



Instructions for use and technical documentation  
for  
**SCHERMER**  
electrical stunning equipment  
type EC-2-1



## **Instructions for Use for Electric Stunning Equipment Type EC-2-1**

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## Instructions for Use for Stunning Equipment Type EC-2-1

### 0. Warning and Instructions for Use

The operator of electrical stunning equipment has to observe the national laws and regulations regarding safety and animal welfare. These are e.g. for Germany:

- IEC/EN 60335-2-87
- DGUV Regulation 1 "Basis of prevention"
- DGUV Regulation 3 "Electric Installation and Material"
- DGUV Rule 110-008 "Working in the Meat Industry"
- Directive 1099/2009/EC
- National regulations and directives in effect

**The examinations stipulated in DGUV Regulation 3 and the instructions for carrying out are to be applied to this equipment with the corresponding periods.**

Installation, putting into operation and using the stunning equipment by proficient and instructed persons only!

The stunning equipment is only to be used for stunning animals for slaughter!

Connect data registration unit **SchermerLogger** to „TEST-PORT“ if a registration if the stunning data is required, e.g. in the **area of validity of directive 1099/2009/EC.**

Before starting maintenance work, stunning transformer is to be separated from power supply.

Pull out plug ZK-18 of stunning tongs before starting maintenance work.

Never leave stunning tongs down at the ground or another place!

Contacts between electrodes and metal parts are to be avoided!

Do not combine part of the equipment with part of an equipment from another manufacturer, as we assume no liability for safe use in this case!

Recommendation: When sending the stunning equipment to manufacturer for repair or maintenance, please use the original packing material, which guarantees safe transport!  
Therefore, please carefully store the packing material.

## Instructions for Use for Electric Stunning Equipment Type EC-2-1

### 1. Introduction

The complete standard device consists of:

- stunning transformer type EC-2-1 (supply part)
- stunning tongs type Z3 (application part)

or alternatively:

- stunning fork type GK
- stunning tongs made of plastic type ZK

Use only above devices together!

This stunning equipment for animals for slaughter is fully automatic and corresponds to the regulations of IEC/EN 60335-2-87

The stunning device EC-2-1 fulfils the requirements of directive 1099/2009/EC in combination with the measuring and registration device MRE or the data registration unit SchermerLogger.

### 2. Technical Advice

#### 2.1. Supply part EC-2-1

Supply part is a device not necessarily firmly installed with plug junction type B. It consists of operating part, mains adapter, stunning transformer, control board and connection clip, built-in in a plastic housing protected against torrents of water corresponding to Safety Class II, according to DIN 40014. Below the cover of the housing there are:

- white signal lamp **MAINS**
- red signal lamp **STUNNING**
- ammeter
- voltmeter

Inside the cover of the housing push button **FUSE** is built-in. On top of the housing there is a flash light and on the side a buzzer, which are indicating the end of minimum stunning time according to the regulations according 1099/2009/EC.

Besides the housing there are:

- a socket for stunning tongs **TONGS**
- a socket for measuring instruments **TESTPORT**

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### 2.2. Application part Z3

The stunning tongs Z3 correspond to Safety Class IP 55, DIN 40014. The steel tubes are plastic cased, the electrodes are embedded in nylon. The electric cable leads directly, i.e. without interruption to the electrodes. Against accidental removal the cable is secured by an effective pull relief.

### 2.3. Installation

**Regard:** to be made by expert staff only!

Installation is to be made according to the regulations in effect and the approved regulations of technique.

Input voltage: -230 VAC

Frequency: -50 - 60 Hz

Stunning transformer is to be installed at least 1.60 m (=5'3") above floor level so that the operator has sight on control signals.

Install near the device a wall socket which is easy to access. Install an ON/OFF-switch (IP 65) series connected before the wall socket.

Install the mounting for the stunning tongs part beside the stunning transformer also at least 1.60 m (5'3") above floor level.

When not in use, supply part is to be disconnected from mains supply and the application part is to be stored at the mounting.

