



TSL - Trust Your Senses to a Proven Partner



## PK52 SERIES



Door Opening Buttons PK52 Series

CUSTOMIZE  
YOUR OWN BUTTON



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Within the Presskey family, the PK52 series offers several new product features. During the development phase, two important priorities were taken into account.

## USER-FRIENDLY BUTTONS

The operational characteristics have been improved compared to conventional buttons in the field. The engineers of TSL-ESCHA focused the design on passengers with special needs. Extremely large touch surface, excellent lateral visibility of signal lights, and tactile feedback while pressing are only a few examples that ease the detection of the door opening button and make simpler its operation.

## SIMPLIFIED LOGISTICS

During the development, TSL-ESCHA closely looked over the requirements of door manufacturers. The result is an intelligent customized button with integrated controller functions. The PK52 buttons meet the special requirements of train operators as their light and audible signals offer superior performance. Many different functions are possible now in only one product.



# THE NEW GENERATION OF DOOR OPENING BUTTONS





Large Active Touch Surface



Parameterizable Light Signals



Parameterizable Audible Signals



Invisible Mounting Components



Integrated Micro Controller



Flat Design



Extended Voltage Range  
24 -110 V<sub>DC</sub>



Excellent Lateral Visibility of Signal Lights



Tactile Feedback



Protection Level IP67



Raised Symbols in Accordance with TSI PRM & ADA Standards

## Additional Options



Backlit Touch Surface



Isolated Output



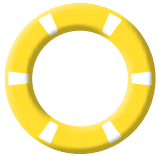
Graffiti Remover Resistant Coating

# HIGHLIGHTS AT A GLANCE

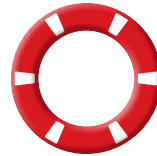
# CONFIGURATION

## FRONT PANELS

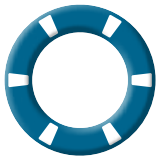
High quality stainless steel panels in different RAL-colors



TRAFFIC YELLOW  
similar to RAL 1023



TRAFFIC RED  
similar to RAL 3020



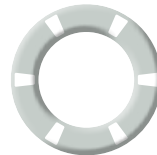
TRAFFIC BLUE  
similar to RAL 5017



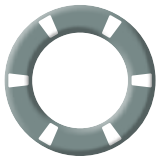
NIGHT BLUE  
similar to RAL 5022



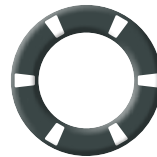
TRAFFIC GREEN  
similar to RAL 6024



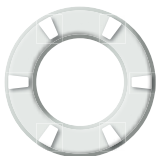
LIGHT GRAY  
similar to RAL 7035



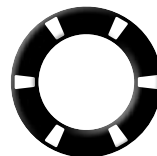
TRAFFIC GRAY A  
similar to RAL 7042



TRAFFIC GRAY B  
similar to RAL 7043



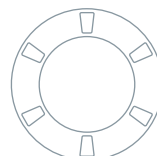
TRAFFIC WHITE  
similar to RAL 9016



TRAFFIC BLACK  
similar to RAL 9017



STAINLESS STEEL  
MATTE SHOT-BLASTED  
(uncoated)



CUSTOM COLORS  
(Upon request with an additional cost fee  
and minimum order of 100 pc.)

### Configuration Status "Front Panels"



RAL colors are only for reference. Slight color deviations are inevitable in the manufacturing process.

## PICTOGRAPHS

Graphic symbols for orientation, information, and guidance



PK52\_B28  
Open arrow  
Silver Background similar to RAL 9006  
Black Symbol similar to RAL 9004



PK52\_B68  
Open arrow and wheelchair  
Night Blue Background similar to RAL 5022  
White Symbol similar RAL 9003



PK52\_B29  
Close arrow  
Silver Background similar to RAL 9006  
Black Symbol similar to RAL 9004



PK52\_B69  
Information  
Night Blue Background similar to RAL 5022  
White Symbol similar to RAL 9003



PK52\_B39  
Open arrow  
Green Background similar to RAL 6024  
Black Symbol similar to RAL 9004



PK52\_B70  
Loud Speaker  
Night Blue Background similar to RAL 5022  
White Symbol similar to RAL 9003



PK52\_B1  
Stroller  
Silver Background similar to RAL 9006  
Blue Symbol similar to RAL 5017



CUSTOM TOUCH SURFACES  
(Upon request with an additional cost fee and minimum order of 100pc.)



