

# GMS815P / GMS815P-3G

Enclosures for Series GMS800

Description · Installation · Technical Data

**SICK**  
Sensor Intelligence.



---

**Described product**

Product name: GMS815P  
GMS815P-3G  
Basic device: Series GMS800 gas analyzers

**Manufacturer**

SICK AG  
Erwin-Sick-Str. 1 · 79183 Waldkirch · Germany  
Phone: +49 7641 469-0  
Fax: +49 7641 469-1149  
E-Mail: info.pa@sick.de

**Production location**

SICK AG  
Poppenbütteler Bogen 9b · 22399 Hamburg · Germany

**Legal information**

This document is protected by copyright. All rights derived from the copyright shall be reserved for SICK AG. Reproduction of this document or parts of this document is only permissible within the limits of the legal determination of Copyright Law.

Any modification, shortening or translation of this document is prohibited without the express written permission of SICK AG.

The trademarks stated in this document are the property of their respective owner.

© SICK AG. All rights reserved.

**Original document**

This document is an original document of SICK AG.



## Contents

<b>1</b>	<b>Important Information .....</b>	<b>5</b>
1.1	Product identification .....	5
1.2	Product description .....	6
1.2.1	Product characteristics.....	6
1.2.2	Options .....	6
1.3	Main hazards.....	7
1.4	Main operating information .....	7
1.5	Application limitations .....	8
1.5.1	Application limitations for enclosure GMS815P .....	8
1.5.2	Application limitations for enclosure GMS815P-3G .....	8
1.6	Additional documentation/information.....	9
<b>2</b>	<b>Mechanical Installation.....</b>	<b>10</b>
2.1	Information on safe lifting and carrying.....	10
2.2	Scope of delivery .....	10
2.3	Assembly .....	11
2.3.1	Ensuring ambient conditions .....	11
2.3.2	Fitting the enclosure.....	11
2.3.3	Removing transport safety devices.....	11
<b>3</b>	<b>Special Protective Measures (as required) .....</b>	<b>12</b>
3.1	Protect against dangerous sample gases.....	12
3.2	Protect against corrosive atmospheres .....	12
<b>4</b>	<b>Gas Connections .....</b>	<b>13</b>
4.1	Feeding sample gas .....	13
4.2	Feeding purge gas to an Analyzer module (option) .....	13
4.3	Feeding purge gas for the enclosure (option).....	13
<b>5</b>	<b>Electrical Installation.....</b>	<b>14</b>
5.1	Opening the enclosure .....	14
5.2	Power connection.....	15
5.2.1	Prepare power connection .....	15
5.2.2	Install the power connection .....	15
5.3	Signal connections.....	15
5.3.1	Connecting the signal connections (as required).....	15
5.3.2	Connecting the interfaces (as required) .....	15
5.4	Intrinsically safe signal connections (option) .....	16
5.4.1	Technical layout of the intrinsically safe signal connections.....	16
5.4.2	Special specifications for intrinsically safe signal connections	16
5.4.3	Installation information for intrinsically safe signal connections.....	17
5.4.4	Electronic limit values for intrinsically safe signal connections	17
5.5	Closing the enclosure tight .....	18

<b>6</b>	<b>Safety Measures Before Opening the Enclosure .....</b>	<b>19</b>
6.1	Health hazards through residues.....	19
6.2	Hazard when opening in potentially explosive atmospheres .....	19
<b>7</b>	<b>Start-up with Enclosure GMS815P-3G .....</b>	<b>20</b>
<b>8</b>	<b>Maintenance.....</b>	<b>21</b>
8.1	Cleaning of enclosure (note) .....	21
8.2	Leak tightness checks.....	21
8.2.1	Checking the leak tightness of sample gas lines .....	21
8.2.2	Checking the leak tightness of purge gas paths.....	21
8.2.3	Checking the leak tightness of the enclosure (Enclosure GMS815P-3G) .....	22
<b>9</b>	<b>Technical Data .....</b>	<b>24</b>
9.1	Dimensions/connections .....	24
9.1.1	Standard version .....	24
9.1.2	Version for heated sample gas lines .....	25
9.2	Enclosure specifications .....	26
9.3	Ambient conditions.....	26
9.4	Gas connections .....	26
9.5	Power connection .....	27
9.6	Electrical safety .....	27
<b>10</b>	<b>Index.....</b>	<b>28</b>

# 1 Important Information

## 1.1 Product identification



This Addendum to Operating Instructions is only valid for Enclosure GMS815P and Enclosure GMS815P-3G.  
 ► Observe the product identification on the type plate.

### Type plate

The type plate is located on the right side of the enclosure. The product name of the enclosure is shown on the type plate.



Information on the type plate, see Operating Instructions “Series GMS800”.

### Overview of the enclosures of model GMS815

Product name	Main feature
GMS815P	Standard version (degree of protection IP 65)
GMS815P-3G	Vapor-proof leak tightness, approved for Category “3 G” potentially explosive atmospheres
GMS815P-PS-3G	With pressurized enclosure system, approved for Category “3 G” potentially explosive atmospheres
GMS815P-PS-2G	With pressurized enclosure system, approved for Category “2 G” potentially explosive atmospheres

## 1.2 Product description

### 1.2.1 Product characteristics

#### Common characteristics

- Closed sheet steel enclosure for wall mounting
- For use indoors
- Degree of protection IP 65
- The enclosure is divided into two sections (see Fig. 1) that are separated gas-tight. The sections can be purged separately with inert gas; openings for purge gas connections are available (standard: With closed sealing plugs, option: Screw fittings for hose or tube connection).

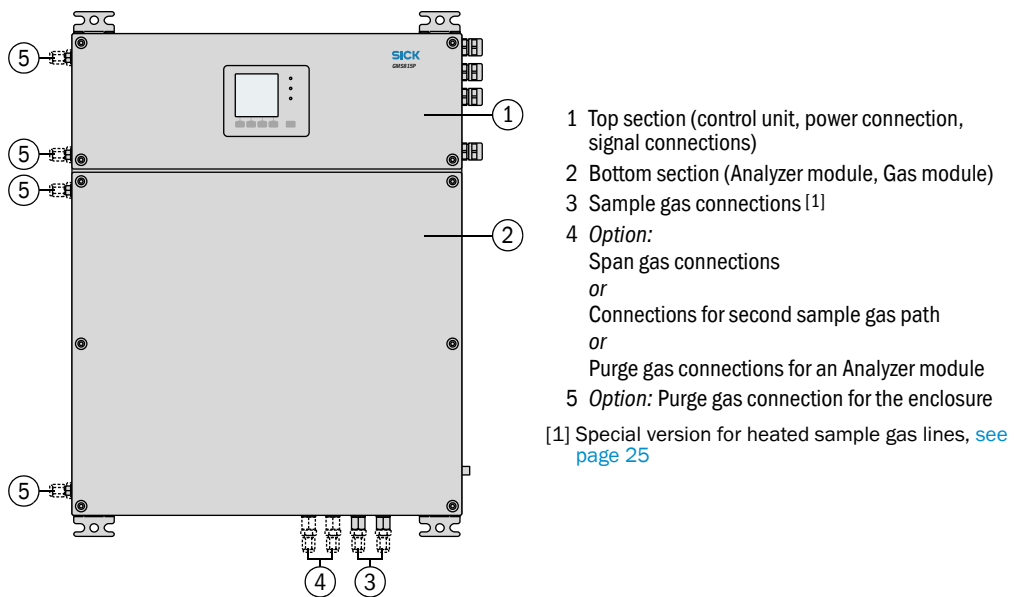
#### GMS815P-3G

- Vapor-proof version (identification see “Enclosure specifications”, page 26)
- Pressure connection for leak tightness check (see “Pressure connection on the Enclosure GMS815P-3G”, page 22)

