

## Intrinsically safe Input devices and Interface modules

### Description

### KI153, TB153, KB153 (*wireless*)

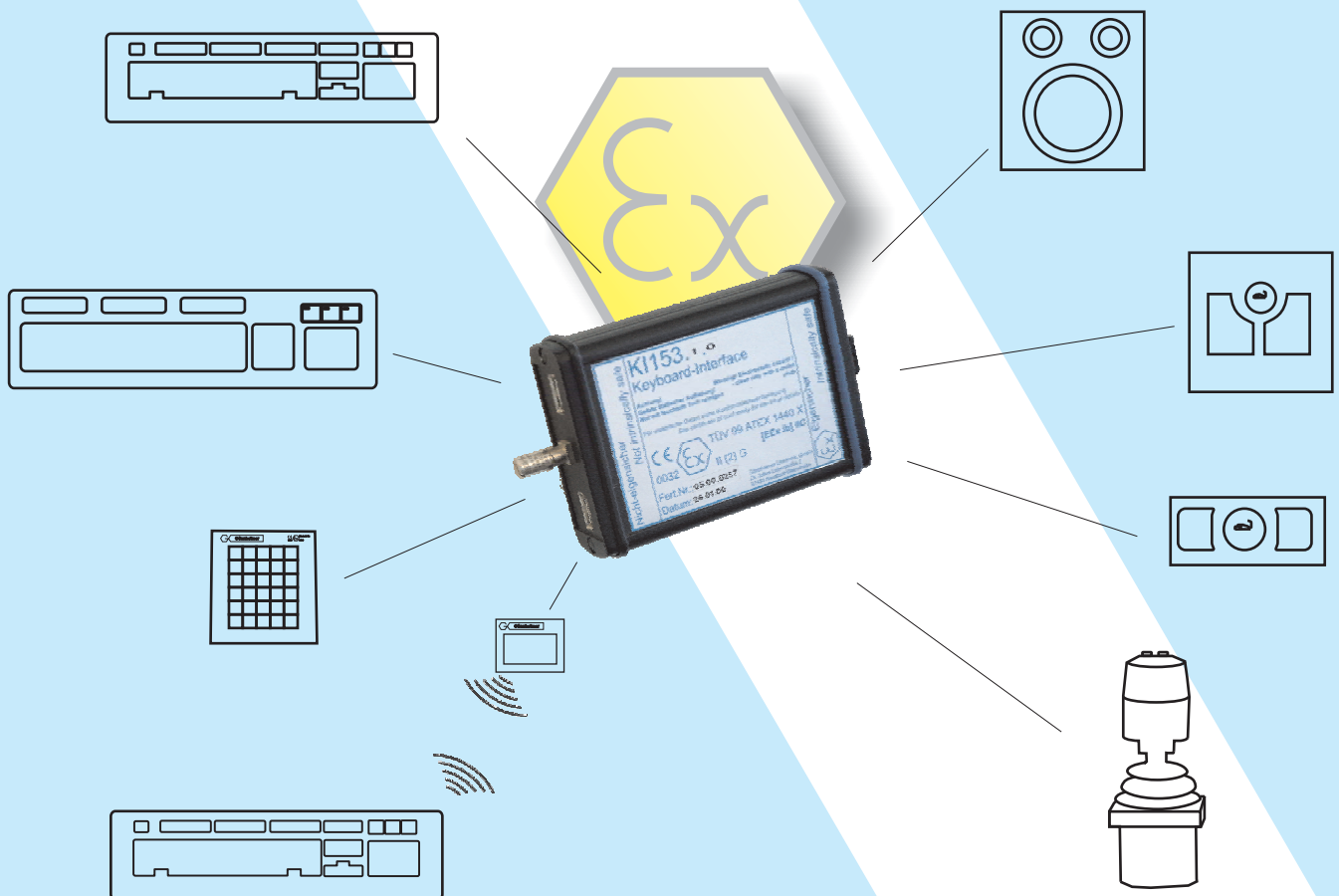
The keyboard interface KI153 enables the operation of input devices, like PC keyboards, trackballs etc. within Ex- areas of Zone 1 and 2. For this, it offers the possibility of converting several PS/2 or USB channels into intrinsically safe circuits which permit a signal transmission into Ex area.

A variety of input devices permits an adaptation to the needs of different applications and places of work.

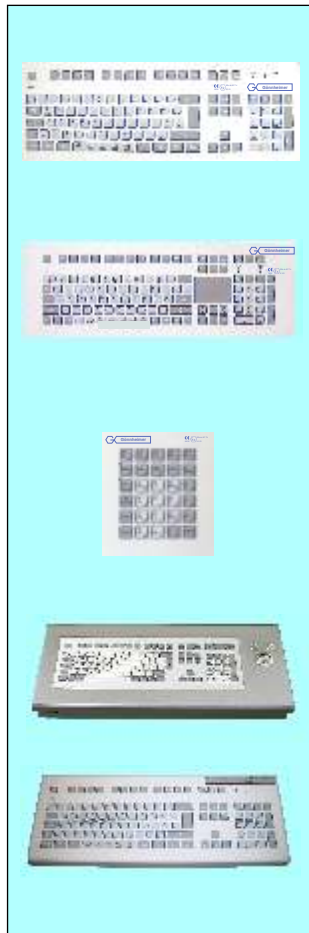
The EC- Type certificates of the KI153 as well as the input components are matched and guarantee a prob-

lem-free interconnection of all components with a system certificate from one hand. Verifications of intrinsic safety of all interconnections are provided, so the user saves initialization of application specific acceptance.

