

Safety Instructions

Gamma Modulator FHG65

NEPSI: Ex d e IIC T5/T6 Gb
Ex d IIC T5/T6 Gb



Document: XA00433F-C

Safety instructions for electrical apparatus for explosion-hazardous areas →  3

Gamma Modulator FHG65

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Associated documentation	<p>This document is an integral part of the following Operating Instructions: BA00373F/00</p>										
Supplementary documentation	<p>Explosion-protection brochure: CP00021Z/11</p> <p>The Explosion-protection brochure is available:</p> <ul style="list-style-type: none"> ■ In the download area of the Endress+Hauser website: www.endress.com -> Downloads -> Media Type: Documentation -> Documentation Type: Brochures and catalogs -> Text Search: CP00021Z ■ On the CD for devices with CD-based documentation 										
Manufacturer's certificates	<p>NEPSI Declaration of Conformity</p> <p>Certificate number: GYJ18.1515X</p> <p>Affixing the certificate number certifies conformity with the following standards (depending on the device version):</p> <ul style="list-style-type: none"> ■ GB3836.1-2010 ■ GB3836.2-2010 ■ GB3836.3-2010 										
Manufacturer address	<p>Endress+Hauser SE+Co. KG Hauptstraße 1 79689 Maulburg, Germany Address of the manufacturing plant: See nameplate.</p>										
Extended order code	<p>The extended order code is indicated on the nameplate, which is affixed to the device in such a way that it is clearly visible. Additional information about the nameplate is provided in the associated Operating Instructions.</p> <p>Structure of the extended order code</p> <table border="0" style="margin-left: 40px;"> <tr> <td style="text-align: center;">FHG65</td> <td style="text-align: center;">-</td> <td style="text-align: center;">*****</td> <td style="text-align: center;">+</td> <td style="text-align: center;">A*B*C*D*E*F*G*..</td> </tr> <tr> <td style="text-align: center;"><i>(Device type)</i></td> <td></td> <td style="text-align: center;"><i>(Basic specifications)</i></td> <td></td> <td style="text-align: center;"><i>(Optional specifications)</i></td> </tr> </table> <p>* = Placeholder At this position, an option (number or letter) selected from the specification is displayed instead of the placeholders.</p> <p><i>Basic specifications</i></p> <p>The features that are absolutely essential for the device (mandatory features) are specified in the basic specifications. The number of positions depends on the number of features available. The selected option of a feature can consist of several positions.</p> <p><i>Optional specifications</i></p> <p>The optional specifications describe additional features for the device (optional features). The number of positions depends on the number of features available. The features have a 2-digit structure to aid identification (e.g. JA). The first digit (ID) stands for the feature group and consists of a number or a letter (e.g. J = Test, Certificate). The second digit constitutes the value that stands for the feature within the group (e.g. A = 3.1 material (wetted parts), inspection certificate).</p>	FHG65	-	*****	+	A*B*C*D*E*F*G*..	<i>(Device type)</i>		<i>(Basic specifications)</i>		<i>(Optional specifications)</i>
FHG65	-	*****	+	A*B*C*D*E*F*G*..							
<i>(Device type)</i>		<i>(Basic specifications)</i>		<i>(Optional specifications)</i>							

More detailed information about the device is provided in the following tables. These tables describe the individual positions and IDs in the extended order code which are relevant to hazardous locations.

Extended order code: Gamma Modulator



The following specifications reproduce an extract from the product structure and are used to assign:

- This documentation to the device (using the extended order code on the nameplate).
- The device options cited in the document.

Device type

FHG65

Basic specifications

Position 1 (Approval)		
Selected option		Description
FHG65	C	NEPSI Ex d e IIC T5/T6 Gb
	D	NEPSI Ex d IIC T5/T6 Gb

Position 5 (Mounting Device)		
Selected option		Description
FHG65	1	Level, point level, density
	2	Level, point level, density + cooling tube

Optional specifications

No options specific to hazardous locations are available.

