TIMM

TRUSTED TECHNOLOGY

Grounding Clamp type EZ1 for Grounding Control Devices

Operating Instructions | English

Timm Technology GmbH | Senefelder-Ring 45 | 21465 Reinbek | GERMANY

Grounding Clamp EZ1

Operating Instructions and Installation

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Safety note: The Grounding Clamp EZ1 is an equipment of category **II 2 GD** and therefore approved for use in potentially explosive atmospheres of **zone 1 and 21** (gas group II C).

The installation and maintenance of this equipment is only allowed to authorized and skilled personnel observing the relevant national regulations and standards on installation of equipment for use in potentially explosive atmospheres. In particular we refer to European standard EN 60079-14 / VDE 165 part 1 and DGUV regulation 113-001 (EXRL).

While carrying out any service at the Grounding Clamp the operating and maintenance instructions and the technical specifications included in this operating manual have to be observed as well as the national regulations on prevention of accidents.

The device is intended to be operated in an undamaged, flawless condition.

Created / Modified		Checked / Ex		Approved		Replacement for	
Name	Date	Name	Date	Name	Date	Doc.-Nr.	Date
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Document: 230712 EZ1 BAN V1.31 EN							

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1. Variations of Use

The Grounding Clamp types EZ1-1pol / EZ1-2pol / EZ1-Dorn are solely intended to perform an electrical ground connection to road tankers, railway tank wagons, containers or similar storage tanks in combination with an appropriate grounding tester (such as our Grounding Control Devices type EKX-4). This ground connection represents a safe and supervised earth bonding in order to eliminate electrostatic charges from these objects that occur during filling respectively loading and unloading procedures.

The tong handles and jaws of the grounding clamp are manufactured of stainless chromium-nickel steel (V2A). Due to the provided rubber insulation sheath a complete isolation of the grounding clamp is ensured. The insulation sheath of nitrile rubber is handy, heat resistant up to 90°C and steady against mineral oil products. The spring action is limited in that way that for a safe contacting of the grounding clamp no strong force expenditure is necessary.

In accordance with the **Statement of Conformity TÜV 08 ATEX 554213 X** the Grounding Clamp EZ1 is approved for use in potentially explosive atmospheres of the **zones 1 and 21** (gas group II C) as an equipment of category **II 2 GD**.

Figure 1: Grounding Clamp with rubber insulation sheath

2. Versions of Grounding Clamps

Depending on the intended purpose (in particular on the object, which shall be grounded) the following brands of the Grounding Clamp type EZ1 are available:

2.1. Grounding Clamp type EZ1-1pol (single-pole version)

This standard version of the grounding clamp is used for performing a single-pole contacting. The connection to the grounding control device is performed via the brown wire (10) of a 2-wire cable (for example, H07RN-F 2 x 1.5 mm² or equivalent). The inner contact plate in the clamping area of the pliers make contact to the object to be grounded. The second blue wire (11) is used to compensate the characteristic impedance of the cable.

In conjunction with the Grounding Control Device EKS-3, EKK-3 or EKN-3, the 1-pole clamp is connected to the object to be grounded by using a 1-core cable (e.g. H07RN-F 1 x 6 mm² or equivalent).

2.2. Grounding Clamp type EZ1-2pol (two-pole version)

This grounding clamp is built similarly to the standard version, but intended for connecting a two-core cable (e.g. type H07RN-F 2 x 1,5mm² or similar) that is used in combination with a grounding tester for the controlled grounding of drums and containers (e.g. Grounding Control Device type EKX-4 2-POLE), which requires a double contacting. The two-core cable is connected to the inner contact spring as well as to the outer contact jaws (at the clamp handles), which perform in that case both the contact with the object to be grounded.

