



TSL - Trust Your Senses to a Proven Partner



PUSH BUTTONS,
DISPLAY DEVICES,
AND LIGHTS



Public Transportation

PRODUCTS FOR DOOR AREAS

APPLICATION EXAMPLE: LIGHT RAIL VEHICLES



LARGE VARIETY FOR INDIVIDUAL APPLICATIONS

During entry and exit of passengers there is always a lot of activity in the door area of rail vehicles. Getting on and off happens within a very short time at regularly scheduled stops. Passenger safety is a top priority. TSL-ESCHA GmbH offers a large product portfolio for the door entry area in order to enable all passengers a reliable, safe and comfortable leaving and entering of the vehicle.

An application example for light rail traffic shows the special challenges. Due to a quick and frequent passenger change, the buttons are exposed to a high operating frequency. In addition, acoustic and optical elements are required to signal dangers.

Solutions from TSL-ESCHA:

- Push Buttons that operate reliably for millions of switching cycles
- Signal Lights with increased lateral visibility and high luminosity
- Acoustic Warning Devices with dynamic auto-adjustment of sound levels according to ambient noise
- Vandal-proof and robust products guarantee an extended life time

HIGHLIGHTS



CONFORMITY

Push buttons, LED lights, and audible warning panels meet the standards for side entrance systems DIN EN 14752, fire protection standards DIN EN 45545-2 as well as TSI PRM and DIN EN 16584-2 with special focus on people with reduced mobility. The newly developed emergency button conforms to DIN EN 16683. The front side IP67 protection guarantees that all products are both dust and waterproof.



ACCESSIBILITY

Large touch surface, LEDs with optimal brightness, Braille, and acoustic warning signals make traffic easier and safer, especially for visual or hearing impaired passengers or for people with reduced mobility.



CONFIGURATION

Various switching functions, light and sound signals, pictographs, touch surfaces, and housing colors may be combined in many ways. Customized requests are fulfilled by numerous product variants and new developments.



PERSONALIZED

In addition to a wide product range for buses, railway vehicles, and industry, TSL-ESCHA offers expertise and know-how on special assignments. New ideas for innovation and suggestions for product variations are appreciated and punctually implemented. TSL-ESCHA accomplishes personalized solutions for every project.



USER-FRIENDLY

Thanks to a wide range of mounting options, pre-assembled panels, and self-explanatory wiring systems, the assembly of TSL products is as operator-friendly as possible. Product features like good visual perceptibility of push buttons, light efficiency, and thermo management of TSL lights offer passengers more comfort and safety.



ROBUST AND LOW-MAINTENANCE



Robust and leak-proof housings make TSL products resistant to cleaning chemicals, acts of vandalism, and other environmental impacts. Their construction ensures reliability in all climate zones regardless of extreme temperatures, dust, or humidity.






TSL PRODUCTS FOR DOOR AREAS



TOUCH - SIGNAL - LIGHT

TSL-ESCHA excels at product diversity of push buttons, signal lights, signal devices, and wiring systems for road and rail vehicles. Through product variations or new developments a personalized solution for every bus or rail vehicle, interior or exterior, is accomplished.

TSL products comply with all current railway standards and regulations, fire protection standards DIN EN 45545-2 as well as TSI-PRM and DIN EN 14752. Many products focus on people with reduced mobility and people with visual or hearing impairment. In addition, other product features for reliable operation in door areas are listed below and overleaf.

Push Buttons	PK	CK	PK52	MP	HST
					
* Characteristics according to product type					
Product features					
Configurable: color, LEDs, light signals, pictographs and sound signals	x	x	x	x (except sound signals)	x (except sound signals)
Stainless steel front panel (optional)		x	x		
Backlit touch surface (optional)					x
two-sided function available (optional)	x	x			
Ready to connect wired panel available		x		x	
TSI-PRM conformity	x	x	x		x
Braille/Tactile pictograph (optional)	x	x	x		x
Extra large touch surface		x	x		
Tactile switching		x	x		x
Front protection level	IP67	IP67	IP67	IP67	IP40
Resistance to cleaning chemicals	x	x	x	x	x
Coating against graffiti removers (optional)	x	x	x		
Protection against unintentional triggering (optional)			x		x
Voltage	24 V _{DC} /36 V _{DC}	24 V _{DC}	24 V _{DC} /36 V _{DC}	24 V _{DC} /36 V _{DC}	24 V _{DC}
Dimensions	Ø 110 mm	Ø 110 mm	Ø 110 mm	Ø 110 mm	Ø 110 mm

LED Lights	ELS52	PL30	TL83	EL50	EL50 - DIFFUS
					
* Characteristics according to product type					
Product features					
Robust housing technology	x	x	x	x	x
Housing material	Rubber	Aluminum	Die-cast aluminum	Aluminum	Aluminum
Front panel material	Stainless steel	-	-	Stainless steel	Stainless steel
Cover material	Glass	Glass	Glass	Glass	Glass
Front protection level	IP67	IP67	IP67	IP67	IP67
Resistance to cleaning	x	x	x	x	x
Angle of radiation	Spot 32°	80°x120°	80°/120°, diffuse	Spot, 32°/14x49°	120°, diffuse
Voltage	24 V _{DC} /36 V _{DC}	24 V _{DC} /36 V _{DC}	24 V _{DC} /36 V _{DC}	24 V _{DC} /36 V _{DC}	24 V _{DC} /36 V _{DC}
Dimensions	Ø 87 mm, EB Ø 50 mm, ET Ø 26 mm	L: 420 o. 820 mm, B: 45,5 mm, H: 27 mm	L: 120 mm, B: 25 mm, H: 13 mm	Ø 90 mm	Ø 90 mm

