

# SCHIENLE

## MAGNETTECHNIK

### Operating instructions

### Explosion-proof displacement transducer Protection concept intrinsic safety „ia“ according to ATEX and IECEx, EPL Ma, Ga, Da

Type : xx EX16 600x 500



ATEX 95

EU-type examination certificate:  
IBExU14ATEX 1400 X

Declaration of conformity:  
K 18 / 2013

**CE 0408**

IECEx

Examination certificate:  
IBE 14.0081 X  
Authority above:  
IBExU GmbH, Germany

Document : B 31/ 2013  
Date as of : 11.12.2014

#### Manufacturer:

**Schienle Magnettechnik GmbH**  
**In Oberwiesen 3**  
**D-88682 Salem-Neufrach**



+49 (0)7553-8268 60



+49 (0)7553-8268 61



www.schienle.de

<b>Summary</b>		<b>Page</b>
<b>1</b>	<b>Introduction .....</b>	<b>3</b>
1.1	Manufacturer.....	3
1.2	Production and assembling.....	3
1.3	Quality assurance .....	3
<b>2</b>	<b>Device .....</b>	<b>3</b>
2.1	General .....	3
2.2	Function .....	3
2.3	Usage.....	4
2.4	Temperatures .....	4
<b>3</b>	<b>Types .....</b>	<b>5</b>
3.1	Type coding .....	5
3.2	Marking .....	5
<b>4</b>	<b>Technical data .....</b>	<b>6</b>
4.1	General characteristics.....	6
4.2	Electrical data .....	6
4.3	Mechanical data .....	6
4.3.1	General .....	6
4.3.2	Cable .....	6
<b>5</b>	<b>Installation and implementing .....</b>	<b>7</b>
5.1	General .....	7
5.2	Mounting, Demounting.....	7
<b>6</b>	<b>Maintenance, service, troubleshooting .....</b>	<b>7</b>
6.1	General .....	7
<b>7</b>	<b>Hints of security – <u>read carefully!</u> .....</b>	<b>8</b>
<b>8</b>	<b>Norms and regulations.....</b>	<b>8</b>
8.1	Standards for IECEx Certification .....	8
<b>9</b>	<b>Drawings.....</b>	<b>9</b>

## 1 Introduction

### 1.1 Manufacturer

The manufacturer of the explosion-proof displacement transducer is the company Schienle Magnettechnik GmbH, Salem-Neufrach, Germany.

The existing country specific or rather national specific regulations are fulfilled.

### 1.2 Production and assembling

The device is produced and mounted by the company Schienle Magnettechnik GmbH, according to the requirements acc. EN ISO/IEC 80079-34.

### 1.3 Quality assurance

The quality assurance of the company Schienle Magnettechnik GmbH is controlled according to the management system ISO 9001:2008. The controlling of the quality assurance concerning the explosion-proof matter, occurs by TÜV Austria, the authority number Nr. 0408, according to the regulations 94/9/EG.

## 2 Device

### 2.1 General

This device is electrical flame-proof equipment, constructed for an usage in areas exposed to explosion hazards and areas where danger of fire damp occurs.

The device was designed, manufactured and tested in compliance with the standards and regulations generally applicable within the European Union (ATEX 95) and was leaving Schienle GmbH safety-related faultlessly.

In order to maintain this status and to ensure safe operation, the operator has to read and observe the notes and warnings contained within this operating instruction.

The device must only be installed and wire-connected by a qualified technician who is familiar with works according to the generally accepted engineering standards, the latest legal regulations and standards of explosion protection.

### 2.2 Function

Through the measurement of the magnetic field the displacement transducer identifies the position of a movable part e.g. a valve slider. The measured electrical value is received and evaluated by an electronic assembly. Principal item of this function is a touch-less and contact-less puls emitter, an in the transducer assembled hall sensor.

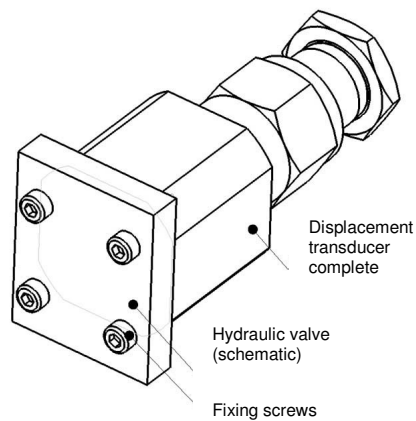
For a safe installation, a Zener-Barrier must be connected between the way transducer and the voltage supply e.g. Type bzg2710+, Georgin.