For connection to the Grounding Control Device type EKK-3 / C (for grounding of barrels or container) with 2-core cable H07RN-F 2 x 2.5mm², the grounding clamp type EZ1-2pol. equipped with bending tabs instead of a tube

2.3. Grounding Clamp type EZ1-Dorn (with brass pin)

This variation of the clamp corresponds to the single-pole grounding clamp, but it is additionally equipped with a brass pin, which forms in combination with the Grounding Socket type TW 700 a durable break-down safety coupling. The brass pin, which is firmly screwed to the clamp, is fitting into the Grounding Socket TW 700. So the grounding cable that is connected to grounding socket will not get damaged in case of strong tensile force, as the safety coupling separates before.

The socket is connected to the Grounding Control Device EKX-4 via the brown wire (10) of the 2-wire cable (e.g. H07RN-F 2 x 1.5 mm² or equivalent), so that in heavy tensile stress the plug-in connection will loosen before any further damages occur. The Grounding Clamp EZ1-Dorn can only be used one pole.

Type EZ1-1pol. **Type EZ1-2pol.** **Type EZ1-Dorn**

Figure 2: Versions of grounding clamps

3. Operating Instructions

The grounding clamp is meant for being connected to the approved intrinsically safe grounding circuit of a grounding tester (e.g. a Grounding Control Device of series EKx-3) and is solely intended for eliminating electrostatic charges which may occur during the regular practice of loading and unloading. Any auxiliary electrical strain (e.g. caused by strong electromagnetic fields) must absolutely be prevented.

When attaching the grounding clamp to the object which shall be grounded (e.g. at a tank truck or railway tank wagon) is to be paid attention to a tight hold and a clean and blank contact surface. Otherwise no sufficiently low impedance grounding connection is performed, which is necessary for

the process release by the grounding control device. It must be achieved by suitable measures that attaching the grounding clamp to the object is carried out before the beginning of the loading and that a probable loosening of the connection causes an immediate termination of the loading, so that the attachment of the clamp is always done only under electrostatically neutral conditions and will not cause any sparking. This can be achieved by the use of our Grounding Control Devices of the EKx-3 series. Otherwise the connection may not be interrupted during the filling or loading process (e.g. due to strong vibrations), even not for a short time. In summary).

When attaching the grounding clamp to the object which shall be grounded is to be paid attention that this is done only under electrostatically neutral conditions!

The grounding clamp has to be operated in an intact to perfect condition and must be checked before its use on this matter. A damaged rubber covering must be replaced (see assembly of the rubber insulating sheath). We accept no liability in case of a not intended use of the grounding clamp or in case of disregarding these instructions.

The grounding clamp has a strong compression force of due to the powerful spring. Thus there is danger of injury by an inappropriate use!

3.1. Chemical Resistance

The assigned materials, in particular high-grade V2A steel, Polyoxymethylen plastic / POM (for isolation of the contact spring) and Nilamid or Neoprene (rubber insulating sheath) are to a large extent non-corrosive and resistant to a multiplicity of chemicals. A permanent resistance against petroleum products is guaranteed. The stability with particularly aggressive chemical compounds should be examined. If necessary detailed data sheets of the assigned materials can be requested at the manufacturer.

4. Mounting the Grounding Cable

The assembly of the clamp to the grounding cable (cable diameter 2 x 1,5 mm²) should be made only by skilled personnel. For this the rubber sheath has to be removed and a customary, non-isolated cable lug for screw size M6 must be crimped to the grounding cable. After that the cable is pulled through the fixing tube and fixed by using a cable strap and the rubber sheath is put over the clamp handles again as described in chapter 5.