TSG101	TSG108
	
x	x
x	x
x	x
x	x
IP54	IP54
x	x
24 V _{DC}	24 V _{DC}

ELK50	VL55
	
x	x
Aluminum	Aluminum
Stainless steel	-
Glass	Plastics
IP67	IP20
x	x
120°, diffuse raised glass dome	80°, diffuse
24 V _{DC} /36 V _{DC}	24 V _{DC}
Ø90mm	L: 350 - 1.750 mm, B: 83 mm, H: 47 mm





LED Signal Lights

* Characteristics according to product type

Product features

Housing material

Front panel material

Cover material

Number of light colors

Blinking function (optional)

Sound signals

Enhanced lateral visibility (optional)

Operating voltage

Dimensions

Front protection level

Resistance to cleaning chemicals

Audible Warning Panels

* Characteristics according to product type

Product features

Red and green LEDs

Individual on-site parameter setting

Dynamic auto-adjustment of sound levels according to ambient noise

Tones especially for passengers with hearing impairments (TSI-PRM)

Speech output (WAV)

Max. achievable sound pressure

Front protection level

Voltage

Dimensions

Display Devices

* Characteristics according to product type

Product features

Pictograph/text configurable

Blinking function (optional)

Front protection level





Resistance to cleaning chemicals


Voltage





Dimensions

Wiring systems

LS	SLR120	TL83	SLE160	SLE150	PL13	SL63
						
Aluminum	Plastics	Die-cast aluminum	Plastics	Plastics	Aluminum	Plastics
Plastics	Plastics	-	-	Stainless steel	-	Stainless steel
Plastics	Plastics	Glass	Plastics	Glass	Plastics	Glass
7	1-2	1	1	1-2	7	1
	x		x		x	
	x		x		x	
24V _{DC}	24V _{DC} or 110V _{DC}	24V _{DC}	24V _{DC} or 110V _{DC}	24V _{DC} or 110V _{DC}	24V _{DC}	24V _{DC} or 110V _{DC}
L: ≤1.450mm, B: ≤28,5mm, H: ≥26mm Front IP67	Ø 120mm	L: 120mm, B: 25mm, H: 13mm IP67	L: 160mm, B: 56mm, H: 15mm IP44 or IP67	L: 200mm, B: 50mm, H: 43mm IP67	L: 509/1.009mm, B: 38mm, H: 22mm IP20 or IP44	Ø 100mm IP67
x	x	x	x	x	x	x

WM87	PKW21	SM87	SM87V
			
x	x	x	x
x	x	x	x
x	x	x	x
x		x	x
75 dBA/80 dBA	75 dBA/80 dBA	75 dBA/80 dBA	100 dBA
IP67	IP67	IP20	IP40
24V _{DC} /110V _{DC}	24V _{DC} /110V _{DC}	24V _{DC} /110V _{DC}	24V _{DC} /110V _{DC}
Ø 87 or 100mm	Ø 87mm	Ø 87mm	Ø 87mm

MLS52	ML63	ML100	PKM	PKM52
				
x	x	x	x	x
x	x			
IP67	IP67	IP44	IP67	IP67
x	x	x	x	x
24V _{DC} /36V _{DC}	24V _{DC}	24V _{DC}	24V _{DC}	24V _{DC}
Ø 87mm	Ø 100mm	L: 162mm, B: 103mm, H: 32mm	Ø 87mm	Ø 87mm

CONNECTION PLUG	CONNECTION CABLE	JUNCTION BOX	ALL COMPONENTS
			
<ul style="list-style-type: none"> . Proven in industry and public transportation . The right connector for every connection situation 	<ul style="list-style-type: none"> . Makes TSL products connect in series 	<ul style="list-style-type: none"> . Fully encapsulated . Distributes signals of several connected devices 	<ul style="list-style-type: none"> . Compact . Vibration resistant . Dust and humidity protected IP67



COMPETENT PARTNER!

TSL-ESCHA GmbH

TSL stands for Touch Signal Light! The company is a global market leader for door push buttons, signal lighting as well as audible warning devices for the public transportation area. All products are in compliance with TSI PRM. For these product families, LED technology was already used from the mid-eighties.

The successful concept of "Signaling with LEDs" allowed to develop first LED lights for rail and emergency vehicles. For several years now, robust LED solutions for industrial applications and LED work stations have completed the product range. TSL is a partner of the international TURCK Group of Companies.

IMPRESSUM

Published by: TSL-ESCHA GmbH
Elberfelder Str. 1 | 58553 Halver | Germany
Tel.: +49 2353 66796-0 | Fax: +49 2353 66796-799

© TSL-ESCHA GmbH all rights reserved
Graphic: PUNKTUELL. DAS DESIGNBUERO
Schlachthofstraße 71 | 42897 Remscheid
Photography: STECKEN FOTODESIGN, Adobe Stock

TOUCH . SIGNAL . LIGHT

TSL - A Partner of the TURCK Group