

General information

Ex versions

Extractive continuous process gas analysis

Series 6

Additional units

Overview

Installation of Ex isolation modules / Ex i isolation amplifiers

The mounting rail in the analyzer has a length of approximately 250 mm, with the number of installable components being limited.

The maximum installation height including mounting rail is 115 mm; however, it is less in the area of the display (88 mm). The width must not exceed 100 mm.

The add-on devices must be approved for an ambient temperature of up to 60 °C; this temperature can be reached under extreme marginal conditions.

Installation must always be discussed with the competent experts.

Slots in the analyzer

	Ex i isolating transformer	Ex isolating relay 8S	Comment
Analyzers	2	0	Max. 2

Ex i isolating transformer, 7MB8000-3AB

The analog inputs and outputs of the analyzers are **not intrinsically safe** in the basic version.

The analog output can be supplemented later with an intrinsically-safe analog output (explosion protection type Ex ib II C or EE ia II C). For this purpose, a suitable commercially available isolating transformer can be mounted on a rail in the device.

Technical specifications

- Intrinsically-safe analog output
- mA isolating transformer without power supply
- For installing in the analyzer

Ex i isolating transformer, rail mounting

- Intrinsically-safe output Ex ia IIC
- Galvanic isolation

Technical specifications

Input voltage U_{in}	≤ 31.2 V
Auxiliary power	Without
Weight	160 g
Ambient temperature	-20 °C ... +70 °C
Relative humidity	< 95%, no condensation

Explosion protection

Type of protection	II 3 (1) G Ex nA [ia] IIC T4 and E II (1) D [Ex iaD]
EC type-examination certificate	BVS 04 ATEX E 082 X
Safety limits	$U_0 \leq 18.8$ V $I_0 \leq 107$ mA $P_0 \leq 503$ mW

Isolating relay (signal outputs with external voltage supply) 7MB8000-4AA (230 V AC)/7MB8000-4AB (115 V AC)

If the device has to be opened, it must be isolated at all poles from the mains cable, the digital inputs, relay outputs, analog inputs/ outputs, RS485 interface cable, and the PROFIBUS PA cables (not Ex i). For this purpose, isolating relays must be inserted. Intrinsically-safe circuits are excepted from this.

An isolating relay must be explosion-proof if it is to be set up in an area subject to explosion hazard. The isolating relays must be installed in an additional Ex-protected enclosure.

Protective gas

- The fed-in gases are not flammable. Air from an area not subject to explosion hazard can be used as the protective gas (purging gas).
- Flammable gases or gas mixtures that are rarely or only briefly ignitable are fed in. The enclosure must be flooded with inert gas.
- Gas mixtures that are occasionally ignitable are introduced. As with b), the enclosure must be flooded with inert gas; in addition, the sample gas inlet and outlet must be equipped with flame arrestors.
- Explosive gas mixtures that are present in the long term or permanently must not be connected!

Flame arrestors

If the gas mixture to be measured sometimes has an explosive composition, flame arrestors must be installed in the sample gas inlet and, in certain circumstances, also in the sample gas outlet, in addition to the application already described with flammable sample gases.

The material of the flame arrestors must be resistant to the flow-type sample gas mixture. For this reason, they are available in two different versions:

- The detonation protection (Ex designation Ex IIG IIC) is used to prevent flashover in the case of unstable detonations and deflagrations of explosive gas or vapor/air mixtures of explosion group IIC.
- The flame arrestor consists essentially of a detonation-proof enclosure with gas connections and a ceramic sinter cartridge built into the housing (max. pore width: 80 μ m) to prevent flashover.

It may be heated up to 150 °C and subjected to a pressure up to 3 bar (abs.).

Technical specifications

Length	83.5 mm
Diameter	32 mm
External thread	M 30 x 1.5; 30 mm long
Gas connections	G 1/4"
Material	Stainless steel or Hastelloy C
Max. gas operating pressure	3 bar (abs.)
Max. operating temperature	150 °C (200 °C on request)
Explosion group	IIC

Differential pressure switch: 7MB8000-5AA

There must be a fail-safe guarantee that the sample gas pressure will never exceed 5 hPa under the purging gas pressure.

If this cannot be guaranteed on the plant side, a differential pressure switch must be mounted between the sample gas line and the purging gas line and connected electrically with the purging unit.

The differential pressure switch always has contact with the sample gas.

Technical specifications

- Differential pressure switches type 732.51 with magnetic spring contact type 821
- Materials coming into contact with the sample gas: 1.4571
- Measuring range: -20 ... +20 hPa
- Trigger point: Adjustable

Selection and ordering data

	Article No.
ATEX Category II 2G (zone 1)	
Ex i isolating transformer	7MB8000-3AB
Ex isolating relay, 230 V	7MB8000-4AA
Ex isolating relay, 115 V	7MB8000-4AB
Differential pressure switch for corrosive and non-corrosive gases	7MB8000-5AA
Stainless steel flame arrestor	7MB8000-6BA
Hastelloy flame arrestor	7MB8000-6BB