### 1.2.2 Options

- Intrinsically safe signal connections
- Gas connections (alternative) for
  - Span gas
  - Second sample gas path
  - Purge gas for an Analyzer module
- Purge gas connections for the enclosure
- Gas connections for heated sample gas lines (see “Version for heated sample gas lines”, page 25)
- Preparation for pressurized enclosure (only GMS815P-3G):
  - Internal gas paths with pipes (metal pipes)
  - 2 purge gas connections

Fig. 1:GMS815P/GMS815-3G



### 1.3 Main hazards



**WARNING:** Risk of explosion

- ▶ Meticulously observe and follow the application limitations. Otherwise operation is not safe and there is a risk of explosion.



**WARNING:** Health risks through dangerous sample gases

- ▶ Observe the relevant information in the “GMS800 series” Operating Instructions.

Only for GMS815P-3G:



**WARNING:** Risk of explosion in potentially explosive atmospheres

- ▶ Do not open the enclosure when an explosive atmosphere is present.
- ▶ Wait at least 60 minutes after disconnecting from the power voltage before opening the enclosure.
- ▶ *If the enclosure has been opened:* Check the enclosure for leak tightness before restarting (see “Start-up with Enclosure GMS815P-3G”, page 20).

### 1.4 Main operating information

#### Dangerous sample gases



**WARNING:** Hazards through explosive or combustible gases

- ▶ Do not use a GMS800 in an enclosure GMS815P to measure explosive or combustible gases when no additional safety precautions have been taken (see “Application limitations”, page 8).

#### Before start-up

- ▶ Make sure the internal main power switch is switched on (see “Electrical connections”, page 14).
- ▶ Close the enclosure tight. Check the cable inlets for leak tightness.  
*If the enclosure is deformed or damaged:* Do not put the GMS800 into operation and secure against unauthorized start-up.
- ▶ *If the enclosure was opened:* Make sure the atmosphere in the enclosure is not explosive.

#### Before putting out of operation

- ▶ Flush the sample gas path with a dry, neutral gas to prevent condensation in the measuring system.

#### In hazardous situations

- ▶ Switch-off the emergency switch or main switch of the host system.

1.5 Application limitations



**WARNING:** Risk of explosion  
 ► Meticulously observe and follow the application limitations. Otherwise operation is not safe and there is risk of explosion.

1.5.1 Application limitations for enclosure GMS815P

**General conditions**

- Do not use in potentially explosive atmospheres.
- Do not feed explosive gases or gas mixtures.
- Use only for combustible gases or gas mixtures when the “Conditions for combustible sample gases” have been fulfilled (see below).

**Conditions for combustible sample gases**

Possible gas concentrations in the sample gas	Consequence for enclosure GMS815P
≤ 25% of the lower explosion limit	Measurement is allowed without any further action.
> 25% of the lower explosion limit <sup>[1]</sup>	Measurement is allowed when the following conditions are fulfilled: <ul style="list-style-type: none"> <li>► Maximum sample gas pressure to be maintained:                             <ul style="list-style-type: none"> <li>- 30 kPa (with hoses)</li> <li>- 100 kPa (with tubes)</li> </ul> </li> <li>► Purge the enclosure with inert gas (e.g. nitrogen). Monitor the purge gas flow rate (10 ... 30 l/h on purge gas outlet).</li> </ul> <i>Further measures</i> <ul style="list-style-type: none"> <li>► Check the sample gas path regularly for leak tightness.</li> <li>► <i>Recommendation for device versions with sample gas paths with hoses (especially “Viton”):</i> Check the material consistency of the gas hoses every three years. Replace the gas hoses as required.</li> </ul>

[1] And always below the lower explosion limit.

1.5.2 Application limitations for enclosure GMS815P-3G

**General conditions**

- Only use in potentially explosive atmospheres (zone 2) when allowed by the Certificate of Conformity and when the “special requirements” of the Certificate of Conformity are fulfilled.
- Do not feed explosive gases or gas mixtures.
- Only use for combustible gases or gas mixtures when the “Conditions for combustible sample gases” have been fulfilled (see below).
- Carry out a leak tightness check on the enclosure each time the enclosure is closed/ before start-up (see “Checking the leak tightness of the enclosure (Enclosure GMS815P-3G)”, page 22).

**Conditions for combustible sample gases**

- Only use a GMS800 in enclosure GMS815P-3G in potentially explosive atmospheres only when one of the following conditions is fulfilled: <sup>[1]</sup>
  - The sample gas is not combustible.
 Or:
  - The sample gas concentration is always at maximum 25% of the LEL,

[1] Specifications of the Certificate of Conformity.



## 1.6 Additional documentation/information

This document supplements the Operating Instructions “Series GMS800”. It extends these Operating Instructions with technical information on the Enclosures GMS815P and GMS815P-3G.

- ▶ Observe the Operating Instructions delivered with the “Series GMS800”.



The “Series GMS800” Operating Instructions also specify all further documents belonging to the individual device.



**NOTE:**

- ▶ Pay primary attention to any individual information provided.

### Other documents delivered

Operating Instructions for the Zener barriers [1]	▶ Observe when installing intrinsically safe signal connections.
---------------------------------------------------	------------------------------------------------------------------

[1] Only for versions with intrinsically safe signal connections (see “[Intrinsically safe signal connections \(option\)](#)”, page 16).

## 2 Mechanical Installation

### 2.1 Information on safe lifting and carrying



**CAUTION:** Risk of injury through incorrect lifting and carrying the device  
Injuries can occur due to the weight and projecting enclosure parts when the device tips over or is dropped.

*To prevent accidents:*

- ▶ Do not use projecting enclosure parts for carrying the device (exceptions: wall fixture, carrying grips).
  - ▶ Never lift the device using the open enclosure door.
  - ▶ Consider the weight of the device before lifting (see [“Enclosure specifications”, page 26](#)).
  - ▶ Observe the regulations for protective clothing (e.g., safety shoes, non-slip gloves)
  - ▶ Grip underneath the device when possible to carry it safely.
  - ▶ Use a hoist or transport equipment as an option.
  - ▶ Call in further personnel as assistants as required.
  - ▶ Before transporting, ensure obstacles that could cause falls or collisions are cleared away.
  - ▶ Secure the device during transport.
- 

### 2.2 Scope of delivery

A hose fitting and a cap nut for the pressure connection are delivered with the Enclosure GMS815P-3G. These parts are required when checking enclosure leak tightness (see [“Checking the leak tightness of the enclosure \(Enclosure GMS815P-3G\)”, page 22](#)).

