



TSL - Trust Your Senses to a Proven Partner



PUSH BUTTONS,  
DISPLAY DEVICES,  
AND LIGHTS



Public Transportation

PRODUCTS FOR  
DOOR AREAS

# 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 variation 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 16584-2. Many products focus on people with reduced mobility and people with visual or hearing impairment. In addition, other product features are listed below for reliable operation in door areas.

Push Buttons	PK	CK	PK52	MP	HST
					
* Characteristics according to product type					
Product features					
Configurable: color, LEDs, light signals, pictographs	x	x	x	x (except sound signals)	x (except sound signals)
Stainless steel front panel (optional)		x	x		
Backlit touch surface (optional)					x
2-sided function additionally available	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
High resistance to cleaning chemicals	x	x	x	x	x
Resistance to graffiti removers (optional)	x	x	x		
Unintentional triggering protection (optional)			x		x
Range of application	Door interior & exterior / High speed trains	Door interior & exterior	Door interior & exterior	Door interior & exterior	Handrail

LED Lights	PL30	TL80	TL83	EL50	EL50 - DIFFUS
					
* Characteristics according to product type					
Product features					
Robust housing technology	x	x	x	x	x
Housing material	Aluminum	Synthetic	Die-cast aluminum	Aluminum	Aluminum
Front panel material	-	-	-	Stainless steel	Stainless steel
Cover material	Glass	Glass	Glass	Glass	Glass
Protection level	IP67	IP67	IP67	IP67	IP67
High resistance to cleaning chemicals	x	x	x	x	x
Dimensions	L: 420 o. 820mm, W: 45,5mm, H: 27mm	L: 120mm, W: 25mm, H: 24mm	L: 120mm, W: 25mm, H: 13mm	Ø90mm	Ø90mm
Angle of radiation	80°x120°	120°, diffuse	80° / 120°, diffuse	Spot, 32°/14x49°	120°, diffuse
Range of application	Steps	Board wall	Steps, door frame	Ceiling	Ceiling

TSG101	TSG108
	
x	x
x	x
x	x
x	x
IP54	IP54
x	x
Handrail; board wall	Handrail
ELK50	VL55
	
x	x
Aluminum	Aluminum
Stainless steel	-
Glass	Synthetic
IP67	IP67
x	x
Ø90mm	L: 350-1.750mm, W: 83mm, H: 47mm
120°, diffuse raised glass dome	80°, diffuse
Steps, door frame	Panel above light rail doors (lighting and signalizing)



## LED Signal Lights

\* Characteristics according to product type

### Product features

Housing material

Front panel material

Cover material

Number of light colors

Blinking function (optional)

Enhanced visibility from various perspectives

Dimensions

Operating voltage

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

Dimensions

## Display Devices

\* Characteristics according to product type

### Product features

Pictograph / text configurable

Blinking function (optional)

Front protection level

Good resistance to cleaning chemicals

Dimensions

Range of application

## Wiring systems

LS	TL80	TL83	SLE160	SLE150	PL13	SL63
						
Aluminum	Synthetic	Die-cast aluminum	Synthetic	Synthetic	Aluminum	Synthetic
Synthetic	-	-	-	-	-	Stainless steel
Synthetic	Glass	Glass	Synthetic	Glass	Synthetic	Glass
7	1	1	1	1-2	7	1
			x		x	
			x	x	x	
L: ≤1.450mm, W: ≤28,5mm, H: ≥26mm	L: 120mm, W: 25mm, H: 24mm	L: 120mm, W: 25mm, H: 13mm	L: 160mm, W: 56mm, H: 15mm	L: 200mm, W: 50mm, H: 43mm	L: 509 / 1.009mm, W: 38mm, H: 22mm	Ø100mm
24V <sub>DC</sub>	24V <sub>DC</sub>	24V <sub>DC</sub>	24V <sub>DC</sub>	24-110V <sub>DC</sub>	24V <sub>DC</sub>	24-110V <sub>DC</sub>
Front IP67	IP67	IP67	IP67	IP67	IP20	IP67
x	x	x	x	x	x	x
WM87	WM28	PKW21	SM87	SM87V		
						
x						
x		x	x	x	x	x
x		x	x	x	x	x
x			x	x	x	x
80 dBA	60 dBA	75 dBA	80 dBA	80 dBA	100 dBA	
IP67	IP67	IP67	IP20	IP20	IP40	
Ø87 or 100mm	Ø87mm	Ø87mm	Ø87mm	Ø87mm	Ø87mm	
MLS52	ML63	ML100	PKM	PKM52		
						
x	x	x	x	x	x	
x	x					
IP67	IP67	IP44	IP67	IP67	IP67	
x	x	x	x	x	x	
Ø87mm	Ø100mm	L: 162mm, W: 103mm, H: 32mm	Ø87mm	Ø87mm	Ø87mm	
Train door	Subway or light rail door	Train door	Bus or train door	Bus or train door	Bus or train door	
CONNECTION PLUG	CONNECTION CABLE	JUNCTION BOX	ALL COMPONENTS			
						
. Proven in industry and public transportation	. Makes TSL products connect in series	. Fully encapsulated	. Compact			
. The right connector for every connection situation		. Distributes signals of several connected devices	. Vibration resistant			
			. Dust and humidity protected IP67			

# 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 2017 newly developed emergency button conforms to DIN EN 16683. The at least 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.



## COMPETENT PARTNER FOR BUSES & RAILWAY VEHICLES

### **Market Leader Since 1986**

TSL-ESCHA GmbH develops, manufactures, and distributes push buttons, signal lights, signaling devices, and wiring systems since 1986. A market leader for over 30 years. In 2006, LED lighting technology extended the product portfolio. The wide product range of LED products was introduced into road and rail vehicles as well as industrial applications.

TSL – stands for „Touch, Signal, Light“ at excellence level. Company priority is to fulfill customers' high quality requirements. Long product life cycles and reliability in all climate zones around the globe are guaranteed.

Moreover, public transportation requires many customized solutions. TSL-ESCHA meets personalized requirements with existent product variations or completely new innovations. Every customer need is carefully considered and prototyped and when approved quickly developed.

TSL-ESCHA is certified according to IRIS, DIN EN ISO 9001 and DIN EN ISO 14001. The IRIS certification will be replaced by ISO TS 22163 starting June 2018.



## APPLICATION EXAMPLE: LIGHT RAIL VEHICLES

Special challenge for light rail traffic:

Quick entry and exit of passengers, high operating frequencies of the push buttons, and necessity of acoustic and visual signalizing of potential dangers.

TSL-ESCHA delivers:

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

Please find further information and  
brochures on our web page!



TOUCH . SIGNAL . LIGHT

TSL - A partner of the TURCK Group

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