



# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.:	<b>IECEX TUN 20.0010X</b>	Page 1 of 4	<u>Certificate history:</u>
Status:	<b>Current</b>	Issue No: 4	Issue 3 (2024-02-28)
Date of Issue:	2025-03-19		Issue 2 (2023-07-20)
Applicant:	<b>Hans Turck GmbH &amp; Co KG</b> Witzlebenstrasse 7 45472 Mülheim Germany		Issue 1 (2021-04-14)
Equipment:	<b>Block I/O modules type TB**-L*-(Y)****(-Y****)(****), TBIL-M1-(Y)****(-Y****)(****) and TB**-S*-(Y)****(-Y****)(****)</b>		
Optional accessory:			
Type of Protection:	<b>Increased Safety "e", Equipment dust ignition protection by enclosure "t"</b>		
Marking:	Ex ec IIC T4 Gc		
	Ex tc IIIC T115 °C Dc		

Approved for issue on behalf of the IECEx  
Certification Body:

**Christian Roder**

Position:

**Head of IECEx Certification Body**

Signature:  
(for printed version)

Date:  
(for printed version)

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Am TÜV 1, 30519 Hannover  
Germany





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Manufacturer: **Hans Turck GmbH & Co KG**  
Witzlebenstrasse 7  
45472 Mülheim  
Germany

Manufacturing locations: **Werner TURCK GmbH & Co. KG**      **Turck (Tianjin) Technology Co. Ltd.**  
Goethestraße 7      No.23 Hongyuan Road, Xiqing District  
58553 Halver      Tianjin, 300381  
Germany      China

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

## STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

[IEC 60079-0:2017](#) Explosive atmospheres - Part 0: Equipment - General requirements  
Edition:7.0

[IEC 60079-31:2022](#) Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t"  
Edition:3.0

[IEC 60079-7:2017](#) Explosive atmospheres - Part 7: Equipment protection by increased safety "e"  
Edition:5.1

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

## TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Reports:

[DE/TUN/ExTR20.0012/03](#)

[DE/TUN/ExTR20.0012/04](#)

Quality Assessment Reports:

[DE/PTB/QAR06.0012/06](#)

[DE/PTB/QAR06.0013/11](#)



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## EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The Block I/O modules type TB\*\*-L\*-(Y)\*\*\*\*(-Y\*\*\*\*)(\*\*\*\*), TBIL-M1-(Y)\*\*\*\*(-Y\*\*\*\*)(\*\*\*\*) and TB\*\*-S\*-(Y)\*\*\*\*(-Y\*\*\*\*)(\*\*\*\*) are used for factory automation and are prepared for fieldbus PROFIBUS-DP, CANopen, Modbus TCP, Ethernet/IP™, PROFINET and Ethercat. The IP67-modules are for use in harsh environments have glass-fiber reinforced plastic housings and metal-connectors, are fully potted, vibration and shock-proof.

The permissible ambient temperature range is -25 °C ... +60 °C.

See Attachment to IECEX tun 20.0010X issue No.4 for details.

## SPECIFIC CONDITIONS OF USE: YES as shown below:

1. For EPL Gc, the block I/O modules type TB\*\*-L\*-(Y)\*\*\*\*(-Y\*\*\*\*)(\*\*\*\*) may be installed in an area of not more than pollution degree 2 according to IEC 60664-1.
2. The connection and disconnection of all live electrical circuits and the operation of switches is only permitted during installation, for maintenance or repair purposes if there is no potentially explosive atmosphere. After setting the switches of the IP\_address of the block I/O modules of type TB\*\*-L\*-(Y)\*\*\*\*(-Y\*\*\*\*)(\*\*\*\*), the service window must be closed again in order to comply with the IP protection.
3. The metallic protective cover must be connected to the potential equalization in the explosion hazardous area.
4. The installation of the apparatus must not be performed in areas with critical influence of UV light.
5. The equipment has to be installed in such a way, that, under normal conditions of use, dangers from electrostatic charges are avoided.
6. All plug connectors have to be installed; not used connectors have to be protected with blind plugs.