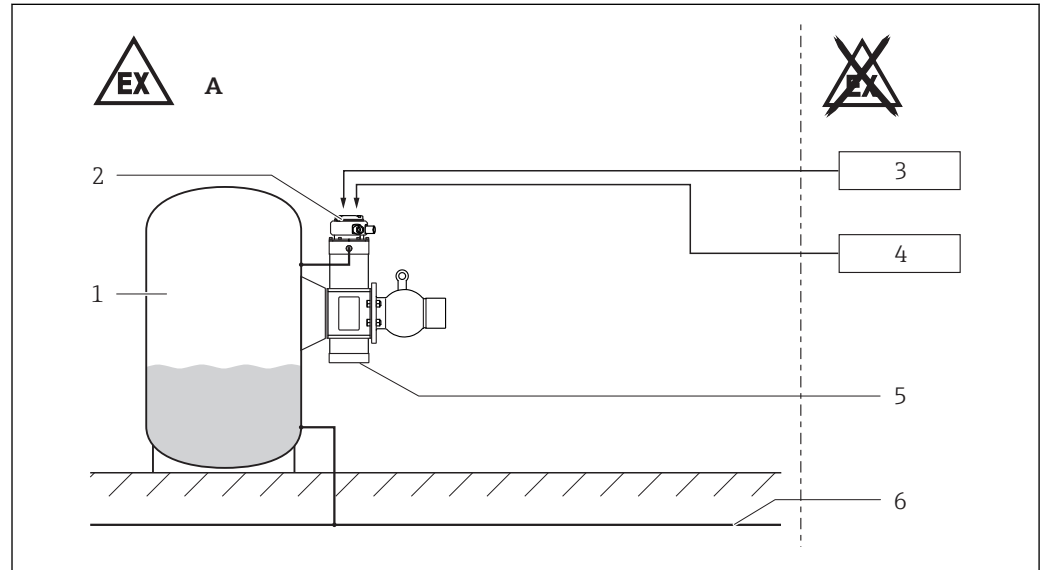
Safety instructions: General

- Comply with the installation and safety instructions in the Operating Instructions.
- For installation, use and maintenance of the device, users must also observe the requirements stated in the Operating Instructions and the standards:
 - GB50257-2014: "Code for construction and acceptance of electric device for explosion atmospheres and fire hazard electrical equipment installation engineering".
 - GB3836.13-2013: "Explosive atmospheres, Part 13: Equipment repair, overhaul and reclamation".
 - GB/T 3836.15-2017: "Explosive atmospheres, Part 15: Electrical installations design, selection and erection".
 - GB/T 3836.16-2017: "Explosive atmospheres, Part 16: Electrical installations inspection and maintenance".
- Staff must meet the following conditions for mounting, electrical installation, commissioning and maintenance of the device:
 - Be suitably qualified for their role and the tasks they perform
 - Be trained in explosion protection
 - Be familiar with national regulations
- Install the device according to the manufacturer's instructions and national regulations.
- Do not operate the device outside the specified electrical, thermal and mechanical parameters.
- Avoid electrostatic charging:
 - Of plastic surfaces (e.g. housing, sensor element, special varnishing, attached additional plates, ..)
 - Of isolated capacities (e.g. isolated metallic plates)
- Modifications to the device can affect the explosion protection and must be carried out by staff authorized to perform such work by Endress+Hauser.

**Safety instructions:
Special conditions**

- In the event of additional or alternative special varnishing on the housing or other metal parts:
- Observe the danger of electrostatic charging and discharge.
 - Do not rub surfaces with a dry cloth.