## 2.3 Assembly



Dimensions see “Dimensions/connections”, page 24



**WARNING:** Health hazards through residues

*If the enclosure is to be disassembled after an operating period:*

- ▶ Pay attention to the safety information on decontamination (see Operating Instructions “Series GMS800”).

### 2.3.1 Ensuring ambient conditions

#### Quiet running

- ▶ Protect the device against heavy jolts and vibrations (limit values, see “Ambient conditions”, page 26).

#### Temperature

- ▶ Avoid enclosure exposure to direct sunlight.
- ▶ Maintain the allowable ambient temperature during operation (see “Ambient conditions”, page 26).

#### Moisture

- ▶ Choose a dry installation location free from frost.
- ▶ Prevent moisture condensation – inside the device as well.
- ▶ Maintain the allowable relative air humidity (see “Ambient conditions”, page 26).

### 2.3.2 Fitting the enclosure

- ▶ Secure the enclosure on a structure that can safely carry the weight of the enclosure.
- ▶ Fit the enclosure so that the underside is more or less horizontal (allowable offset, see “Ambient conditions”, page 26).



**CAUTION:** Accident risk through inadequate fastening of the device

- ▶ Consider the weight specifications of the device when dimensioning the mounting supports.
- ▶ Check the load capacity/condition of the wall/rack on/in which the device is to be installed.



- Weight specifications (mass), see “Enclosure specifications”, page 26.
- Enclosure dimensions and assembly dimensions, see “Dimensions/connections”, page 24.

### 2.3.3 Removing transport safety devices

- 1 Open the upper section of the gas analyzer enclosure (see “Opening the enclosure”, page 14).
- 2 Take the foam inserts out of the enclosure.
  - ▶ *Recommendation:* Keep the foam inserts and use these every time the device is transported.
- 3 Close the upper section of the gas analyzer enclosure again carefully; pay attention to leak tightness (enclosure seal, screws on front door).



**NOTE:** Risk of damage by transport safety devices

- ▶ Remove transport safety devices before initial start-up (see “Removing transport safety devices”, page 11).

Otherwise electronic components can overheat during operation.

### 3 Special Protective Measures (as required)

#### 3.1 Protect against dangerous sample gases

*If the sample gas can be dangerous to health and/or corrosive:*

- ▶ Make sure no dangerous situations can arise should a gas leak occur.
- ▶ Check
  - whether a gas detector must be installed at the installation location
  - whether the enclosure must be purged continuously with a neutral gas during operation (with monitoring the discharged purge gas as required).Install appropriate additional devices as necessary.
- ▶ Check gas paths regularly for leak tightness.

#### 3.2 Protect against corrosive atmospheres

*When the atmosphere at the installation location can contain corrosive gases:*

- ▶ Install the Enclosure GMS815P/GMS815P-3G in an outer housing (e.g. closed cabinet).  
Purge the outer housing with an inert gas.

## 4 Gas Connections

### 4.1 Feeding sample gas

#### General information

Information and safety information on sample gas connections

- ▶ See Operating Instructions “Series GMS800”
- ▶ See Addenda to the Operating Instructions for the fitted Analyzer modules



- Gas connection positions, see “Dimensions/connections”, page 24
- Technical details for gas connections, see “Gas connections”, page 26

#### Version for heated sample gas lines (option)

This enclosure version is used for Analyzer modules where sample gas must be fed over a heated sample gas line.

- ▶ Observe the Addendum to Operating Instructions for the respective Analyzer module.
- ▶ Follow the Operating Instructions for the heated sample gas line.
- ▶ Connect the heated sample gas feed to the sample gas inlet.
- ▶ Avoid condensation in the exhaust gas line (sample gas outlet). Install a heated gas line on the sample gas outlet when necessary.
- ▶ Fasten the outer casing of the sample gas lines to the half shell under the sample gas connection (strain relief, protection against bends).
- ▶ *If a short non-insolated line piece exists where the heated sample gas line connects to the sample gas connection:* Case the line piece with thermal insulation (e.g. suitable foam).



- Figure for this device version, see page 25
- Specifications on heated sample gas feed, see Addendum to Operating Instructions of the respective Analyzer module

### 4.2 Feeding purge gas to an Analyzer module (option)

*Only valid for versions with purge gas connections for an Analyzer module*

- ▶ Feed the required purge gas via the “purge in” gas connection and discharge the purge gas via the “purge out” gas connection as described in the Addendum to Operating Instructions of the Analyzer module.
- ▶ Feed and channel off purge gas so that the purge gas pressure in the enclosure is not above 30 mbar (approval condition).
- ▶ Use nitrogen (techn.) as inert gas.

### 4.3 Feeding purge gas for the enclosure (option)

*Only valid for versions with purge gas connections for the enclosure*

- ▶ Feed the desired inert gas through the respective enclosure section via the purge gas connections (see “GMS815P/GMS815-3G”, page 6).



#### CAUTION: Safety risk

- ▶ Keep unused purge gas connections closed off and water jet proof. Otherwise the specified enclosure degree of protection is not ensured.



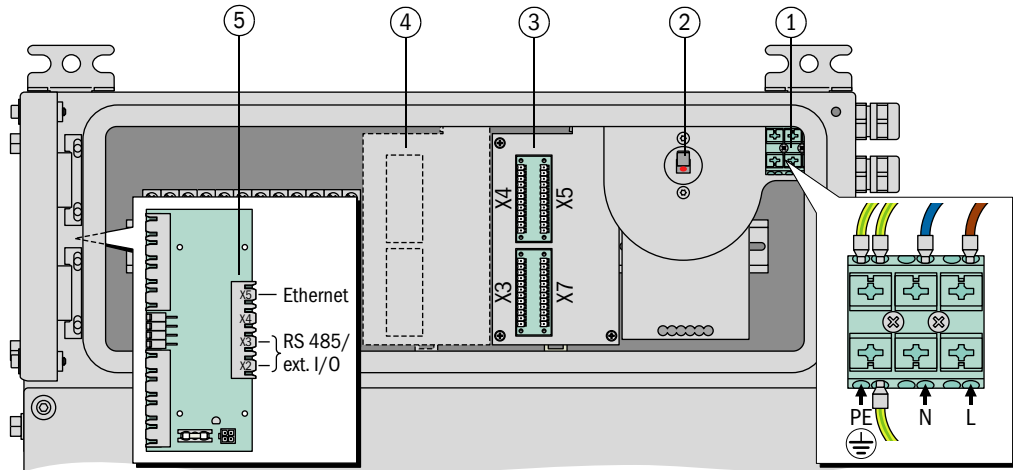
Using purge gas connections in a leak tightness check, see “Checking the leak tightness of the enclosure (Enclosure GMS815P-3G)”, page 22.

## 5 Electrical Installation

### 5.1 Opening the enclosure

- 1 Observe safety information on opening the enclosure (see “Safety Measures Before Opening the Enclosure”, page 19).
- 2 Loosen both screws of the top enclosure door (suitable screw wrench in scope of delivery) and open the enclosure door.