The KI153 also offers the possibility to use front-sided input devices in pressurized enclosure housings (Ex-p) for which intrinsically safe controls are necessary. (E.g. due to insufficient flushing of the contact areas and/or insufficient impact strength)



Keyboards



**KB153.0**  
**Standard keyboard**  
 Short-stroke keys  
 IP65, 105 keys,  
 country-specific layouts

**KB153.2**  
**Touchpad keyboard**  
 Like standard,  
 with additional Touchpad

**KB153.4**  
**Compact keyboard**  
 Like standard,  
 only 30 keys  
 with full function range!

**KB153.1**  
**Stainless steel housing**  
 Short-stroke keys  
 IP65, 105 keys,  
 country-specific layouts

**KB153.7**  
**"Wireless" Keyboard**  
 Wireless keyboard with short-stroke  
 keys such as standard type,  
 water and dust proof IP65!

Input devices



**TB153.0.0**  
**Stainless steel trackball**  
 Intrinsically safe trackball  
 with 2 or 3 keys and  
 stainless steel ball 38 mm  
 with PTFE sealing IP65!

**TB153.0.1**  
**Stainless steel trackball**  
 Intrinsically safe trackball  
 with 2 or 3 keys and  
 stainless steel ball 50 mm  
 with PTFE sealing IP65!

**TB153.0.0/1**  
**Plastics trackball**  
 Intrinsically safe trackball  
 with 2 or 3 keys, reinforced  
 plastics ball 38 (50) mm  
 with PTFE sealing IP65!

**TB153.0.2**  
**Industry Mouse**  
 Alternative intrinsically safe  
 pointing device without  
 moving parts  
 Protection class IP65!

**TB153.0.3**  
**Miniature Mouse**  
 Alternative intrinsically safe  
 pointing device without  
 moving parts  
 Protection class IP65!



**TB153.0.4**  
**Industry Joystick**  
 Multifunction joystick  
 2 Axis  
 USB + PS/2 support

**TB153.0.5**  
**Industry Joystick**  
 Multifunction joysticks  
 2 Axis  
 2 buttons on the head  
 USB + PS/2 support



## Technical Details

### Keyboard KB153.0-5:

Connector	USB or PS/2 plug	
Ex- protection	EEx ib IIC T4	
Device group	II 2 G	
EC type certification	TÜV 99 ATEX 1441	
Mounting	Hazardous area, Zone 1	
Electrical Details	See EC type certification	
Ambient temperature	-10°C .. 50°C	
Housing protection	IP65	
Dimensions (H x W x D [mm])	.0	459 x 147 x 30
	.2	483 x 178 x 30
	.4	154 x 137 x 25

### Keyboard KB153.6-7 (wireless):

Connector Receiver	USB or PS/2 plug	
Ex- protection	EEx ib IIB T4	
Device group	II 2 G	
EC type certification	TÜV 99 ATEX 1441	
Mounting	Hazardous area, Zone 1	
Electrical Details	U <sub>i</sub> = 5,8 V, I <sub>i</sub> = 204 mA, P <sub>i</sub> = 392 mW, C <sub>i</sub> = 25 µF, L <sub>i</sub> is negligible	
Battery life time keyboard	> 10000 h (Stand-by)	
Range	~ 10m (free field)	
Frequency	433 MHz	
Ambient temperature	-10°C .. 50°C	
Housing protection	Keyboard: IP65 (Receiver: IP54)	
Dimensions (H x B x T [mm])	.7 Keyboard:	480 x 182 x 45
	Receiver:	79 x 51 x 10

### Trackball TB153:

Connector	USB or PS/2 Standard plug	
Ex- protection	EEx ib IIC T4	
Device group	II 2 G	
EC type certification	TÜV 99 ATEX 1442	
Mounting	Hazardous area, Zone 1	
Electrical Details	U <sub>i</sub> = 5,8 V, I <sub>i</sub> = 204 mA, P <sub>i</sub> = 392 mW, C <sub>i</sub> = 25 µF, L <sub>i</sub> = 3 µH	
Ambient temperature	-10°C .. 50°C	
Housing protection	IP 65	
Dimensions (H x B x T [mm])	.0.0	74 x 57 x 29
	.0.1	80 x 78 x 43
	.0.2	129 x 84 x 44
	.0.3	128 x 108 x 25
	.0.4-5	97 x 41 x 41