In order to avoid hauling the cable on the floor install a suspension spring for cable ZR-17.

Connect data registration unit **SchermerLogger** to „**TEST-PORT**“ if a registration of the stunning data is required, e.g. in the **area of validity of directive 1099/2009/EC**.

Connect measuring instruments which are admitted by the manufacturer and only, if the sum of the inside resistance of the measuring instrument is equal to or more than 20 kΩ. When measuring instrument is delivered ex our factory, this regulation is observed. Measuring instruments are only to be connected to the connector **TEST PORT**.

Should the supply part be firmly installed, the regulations according to DIN VDE 0755 part 1 have to be complied with (only in Germany), i.e. there must exist a device to separate mains supply which can easily be reached. An emergency-OFF- switch is to be installed at mains supply.

**Important:** Store dummy plug at a safe place as stunning transformer will not work without dummy plug if measuring instrument is disconnected from test port.

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### 2.4. Putting into Operation

by expert staff only!

1. Connect plug ZR-18 of stunning tongs to the EC-2-1.
2. Connect external measuring instruments if needed, to the **TESTPORT**  
(PIN 1-2: stunning current, PIN 1-3: stunning voltage)
3. Insert the plug of supply part into the wall socket.
4. White control lamp **MAINS** flashes, the device is ready for use.

**Regard:** The thermal trigger of the fuse prevents the device from turning on again after several successive short-circuits.

The fuse can only be switched on again after a few minutes.

### 2.5 Maintenance

By expert staff only !

Only professional maintenance insures a safe handling!

Do not use a steam cleaner, use only neutral cleaner.

After stunning keep the stunning equipment stored in a dry and warm room.  
Maintain the device as follows:

- Remove dirt from supply part and application part
- Check the equipment whether there are visible damages.
- Clean the electrodes ZR-1 thoroughly by means of a steel brush.
- Sharpen the electrodes.
- Tighten up screws ZR-1A.
- Examine cable ZR-17 whether it shows breaks or traces of bites.

Change damaged or worn parts immediately. This guarantees perfect function of the stunning equipment.

Attention:

## Instructions for Use for Stunning Equipment Type EC-2-1

Basically, we wish to point out that only repair made by an expert guarantees perfect function and use of the equipment. We, therefore, recommend to have the equipment repaired at manufacturer's factory, as repair is made there quick and with proficiency.

If any changes or putting into operation of the electrical fitting-out were made by anyone else but the manufacturer, the operator of the device has to ask from this company/person for a certificate stating what kind of repair work was done, if possible stating which changes regarding allocation data or working share. This certificate must show date of repair work, company doing the repair and signature.

This is urgently demanded by DIN 57 755 for electrical stunning devices for animals for slaughter.

### 2.6. Reasons for Failure and Advice for Repair

Inadequate stunning is mostly due to an insufficient voltage flow.

Possible causes may be:

- 1) Corroded contacts of the electrodes ZR-1 of the tongs.

Remedy: Unscrew electrodes, disconnect and thoroughly clean with steel brush.

- 2) Dirty surface of the electrodes.

Remedy: Thoroughly clean with steel brush.

- 3) Defective cable ZR-17.

Remedy: Unscrew the ZR-1A screws of the electrodes and pull them out of the electrode heads ZR-4 a couple of inches.

Unsolder contacts from electrodes ZR-1, remove joint cover ZR-19, undo joint, remove rubber handle ZR-8 at cable lead in, disconnect pull relief and cable fastener ZR-10, remove cable.

The rubber handle ZR-8 is removed as follows:

Squeeze screw-driver between tube ZR-5 and rubber handle ZR-8, pour in some mineral oil and then pull off the handles.

The application part is reassembled in reverse order.

- 4) Stunning transformer does not switch on stunning voltage perfectly:

Remedy: Sharpen and clean points of the electrodes ZR-1 of the tongs, so that contact between electrodes and hog's head will be improved.

- 5) If the white lamp MAINS does not flash up although mains supply is done by means of plug, there will be a failure inside the device. The device must then be sent to manufacturer for examination.