## 2.3 Usage

The displacement transducer is provided for use on hydraulic plants. It has to be mounted fix and pressure-proof on a hydraulic device.

National requirements and instructions of electrical devices and plants have to be observed.

- in mining areas e.g. VDE 0118
- in areas exposed to explosion hazards e.g. EN 60079-14 (VDE 0165)
- for electrical devices with EPL Ga acc. EN 60079-26:2007



**Figure 1** — Transducer with/without a valve item

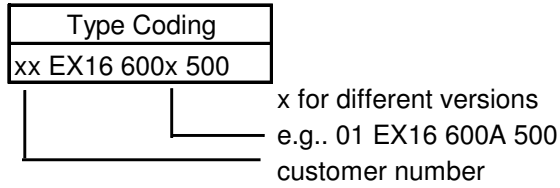
## 2.4 Temperatures

Medium temperature:  
-30 °C...+70 °C

Ambient temperature:  
-40 °C...+70 °C

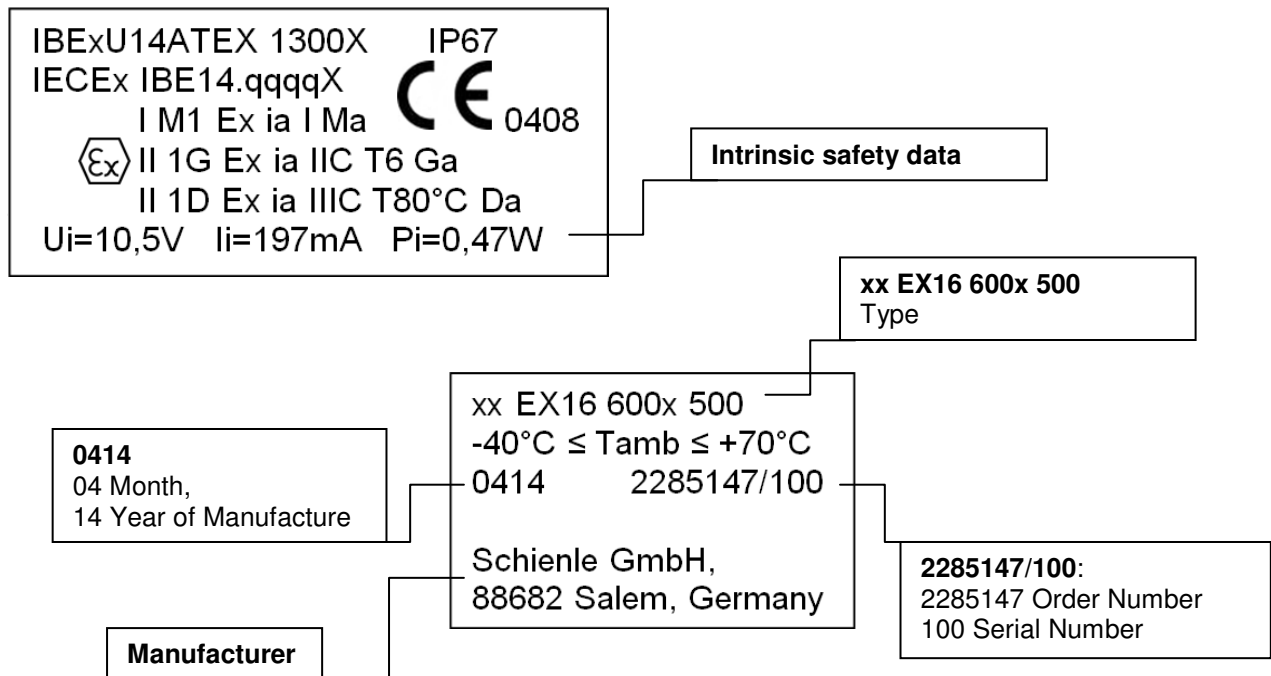
### 3 Types

#### 3.1 Type coding



#### 3.2 Marking

The transducer is constructed for protection class intrinsic safety „ia“ according to ATEX and IECEx. It is marked as follows. The marking is engraved or lased on the metallic surface.



The marking position on the device is given in figures 3 and 4.