PK52\_B60  
Key  
Traffic Blue Background similar to RAL 5017  
White Symbol similar to RAL 9016



PK52\_B63  
Wheelchair  
Night Blue Background similar to RAL 5022  
White Symbol similar to RAL 9003  
TSI PRM in accordance with ISO 7000 2004  
Symbol 0100

### Configuration Status "Pictographs"



RAL colors are only for reference. Slight color deviations are inevitable in the manufacturing process.

# STRAIGHTFORWARD



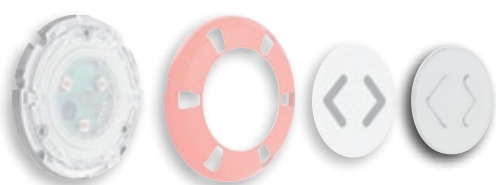


## TOUCH SURFACE WITH TACTILE SYMBOLS

Due to the modular design of the PK52 buttons, pictographs and tactile touch surfaces can be combined. Tactile symbols are subtly raised. Designs and sizes are in full compliance with TSI PRM & ADA standards.

	T0 Standard Surface without Tactile Symbol		T5 Loud Speaker
	T1 Open Arrow		T6 Open and Close Arrow
	T2 Close Arrow		CUSTOM TOUCH SURFACES (Upon request with an additional cost fee and minimum order of 100pc.)
	T3 Key		
	T4 Information		

Configuration Status "Tactile Symbols"



# FEEL THE INFORMATION

# CONFIGURATION

## FULLY CUSTOMIZABLE FUNCTIONS OF THE PK52

The following chapter describes the fully customizable functions of the PK52. These are combinations of personalized light signals, audible signals, and additional control functions. Customers can define preferred signal types. TSL-ESCHA downloads these programs into the PK52.



### INTEGRATED MICRO CONTROLLER

The PK52 has an integrated micro controller. Personalized light and audible signals can be downloaded into this controller.

### ADDITIONAL INPUTS AND OUTPUTS

PK52 offers the option to trigger programs by an external control unit (e.g. door control unit) with two inputs (In1 and In2). The function of the output (Out) is also parameterizable (e.g. timer functions).

## LIGHT SIGNALS OF THE PK52

Light signal parameters of the PK52 are fully customizable. A selection of standard variants is shown in the following chart. Furthermore TSL-ESCHA offers personalized light signals.



## SOUND SIGNALS OF THE PK52

Audible signal parameters of the PK52 are fully customizable. A selection of standard variants is shown on the following chart. Furthermore TSL-ESCHA offers personalized audible signals.

	A0	A1	A2	A3	A4	A5
Frequency:	-	3.5 kHz	3.8 kHz	2.1 kHz / 3.5 kHz	480 Hz	1.9 kHz
Duration:	-	0.5 sec.	0.05 sec.		2 ms	50 ms
Interval:	-	1-time	0.5 Hz	2 Hz	280 ms	100 ms
Function:	-	Confirmation	Orientation	Release	"Toc" signal	Door Closing

### Configuration Status "Light Signals"



# SEE AND HEAR THE BUTTON

# CONFIGURATION

## CONFIGURATION EXAMPLES

In previous pages, examples of personalized light and sound signals were illustrated. The different light and audible signals of the PK52 button are generated depending on its operation mode.

The PK52 has two additional inputs (In1 and In2) in order to adjust to different operation modes of the vehicle or the doors. For example, the button control can enable an out-of-order door to be indicated or during a night ride the sound level to be reduced. The configuration options are as varied as the requirements of different applications. The combination of light, audio, and input signals (In1 and In2) as well as the desired function of the output (Out) can be achieved without the development of new electronics. New parameters can simply be programmed into the integrated microcontroller. In this way also special button functions can be personalized fast and inexpensively.

**Even requests of changes, which sometimes come up after the approval phase of the vehicle, are considerably easy and inexpensive.**

The following charts exemplify the diverse options of the PK52. Each table represents one personalized button and describes the light and audible signals of each single operation state.