## Instructions for Use for Electric Stunning Equipment Type EC-2-1

### 3. Advice for Use

#### 3.1. Starting the equipment

**Important:** is to be done by instructed and trained persons only !

1. Connect plug ZR-18 of stunning tongs to the EC-2-1.
2. Connect external measuring instruments if needed, to the **TESTPORT**  
(PIN 1-2: stunning current, PIN 1-3: stunning voltage)
3. Insert the plug of supply part into the wall socket.
4. White control lamp **MAINS** flashes, the device is ready for use.

#### 3.2. Stunning

**Important:** by instructed and trained persons only!

**Note:** Do not chain the animals before electrical stunning procedure is ended. Hold application part with both hands during stunning procedure and place the electrodes at the animal's head as shown on the attached schema (see appendix).

Ignoring these advises may result in danger for persons!

Do not use the application part to herd or drag the hogs.

When stunning animals for slaughter in stun pens, it is advisable to corner them so that there will be little space for movement. The spot where the animals are stunned should be close to the elevator so they can be lifted immediately after stunning process. Immediate and expert stabbing of the animals is effective regarding quality of meat.

The electrodes are placed according to the attached schema (see appendix).

Stunning voltage is automatically switched on as soon as the resistance on the electrodes falls below the limit. The red signal lamp **STUNNING** flashes up. Stunning tongs may not be opened before the flash light and the buzzer indicate the end of the minimum stunning time. In addition, stunning voltage and stunning voltage can be controlled by means of the built-in signal instruments.



## Instructions for Use for Stunning Equipment Type EC-2-1

The stunning transformer type EC-2-1 may be used for stunning the following species taking in account the key parameters of the directive 1099/2009/EC and national regulations in effect, e.g. for animal protection:

stunning voltage 150 to 250 V:	sheep and goats piglets
stunning voltage 250 V:	pigs up to 180 kg
stunning voltage 200 to 300 V:	all species according directive 1099/2009/EC exception area of application of stricter national conditions
stunning voltage 300 to 350 V:	pigs over 180 kg, boars and sows
stunning voltage 350 V:	cattle, if a minimum stunning amperage of 2,5 A is required

The key parameters for minimum stunning current and minimum stunning time are according:

- directive 2009/1099/EC (appendix I, chapter II, point 4)
- national regulations in effect

The individual minimum stunning voltage must be reached within the first second. Minimum stunning time is set to 4 seconds (German regulations). Longer stunning times may be necessary for an effective stun.

Sufficient stunning makes the animal stretch and start beating with its hind legs. At that moment stunning should be stopped. An extensive stunning may lead to muscle bleeding, bone fractures etc. As soon as the electrodes have reached or exceeded the resistance limit, stunning voltage is automatically switched off. When the animal is stunned it must immediately and expertly be stabbed and entirely bled dry as stunning lasts approx. max. 30 – 45 sec only. Expert stabbing is of utmost importance.

Avoid interruptions of stunning voltage due to not expertly placed electrodes. Interruptions of stunning voltage result in muscle bleeding and bone fractures.

Always hang the application part in the mounting beside supply part, if work is interrupted!

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### 4. Technical Data

Measurements:	380 x 350 x 210 mm (h x w x d)
Weight:	11,5 kg
Voltage:	230 V
Frequency:	45 - 60 Hz
Stunning voltage:	250 V (standard, special voltages available)
Frequency:	see mains frequency
Stunning amperage:	1,3 A at approx.. 175 Ohm)
Duty cycle:	70%

### **Wiring:**

#### **Socket 18a:**

T3 – brown  
R1 – blue

#### **Plug 18a:**

T3 – brown  
R1 – blue

### 5. Accessories

- external volt- and ammeter built in a splash-water proof case
- data registration system SchermerLögger
- measuring and registration unit MRE-3