## 4 Technical data

### 4.1 General characteristics

- Protection category according to EN 60529 / IEC 60529: IP 67
- Water-proof and non-decomposable excavations
- Insulation class according to DIN VDE 0580 „F“ (155C°)
- Surface protection (housing): nickel plated

### 4.2 Electrical data

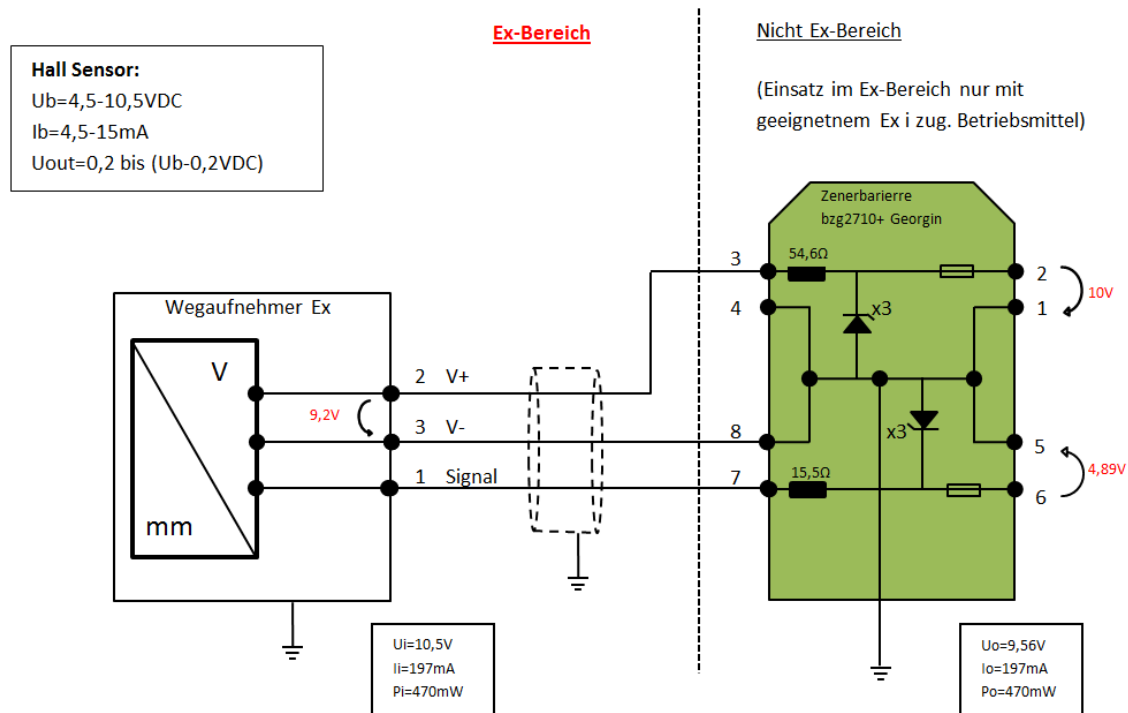


Figure 1 — Current circuit scheme without and with cable shielding

### 4.3 Mechanical data

#### 4.3.1 General

The here performed pre-fabricated parts may be manufactured by an other manufacturer only in an equivalent or higher quality and must fulfil the technical requirements given in the listed norms and regulations.

#### 4.3.2 Cable

Table 3 Cable

Manufacturer	Description by manufacturer	Dimensions	Temperature range	Color
Lapp	Ölflex EB CY	3 x 0,75 mm <sup>2</sup>	-40 °C - +80 °C	Blau

## 5 Installation and implementing

### 5.1 General

The existing transducer may only be operated with a factory-made valve section.

An appropriate Zener-Barrier must be connected between the way transducer and the voltage supply (figure 3)

$$U_i \leq 10,5V \quad I_i \leq 197mA \quad P_i \leq 0,47W$$

Suggestion: Type bzg2710+, GeorGIN.

The maximum ambient temperature of 70°C and die maximum medium temperature of 70°C shall not be overstepped.

The transducer shall neither be covered nor stored adjacent to heat sources during the operation.

It is the user's duty to ensure free and unhindered heat emission during the operation.

The connection cable must be passed sufficiently protected.

### 5.2 Mounting, demounting

The transducer consists of several individual components. These components are fine-tuned to one another and shall not be replaced or demounted individually.