### PROGRAM: N1

INPUT		ENABLE			ACTIVATED			FUNCTION
IN 1	IN 2	LED	TONE	OUT	LED	TONE	OUT	
nc	nc	L1	A2	-	L4	A1	on	· Enable Green · Activated Red · Orientation and Confirmation Tone · Inputs Unused · Number of Wires: 3
nc	nc	L1	A2	-	L4	A1	on	
nc	nc	L1	A2	-	L4	A1	on	
nc	nc	L1	A2	-	L4	A1	on	

### PROGRAM: N2

INPUT		ENABLE			ACTIVATED			FUNCTION
IN 1	IN 2	LED	TONE	OUT	LED	TONE	OUT	
nc	0	L0	A0	-	L0	A0	on	· Ready Green · Activated Red · Orientation and Confirmation Tone · In2: Enabling · Number of Wires: 4
nc	0	L0	A0	-	L0	A0	on	
nc	1	L1	A2	-	L4	A1	on	
nc	1	L1	A2	-	L4	A1	on	

## PROGRAM: N3

INPUT		ENABLE			ACTIVATED			FUNCTION
IN 1	IN 2	LED	tone	OUT	LED	tone	OUT	
0	0	L0	A0	-	L5	A0	on	· Enable Green · Activated Red
1	0	L1	A3	-	L4	A1	on	· Orientation, Confirmation, Door Closing, and Out-of-Order Door Tone
0	1	L6	A5	-	L6	A5	on	· In1: Enabling, In2: Door Closing and Out-of-Order Door
1	1	L5	A0	-	L5	A0	on	· Number of Wires: 5

## PROGRAM: N4

INPUT		ENABLE			ACTIVATED			FUNCTION
IN 1	IN 2	LED	tone	OUT	LED	tone	OUT	
0	0	L0	A0	-	L0	A0	on	· Enable Green · Activated Red
1	0	L3	A2	-	L5	A1	on	· In1: Enabling, In2: Muted Tones
0	1	L0	A0	-	L0	A0	on	· Number of Wires: 5
1	1	L3	A0	-	L5	A0	on	

CREATE YOUR PERSONALIZED CONFIGURATION:

INPUT		ENABLE			ACTIVATED			FUNCTION
IN 1	IN 2	LED	tone	OUT	LED	tone	OUT	
0	0							
1	0							
0	1							
1	1							

### Configuration Status "Parameterizable Functions"



NOTE: Every personalized function determines the number of wires in the connection cable as well as the pin assignment of the connector -> see page 14/15 "Connectors".

# CONNECTIVITY

## PIN ASSIGNMENT FOR CONNECTOR 65

PIN	1	2	3	4	5	6	Appearance
Color	Brown	White	Blue	Black	Grey	n. c.	
Signal	+UB	In 1	Gnd (0V)	Out	In 2	-	
Number of poles	6						
Type of connector	Rectangular connector, MATE-N-LOK®						
Cable	Radox TENUIS, TW / SSF® 4x0.5 mm						
Description	TYCO Electronics / AMP, 794895-1						
Protection level	IP67						
Cable length	10 cm						

## PIN ASSIGNMENT FOR CONNECTOR 64


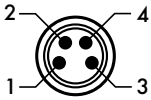

PIN	1	2	3	4	Appearance
Color	Brown	White	Blue	Black	
Signal	+UB	In 1	Gnd (0V)	Out	
Number of poles	4				
Type of connector	Rectangular connector, MATE-N-LOK®				
Cable	Radox TENUIS, TW / S4F® 4x0.5 mm				
Description	TYCO Electronics / AMP, 794805-1 corresponding BN65074				
Protection level	IP67				
Cable length	10 cm				

## PIN ASSIGNMENT FOR CONNECTOR 61

PIN	1	2	3	4	5	6	Appearance
Color	Brown	White	Blue	Black	Gray	Red	
Signal	+UB	In 1	Gnd (0V)	Out	In 2	In 3	
Number of poles	5-6						
Type of connector	Connector, M12x1						
Cable	Radox TENUIS, TW / S...F® 4x0.5 mm						
Description	ESCHA M12x1, 4-, 5-, 6-polig WAS4...WAS6						
Protection level	IP67						
Cable length	50 cm						

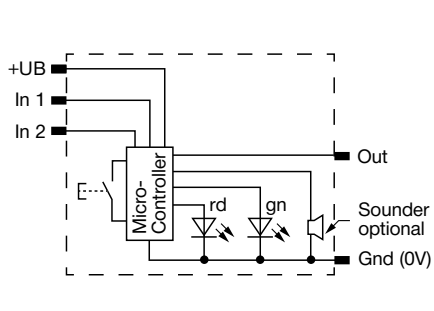
Warning: varieties with 5 and 6 poles are only for an operating voltage of 60V or less.