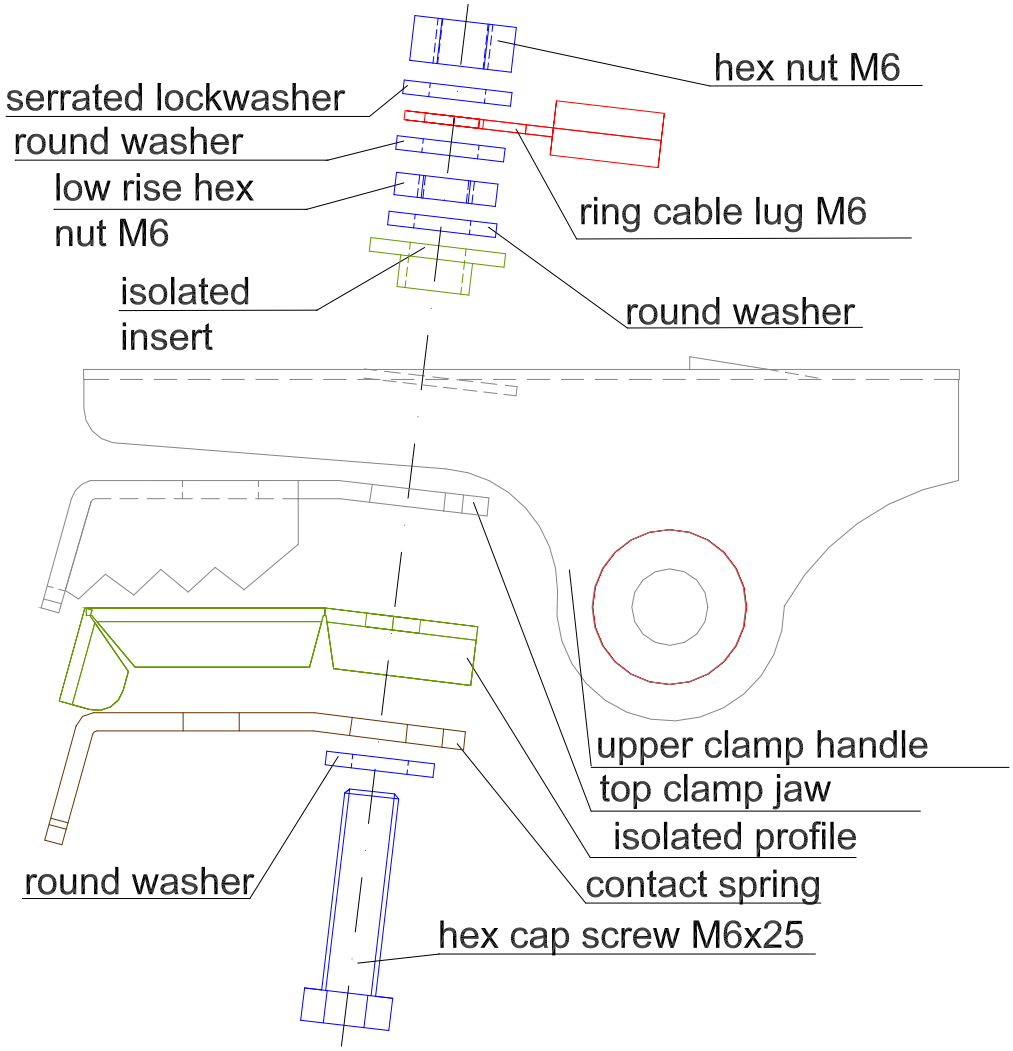


Figure 3: Connection of the inner contact spring

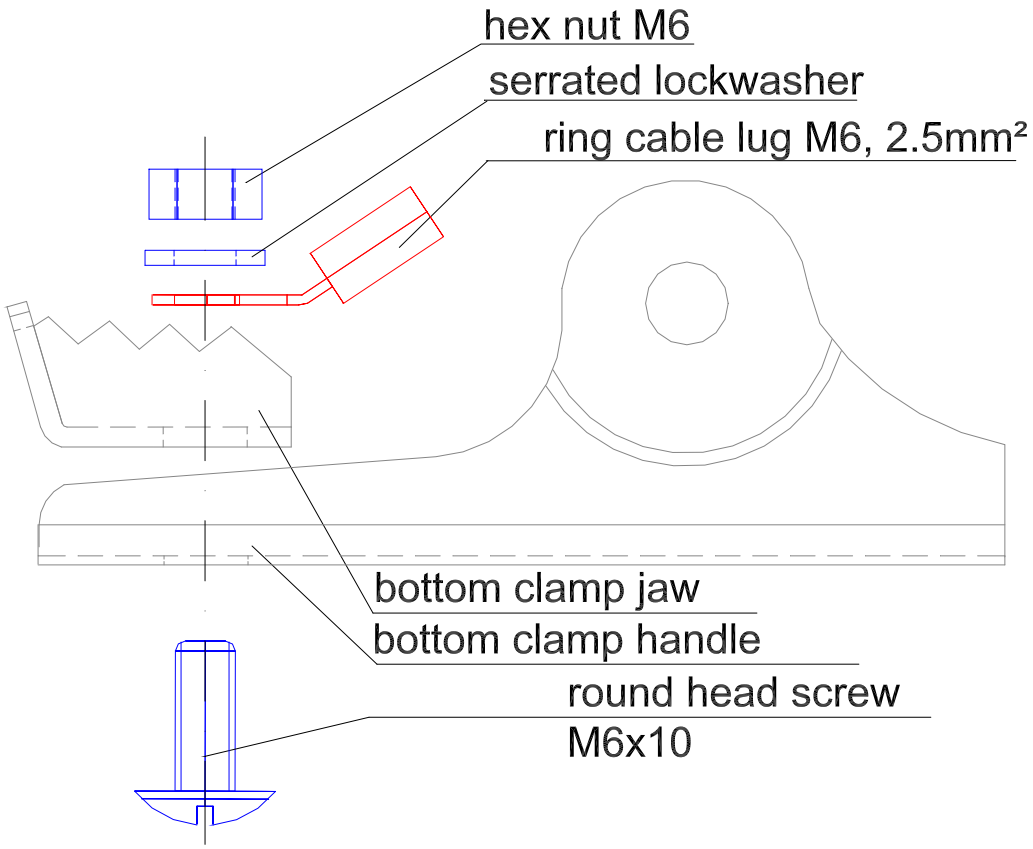


Figure 4: Connection of the outer clamp jaws (only two-pole use)

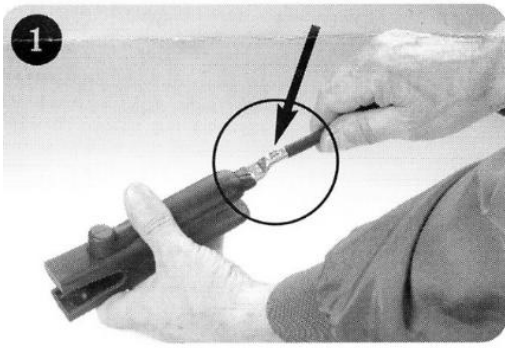
5. Mounting Instructions for the Rubber Insulation Sheath

For an easy assembly of the rubber insulation sheath a silicone-free lubricant should be used; e.g. vaseline or universal spray (penetrating oil) or lubricating soap.

Note: Before the assembly of the insulating sheath the grounding cable must be provided with a customary, non-insulated cable lug (ring terminal) for screw size M6 – for details see page 4. The cable lug must be selected fittingly for the cable diameter and be crimped to the grounding cable with suitable crimping pliers. Soldering of the cable lug is not permitted! Check the firm fastness of the cable lug again!

Step 1: Spray the lubricant onto the grounding cable and the cable lug as well as on the insulating sheath on the inside in the area of the handles.

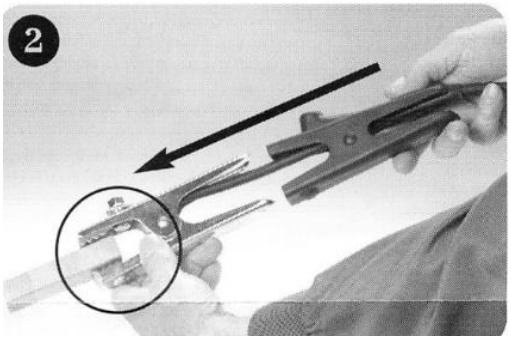
Step 2: Insert the cable lug through the rear opening into the rubber sheath and push the cable forwards (fig. 1). Put the cable through the hole in the upper tong handle. For mounting a single-wire cable a protection hose of approx. 100 mm length must be pulled over cable fixed by using a cable strap.



