 379



Wiring diagram 380

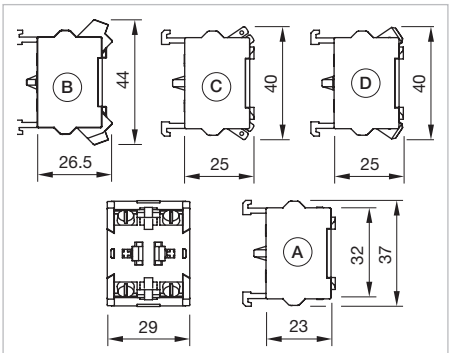
Snap-action switching element with double plug-in terminal

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

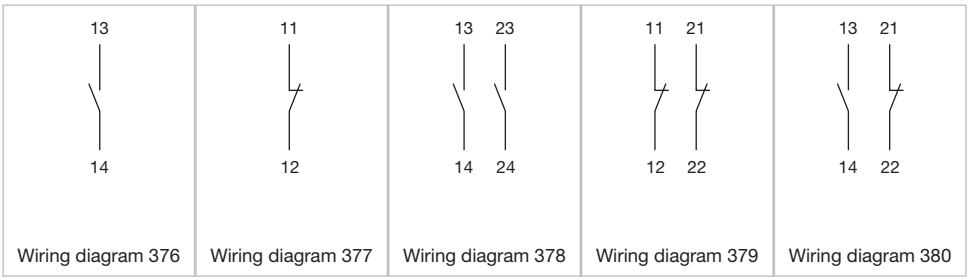
Additional information

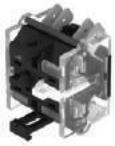
- For the third switching element the terminal marking insert is to be ordered separately
- The switching element is used for the lever switch



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





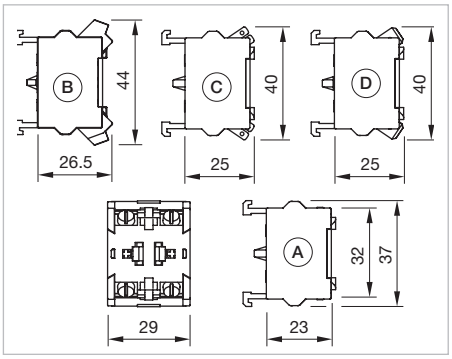
Slow-make switching element with double plug-in terminal

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

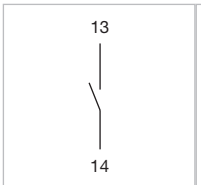
Additional information

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

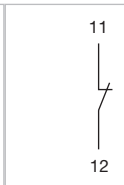


Dimensions [mm]
A = Screw terminal
B = Push-in terminal (PIT)
C = Plug-in terminal 6.3 mm x 0.8 mm
D = Double plug-in terminal 6.3 mm x 0.8 mm

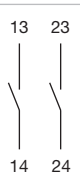
Wiring diagrams



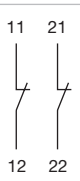
Wiring diagram 376



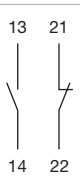
Wiring diagram 377



Wiring diagram 378



Wiring diagram 379



Wiring diagram 380

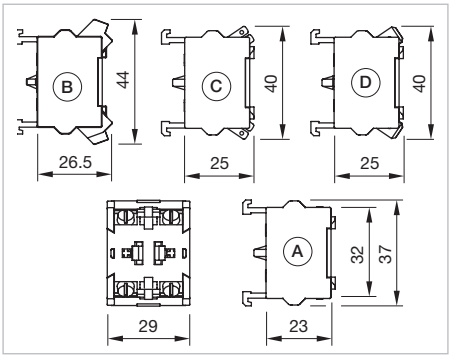
Snap-action switching element with screw terminal

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



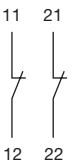
Dimensions [mm]
A = Screw terminal
B = Push-in terminal (PIT)
C = Plug-in terminal 6.3 mm x 0.8 mm
D = Double plug-in terminal 6.3 mm x 0.8 mm

Wiring diagrams

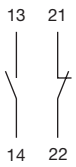
Wiring diagram 376

Wiring diagram 377

Wiring diagram 378



Wiring diagram 379



Wiring diagram 380

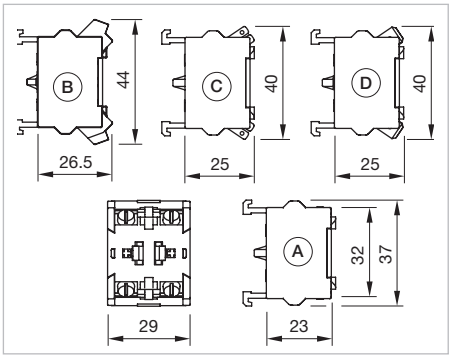
Slow-make switching element with screw terminal