**Notice:** The cable and the cable gland must not be changed!

## 6 Maintenance, service, troubleshooting

### 6.2 General

The transducer is largely maintenance-free. The electrical connection shall regularly be inspected on damages (visual inspection).

The surface of the transducer system has to be checked to dust deposits and has to be cleaned at regular intervals.

It is not allowed to open or to repair the device. When failure or damage occurs, the device has to be replaced.

## 7 Hints of security – read carefully!

- If failure, external damage or defect (also significant corrosion) occurs, the device has to be shot down and replaced.
- No sedimentations on the device surface shall affect the heat emission.
- In order not to affect the readability of the device label, the device may not be varnished.
- Before executing any operation, the transducer shall be disconnected from the power supply.
- A displacement transducer shall always be replaced. It shall never be repaired!
- No modifications, which could affect the explosion-safety, shall be carried out on the device, on the cable gland or on the cable.
- The transducer shall not be operated separately from the hydraulic valve.
- A displacement transducer can only be demounted in a non-explosive-area.
- An appropriate Zener-Barrier must be connected between the way transducer and the voltage supply (figure 3  $U_i \leq 10,5V$   $I_i \leq 197mA$   $P_i \leq 0,47W$   
Suggestion: Type bzg2710+, Georgin.

### Special terms for safe use

- The explosion-proof device type shall only be used as a part of a hydraulic unit which is defined by the manufacturer.
- Concerning the potential equalisation, the housing of the transducer has to be connected constructional to the hydraulic valve according to EN 60079-14, chapter 6.3.
- Dust deposits above 5 mm are to be removed.
- The device may be operated in explosive atmospheres, which requires apparatus of category 1, only if there are atmospheric conditions (temperature of  $-20^\circ C$  to  $+60^\circ C$ , pressure of 0.8 bar to 1.1 bar)

### **Any warranty claims are denied in case the regulations in this operating manual are not observed !**

## 8 Norms and regulations

**Regulation 94/9/EG** of European parliament and of the European council

**60079-0:2012:A11:2013:** Explosive atmospheres - Part 0: Equipment - General requirements (IEC 60079-0:2011, modified + Cor. :2012);

**EN 60079-11:2012:** Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i" (IEC 60079-11:2011 + Cor.:2012);

**EN 50303: 2001:** Group 1, category M1 equipment intended to remain functional in atmospheres endangered by firedamp and/or coal dust; German version EN 50303:2000

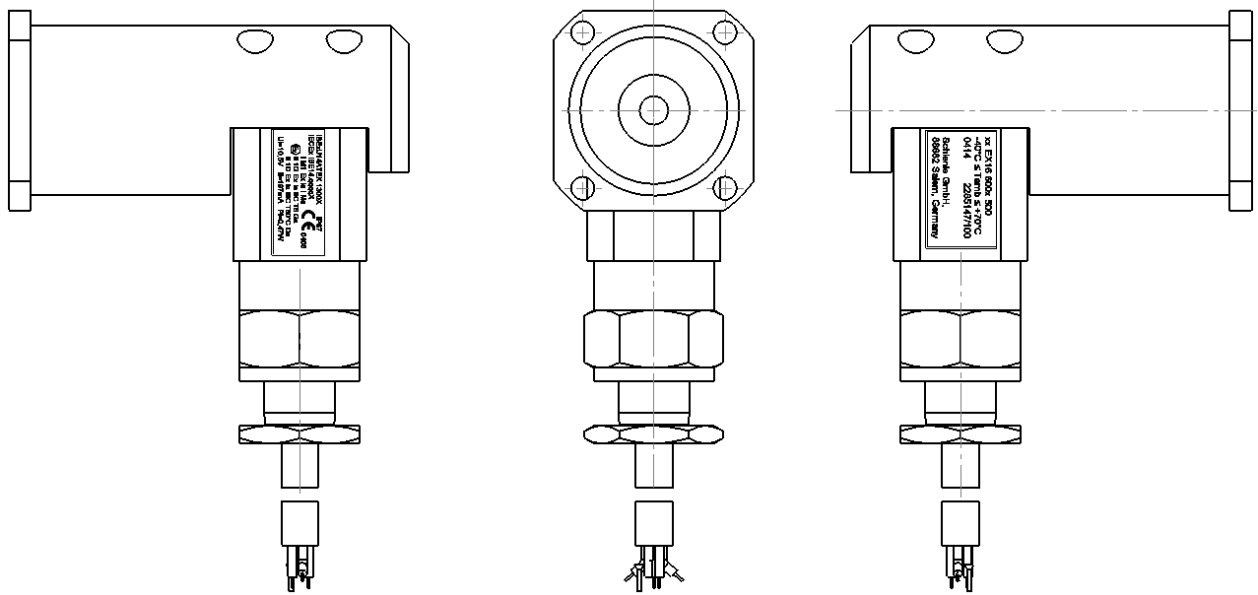
**EN 60079-26:2007:** Equipment with equipment protection level (EPL) Ga (IEC 60079-26:2006)