Fig. 2: Electrical connections



- 1 Power connection terminals
- 2 Internal main power switch
- 3 I/O module (signal connections)
- 4 Second I/O module (option); alternatively: Intrinsically safe signal connections (see “Intrinsically safe signal connections (option)”, page 16)
- 5 Interfaces



**NOTE:**

Electrostatic discharges can severely damage electronic components.

- ▶ *Before touching electrical connections and internal components:* Earth your body and tools used to discharge electrostatic charges.

*Recommended method:*

- ▶ *If the protective conductor is connected:* Touch a blank metal part of the enclosure.
- ▶ *Otherwise:* Touch a different blank metal surface that is connected to the protective conductor or has safe contact to the earthing.



The cable inlets are suitable for cables with outer diameter 6 ...14 mm.

## 5.2 Power connection

### 5.2.1 Prepare power connection



- ▶ Observe safety information for power connection, see Operating Instructions “Series GMS800”
- ▶ Install a separate power fuse, see Operating Instructions “Series GMS800”
- ▶ Install a separate isolating switch, see Operating Instructions “Series GMS800”

### 5.2.2 Install the power connection



**WARNING: Health risk**

- ▶ *Before installing the power cable:* Make sure the external main power supply is switched off.



Technical requirements to the power cable, see “Power connection”, page 27

- 1 Open the top part of the enclosure.
- 2 Insert the power cable through a cable inlet.
- 3 Connect the power cable to the power connection terminals (see “Electrical connections”, page 14).
- 4 Seal the cable inlet around the cable.
- 5 *If the enclosure has a bonding load connection on the outside:* Connect the bonding load connection with the same electrical potential as the internal PE connection.

## 5.3 Signal connections

### 5.3.1 Connecting the signal connections (as required)



Safety information for signal connections and information for suitable signal lines, see Operating Instructions “Series GMS800”

#### I/O module (standard)

The standard version has a built-in I/O module. A second I/O module can be fitted (option).

- ▶ Position of signal connections, see “Electrical connections”, page 14.
- ▶ Function of signal connections, see Supplementary Operating Instructions “I/O module”.

#### Intrinsically safe signal connections (option)

see “Intrinsically safe signal connections (option)”, page 16

### 5.3.2 Connecting the interfaces (as required)



Function of interface, see Operating Instructions “Series GMS800”

*To use an interface:*

- ▶ Connect the interface cable to the corresponding interface inside the enclosure (see “Electrical connections”, page 14).

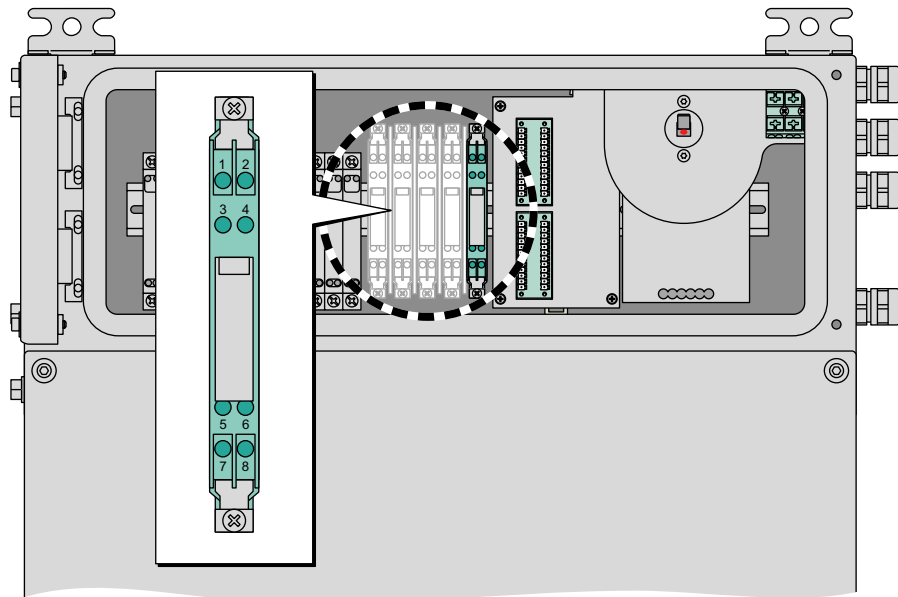
5.4 Intrinsically safe signal connections (option)

5.4.1 Technical layout of the intrinsically safe signal connections

When desired, some of the analog outputs, digital inputs and digital outputs can be realized as intrinsically safe signal connections. Additional modules are fitted for this purpose (Zener barriers). All intrinsically safe connections can be configured according to customer requirements.

- Terminal assignment, see individual information delivered with the device
- Technical information on intrinsically safe signal connections, see Operating Instructions of the Zener barriers

Fig. 3: Zener barriers for intrinsically safe signal connections



5.4.2 Special specifications for intrinsically safe signal connections

Signal connection	Parameter	Specification
Analog outputs <sup>[1]</sup>	Maximum voltage on connection terminals:	13 V
	Allowable load:	0 ... 200 Ω
Digital inputs	Maximum voltage on connection terminals:	26.5 V
Digital outputs	Internal resistance:	300 Ω

[1] Observe information on zero potential (see “Electronic limit values for intrinsically safe signal connections”, page 17)



### 5.4.3 Installation information for intrinsically safe signal connections

#### Cable installation

- ▶ Connect each signal cable for intrinsically safe signal connections to one built-in additional module (see “Zener barriers for intrinsically safe signal connections”, page 16).
- ▶ Install the signal cables in compliance with EN 60079-11 (“Explosive Atmospheres - Part 11: Equipment protection by intrinsic safety “i””).
- ▶ Maintain electronic limit values (see “Electronic limit values for intrinsically safe signal connections”, page 17).
- ▶ Install all components of a signal circuit intrinsically safe.



#### WARNING: Risk of explosion

Intrinsically safe installations must maintain a certain clearance from other electrical equipment (specifications see EN 60079-11).

- ▶ Lay intrinsically safe signal cables so that the required safety distance to equipment not intrinsically safe is ensured everywhere.

### 5.4.4 Electronic limit values for intrinsically safe signal connections

Intrinsic safety of the connected intrinsically safe signal circuit is only ensured when the power circuit, including cables, maintains the limit values specified below.



#### CAUTION: Lower limit values could possibly be applicable

Lower limit values could be applicable for the individual application case. The composition of the explosive atmosphere is decisive here.

- ▶ Determine the highest allowable limit values for the individual application case using the European standard EN 60079-0 “Explosive atmospheres. Equipment. General requirements”.
- ▶ *If this results in limitations:* Note these limitations (e.g. in this document) and consider during installation.



The Zener barriers used for analog outputs each have 2 channels. One channel is normally used for each analog output. In this case, the analog outputs of a single Zener barrier have a common negative pole (integrated in the Zener barrier) which means they are not separated potential-free from each other.