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**DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)**

See Attachment to IECEx TUN 20.0010X issue No.4 for details

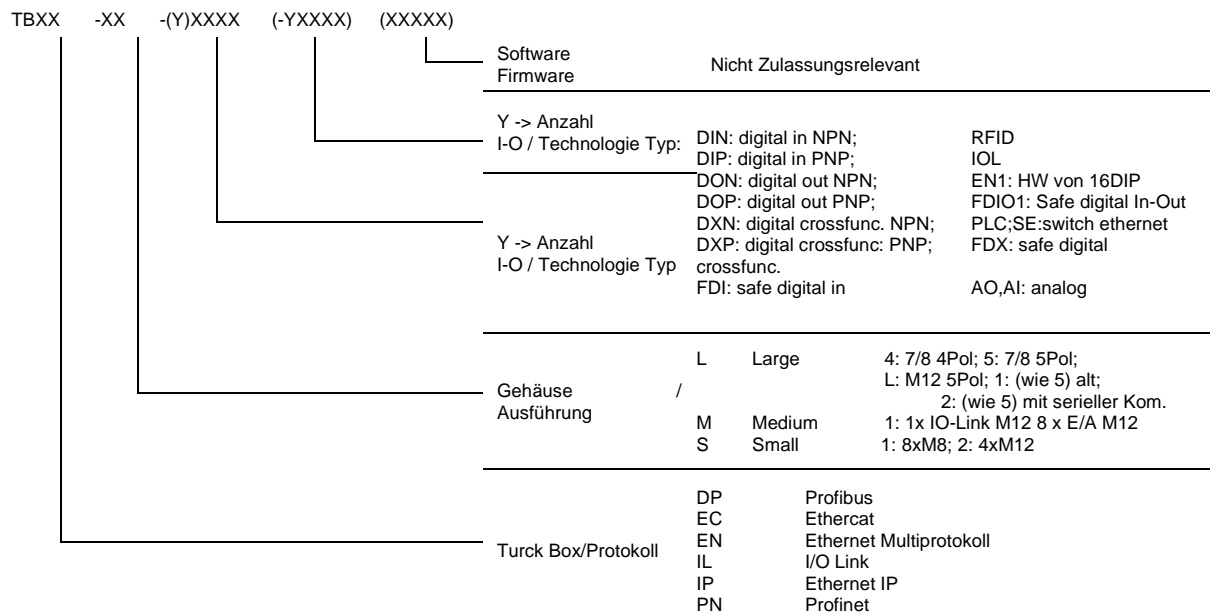
**Annex:**

[Attachment to IECEx TUN 20.0010X issue No.4\\_1.pdf](#)

**Product:**

The Block I/O modules type TB\*\*-L\*-(Y)\*\*\*\*(-Y\*\*\*\*)(\*\*\*\*\*), TBIL-M1-(Y)\*\*\*\*(-Y\*\*\*\*)(\*\*\*\*\*), and TB\*\*-S\*-(Y)\*\*\*\*(-Y\*\*\*\*)(\*\*\*\*\*), are used for factory automation and are prepared for fieldbus PROFIBUS-DP, CANopen, Modbus TCP, Ethernet/IP™, PROFINET and Ethercat. The IP67-modules are for use in harsh environments have glass-fiber reinforced plastic housings and metal-connectors, are fully potted, vibration and shock-proof.

**Type designation:**



The type code for qualified confectioned cables to ensure the tightness of the housing are:

1. 7/8" and M12 power supply cable:

Grip Body			Cable Length			Wildcard Extension Cable			Cable Quality
R	K	M	4	3	-	5M	-	RSM	/
a	b	c	d	e		f		g	h
a	R	W				straight			Alignment
b	K	S				Female			Design
c	M	7/8"				Nickel-plated brass			Coupling nut
	P	M12				Stainless steel			
d	4	7/8"				Plastic housing			Housing
	5					Shielded			
	46					4-pin, 4-wire			Pins and wires
	44					5-pin, 5-wire			
56					4 x 16 AWG 1.5 mm <sup>2</sup>				
54					4 x 14 AWG 2.5 mm <sup>2</sup>				
e	3	7/8"				5 x 16 AWG 1.5 mm <sup>2</sup>			
	2					5 x 14 AWG 2.5 mm <sup>2</sup>			
	PLA	M12				Serial number			
f	...	M				Power designation, L-Coded, Design			
	...	M				...			
g	blank	RSM43				Connection cable			
						Extension cable (Example) Grip Body			
h						blank			

2. Ethernet M12 cable:

Grip Body					Wildcard Extension Cable		Cable Quality		Cable Length	
R	S	S	*	D	-	*	-	4422	/	5M
a	b	c	d	e	f		g		h	
a	R	W		straight angled		Alignment				
b	S	S		Male		Design				
c	S	S		Shield auf Coupling nut		Shield				
d	blank	S		Standard		Flang Design				
e	D	S		D-coded		Coding				
	X	S		X-coded						
f	blank	S		Connection cable		Cable type				
	WSSD	S		Extension cable (Example) Grip Body						
g	4422	S		44...PUR green		Cable Quality				
		S		84...PUR green						
		S		88...PUR green						
h	...M	S		...m		Cable Length [m]				