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

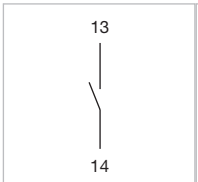
Additional information

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

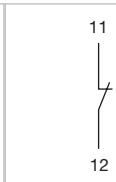


Dimensions [mm]
A = Screw terminal
B = Push-in terminal (PIT)
C = Plug-in terminal 6.3 mm x 0.8 mm
D = Double plug-in terminal 6.3 mm x 0.8 mm

Wiring diagrams

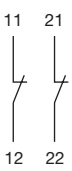


Wiring diagram 376

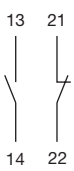


Wiring diagram 377

Wiring diagram 378



Wiring diagram 379

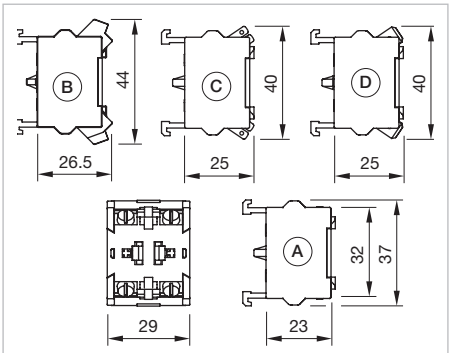


Wiring diagram 380

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



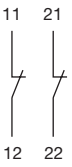
Dimensions [mm]
A = Screw terminal
B = Push-in terminal (PIT)
C = Plug-in terminal 6.3 mm x 0.8 mm
D = Double plug-in terminal 6.3 mm x 0.8 mm

Wiring diagrams

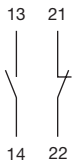
Wiring diagram 376

Wiring diagram 377

Wiring diagram 378



Wiring diagram 379

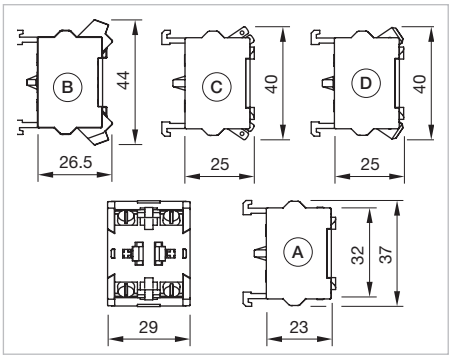


Wiring diagram 380

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

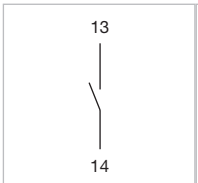
Switching voltage	Switching current	Contacts	Contact material	Part No.	Wiring diagram
500 V	10 A	1 NO	Silver	704.910.1B	376
	10 A	1 NC	Silver	704.910.2B	377
	10 A	2 NO	Silver	704.910.3B	378
	10 A	2 NC	Silver	704.910.4B	379
	10 A	2 NO	Gold-plated silver	704.911.3B	378
	10 A	2 NC	Gold-plated silver	704.911.4B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

Contacts: NC = Normally closed, NO = Normally open

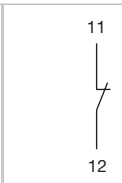


Dimensions [mm]
A = Screw terminal
B = Push-in terminal (PIT)
C = Plug-in terminal 6.3 mm x 0.8 mm
D = Double plug-in terminal 6.3 mm x 0.8 mm

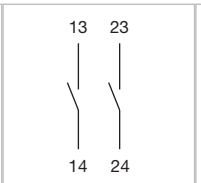
Wiring diagrams



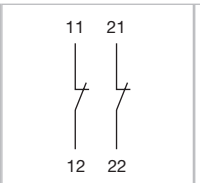
Wiring diagram 376



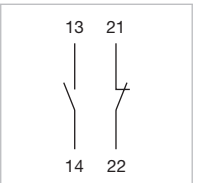
Wiring diagram 377



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 dismounting of ront 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 r egarding 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 mm^2

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

Vibration resistance
(sinusoidal)
max. 100 m / s² at 10 Hz … 500 Hz, 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. 0.5 Nm) 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 × 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)

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)

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.