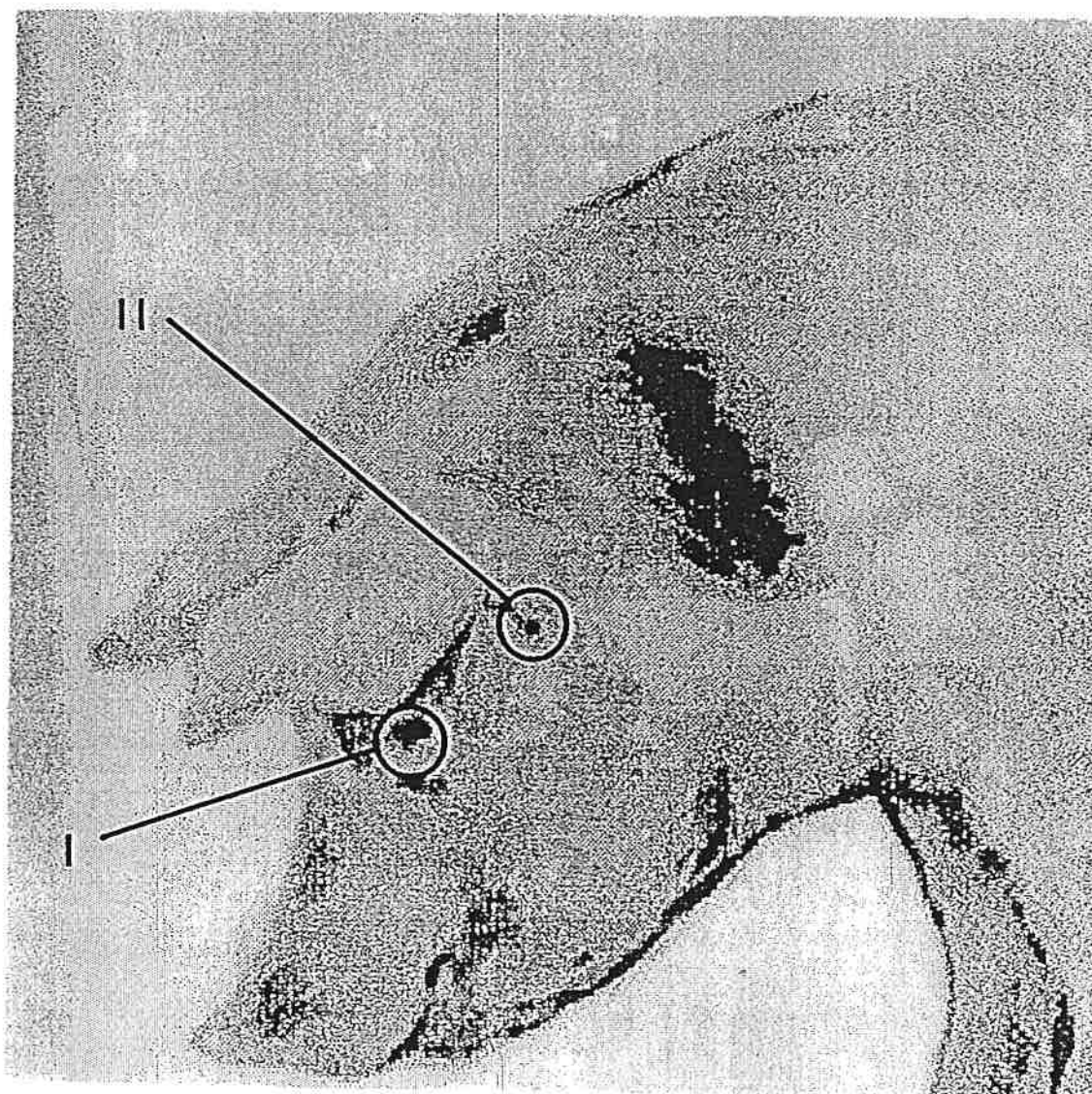
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In order to guarantee an optimal transfer of stunning voltage to the brain we do recommend the following three application points for the electrodes:

- 1.) eye I - eye I
- 2.) eye I - ear II
- 3.) ear II - ear II



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