



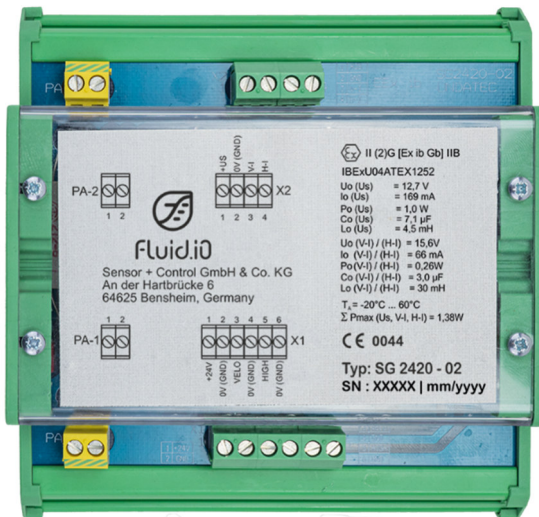
# Fluid.iO

SENSING FLUID EXCELLENCE

## Mounting- and operating instructions

### SG2420

Supply unit for DSM2420 (intrinsically safe equipment)



Fluid.iO Sensor + Control GmbH & Co. KG  
D - 64625 Bensheim  
Tel.: +49-6251-8462-0  
Fax: +49-6251-8462-72  
Web: [www.fluidio.de](http://www.fluidio.de)  
E-Mail: [info@fluidio.de](mailto:info@fluidio.de)

## Table of Contents

1.	Scope of delivery .....	2
2.	General notes .....	2
2.1.	Safety instructions .....	2
2.2.	Determination and proper use .....	3
2.3.	Commissioning & operating personnel.....	3
2.4.	Repairs .....	3
2.5.	Technological progress .....	3
3.	Product description .....	3
3.1.	Technical data .....	4
3.2.	Mounting instructions .....	4
4.	Declaration of Conformity .....	5
5.	Type Examination Certificate (ATEX) .....	6

## 1. Scope of delivery

- SG2420
- Clamps

## 2. General notes

- Read the safety instructions and keep the manual
- Installation, commissioning, electrical connection and repairs may only be carried out by qualified personnel.
- The specified degree of protection is only guaranteed if the device is installed in the correct position and the cables are inserted and screwed in properly.
- Operate the device only at the specified voltage
- Modification and conversion of the device is not permitted and releases Fluid.iO Sensor + Control GmbH & Co. KG from any warranty and liability



Read these assembly instructions carefully before using the device. Follow the instructions. Keep these mounting instructions in a safe place for future reference..

### 2.1. Safety instructions

Safe operation is only ensured if the notes and warnings will be noted in this manual.

#### **Seal, seals and labels:**

Opening or removing seals or labels, eg etc. with serial numbers, will result in immediate loss of warranty claims result.



- Assembly and electrical connection may only be carried out by qualified personnel.
- Read these operating instructions carefully before commissioning.
- Only operate the device with the voltage and frequency specified on the nameplate.
- Do not make any modifications to the device.
- never operate the device without the electronics cover.

## 2.2. Determination and proper use

The manufacturer is not liable for damages resulting from improper use.

Before commissioning, please compare the conformity of the supply voltage with the specifications on the type plate.

If it becomes apparent that safe operation is no longer possible (e.g. in the case of visible damage), please shut down the device immediately and secure it against unintentional operation.

The device may be dangerous if it is used improperly or not as intended. For this reason, we recommend that the safety instructions are strictly observed.

## 2.3. Commissioning & operating personnel

Assembly, electrical installation, commissioning and maintenance of the device may only be carried out by trained specialist personnel who have been authorized to do so by the system operator.

The qualified personnel must have read and understood these operating instructions and must comply with their statements.

The device may only be operated by persons who have been authorized and instructed by the system operator. The instructions in this operating manual must be followed.

Make sure that the device is correctly connected according to the electrical connections.

## 2.4. Repairs

Repairs can only be carried out by trained customer service personnel.

In this case, please contact Fluid.iO Sensor + Control GmbH & Co. KG.

## 2.5. Technological progress

The manufacturer reserves the right to adapt technical data to technical development progress without special announcements. For information on the activities and possible extensions of these operating instructions, please contact Fluid.iO Sensor + Control GmbH & Co. KG.