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

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

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

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
e1
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

56 Technical data

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

Slow-make switching element

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-makecontacts 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).

Material

Material of contact
Hardsilver, gold-silver, silver-palladium (for aggressive atmospheres)

Switch housing
Plastic

Mechanical characteristics

Terminals
Screw terminals
Plug-in terminals 6.3 mm x 0.8 mm
max. wire cross-section 2 x 2.5 mm²
max. wire cross-section of stranded cable 2 x 1.5 mm²
For switches with plug-in terminals it is necessary to provide insulation sleeves and to maintain a spacing of 65 mm between rows (mounting cut-outs)

Tightening torque
Screws at the mounting flange plastic max. 0.40 … 0.50 Nm
Screws at the mounting flange metal max. 0.25 … 0.30 Nm
Screws at switching element max. 0.50 Nm

Actuating force
1 Normally closed 2 N
1 Normally open 3.1 N

Actuating travel
Ca. 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 VAC/600 VDC, as per DIN EN 60947-5-1

Electrical life
50 000 cycles of operations

Thermal current I_{th}
10 A

Switching voltage and switching current
as per EN IEC 60947-5-1

AC-15: 230 V, 7 A	AC-15: 400 V, 5 A
AC-15: 500 V, 4 A	DC-13: 24 V, 10 A
DC-13: 60 V, 5 A	DC-13: 110 V, 2.5 A

Recommended minimum operational data
Gold-silver contacts:

Voltage	24 VDC	110 VDC
Current	5 mA	2 mA

Hardsilver 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
–25 °C … +55 °C

Protection degree
IP00

Shock resistance
(single impacts, semi-sinusoidal)
300 m/s² puls 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

Approvals

Approbations
CB (IEC 60947-5-1 ,IEC60947-5-5))
CCC
CSA
Germanischer Lloyd
EAC
UL
SEV (EN 60947-5-1, EN 60947-5-5)

Conformities
CE
2014/35/EU (LVD)
2011/65/EC (RoHS)

56 Technical data

Snap-action switching element

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

Material of contact
Hardsilver, gold-silver, silver-palladium (for aggressive atmospheres)

Switch housing
Plastic

Mechanical characteristics

Terminals
Screw terminals
Plug-in terminals 6.3 mm x 0.8 mm
max. wire cross-section 2 x 2.5 mm²
max. wire cross-section of stranded cable 2 x 1.5 mm²
For switches with plug-in terminals it is necessary to provide insulation sleeves and to maintain a spacing of 65 mm between rows (mounting cut-outs)

Tightening torque
Screws at the mounting flange plastic max. 0.40 … 0.50 Nm
Screws at the mounting flange metal max. 0.25 … 0.30 Nm
Screws at switching element max. 0.50 Nm

Actuating force
1 Normally closed 1.9 N
1 Normally open 2 N

Actuating travel
Ca. 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 VAC / 600 VDC, as per DIN EN 60947-5-1

Electrical life
50 000 cycles of operations

Thermal current I_{th}
10 A

Switching voltage and switching current
as per EN IEC 60947-5-1 (cosφ 0.3)

AC-15: 230 V, 6 A	AC-15: 400 V, 4 A
AC-15: 500 V, 42,5 A	DC-13: 24 V, 10 A
DC-13: 60 V, 3 A	DC-13: 110 V, 1 A

Recommended minimum operational data
Gold-silver contacts:

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

Hardsilver 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
–25 °C … +55 °C
(other temperatures on request)

Protection degree
IP00

Shock resistance
(single impacts, semi-sinusoidal)
300 m / s² puls width 11 ms, as per DIN EN 60068-2-27

Vibration resistance
(sinusoidal)
100 m9 / s² at 10 Hz … 500 Hz, amplitude 0.75 mm, as per DIN EN 60068-2-6

Approvals

Approbations
CB (IEC 60947-5-1)
CCC
CSA
Germanischer Lloyd
EAC
UL
SEV (EN 60947-5-1

Conformities
CE
2014/35/EU (LVD)
2011/65/EC (RoHS)

Slow-make switching element PIT

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).