### 8.1 Standards for IECEx Certification

**IEC 60079-0: 2011**  
**IEC 60079-1: 2011**  
**IEC 60079-26:2014**

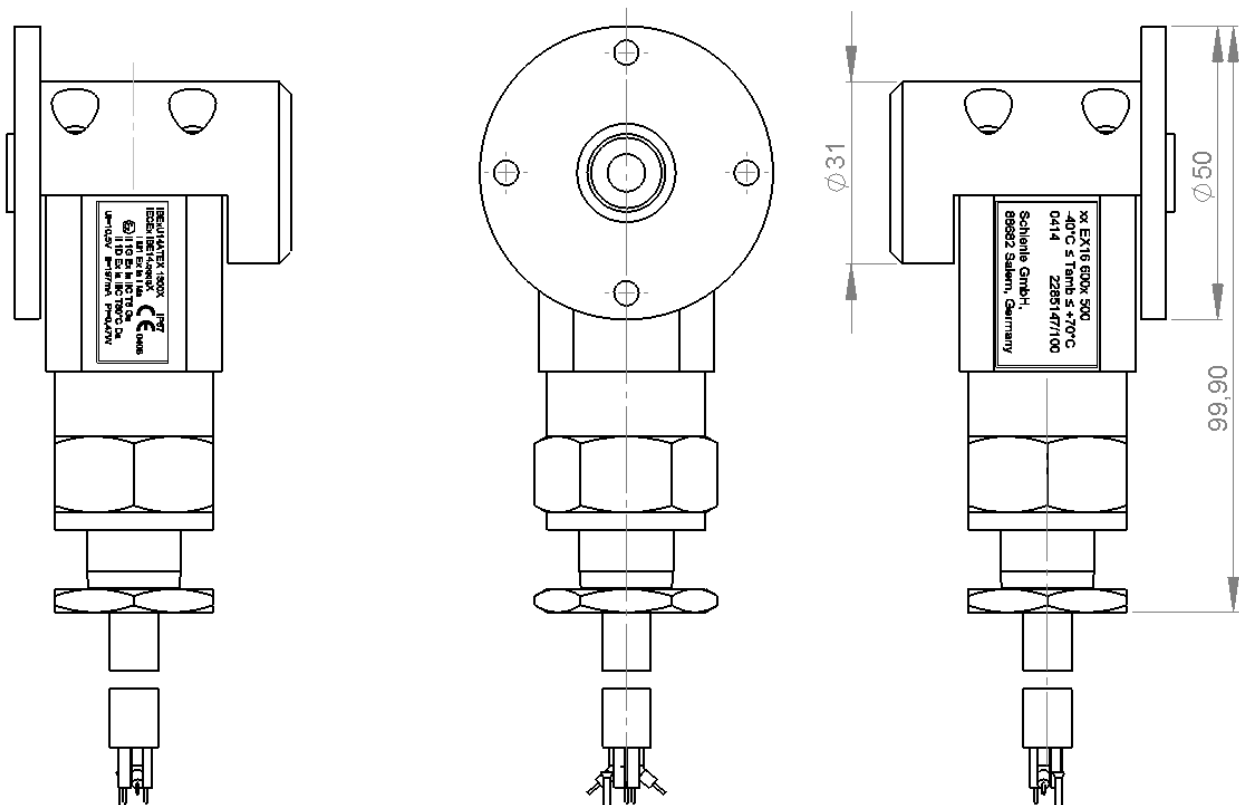


## 9 Drawings



**Figure 2** — Displacement transducer with housing Type PSL3

Marking is engraved or lased obviously readable on the housing.



**Figure 3** — Displacement transducer with housing Type PSL5