#### Limit values for intrinsically safe analog outputs

Parameters of the intrinsically safe power circuit	Allowable value	
	Channel 1/Channel 2	Combined
Total inductivity $L_A$	$\leq 1.5$ mH	$\leq 0.37$ mH
Total capacity $C_A$	$\leq 580$ nF	$\leq 580$ nF
$L_A/R_A$	$\leq 61$ $\mu$ H/ $\Omega$	$\leq 30$ $\mu$ H/ $\Omega$

#### Limit values for intrinsically safe digital inputs and digital outputs

Parameters of the intrinsically safe power circuit	Allowable value
Total inductivity $L_A$	$\leq 4.1$ mH
Total capacity $C_A$	$\leq 83$ nF
$L_A/R_A$	$\leq 54$ $\mu$ H/ $\Omega$

### 5.5 Closing the enclosure tight

*After installing the connections:*

- ▶ Seal all cable inlets water jet proof. Seal unused cable inlets water jet proof as well.
- ▶ Seal all other enclosure openings water jet proof.
- ▶ Close the front doors water jet proof; tighten the front screws.



**WARNING:** Risk of explosion

*Only for GMS815P-3G:*

- ▶ Check the enclosure for leak tightness before start-up (see [“Checking the leak tightness of the enclosure \(Enclosure GMS815P-3G\)”](#), page 22).
-

## 6 Safety Measures Before Opening the Enclosure

### 6.1 Health hazards through residues



**WARNING: Health hazards (note)**

- ▶ Pay attention to the safety information on decontamination (see Operating Instructions “Series GMS800”).
- ▶ Observe the safety information on possible hazards caused by gas from internal components (see Operating Instructions “Series GMS800”).



**WARNING: Health risks/accident risks**

If

- the GMS800 measures toxic, dangerous or combustible gases,
- the GMS800 is in a potentially explosive atmosphere,
- it is suspected that the internal gas paths have a leak

then carry out the following measures before opening the enclosure:



- 1 Interrupt every gas feed to the GMS800 apart from the purge gas feed (when present).
  - 2 Switch the power supply to the GMS800 off at an external source.
  - 3 *In potentially explosive atmospheres (only GMS815P-3G):* Disconnect the GMS800 from all external voltages (e.g. signal lines). Exception: Connections to intrinsically safe power circuits can remain connected.
  - 4 *If enclosure purging is installed:* Wait for an appropriate time so that the enclosure is purged with inert gas.
  - 5 If necessary, take protective measures against escaping gases (e.g. breathing protection, suctioning off).
- ▶ First open the enclosure when it is safe to do so.

### 6.2 Hazard when opening in potentially explosive atmospheres

*Only valid for GMS815P-3G*



**WARNING: Risk of explosion in potentially explosive atmospheres**

- ▶ Do not open the enclosure when an explosive atmosphere is present.
- ▶ Wait at least 60 minutes after disconnecting from the power voltage before opening the enclosure.

### 7 Start-up with Enclosure GMS815P-3G

---



This information is only valid for enclosure GMS815P-3G.

---

*Start-up in a potentially explosive atmosphere:*

- 1 Seal the enclosure tight (see [“Closing the enclosure tight”, page 18](#)).
- 2 *If the Enclosure has been opened:* Check the leak tightness of the enclosure (see [“Checking the leak tightness of the enclosure \(Enclosure GMS815P-3G\)”, page 22](#)).
- 3 *If the enclosure has purge gas connections (option):* Put the purge gas supply into operation.
- 4 Put the gas analyzer in operation.

## 8 Maintenance



### **WARNING:** Health hazards through residues

- ▶ Pay attention to the safety information on decontamination (see Operating Instructions "Series GMS800").

### 8.1 Cleaning of enclosure (note)



Information on cleaning the enclosure, see Operating Instructions "Series GMS800".

### 8.2 Leak tightness checks

#### 8.2.1 Checking the leak tightness of sample gas lines



This check (see "Application limitations", page 8) is an approval condition for the Enclosure GMS815P-3G.

*If the sample gas path was opened during maintenance work:*

- ▶ Check the leak tightness of the connected sample gas lines after the maintenance work.

*If it is suspected that the sample gas path could become leaky during operation (e.g. due to special sample gas properties):*

- ▶ Check the leak tightness of the connected sample gas lines in regular intervals.



Leak tightness check procedure, see Operating Instructions "Series GMS800"

#### 8.2.2 Checking the leak tightness of purge gas paths

*Only valid for versions with purge gas connections (see "Feeding purge gas to an Analyzer module (option)", page 13/"Feeding purge gas for the enclosure (option)")*

- ▶ Check the leak tightness of purge gas paths at least once a year.
- ▶ Check in the same manner as for leak tightness of sample gas lines (procedure, see Operating Instructions "Series GMS800").

8.2.3 Checking the leak tightness of the enclosure (Enclosure GMS815P-3G)

Only necessary when the Enclosure GMS815P-3G has been opened



**WARNING:** Risk of explosion

If the enclosure was opened, check before start-up whether the enclosure is closed off vapor-proof.

- ▶ Carry out a leak tightness check on the enclosure (see below) before start-up after the enclosure has been closed.



**WARNING:** Risk of explosion caused by defective enclosure seals

Explosion protection of the enclosure is ensured only when all enclosure seals have been correctly installed and are intact.

- ▶ Before closing the enclosure: Check the condition of the enclosure seals.
- ▶ Have defective seals replaced by the manufacturer's Customer Service.

- 1 Seal the enclosure tight (see "Closing the enclosure tight", page 18).
- 2 Prepare the pressure connection:

<p>If the enclosure has a pressure connection (see Fig. 4):</p>	<ol style="list-style-type: none"> <li>1 Remove the closure cap (screw cap) of the pressure connection (see "Leak tightness check on pressure connection", page 22).</li> <li>2 Install the delivered hose connection (with cap nut) in place of the closure cap.</li> </ol>
<p>If the enclosure has purge gas connections instead of a pressure connection (option):</p>	<ol style="list-style-type: none"> <li>1 Close off one of the two purge gas connections gas-tight (e.g. with a shut-off valve).</li> <li>2 Temporarily remove the purge gas installation on the second purge gas connection and, instead, install the delivered hose connection (with cap nut, see "Leak tightness check on pressure connection", page 22) or install a different hose connection.</li> </ol>

Fig. 4: Pressure connection on the Enclosure GMS815P-3G

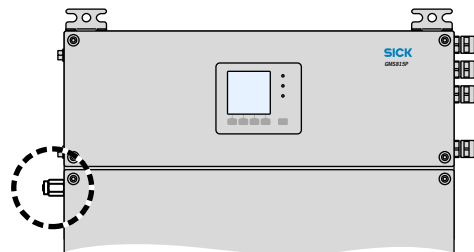
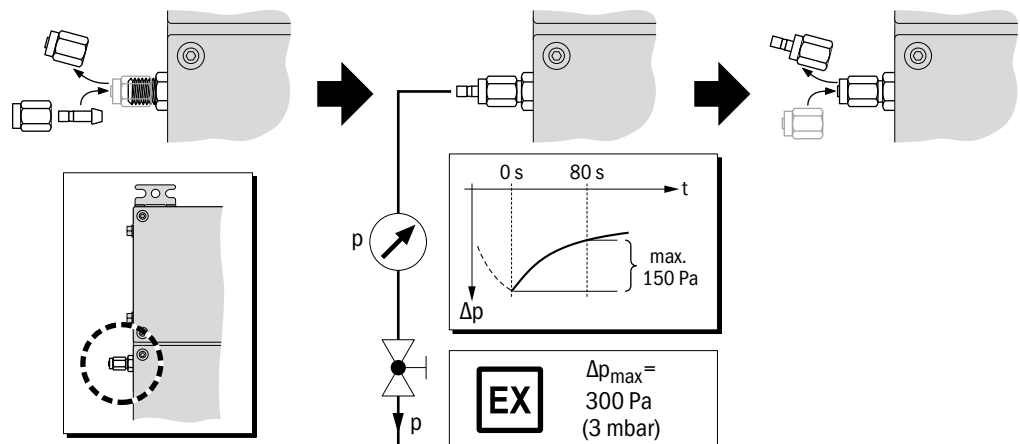