3. PROFIBUS M12 cable:

Grip Body					Wildcard Extension Cable		Cable type/-qualität		Cable Length	
R	S	S	W	V	-	*	-	451	/	5M
a	b	c	d	e	f		g		h	
a	R	W		straight angled		Alignment				
b	S	K		Male		Design				
	K	S		Female						
c	S	S		Shield auf Coupling nut		Shield				
d	W	S		B-coded		Coding				
e	blank	S		Nickel-plated brass		Coding				
	V	S		Stainless steel						
f	blank	S		Connection cable		Cable type				
	WSSD	S		Extension cable (Example) Grip Body						
g	451	S		451 PROFIBUS-DP PUR, qualified for drag chain use		Cable type/-quality				
h	...M	S		...m		Cable Length [m]				

4. RFID M12 cable:

Grip Body			Cable Length		Wildcard Extension Cable		Cable Quality		
R	K	4.5T	-	5M	-	RS4.5T	/	S2503	
a	b	c	d		e		f		
a	R	W		straight angled		Alignment			
b	K	S		Female		Design			
	S	S		Male					
c	4.5T	S		5-pin		Pole			
d	...M	S		...m		Cable Length [m]			
e	blank	S		Connection cable		Cable type			
	RS4.5T	S		Extension cable (Example) Grip Body					
f	S2500	S		PUR, yellow qualified for drag chain use		Cable Quality			
	S2503	S		PUR, black qualified for drag chain use					

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5. Sensor M12 cable:

Grip Body							Cable Length		Wildcard Extension Cable		Cable Quality	
R	S	S	V	4.4	T	-	5m		-		/ TXL	
a	b	c	d	e	f		g		h		i	
a	R	straight				Alignment						
	W	angled										
b	S	Male				Design						
	K	Female										
c	C	Standard				Housing						
	S	Shield auf Coupling nut										
	H	Hygienic design (incl. Stainless steel nut)										
d	blank	Nickel-plated brass				Coupling nut						
	V	Stainless steel										
e	4.4	4-pin, 4-wire				Pins and wires						
	4.5	5-pin, 5-wire										
f	T	Sleeve				Design						
g	...M	...m				Cable Length [m]						
h	blank	Connection cable				Cable type						
	RWSC4.4T	Extension cable (Example) Grip Body										
i	TXL	PUR, black, halogen-free				Cable Quality						

6. M8 cable:

Grip Body							Cable Length		Wildcard Extension Cable		Cable Quality	
P	K	G	S	3	M	-	5m		-		/ TXL	
a	b	c	d	e	f		g		h		i	
a	P	M8/Ø 8 mm				Connector						
b	S	Male				Design						
	K	Female										
c	G	straight				Alignment						
	W	angled										
d	blank	Nickel-plated brass				Coupling nut						
	V	Stainless steel										
	H	Hygienic design (incl. Stainless steel nut)										
	S	Nut, Nickel-plated brass, shielded										
e	3	3-pin, 3-wire				Pins and wires						
	4	4-pin, 4-wire										
f	M	Metric				Lock						
g	...M	...m				Cable Length [m]						
h	blank	Connection cable				Cable type						
	PSR4M	Extension cable (Example) Grip Body										
i	TXL	TXL PUR, black, halogen-free TXG PUR, gray, halogen-free TXO PUR, orange, halogen-free TXY PUR, yellow, halogen-free				Cable Quality						

7. Ethernet M8 cable:

Grip Body						Wildcard Extension Cable		Cable Quality		Cable Length	
P	S	G	*	3	M	-	*	-	4422	/	5M
a	b	c	d	e	f		g		h		i
a	P						M8/Ø 8 mm				Connector
b	S						Male				Design
c	G						straight				Alignment
	W						angled				
d	blank						Nickel-plated brass				Coupling nut
	V						Stainless steel				
	H						Hygienic design (incl. Stainless steel nut)				
	S						Nut, Nickel-plated brass, shielded				
e	3						3-pin, 3-wire				Pins and wires
	4						4-pin, 4-wire				
f	M						Metric				Lock
g	blank						Connection cable				Cable type
	PSG3M						Extension cable (Example) Grip Body				
h	4422						44...PUR green				Cable Quality
							84...PUR green				
							88...PUR green				
i	...M					...m				Cable Length [m]	

**Electrical data:**

**TB\*\*-L\*(Y)\*\*\*(-Y\*\*\*\*)(\*\*\*\*):**

P-switching:

$U_n = 24 \text{ V d.c. } \pm 10 \%$

$I_{max}$  (total per module) = 9 A

$I_{max} = 1.5 \text{ A}$  (per output) DI(P), DOP, DX(P), RFID, IOL, PLC, SE

The electrical data for the Safety-Modules have to be taken from the data sheet

N-switching:

$U_n = 24 \text{ V d.c. } \pm 10 \%$

$I_{max}$  (total per module) = 9 A

$I_{max} = 1.0 \text{ A}$  (per output) DIN, DON, DXN

**TBIL-M1-(Y)\*\*\*(-Y\*\*\*\*)(\*\*\*\*):**

$U_n = 24 \text{ V d.c. } \pm 10 \%$

$I_{max}$  (total per module) = 4 A

$I_{max}$  (per channel DIP, DOP, DXP) = 0.5 A;

for TBIL-M1-16DXP-B variant:  $I_{max}$  (per connector) = 1.5 A

**TB\*\*-S\*(Y)\*\*\*(-Y\*\*\*\*)(\*\*\*\*):**

$U_n = 24 \text{ V d.c. } \pm 10 \%$

with digital I/Os:

$I_{max}$  (total per module) = 5.5 A

$I_{max}$  (per output) for DIP, DOP, DXP, RFID, IOL = 0.5 A

with analog I/Os:

$I_{max}$  (total per module) = 5.5 A

$I_{max}$  (C0-C3 Supply of sensors or actuators per connector) = 1 A

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**Thermal data:**

The permissible ambient temperature range during operation is -25 °C...+60 °C.

**Details of Change:**

- Use of new Turck M12 plugs (M12 male). The material and the construction of the new plugs have been derived from the old approvals. The clearance and creepage distances of these plugs also still comply with the standard IEC 60079-7:2017.

The M8 plugs (M8 male), M12 sockets (M12 female), 7/8 4Pol plugs and sockets and 7/8 5Pol plugs and sockets are not affected by the changes.

	IECEx TUN 20.0010X issue No.3 (already certified)	IECEx TUN 20.0010X issue No.4 (additionally)
<u>Material of the contact carriers</u>	<u>Escha M12 plug (M12 male)</u>	<u>Turck M12 plug (M12 male)</u>
TE250F6 from DSM Engineering Materials B V	M12 male 4pol A-Code M12 male 5pol L-Code M12 male 5pol B-Code	M12 male 5pol A-Code short M12 male 5pol A-Code
Wellamid 6600-PA66-GV20 from CP-POLYMER-Technik GMBH & CO KG	M12 male 5pol L-Code	M12 male 4pol A-Code M12 male 5pol B-Code M12 male 5pol A-Code short M12 male 5pol A-Code
Radiflam A FRX from Radicinovacips SPA	M12 male 5pol L-Code	M12 male 4pol A-Code M12 male 5pol B-Code M12 male 5pol A-Code short M12 male 5pol A-Code

- The PCB of the following variants was redesigned due to the change of the I/O link chip to a new type. Three “connector variants” (L1=L5, L4, LL) were implemented on one PCB and minor changes were made to the layout in order to optimize the PCB in terms of EMC.

Variant	PCB (Old)	PCB (New)
TBPN-L1-FDIO1-2IOL	07396602 (PCB 3966/2)	07790703 (PCB 7907/3)
TBPN-LL-FDIO1-2IOL	07790702 (PCB 7907/2)	07790703 (PCB 7907/3)
TBIP-L4-FDIO1-2IOL	07396602 (PCB 3966/2)	07790703 (PCB 7907/3)
TBIP-L5-FDIO1-2IOL	07396602 (PCB 3966/2)	07790703 (PCB 7907/3)
TBIP-LL-FDIO1-2IOL	07790702 (PCB 7907/2)	07790703 (PCB 7907/3)

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**Special conditions for safe use:**

1. For EPL Gc, only the block I/O module type TB\*\*-L\*-(Y)\*\*\*\*(-Y\*\*\*\*)(\*\*\*\*) may be installed in an area of not more than pollution degree 2 according to IEC 60664-1.
2. The connection and disconnection of all live electrical circuits and the operation of switches is only permitted during installation, for maintenance or repair purposes if there is no potentially explosive atmosphere.  
After setting the switches of the IP\_address of the block I/O modules of type TB\*\*-L\*-(Y)\*\*\*\*(-Y\*\*\*\*)(\*\*\*\*), the service window must be closed again in order to comply with the IP protection.
3. The metallic protective cover must be connected to the potential equalization in the explosion hazardous area.
4. The installation of the apparatus must not be performed in areas with critical influence of UV light.
5. The equipment has to be installed in such a way, that, under normal conditions of use, dangers from electrostatic charges are avoided.
6. All plug connectors have to be installed; not used connectors have to be protected with blind plugs.