## PIN ASSIGNMENT FOR CONNECTOR 60

PIN	1	2	3	4	Appearance
<b>Color</b>	Brown	White	Blue	Black	 
<b>Signal</b>	+UB	In 1	Gnd (0V)	Out	
<b>Number of poles</b>	4				
<b>Type of connector</b>	Connector, M8X1 with snap-on interlock				
<b>Cable</b>	Radox TENUIS, TW / S4F corresponding BN65074				
<b>Description</b>	ESCHA Durchmesser 8mm M8x1 (SSFP4), 4-poles, SSP4				
<b>Protection level</b>	IP67				
<b>Cable length</b>	10 cm				

Warning: only for an operating voltage of 60V or less.

## DIAGRAM PNP



## Configuration Status "Connectors"



# TECHNICAL DATA

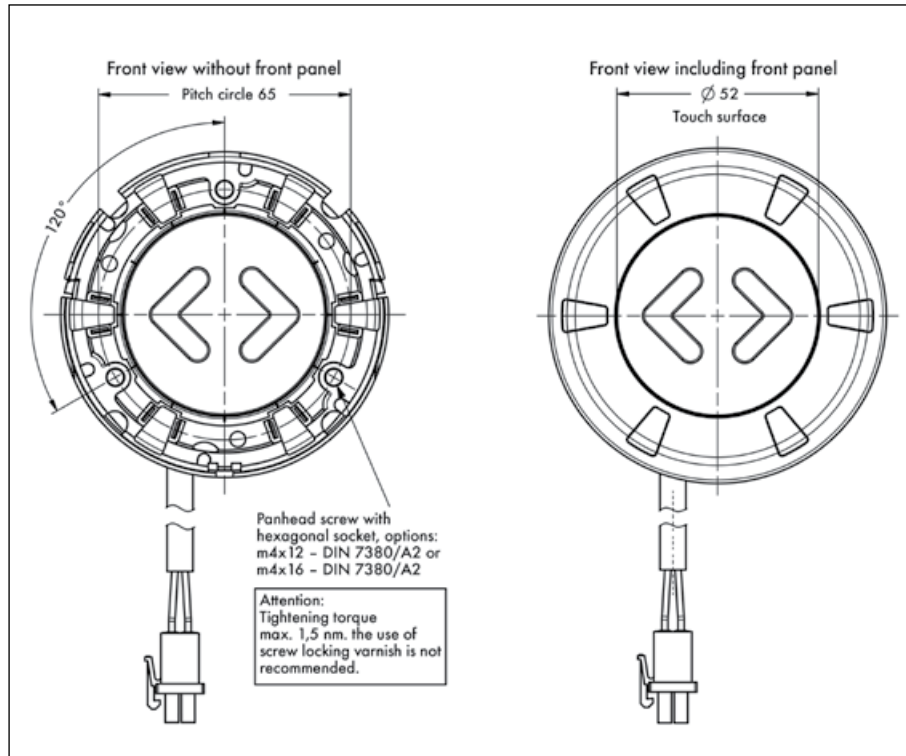
## TECHNICAL DATA

Electrical Data		Mechanical Data		Environmental conditions	
Nominal voltage	24 V <sub>DC</sub> - 110 V <sub>DC</sub>	Housing and button surface	UV-Stabilized Polycarbonate (UL94 V-0)	Operating life	Approx. 7,000,000 switching cycles
Operating voltage	16.8-143 V <sub>DC</sub>	Front panel	Stainless Steel, optional matte shot-blasted or powder coated	Operating temperature	-40°C to +80°C
Nominal current	Max. 200 mA	Push button diameter	87 mm diameter of the touch surface 52mm	Protection level	Waterproof front IP67, rear IP64
Operating current	Approx. 10 mA	Operating force	Approx. 8N and switch travel of approx 0.8mm tactile switching		
Connection	6 LEDs (wiring options in Light Signal section)	Optional connections	Connectors section		
Switching output	P-switching output		Electronics protected against humidity		