## 3. Product description

The sensor DSM2420-A is a combined flow velocity - level - measuring sensor for mounting on the channel bottom of open or closed, accessible channels of all types and shapes.

Operation of the sensor in the Ex area is only possible with the associated supply unit SG2420, SG2420-02 or appropriately designed approved Zener barriers. The sensor is made of special plastic (is therefore resistant to practically all aggressive media occurring in wastewater) and has a mounting plate made of stainless steel V2A.

The power supply is built into a plastic housing for snap-on mounting on standard rails. The sensor is supplied with power via the intrinsically safe supply unit SG2420-02.

At its outputs, the sensor supplies standardized current signals (4 - 20 mA) according to the flow velocity and fill level.

The sensor signals are available as power sources via connection wiring on the power supply unit.

Due to the signal transmission in electricity technology, very long lengths of the sensor cable are possible.

With appropriately dimensioned wire cross-sections, cable lengths of more than 100m are possible.

The device conforms to the following standards:

- EN IEC 60079-0
- EN 60079-11
- EN 61000-6-2
- EN 61000-6-4

### 3.1. Technical data

#### Power supply unit SG2420-02

- Power supply 24V DC + 20% / -10%
- Power consumption max. 1.38 W.
- Degree of protection IP00
- Ambient temperature max. -20 °C ... + 60 °C
- Dimensions (H x W x D) 125 x 120 x 60 mm
- Weight approx. 0.25 kg

#### Sensor DSM2420-A

- Power supply connection to SG2420-02
- Power consumption connection to SG2420-02
- Degree of protection IP68
- Ambient temperature max. -20 °C ... + 60 °C
- Dimensions (L x W x H) 180 x 45 x 35 mm
- Weight (without cable) approx. 0.4 kg
- Cable length max. > 100 m with the appropriate wire cross-section


### 3.2. Mounting instructions

During commissioning and operation, the information given above and the higher-level country-specific installation standards (e.g. the VDE regulations in Germany) as well as the safety regulations and accident regulations applicable to the respective application must be observed.



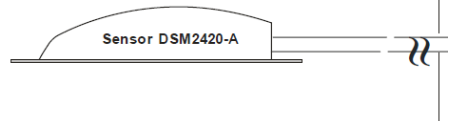
**CAUTION**

**Seal, seals and labels:**  
Interventions in the device beyond the connection-related handling may only be carried out by Fluid.iO Sensor + Control GmbH & Co. KG personnel for reasons of safety and warranty.

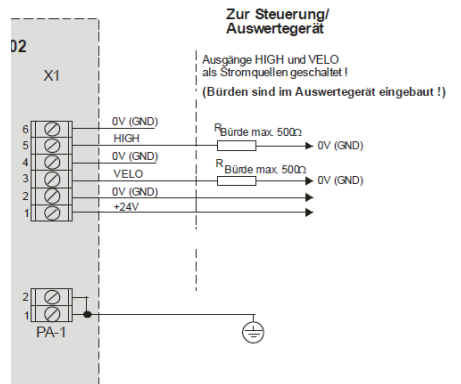
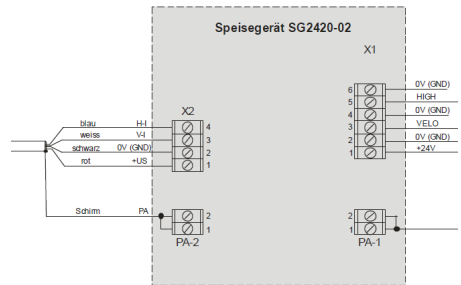


**CAUTION**

Ex - Bereich EEEx ib IIB T4



Nicht Ex - Bereich



## 4. Declaration of Conformity



### Konformitätserklärung

Declaration of conformity  
Déclaration de conformité



Sensor + Control GmbH & Co. KG  
An der Hartbrücke 6  
D-64625 Bensheim

- erklärt in alleiniger Verantwortung, dass das Produkt : Speisegerät
- declare under our sole responsibility that our product : Power supply unit
- déclare sous sa seule responsabilité que le produit : Bloc d'alimentation