Fig. 5: Leak tightness check on pressure connection



- 3 Connect the following to the pressure connection, see “Leak tightness check on pressure connection”, page 22):
  - A pressure gauge, measuring range covering 0 ... 300 Pa
  - A suction pump that can create a partial vacuum of 300 Pa (3 mbar) in the enclosure against the ambient pressure (or a different device that serves this purpose)
  - A stopper valve between the suction pump and pressure gauge
- 4 Create a partial vacuum of 300 Pa (3 mbar) in the enclosure.



**Damage to the enclosure is possible**

A large pressure difference can damage the enclosure.  
 ► Do not use a pressure above the specified pressure.



Even though the pressure difference is low, it can take several minutes before the correct pressure is reached.

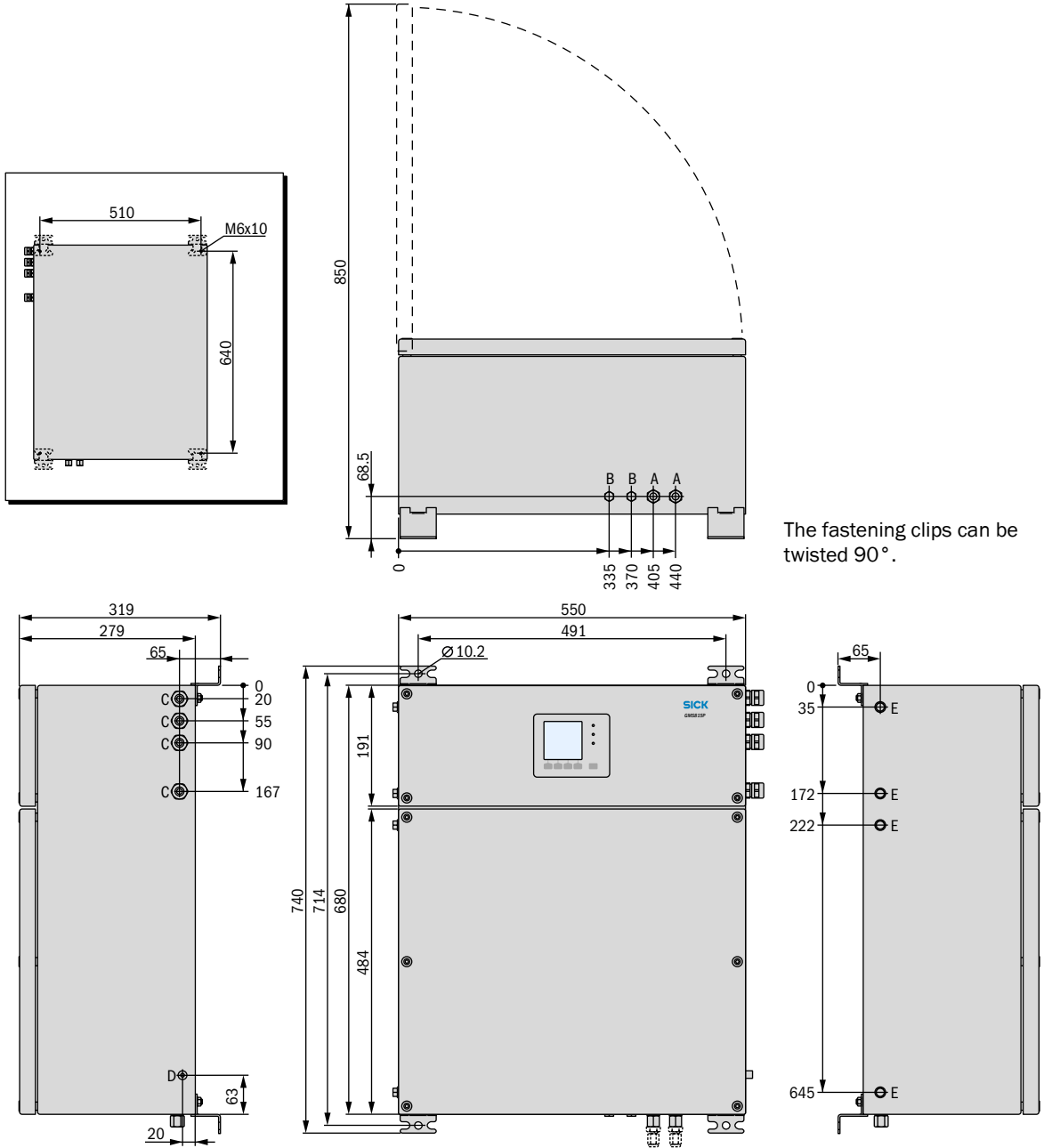
- 5 Close off the stopper valve. Read off the current partial vacuum on the pressure gauge.
- 6 Read off again after 80 seconds:

<p><i>If the pressure has risen by 150 Pa at the most:</i></p>	<p><i>The test was OK.</i></p> <ol style="list-style-type: none"> <li>1 Disconnect the suction pump from the test installation.</li> <li>2 Slowly open the stopper valve (avoid sudden pressure compensation).</li> <li>3 Remove the stopper valve, pressure gauge and hose connection.</li> <li>4 <i>If the enclosure does not have additional purge gas connections:</i> Fit the closure cap again. Make sure the closure is gas-tight.  <i>If the enclosure does have additional purge gas connections:</i> Fit the purge gas installation again.</li> </ol> <p>The GMS800 can now be put into operation.</p>
	<p><i>The test was not OK.</i></p> <ol style="list-style-type: none"> <li>1 Check sealing on the enclosure (enclosure seals, cable inlets, screw plugs).</li> <li>2 Now repeat the test.</li> </ol>
<p><i>If the pressure has risen by more than 150 Pa:</i></p>	