Material

Material of contact
Hardsilver and gold-silver

Switch housing
Plastic

Mechanical characteristics

Terminals
PIT push-in terminal
Skinning 8 mm
Wire cross-section:
Wire 0.2 to 1.0 mm²
Stranded wire 0.2 to 1.0 mm² without core and sleeve
Stranded wire 0.2 to 0.75 mm² with core and sleeve

Tightening torque
Screws at the mounting flange max. 0.25 Nm

Actuating force
1 Normally closed 2 N
1 Normally open 3.1 N

Actuating travel
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 VAC/600 VDC, as per DIN EN 60947-5-1

Electrical life
50 000 cycles of operations

Thermal current I_{th}
6 A

56 Technical data

Switching voltage and switching current
as per DIN EN 60947-5-1
AC-15: 230 V, 6 A
DC-13: 24 V, 6 A
DC-13: 60 V, 3 A
DC-13: 110 V, 1 A

Recommended minimum operational data
Gold-silver contacts:
Voltage 24 VDC
Current 5 mA

Hardsilver 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
–25 °C … +55 °C

Protection degree
IP20

Shock resistance
(single impacts, semi-sinusoidal)
300 m/s² puls width 11 ms, as per DIN EN 60068-2-27

Approvals

Approbations
CB (IEC 60947-5-1, IEC 60947-5-5)
CCC
CSA
Germanischer Lloyd
EAC
UL
SEV (EN 60947-5-1, EN 60947-5-5)

Conformities
CE
2014/35/EU (LVD)
2011/65/EC (RoHS)

Snap-action switching element PIT

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

Material of contact
Hardsilver and gold-silver

Switch housing
Plastic

Mechanical characteristics

Terminals
PIT push-in terminal
Skinning 8 mm
Wire cross-section:
Wire 0.2 to 1.0 mm²
Stranded wire 0.2 to 1.0 mm² without core and sleeve
Stranded wire 0.2 to 0.75 mm² with core and sleeve

Tightening torque
Screws at the mounting flange max. 25 Ncm

Actuating force
1 Normally closed 1.9 N
1 Normally open 2 N

Actuating travel
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 VAC / 600 VDC, as per DIN EN 60947-5-1

Electrical life
50 000 cycles of operations

Thermal current I_{th}
6 A

Switching voltage and switching current
as per DIN EN 60947-5-1
AC-15: 230 V, 6 A
DC-13: 24 V, 6 A
DC-13: 60 V, 3 A
DC-13: 110 V, 1 A

Recommended minimum operational data
Gold-silver contacts:
Voltage 24 VDC
Current 5 mA

Hardsilver 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
–25 °C … +55 °C
(other temperatures on request)

Protection degree
IP20

Shock resistance
(single impacts, semi-sinusoidal)
300 m / s² puls 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

Approvals

Approbations
CB (IEC 60947-5-1)
CSA
Germanischer Lloyd
EAC
UL
SEV (EN 60947-5-1)

Conformities
CE
2014 / 35 / EU (LVD)
2011 / 65 / EC (RoHS)

EAO reserves the right to alter specifications without further notice.

Suppressor circuits

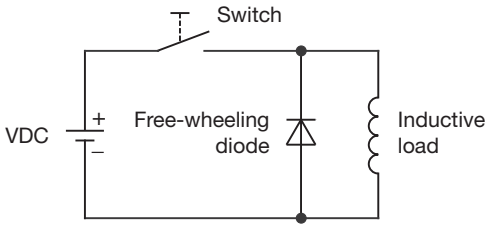
When switching inductive loads such as relays, DC motors, and DC solenoids, it is always important to absorb surges (e. g. with a diode) to protect the contacts. When these inductive loads are switched off, a counter emf can severely damage switch contacts and greatly shorten lifetime.

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

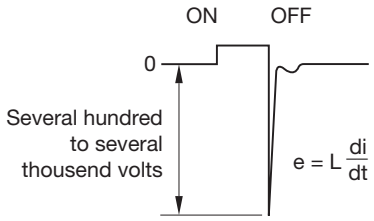
The free-wheeling diode should be chosen so that the reverse breakdown voltage is greater than the voltage driving the inductive load. The DC blocking voltage (VR) of the free-wheeling diode can be found in the datasheet of a diode. The forward current should be equal or greater than the maximum current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

