Instructions according to IEC 60079-0 Simple Apparatus

Overvoltage Protection type BA 350-... Edition: 01.2021

I Range of application

The overvoltage protection is for protection of overvoltage in an intrinsic safety circuit.

II Standards

The device is designed according to the following IEC standards

IEC 60079-0:2017-12, Edition 7.0	Equipment – General requirements
IEC 60079-11:2011-06, Edition 6.0	Equipment protection by intrinsic safety "i"

III Instructions for safety

III.a Use

The overvoltage protection is for use of discharge overvoltage and is designed as a simple apparatus according to IEC 60079-11, clause 5.7. Therefore, it can be used without an IECEx Certificate of Conformity inside potentially explosive atmospheres (zone 1 and zone 2). Additional, the use of the overvoltage protection equipment has to be asset by the raiser or operator.

General remark (see also IEC 60079-11, clause 3.1.5 resp. IEC 60079-14:2013, clause 3.5.5):

> Simple apparatus: electrical component or combination of components of simple construction with well-defined electrical parameters and which is compatible with the intrinsic safety of the circuit in which it is used.

The overvoltage protection is built-on a metal enclosure. The material composition of the enclosure includes according to IEC 60079-0, clause 8.3 for an EPL Gb less than 7.5 % magnesium and titan, such as AlSi 12.

These instructions are valid for the following types

BA 350-2	Two-pole overvoltage protection
BA 350-4	Two-pole overvoltage protection

III.b Assembling and dismantling

The wiring may only take place de-energised!

The overvoltage protection is built-on a metal enclosure with a degree of protection of IP66. For the installation the housing cover hast to be removed (four screws).

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III.c Installation

The wiring may only take place de-energised. Special regulations, among other things, IEC 60079-14 resp. IEC 60079-25 resp. the local installation regulations should be noted.

Wall mounting of the overvoltage protection is possible.

General remark (see also IEC 60079-14:2013, clause 16.3):

> The overvoltage protection device must be installed outside zone 0 but as near as technical possible to the boundary of zone 0, preferable in a distance of maximum 1 m.

Both terminal blocks can be used either as an input or output. The polarity does not to be observed. For the connection to the potential equalisation (PA) a terminal on outside of the enclosure is provided.

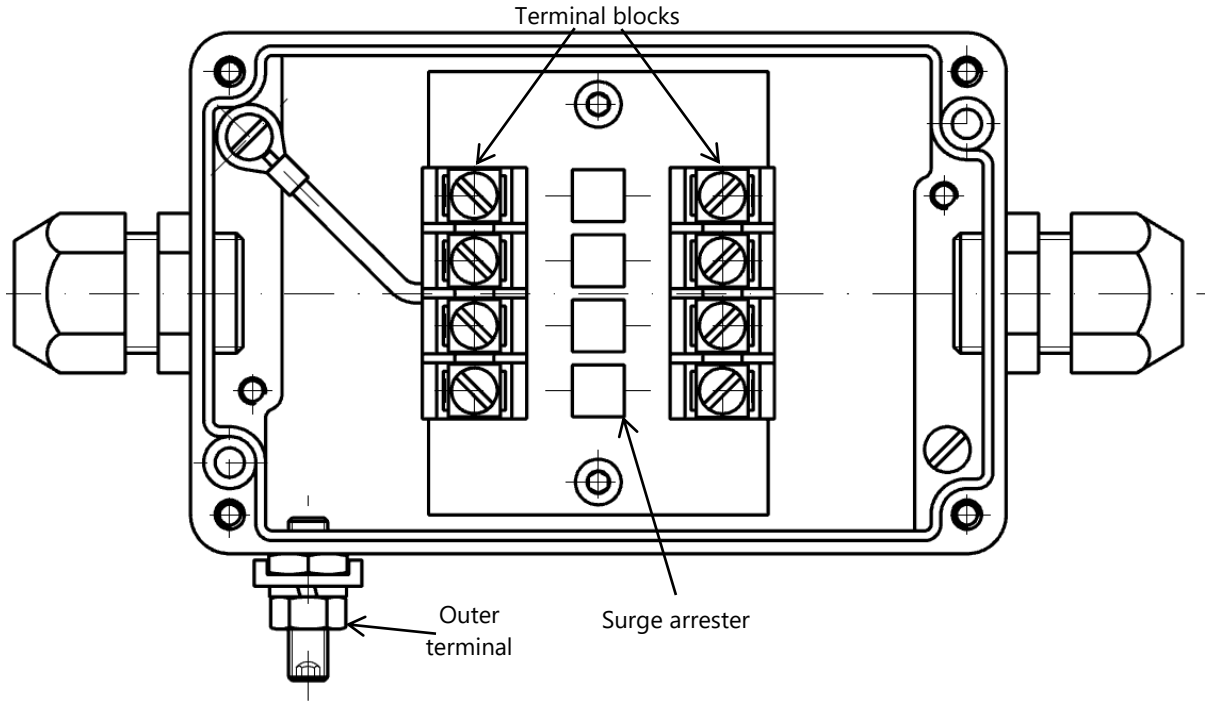

Figure 1: View into open enclosure of a BA 350-4

III.d Adjustment

For operating the overvoltage protection there is no need of safety adjustments.

III.e Putting into service

Before putting into service all devices must be checked of right connection and mounting. The electrical power supply has to be checked also from peripheral equipment.

III.f Maintenance, overhaul and repair

In general, the equipment is maintenance free. Defective equipment has to send back to manufacturer FAFNIR or one of his representations.

Testing the intrinsic safety circuit with 500 V under well-controlled conditions it is necessary to disconnect the overvoltage discharge device, according to IEC 60079-25:2010, clause 12, because of a non-conformance with the dielectric strength in accordance with IEC 60079-11, clause 6.3.13.

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IV Equipment marking

1	Manufacturer:	FAFNIR GmbH, 22525 Hamburg
2	Type designation:	BA 350-...
3	Technical data:	T_a = -40 °C ... +80 °C
		U_i < 50 V
		I_i < 1 A
		C_i ≤ 6 pF

V Technical data

The permissible input voltage is defined with

U_i < 50 V

The permissible input current (dependent on printed circuit board tracks; thickness ≥ 35 µm; width ≥ 1 mm) is defined with

I_i < 1 A

Since no power is converted into the overvoltage protection before the maximum permissible input voltage is reached, the specification of the permissible input power P_i is omitted.

The electrical input values will not change by the overvoltage protection. Therefore, the electrical output values of the associated device are valid.

The effective internal capacitance is

C_i < 6 pF

The effective internal inductance is negligible small.

The nominal dc spark-over voltage is

U = 350 V ± 20 %

The nominal impulse discharge current is

I = 20 kA (10 × Wave 8/20 µs)

The nominal alternating discharge current is

I = 20 A (10 × @ 50 Hz, 1 s)

The insulation resistance of a surge arrester is

R > 10 GΩ

The overvoltage protection can be used in following ambient temperature range:

T_a = -40 °C ... +80 °C

VI Specific conditions of use

None.

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