### Keyboard interface KI153:

Connector	USB socket Type A (Optional: Adapter kit for PS/2-connection)
Ex- protection	[Ex ib] IIC
Device group	II (2) G D
EC type certification	TÜV 99 ATEX 1440 X
Mounting	Safe area or inside Ex-p, Ex-q or Ex-d enclosures
Non intrinsically safe side	KI153.0/1: Um = 253 V AC KI153.2/4: Um = 50VAC resp. 70VDC
Intrinsically safe side	See EC type certificate
Ambient temperature	-20°C .. 40°C
Housing protection	IP40
Housing material	Aluminum, powder coated
Fixing	35 mm rail, acc. EN 50022 Further mounting options on demand

## Type code

Keyboard	KB153	.x	.x	.x
Type of the housing:				
Standard keyboard (panel mounting) ....	.0			
Standard keyboard (with housing) .....	.1			
Touchpad keyb. (panel mounting) .....	.2			
Touchpad keyboard (with housing) .....	.3			
Compact keyboard (panel mounting) ....	.4			
Compact keyboard (with housing) .....	.5			
Wireless keyboard (panel mounting) ....	.6			
Wireless keyboard (with housing) .....	.7			
Type of the keyboard layout:				
German Layout .....	.000			
US- Layout .....	.001			
Customized.....	.009			
Interface				
USB .....	.0			
PS/2.....	.1			

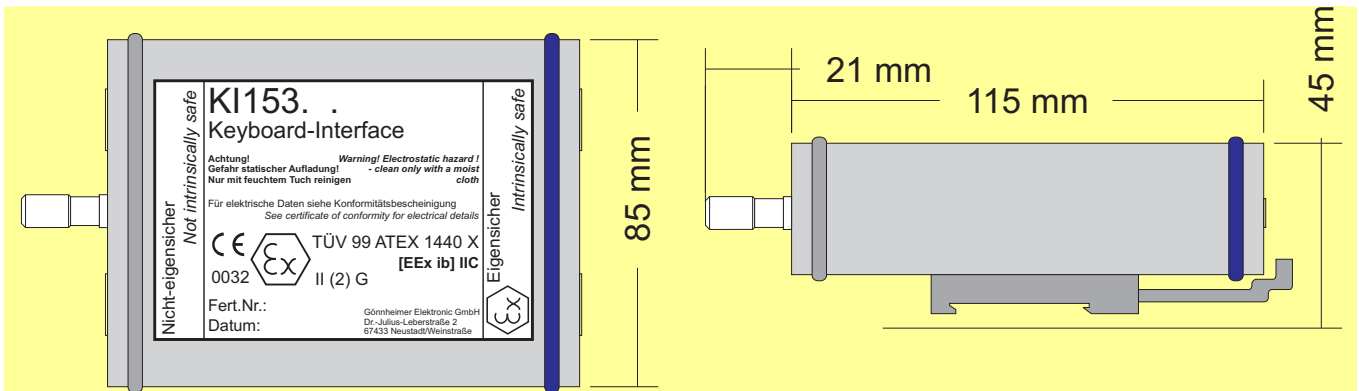
Trackball	TB153	.x	.x	.x
Housing type:				
Trackball panel mounting .....	.0			
Trackball with housing.....	.1			
Trackball type:				
38 mm ball .....	.0			
50 mm ball .....	.1			
Industry mouse .....	.2			
Miniature mouse .....	.3			
Joystick 2Axis; PS/2+USB .....	.4			
Joystick 2Axis+2 buttons; PS/2+USB .....	.5			
Interface				
USB .....	.0			
PS/2 .....	.1			

The trackball is also available with a reinforced plastics ball (phenolic resin) for extremely acidly environments.

Keyboard interface	KI153	.x	.x
Type + amount of channels (chn.)			
One USB1.1-chn. for KB/TB153 .....		.0	
Two USB1.1-chn. for KB/TB153 .....		.1	
One USB2.0-chn. for FD153 .....		.2	
One USB1.1-chn. + one USB2.0-chn. ....		.3	
Two USB2.0-chn. for FD153.....		.4	
Despatch			
Mounted on 35mm rail .....		.0	
Wall mounting .....		.1	
Table housing .....		.2	
Inside PC100 .....		.3	

Adapter cables	
USB plug (A) – PS/2 socket:	Kabel.US.PB
USB plug (A) – PS/2 plug:	Kabel.US.PS

## Dimensions KI153:



Keyboard interface KI153

## Input devices options

### Customized keyboards and layouts



The keyboards of the KB153 - series can be supplied in different languages.

An adjustment to customer requirements, like OEM front foils, changed construction of the mechanical structure as well as specific programming of the keyboard controllers are possible on request.

### Key switch



Key switch for blocking of the input devices (FDA compliant).

### Customized connection technology



Customized plugs, leads and interface converters (e.g. PS/2 ↔ USB) for optimal adjustment of the input systems to the application specific requirements.



**Gönnheimer  
Elektronik GmbH**

<http://www.goennheimer.de> Email: [info@goennheimer.de](mailto:info@goennheimer.de)



Dr.-Julius-Leber-Straße 2  
67433 Neustadt/Weinstraße  
Postfach 10 05 07  
67405 Neustadt, Germany  
phone: +49 (6321) 49919- 0  
fax: +49 (6321) 49919 - 41