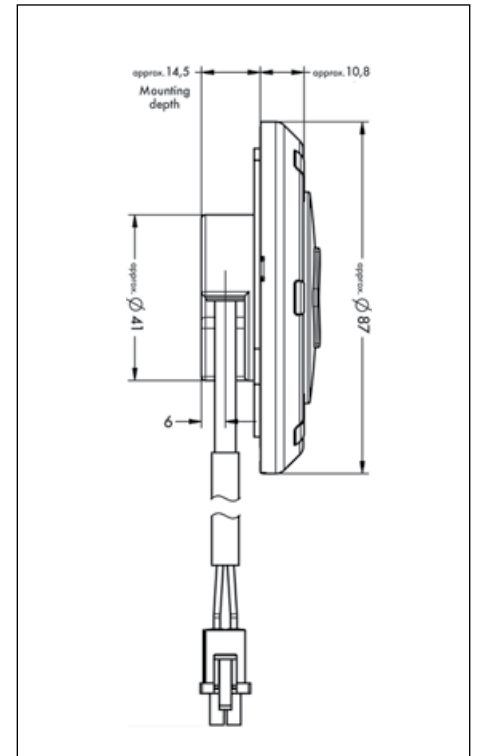


## MOUNTING VARIANTS AND DIMENSIONS

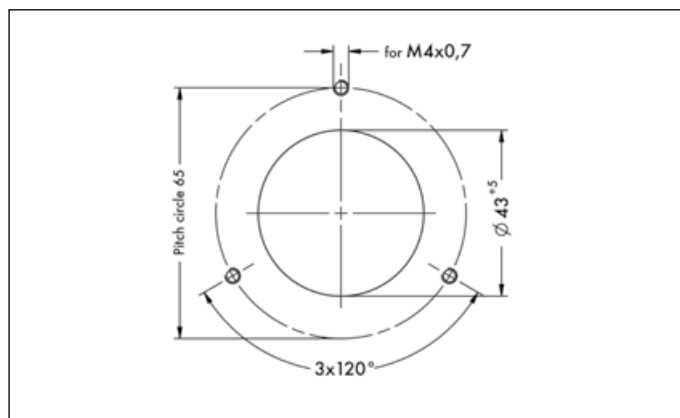
FRONT VIEW



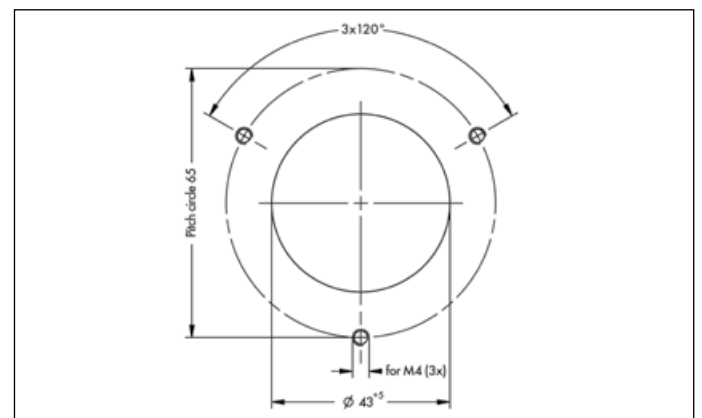
SIDE VIEW



DRILL PATTERN "A"



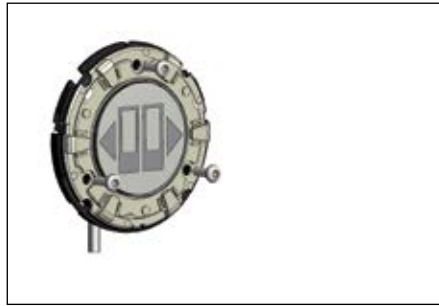
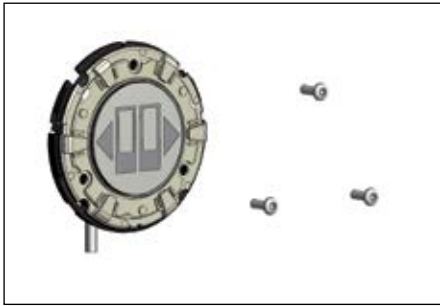
DRILL PATTERN "V"