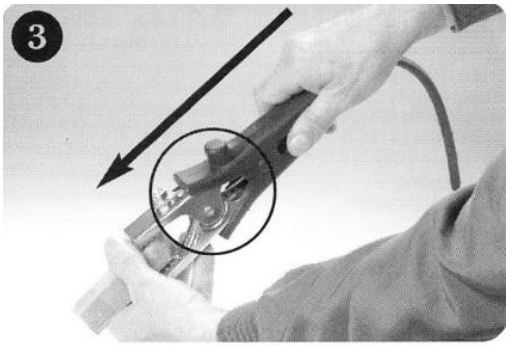
Step 3: Fasten the grounding cable with the lug to the connecting screw and tighten the nut firmly. The lug must be placed between the spring lock washer and the flat washer.

Step 4: When using a two-wire cable you have to put the cable into the strain relief and to close the latches of the strain relief with combination pliers or a small hammer, without damaging the cable thereby.

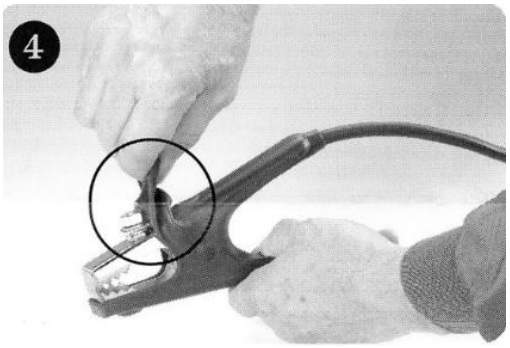
Step 5: Clamp a wooden piece (approx. 25 mm thick) between the jaws, so that the tong handles are in parallel (fig. 2).



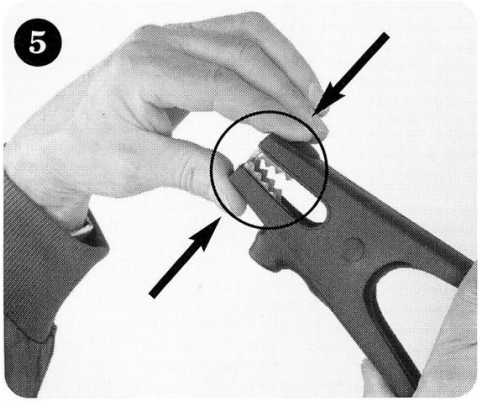
Step 6: Push the rubber sheath from behind over the clamp up to the connection screw (fig. 3).



Step 7: Pull the molded part of the rubber sheath over the connecting screw (fig. 4).).



Step 8: 9.) Push the rubber sheath well forward again, till the front ends fit over the ends of the clamp and the rubber sheath clips properly into place (fig. 5).