**SG2420..**

- auf das sich diese Erklärung bezieht, mit den folgenden Normen übereinstimmt
- to which this declaration relates is in conformity with the following standards
- auquel se réfère cette déclaration est conforme aux normes

**EN IEC 60079-0:2018**  
**EN 60079-11:2012**  
**EN 61000-6-2:2019**  
**EN 61000-6-4:2019**

- gemäß den Bestimmungen der Richtlinien
- following the provision of Directives
- conformément aux dispositions des Directives

**2014/34/EU**  
**2014/30/EU**  
**2011/65/EU**

**EU-Baumusterprüfung gemäß Anhang III der Richtlinie durch  
IBExU Institut für Sicherheitstechnik GmbH**

**Fuchsmühlenweg 7  
D-09599 Freiberg**








EU-Baumusterprüfbescheinigungs-Nr.: **IBExU 04 ATEX 1252**

**Bensheim, 03.01.2023**

Frank Wiedmann  
Geschäftsführer

Speisegerät\_SG2420\_Ex\_IBExU

## 5. Type Examination Certificate (ATEX)

IBExU Institut für Sicherheitstechnik GmbH An-Institut der TU Bergakademie Freiberg				
[1]	<b>EU-TYPE EXAMINATION CERTIFICATE - Translation</b>			
				
[2]	Equipment or protective systems intended for use in potentially explosive atmospheres, Directive 2014/34/EU			
[3]	EU-type examination certificate number <b>IBExU04ATEX1252</b>   Issue 1			
[4]	Product: <b>Power supply unit</b> Type: SG2420			
[5]	Manufacturer: <b>E.L.B. Füllstandsgeräte Bundschuh GmbH &amp; Co. KG</b>			
[6]	Address: <b>An der Hartbrücke 6 64625 Bensheim GERMANY</b>			
[7]	This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.			
[8]	IBExU Institut für Sicherheitstechnik GmbH, notified body number 0637 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the essential health and safety requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.  The examination and test results are recorded in the confidential test report IB-22-3-0040/1.			
[9]	Compliance with the essential health and safety requirements has been assured by compliance with: EN IEC 60079-0:2018 EN 60079-11:2012 except in respect of those requirements listed at item [18] of the schedule.			
[10]	If the sign "X" is placed after the certificate number, it indicates that the product is subject to the specific conditions of use specified in the schedule to this certificate.			
[11]	This EU-type examination certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.			
[12]	The marking of the product shall include the following:			
	<b>Ex II (2)G [Ex ib Gb] IIB</b>			
	<table border="0"> <tr> <td style="vertical-align: top;">           IBExU Institut für Sicherheitstechnik GmbH            Fuchsmühlenweg 7            09599 Freiberg, GERMANY             By order               Dipl.-Ing. (FH) A. Henker         </td> <td style="vertical-align: top; text-align: center;">             (notified body number 0637)         </td> <td style="vertical-align: top;">           Tel: + 49 (0) 37 31 / 38 05 0            Fax: + 49 (0) 37 31 / 38 05 10             Certificates without signature and seal are not valid. Certificates may only be duplicated completely and unchanged. In case of dispute, the German text shall prevail.             Freiberg, 2022-05-11         </td> </tr> </table>	IBExU Institut für Sicherheitstechnik GmbH Fuchsmühlenweg 7 09599 Freiberg, GERMANY  By order   Dipl.-Ing. (FH) A. Henker	 (notified body number 0637)	Tel: + 49 (0) 37 31 / 38 05 0 Fax: + 49 (0) 37 31 / 38 05 10  Certificates without signature and seal are not valid. Certificates may only be duplicated completely and unchanged. In case of dispute, the German text shall prevail.  Freiberg, 2022-05-11
IBExU Institut für Sicherheitstechnik GmbH Fuchsmühlenweg 7 09599 Freiberg, GERMANY  By order   Dipl.-Ing. (FH) A. Henker	 (notified body number 0637)	Tel: + 49 (0) 37 31 / 38 05 0 Fax: + 49 (0) 37 31 / 38 05 10  Certificates without signature and seal are not valid. Certificates may only be duplicated completely and unchanged. In case of dispute, the German text shall prevail.  Freiberg, 2022-05-11		
	Page 1/3 IBExU04ATEX1252   1			

**IBExU Institut für Sicherheitstechnik GmbH**  
An-Institut der TU Bergakademie Freiberg

[13] **Schedule**

[14] **Certificate number IBExU04ATEX1252 | Issue 1**

[15] **Description of product**

The power supply unit type SG2420 is an associated equipment for connection of intrinsically safe circuits in hazardous areas requiring category 2G equipment. It is installed outside of the hazardous area.