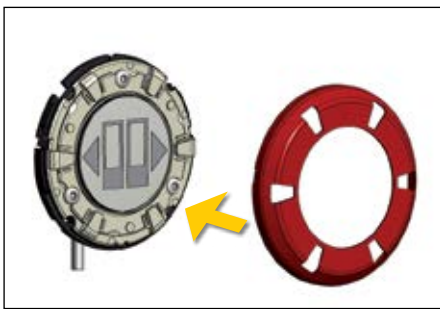
# DRAWINGS AND DIMENSIONS

## ASSEMBLY OF THE PK52

ASSEMBLY OF THE PK52 WITH THREE PANHEAD SCREWS M4X12 - DIN 7380A2



FRONT PANEL ASSEMBLY



BRACKETS POSITION

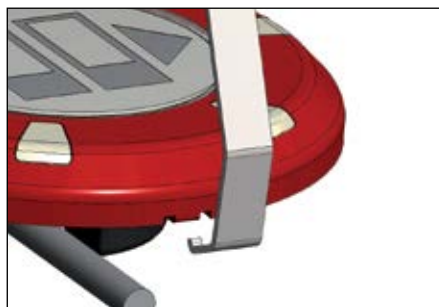


PLACE THE FRONT PANEL AND SNAP IN

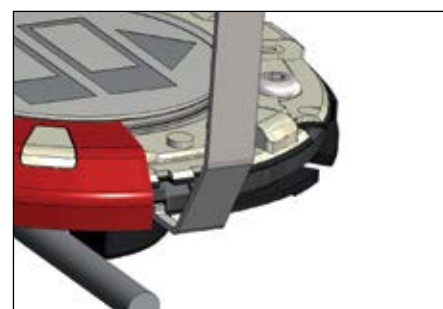
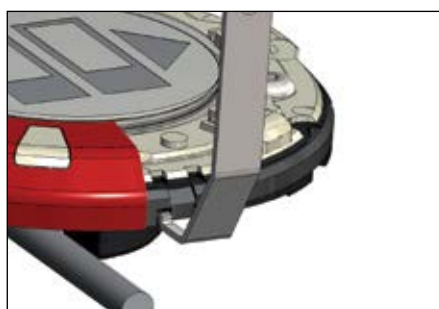


## DISASSEMBLY OF THE PK52

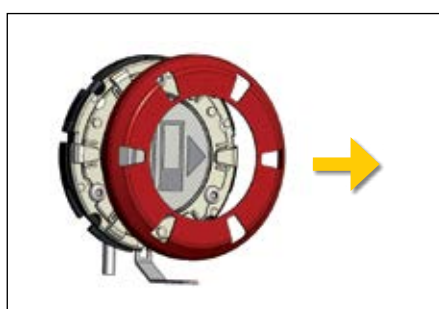
ADJUST THE DISASSEMBLY TOOL BEHIND THE FRONT PANEL



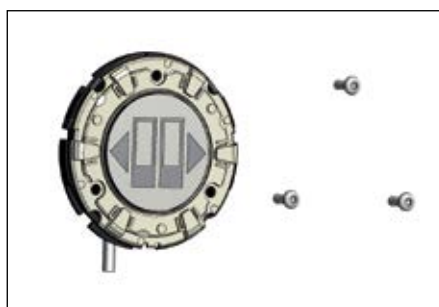
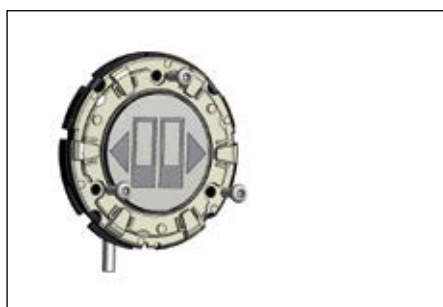
PRESS IN THE SPRING WASHER



TAKE OFF THE FRONT PANEL



LOOSEN THE SCREWS (3)



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