6. Disposal

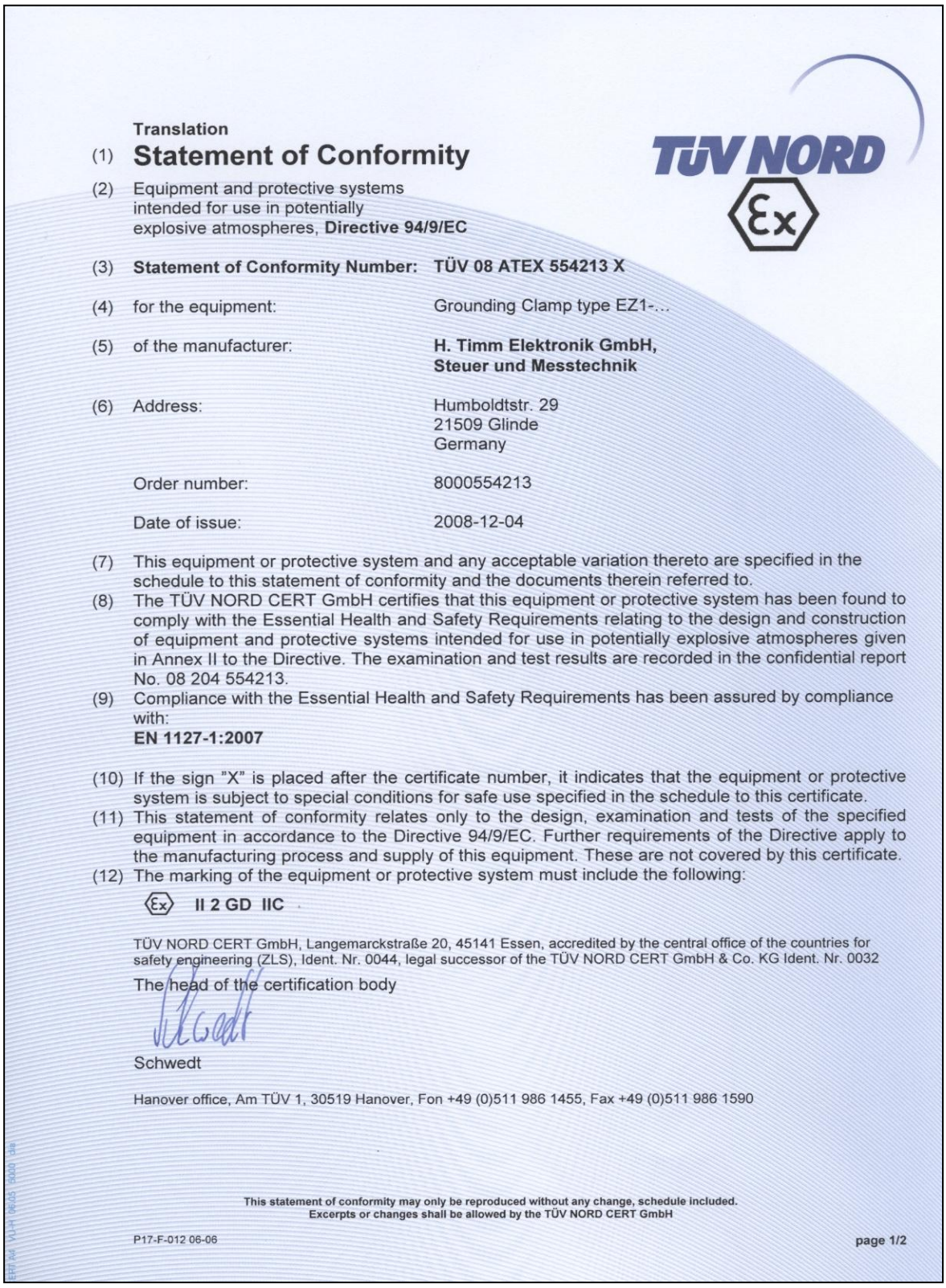
For disposal the grounding clamp must be separated by material type, and sent for recycling.

7. Technical Annex

7.1. Technical specifications

Name of equipment:	Grounding Clamp type EZ1-1pol, -2pol, -Dorn
Gas Group:	IIC
Device Category:	II 2 GD (approved for use in potentially explosive atmospheres of zone 1 and 21)
Statement of Conformity No.:	TÜV 08 ATEX 554213 X
Range of ambient temperature:	- 20 °C to +60 °C With the presence of combustible atmosphere pressure and ambient temperature must be within the ranges 0.8 to 1.1 bar and -20 °C to 60 °C and the remainder air must have the normal atmospheric content of oxygen. If the grounding clamp is used outside of these conditions, the Statement of Conformity serves as basic guide. Optionally the grounding clamp is available with a manufacturer's certificate for an extended temperature range
Weight (without cable):	approx. 300 g.

7.2. Statement of Conformity



Translation

(1) **Statement of Conformity**

TÜV NORD

(2) Equipment and protective systems intended for use in potentially explosive atmospheres, **Directive 94/9/EC**

(3) **Statement of Conformity Number:** **TÜV 08 ATEX 554213 X**

(4) for the equipment: Grounding Clamp type EZ1-...