9 Technical Data

9.1 Dimensions/connections

9.1.1 Standard version

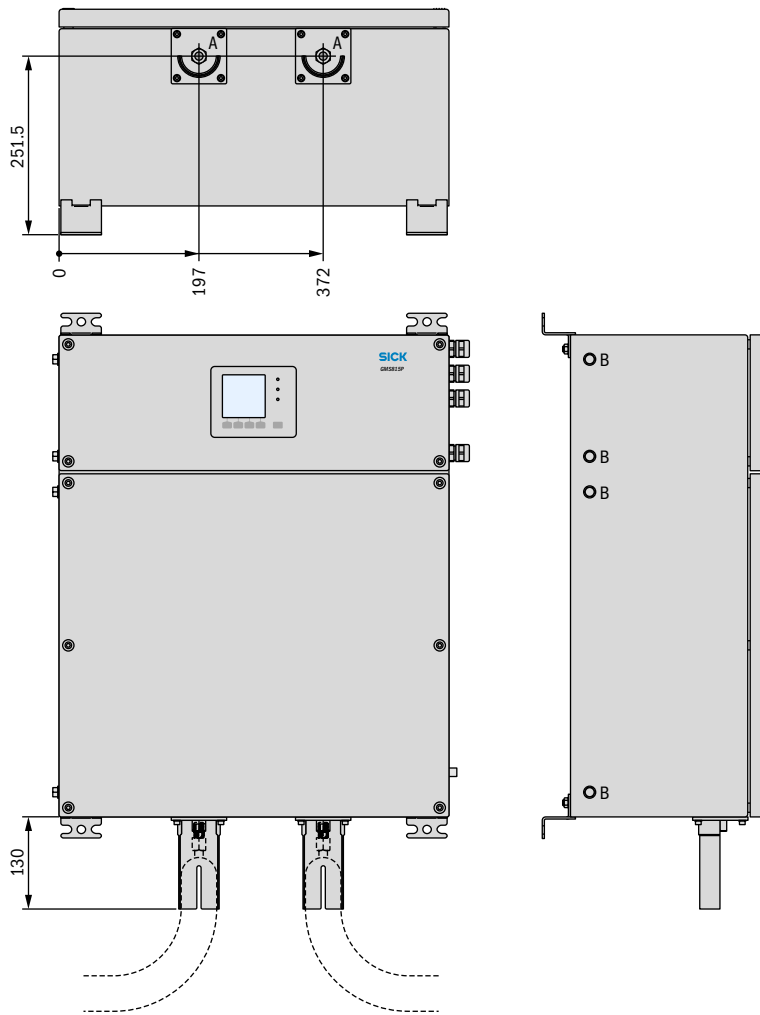


- A Sample gas connection (see "Feeding sample gas", page 13)
- B Opening 12 mm + screw plug; option: Gas connection for span gas or a second sample gas path or for purge gas for an Analyzer module
- C Cable inlet for cable diameter 6 ... 14 mm
- D Thread M6, 6 mm deep or bonding load connection
- E Boring 1/4" for purge gas connection (standard: Closed off with locking nut)



**9.1.2 Version for heated sample gas lines**

Only valid for GMS815P



- A Connection for heated sample gas line (see "Gas connections", page 26)
- B Boring 1/4" for purge gas connection (standard: Closed off with locking nut)

9.2 Enclosure specifications

Design:	Closed sheet steel enclosure, divided vertically, 2 front doors
Degree of protection:	IP 65 (Nema 4X)
Dimensions:	<a href="#">see page 24</a>
Weight:	35 ... 37 kg (depending on equipment)
Identification (GMS815P-3G):	<a href="#">see "Product identification", page 5</a>

9.3 Ambient conditions

Atmospheric influences:	Only for use indoors
Allowable contamination:	Degree of contamination 3 [1]
Fitting position (allowable offset):	See Supplementary Operating Instructions for the fitted Analyzer modules
Geographic height at installation location:	
Ambient air pressure:	
Allowable oscillations (amplitude): [2]	0.035 mm in range 5 ... 59 Hz
Allowable vibrations (acceleration): [2]	5 ms <sup>-2</sup> in range 59 ... 160 Hz
Jolts:	≤ 15 g over 11 ms [3]
Relative humidity:	10 ... 95%, non-condensing
Ambient temperature during operation:	+5 ... +45 °C (41 ... 113 °F)
Transport /storage temperature:	-10 ... +70 °C (14 ... 158 °F)

[1] Dry and wet contamination that can be electrically conductive  
 [2] Observe DIN 15267-3, DIN EN 60068-2-26; as well as specifications for built-in Analyzer modules  
 [3] Shock test in accordance with DIN EN 60068-2-27

9.4 Gas connections

Version

Designation	Material	Suitable for
Internal thread 1/4" NPT [1]	Stainless steel	Screw-in screw fittings
Plastic clamping ring screw connection	PVDF	Hose 6x1 mm
Swagelok 6 mm	Stainless steel	Metal tube with 6 mm outer Ø
Swagelok 1/4"	Stainless steel	Metal tube with 1/4" outer Ø

[1] Standard version.

Approval conditions

Only valid for GMS815P-3G

Parameter	Allowable value
Sample gas pressure in enclosure:	-500 ... +1000 hPa (-0.5 ... +1.0 bar)
Sample gas volume flow:	Max. 100 dm <sup>3</sup> /hour
Maximum purge gas pressure in enclosure:	30 hPa (30 mbar)



- Sample gas connection positions, [see "Dimensions/connections", page 24](#)
- Sample gas connections function, see Operating Instructions "Series GMS800"
- Other sample gas specifications (pressure, volume flow etc.), see Addendum to Operating Instructions for the Analyzer module fitted

## 9.5 Power connection

Power voltage (optional):	93 ... 132 V AC
	186 ... 264 V AC
	210 ... 370 V DC
Power frequency (AC):	47 ... 63 Hz
Allowable overvoltages:	Transient overvoltages in supply network must not exceed Overvoltage Category II according to IEC 60364-4-443
Power input:	50 ... 180 VA / max. 300 VA
Internal power fuses	
Primary:	6.3 A (not exchangeable) [1]
Secondary:	10 A (exchangeable fusible cutout) [2]
Required connection cable	
Conductor cross-section:	≥ 0.75 mm <sup>2</sup>
Version:	IEC 60227 or IEC 60245

[1] Replace the power supply unit after triggering.

[2] F1 on the "fuse board". Spare part: "ET fuse, fuse board F10A0", Part No. 2062251.

## 9.6 Electrical safety

Protection class:	Protection class I [1]
Electrical safety:	Tested according to EN 61010-1 Low Voltage Directive 2006/95/EC
Transformer:	Safety transformer according to EN 61558 (VDE 0570)
Electromagnetic compatibility:	In accordance with EN 61326-1, EN 61326-2-1, EN 61000-6-2, EN 61000-6-4 and Directive 2004/ 108/EC

[1] VDE 0411 Part 1 / IEC 348

10 Index

**A**

Additional documentation (information) ..... 9  
 Ambient conditions ..... 26  
   - Corrosive atmospheres ..... 12  
   - General ..... 11  
 Application limitations ..... 8  
   - GMS815P ..... 8  
   - GMS815P-3G ..... 8  
 Assembly ..... 11  
 Atmosphere ..... 26

**C**

Cable inlets ..... 14  
 Capacity (intrinsically safe signal connections) ..... 17  
 Characteristics ..... 6  
 Climate (at installation location) ..... 11  
 Closing (enclosure) ..... 18  
 Combustible sample gases (limitations)  
   - GMS815P ..... 8  
   - GMS815P-3G ..... 8  
 Connecting the interfaces ..... 15  
 Connections  
   - Electrical connections ..... 14  
   - Gas connections ..... 13  
   - Interfaces ..... 15  
   - Purge gas connections  
     - For an Analyzer module ..... 13  
     - For the enclosure ..... 13