The device consists of a printed circuit board with connection terminals in a plastic housing.

**Technical data:**

**Environmental conditions**

Permitted ambient temperature range -20 °C up to +60 °C

**Electrical data**

**Power supply circuit**

(Terminal X1: +24V, GND)

Rated voltage range  $U_N$  24 V DC  $\pm 20\%$

Maximum direct voltage  $U_m$  375 V DC

Maximum effective value of alternating voltage  $U_m$  265 V AC

**Supply circuit**

(Terminal X2: +US, GND)

In type of protection intrinsically safe Ex ib IIB; potentially connected with power supply circuit

Maximum output voltage  $U_o$  12.7 V

Maximum output current  $I_o$  169 mA

Maximum output power  $P_o$  1 W

Trapezoidal characteristic:  $R_i$  142,5  $\Omega$

**Signal current circuit**

(Terminal X2: V-I, H-I)

In type of protection intrinsically safe Ex ib IIB; potentially connected with power supply circuit

Maximum output voltage  $U_o$  15.6 V

Maximum output current  $I_o$  66 mA

Maximum output power  $P_o$  260 mW

Linear characteristic

**Safety instructions**

For circuits including inductances and capacitances the following has to be observed:

The values for  $L_o$  and  $C_o$ , mentioned in the EU-Type Examination Certificate are allowed for:

- distributed inductance and capacitance e.g. as in a cable or
- if the total  $L_i$  of the external circuit (excluding the cable) is  $< 1\%$  of the  $L_o$  value or
- if the total  $C_i$  of the external circuit (excluding the cable) is  $< 1\%$  of the  $C_o$  value.

	supply circuit	signal circuit
	Ex ib IIB	Ex ib IIB
$C_o$	7.1 $\mu$ F	3.0 $\mu$ F
$L_o$	4.5 mH	30 mH

The values of  $L_o$  and  $C_o$  determined in the EU-Type Examination Certificate shall be reduced to 50 % or taken from the following table if both of the following conditions are met:

- the total  $L_i$  of the external circuit (excluding the cable)  $\geq 1\%$  of the  $L_o$  value and
- the total  $C_i$  of the external circuit (excluding the cable)  $\geq 1\%$  of the  $C_o$  value.

The reduced capacitance of the external circuit (including cable) shall not be greater than 1  $\mu$ F for Groups I, IIA, and IIB and 600 nF for Group IIC.



**IBExU Institut für Sicherheitstechnik GmbH**  
An-Institut der TU Bergakademie Freiberg

	supply circuit		signal circuit	
	Ex ib IIB		Ex ib IIB	
Co	4 $\mu$ F	5.6 $\mu$ F	1.0 $\mu$ F	2.9 $\mu$ F
Lo	500 $\mu$ H	200 $\mu$ H	10 mH	500 $\mu$ H

Variations compared to issue 0 of this certificate and her addition:

**Variation 1**

The EU Type Examination Certificate is transferred to a new manufacturer.

**Variation 2**

The device meet the requirements of the current standard EN IEC 60079-0:2018 and EN 60079-11:2012.

[16] **Test report**

The test results are recorded in the confidential test report IB-22-3-0040/1 of 2022-04-27. The test documents are part of the test report and they are listed there.

*Summary of the test results*

The power supply unit still fulfils the requirements of the type of protection intrinsic safety for an associated equipment for group II and category 2G.

[17] **Specific conditions of use**

None

[18] **Essential health and safety requirements**

In addition to the essential health and safety requirements (EHSRs) covered by the standards listed at item [9], the following are considered relevant to this product, and conformity is demonstrated in the test report:

None

[19] **Drawings and Documents**

The documents are listed in the test report.

IBExU Institut für Sicherheitstechnik GmbH  
Fuchsmühlenweg 7  
09599 Freiberg, GERMANY

By order



Dipl.-Ing.(FH) A. Henker

Freiberg, 2022-05-11