**Safety instructions:
Installation**



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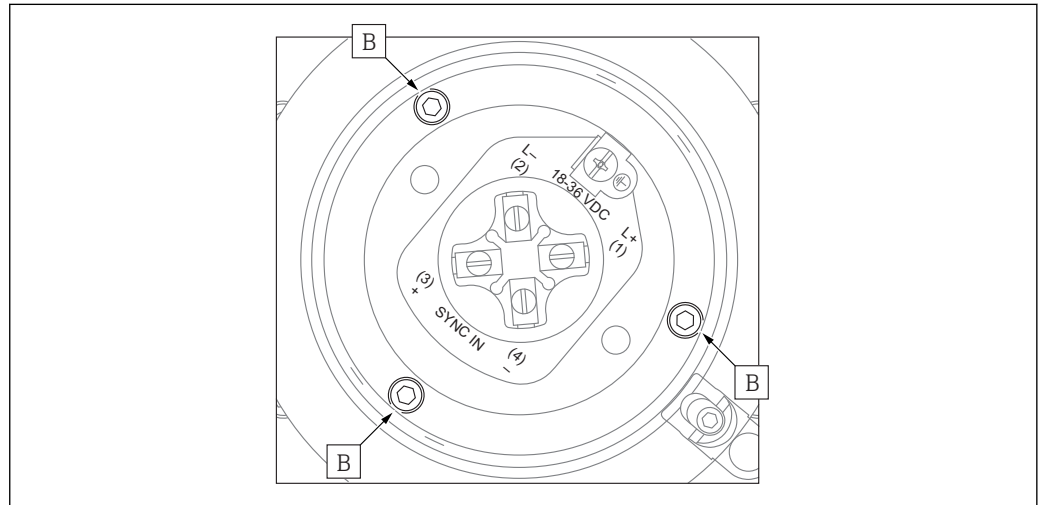
1

- A Zone 1, Zone 2
 1 Tank; Zone 0, Zone 1
 2 Connection compartment (Ex d or Ex e)
 3 Power supply
 4 Optional: Synchronizer FHG66
 5 Modulator FHG65
 6 Local potential equalization

- For cable entries, appropriate cable glands or blind plugs shall be used which are approved by Ex TL in accordance with:
 - GB3836.1-2010 and GB3836.2-2010 (Terminal compartment in flameproof)
 - GB3836.1-2010 and GB3836.3-2010 (Terminal compartment in increased safety)
- In potentially explosive atmospheres: Do not open the connection compartment cover when energized.
- Waiting time before opening the connection compartment after switching off the power supply: 60 minutes.
- At an ambient temperature higher than 70 °C: Cables and cable glands must be suitable for a temperature of at least 85 °C.
- To maintain the ingress protection of the housing IP66/67: Install the housing cover, cable glands and blind plugs correctly.
- Before operation:
 - Screw in the cover all the way.
 - Tighten the securing clamp on the cover.
- Tighten unused terminal screws.
- Threaded joints are not for repair. Contact the manufacturer.

Increased safety (Ex e)