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

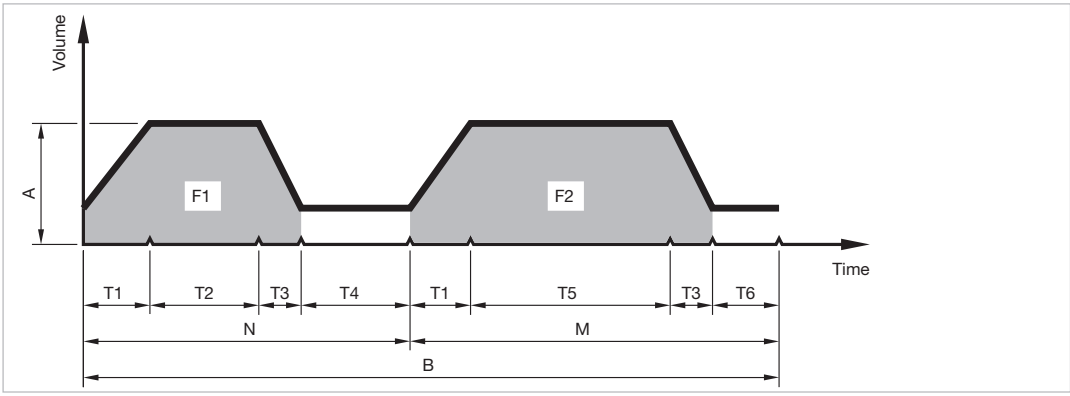
Switching with inductive load
Fig. 1



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

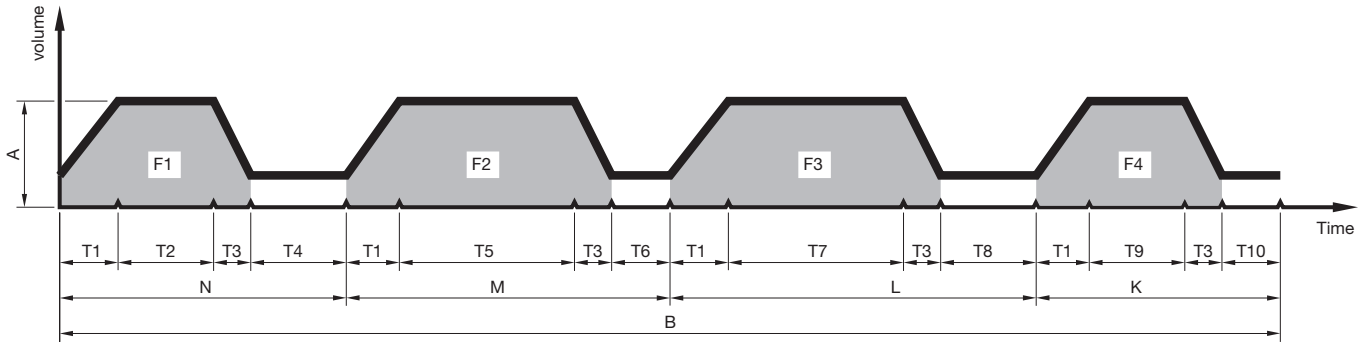
Tone sequences 1-3 Transportation (T1)				
	Parameter	Sequence 1 Door enabled	Sequence 2 Door closing	Sequence 3 Signal for visual impaired people
Tone 1	F1	1500 Hz	1900 Hz	600 Hz
	T2	∞	50 ms	50 ms
	T4	250 ms	50 ms	20 ms
	N	∞	∞	2
Tone 2	F2	deactivated	deactivated	500 Hz
	T5	deactivated	deactivated	1000 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

56 Application guidelines

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	–	–	–	–
	M	deactivated	deactivated	–	–	–	–
Tone 3	F3	deactivated	deactivated	–	–	–	–
	T7	deactivated	deactivated	–	–	–	–
	T8	deactivated	deactivated	–	–	–	–
	L	deactivated	deactivated	–	–	–	–
Tone 4	F4	deactivated	deactivated	–	–	–	–
	T9	deactivated	deactivated	–	–	–	–
	T10	deactivated	deactivated	–	–	–	–
	K	deactivated	deactivated	–	–	–	–
General	A	48 dB (A) @ 1.5 m	48 dB (A) @ 1.5 m	–	–	–	–
	D	+5 db	+5 db	–	–	–	–
	B	∞	∞	–	–	–	–
	T1	0 ms	0 ms	–	–	–	–
	T3	0 ms	0 ms	–	–	–	–

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TecnelSystem S.p.A.

equipaggiamenti elettrici industriali

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TECNEL SYSTEM S.p.A. - Via Brunico 15 - 20126 Milano - Tel. 02 2578803 (r.a.) Fax 02 27001038 -
Cert.CSQ-IQNet ISO9001:2015 N. 9101TNLS www.tecnelsystem.it e-mail: tecnel@tecnelsystem.it