(5) of the manufacturer: **H. Timm Elektronik GmbH, Steuer und Messtechnik**

(6) Address: Humboldtstr. 29
21509 Glinde
Germany

Order number: 8000554213

Date of issue: 2008-12-04

(7) This equipment or protective system and any acceptable variation thereto are specified in the schedule to this statement of conformity and the documents therein referred to.

(8) The TÜV NORD CERT GmbH certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive. The examination and test results are recorded in the confidential report No. 08 204 554213.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 1127-1:2007

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This statement of conformity relates only to the design, examination and tests of the specified equipment in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the equipment or protective system must include the following:

Ex **II 2 GD IIC**

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, accredited by the central office of the countries for safety engineering (ZLS), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

The head of the certification body

Schwedt

Hanover office, Am TÜV 1, 30519 Hanover, Fon +49 (0)511 986 1455, Fax +49 (0)511 986 1590

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TÜV NORD

(13) **SCHEDULE**

(14) **Statement of Conformity No. TÜV 08 ATEX 554213 X**

(15) Description of equipment

The Grounding Clamp type EZ1-...serves for earthing of road tankers, tank wagons, containers or similar storage tanks in order to prevent electrostatic charges during filling, respectively loading or unloading procedures.
Because of the Grounding Clamp is no heat source the equipment is not marked with a temperature class.

Type code

EZ1- ...

- 1pol = Connection to a single-core cable (e.g. H07 RN-F 1x6 mm² or similar)
- 2pol = Connection to a two-core cable (e.g. H07 RN-F 2x2.5 mm² or similar) only for earthing of drums and containers together with a grounding control device
- Dorn = Equipped with brass pin fitting into a plug
- Type designation

Technical Data

Permitted range of ambient temperature	-20 °C to 60 °C

(16) Test documents are listed in the test report No. 08 204 554213.

(17) Special conditions for safe use

The Grounding Clamp is not marked with the ambient temperature and technical data. These data have to be taken from the manufacturer's manual.

(18) Essential Health and Safety Requirements

no additional ones

7.3. EU Declaration of Conformity

EU-Konformitätserklärung

EU Declaration of Conformity

Timm Technology GmbH | Senefelder-Ring 45 | 21465 Reinbek | Germany

erklärt als Hersteller in alleiniger Verantwortung, dass das Produkt |
declares in its sole responsibility as manufacturer that the product

Erdungszange Typ EZ1-...
(Ausführungen EZ1-1pol, EZ1-2pol und EZ1-Dorn)

Grounding Clamp type EZ1-...
(models EZ1-1pol, EZ1-2pol and EZ1-Dorn)

mit den Anforderungen der folgenden EU-Richtlinien und harmonisierten Normen übereinstimmt | *is in conformity with the requirements of the following EU directives and harmonised standards:*

**EU Richtlinien	*EU Directives***	**Normen	*Standards***
ATEX-Richtlinie 2014/34/EU *ATEX Directive 2014/34/EU*	EN 1127-1:2019

ATEX-Kennzeichnung | *ATEX-Marking:* II 2 GD IIC CE

Konformitätsaussage |
Statement of Conformity

TÜV 08 ATEX 554213 X
(TÜV NORD CERT GmbH, Geschäftsstelle Hannover, Am TÜV 1, 30519 Hannover)

Reinbek, 12.09.2022

Ort und Datum |
Place and date

Dr. Thomas Overbeck
Geschäftsführer | *General Manager*

Anlagen: |
Enclosures:

Konformitätsaussage TÜV 08 ATEX 554213 X |
Statement of Conformity TÜV 08 ATEX 554213 X

Anerkennung des Qualitätssicherungssystems TÜV 98 ATEX 1362Q |
Production quality assessment notification TÜV 98 ATEX 1362Q

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12.09.2022 | V1.3 | EZ1 Konformitätserklärung 220912
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