Basic specification, Position 1 (Approval) = C



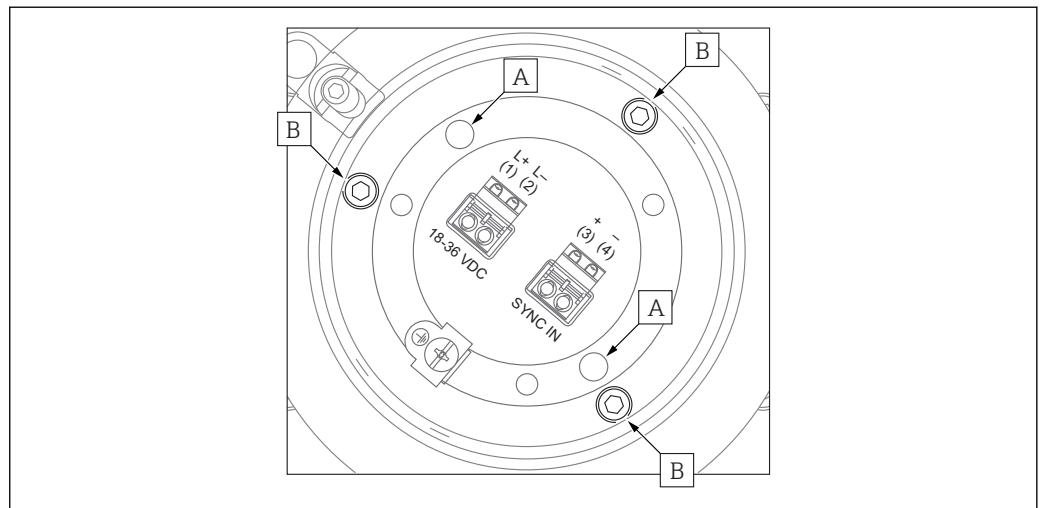
■ 2

B Screws

- Replace cable glands and sealing plugs only with identical parts.
- Do not open screws.

Flameproof enclosure (Ex d)

Basic specification, Position 1 (Approval) = D



■ 3

A Threaded holes

B Screws

Ex d volume < 1.9 l

- Connect the device:
 - Using suitable cable and wire entries of protection type "Flameproof Enclosure (Ex d)".
 - Using piping systems of protection type "Flameproof Enclosure (Ex d)".
- Seal unused entry glands with approved Ex d sealing plugs.
- Do not close threaded holes.
- Do not open screws.

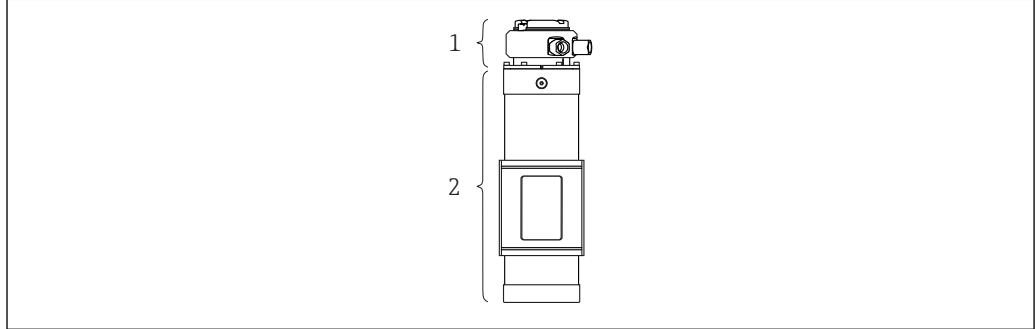
Safety instructions: Ex d joints

If required or if in doubt: ask manufacturer for specifications.

Potential equalization

Integrate the device into the local potential equalization.

Temperature tables



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1 Terminal head

2 Housing tube

Ambient temperature T_a (ambient)	
Modulator without water cooling or with water cooling out of operation:	$-40\text{ °C} \leq T_a \leq +60\text{ °C}$
Modulator with water cooling in operation:	
<ul style="list-style-type: none"> ■ At the housing tube (within the water cooling): ■ At the terminal head: 	$-40\text{ °C} \leq T_a \leq +60\text{ °C}$ $-40\text{ °C} \leq T_a \leq +75\text{ °C}$

Temperature class	
Modulator without water cooling or with water cooling out of operation:	T6: $-40\text{ °C} \leq T_a \leq +60\text{ °C}$
Modulator with water cooling in operation:	T5: $-40\text{ °C} \leq T_a \leq +75\text{ °C}$ T6: $-40\text{ °C} \leq T_a \leq +70\text{ °C}$

Type of protection	
Device	Ex d or Ex d e
Connection compartment	Ex d or Ex e

Connection data

Power supply	
(1) L+	U = 18 to 36 V _{DC}
(2) L-	P = 3.2 W

Signal circuit SYNC IN (optional)	
(3) +	Only for connection to Synchronizer FHG66
(4) -	



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