**D**

Dimensions ..... 24 - 25

**E**

Electrical safety ..... 27  
 Enclosure division ..... 6  
 Enclosure sections ..... 6  
 Ethernet interface (Note) ..... 15  
 Explosive sample gas (limitations)  
   - GMS815P ..... 8  
   - GMS815P-3G ..... 8

**F**

Fitting (assembly) ..... 11  
 Fuses ..... 27

**G**

Gas connections  
   - Position ..... 24 - 25  
   - Purge gas connections  
     - For an Analyzer module ..... 13  
     - For the enclosure ..... 13  
   - Sample gas ..... 13  
   - Technical data ..... 26

**I**

I/O module (location in enclosure) ..... 14  
 Identification ..... 5  
 Important information  
   - Main hazards ..... 7  
   - Main operating information ..... 7  
 Inductivity (intrinsically safe signal connections) ..... 17  
 Intrinsically safe signal connections ..... 16  
   - Allowable capacity/inductivity ..... 17  
   - Electronic limit values ..... 17  
   - Potential-free separation (information) ..... 17  
   - Special technical data ..... 16  
   - Technical layout ..... 16

**L**

Leak tightness, checking  
   - Enclosure GMS815P-3G ..... 22  
   - Purge gas paths ..... 21  
   - Sample gas lines ..... 21  
 Limit values for intrinsically safe signal connections ..... 17

**M**

Main power switch  
   - Separate power isolating switch ..... 15

**O**

Open  
   - Front door ..... 14  
   - Safety information ..... 19  
 Options ..... 6

**P**

PG screw fittings (cable inlets) ..... 14  
 Power connection  
   - Connecting ..... 15  
   - External fuse (Note) ..... 15  
   - External main power switch switch (Note) ..... 15  
   - Internal fuse ..... 27  
   - Technical data ..... 27  
 Power isolating switch (note) ..... 15  
 Product description ..... 6  
 Product identification ..... 5  
 Product options ..... 6  
 Purge gas  
   - Composition ..... 13  
   - Connections ..... 13  
   - Maximum pressure in enclosure ..... 13  
   - Regular leak tightness check ..... 21  
 Purging (enclosure)  
   - because of corrosiver atmosphere ..... 12  
   - Purge gas connections ..... 13

**R**

RS485 interface (Note) ..... 15

**S**

Safety information	
- Enclosure, opening .....	19
- Main hazards .....	7
- Main operating information .....	7
- Safe lifting and carrying .....	10
Sample gas	
- Application limitations .....	8
- Connections .....	13
- Heated sample gas lines .....	13
- Leak tightness check .....	21
- Protection against dangerous sample gases .....	12
Sample gas lines, heated .....	13
Scope of delivery .....	10
Screw fittings (technical data) .....	26
Sealing (enclosure) .....	18
Signal connections .....	15
- I/O module .....	15
- Intrinsically safe (option) .....	16
Specifications .....	see "Technical Data"
Start-up	
- Checking enclosure leak tightness .....	22
- Procedure in Zone 2 .....	20
Swagelok .....	26

**T**

Technical data	
- Ambient conditions .....	26
- Dimensions .....	25
- Enclosure specifications .....	24, 26
- For intrinsically safe signal connections .....	16 - 17
- Gas connections .....	26
- Power connection data .....	27
Temperature .....	26
Transport safety devices .....	11
Type plate .....	5

**Z**

Zener barriers .....	16
----------------------	----

**Australia**

Phone +61 3 9457 0600  
1800 334 802 – tollfree  
E-Mail sales@sick.com.au

**Austria**

Phone +43 (0)22 36 62 28 8-0  
E-Mail office@sick.at

**Belgium/Luxembourg**

Phone +32 (0)2 466 55 66  
E-Mail info@sick.be

**Brazil**

Phone +55 11 3215-4900  
E-Mail marketing@sick.com.br

**Canada**

Phone +1 905 771 14 44  
E-Mail information@sick.com

**Czech Republic**

Phone +420 2 57 91 18 50  
E-Mail sick@sick.cz

**Chile**

Phone +56 2 2274 7430  
E-Mail info@schadler.com

**China**

Phone +86 4000 121 000  
E-Mail info.china@sick.net.cn

**Denmark**

Phone +45 45 82 64 00  
E-Mail sick@sick.dk

**Finland**

Phone +358-9-2515 800  
E-Mail sick@sick.fi

**France**

Phone +33 1 64 62 35 00  
E-Mail info@sick.fr

**Germany**

Phone +49 211 5301-301  
E-Mail info@sick.de

**Great Britain**

Phone +44 (0)1727 831121  
E-Mail info@sick.co.uk

**Hong Kong**

Phone +852 2153 6300  
E-Mail ghk@sick.com.hk

**Hungary**

Phone +36 1 371 2680  
E-Mail office@sick.hu

**India**

Phone +91-22-4033 8333  
E-Mail info@sick-india.com

**Israel**

Phone +972-4-6881000  
E-Mail info@sick-sensors.com

**Italy**

Phone +39 02 27 43 41  
E-Mail info@sick.it

**Japan**

Phone +81 (0)3 5309 2112  
E-Mail support@sick.jp

**Malaysia**

Phone +603 808070425  
E-Mail enquiry.my@sick.com

**Netherlands**

Phone +31 (0)30 229 25 44  
E-Mail info@sick.nl

**New Zealand**

Phone +64 9 415 0459  
0800 222 278 – tollfree  
E-Mail sales@sick.co.nz

**Norway**

Phone +47 67 81 50 00  
E-Mail sick@sick.no

**Poland**

Phone +48 22 837 40 50  
E-Mail info@sick.pl

**Romania**

Phone +40 356 171 120  
E-Mail office@sick.ro

**Russia**

Phone +7-495-775-05-30  
E-Mail info@sick.ru

**Singapore**

Phone +65 6744 3732  
E-Mail sales.gsg@sick.com

**Slovakia**

Phone +421 482 901201  
E-Mail mail@sick-sk.sk

**Slovenia**

Phone +386 (0)1-47 69 990  
E-Mail office@sick.si

**South Africa**

Phone +27 11 472 3733  
E-Mail info@sickautomation.co.za

**South Korea**

Phone +82 2 786 6321  
E-Mail info@sickkorea.net

**Spain**

Phone +34 93 480 31 00  
E-Mail info@sick.es

**Sweden**

Phone +46 10 110 10 00  
E-Mail info@sick.se

**Switzerland**

Phone +41 41 619 29 39  
E-Mail contact@sick.ch

**Taiwan**

Phone +886 2 2375-6288  
E-Mail sales@sick.com.tw

**Thailand**

Phone +66 2645 0009  
E-Mail tawiwat@sicksgp.com.sg

**Turkey**

Phone +90 (216) 528 50 00  
E-Mail info@sick.com.tr

**United Arab Emirates**

Phone +971 (0) 4 88 65 878  
E-Mail info@sick.ae

**USA/Mexico**

Phone +1(952) 941-6780  
1 (800) 325-7425 – tollfree  
E-Mail info@sick.com

**Vietnam**

Phone +84 8 62920204  
E-Mail Ngo.Duy.Linh@sicksgp.com.sg

More representatives and agencies  
at [www.sick.com](http://www.sick.com)