

DAX 420

Gas detector



INSTRUCTION MANUAL



THE BELGIAN PIONEER IN GAS DETECTION

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TABLE OF CONTENTS

WARNINGS	4
LIMITATIONS	4
SAFETY INFORMATION	5
DIRECTIVE 2014/34/EU (ATEX)	6
DISCLAIMER	7
ENVIRONMENTAL COMPLIANCE.....	7
QUALITY ASSURANCE.....	7
1. INTRODUCTION	8
1.1. Certification	8
2. DESCRIPTION	9
2.1. Overview	9
2.2. Catalytic sensing head	10
2.3. Infrared sensing head	11
2.4. Dimensions.....	12
3. INSTALLATION	13
3.1. Location	13
3.2. Mounting.....	14
3.3. Field wiring	15
3.4. Connection to a DALEMANS control unit	16
3.5. Connection to a Programmable Logic Controller (PLC).....	17
4. MAINTENANCE	18
4.1. Calibration	18
4.2. Sintered metal filter replacement	18
4.3. Sensing head replacement	18
4.4. Troubleshooting.....	19
4.5. Spare parts and accessories.....	19
5. SPECIFICATIONS	20

WARNINGS



Declassify hazardous area PRIOR to carrying out installation, maintenance, or service operations on the gas detector. Ensure that no flammable gas or vapour is present in the surrounding atmosphere. Do not open the detector when explosion hazard is present. Only clean or wipe the detector surface with a damp cloth so as to avoid the risk of electrostatic sparks.

INSTALLATION, COMMISSIONING and MAINTENANCE must be carried out by DALEMANS or by an approved service centre only, and in any case by qualified personnel who has received a suitable training.

Gas detection equipment must be calibrated at least once a year to mitigate the possible loss of sensitivity of the sensor.

- This equipment must be installed, operated and maintained in strict accordance with these instructions, warnings and within the operational limits stated. If not, the warranty provided by DALEMANS will be voided.
- By respecting these instructions you ensure the proper operation of the equipment. Should you require any further information about the installation, the use or the maintenance of this equipment, do not hesitate to contact DALEMANS.
- Always follow the recommendations hereafter so as to avoid premature ageing of the sensor and to guarantee its optimal operation. These recommendations are general directives.
- Refer to local regulations in force before proceeding with installation works (i.e. standards IEC 60079-14 and IEC 60079-29-2). Local regulations have always precedence on the recommendations of the manufacturer.
- Maintenance must be performed according to the procedure given by DALEMANS or his local representative. Maintenance or service attempts without observing these instructions or without the assistance of DALEMANS may prevent the equipment from working properly and from ensuring the safety of the occupants of the monitored premises.
- Modification, disassembling and total or partial destruction of this equipment may invalidate the essential safety requirements of the whole plant.
- Use only DALEMANS original replacement parts. The use of non-original parts may invalidate the certification and warranty of the equipment.

LIMITATIONS

- Sensors may be cross-sensitive to other gases. Contact DALEMANS for further details.
- Catalytic sensors are not suitable for use in atmospheres with variable oxygen level, or with oxygen level over 21 % or below 15 %. Long-term exposure to atmospheres with flammable gas level over 100 % of the Lower Explosive Limit (LEL) may shorten the sensor life.
- Catalytic sensors might lose sensitivity in presence of poisons and inhibitors such as silicone, halogens, and heavy metals. Where these compounds are present continuously DALEMANS recommend using INFRARED flammable gas detectors which are immune to such poisons and inhibitors.
- Infrared sensors are not suitable for the detection of hydrogen.
- Gas detectors should be installed as late as possible in any program of construction operations (i.e. construction of a new plant, refitting or maintenance) but before the presence of gas or vapours in the system, so as to avoid damage to sensors resulting in particular from such activities as welding and painting. If already installed, detectors should be protected by an airtight seal to avoid contamination during construction works, and should be clearly marked as being non-operational.
- Gas detectors must be protected from direct sunlight, vibrations and mechanical impacts.

SAFETY INFORMATION

Flammable limits

Relationship between “percent of Lower Explosive Limit” (% LEL) and “percent by volume” (% v/v) differs from gas to gas. The IEC 60079-20-1 standard gives the method for the determination of flammable limits.

Examples include:

Gas	Formula	100 % LEL
Acetylene	C ₂ H ₂	2.3 % v/v
Butane	C ₄ H ₁₀	1.4 % v/v
Ethane	C ₂ H ₆	2.4 % v/v
Ethylene	C ₂ H ₄	2.3 % v/v
Hydrogen	H ₂	4.0 % v/v
Methane	CH ₄	4.4 % v/v
Pentane	C ₅ H ₁₂	1.1 % v/v
Propane	C ₃ H ₈	1.7 % v/v

Alarm set points

In a gas detection system, alarms must be set according to the Lower Explosive Limit (LEL) of the target gas. Typical alarm set points for combustible gas detection devices are 20 % LEL for the low alarm (A1) and 40 % LEL for the high alarm (A2).



Never use alarm set points over 60 % LEL.

The determination of the alarm set points must take the possible effects of the ambient climatic conditions into account:

Temperature effect The Lower Explosive Limit of a gas is affected by temperature. If temperature increases, the L.E.L. decreases, and the explosion hazard is higher.

Pressure effect The Lower Explosive Limit of a gas is affected by pressure. The relationship between L.E.L. and pressure is very complex. However, a pressure increase usually lowers the LEL and thereby the explosion hazard is higher.

Humidity effect The Lower Explosive Limit of a gas is not significantly affected by the humidity fluctuations that may occur in the average industrial environment.

Climatic condition	Effect on gas L.E.L.	Effect on explosion hazard
Temperature ↗	↘	↗
Pressure ↗	↘	↗
Humidity ↗	-	-

DIRECTIVE 2014/34/EU (ATEX)

Hazardous area

Gas	Dust	Area
0	20	Continuous, long-term or frequent presence of explosive atmosphere.
1	21	Explosive atmosphere is likely to occur under regular operation.
2	22	Explosive atmosphere is not likely to occur under regular operation or, if it does occur, it will only be for short-period.

Equipment category

Category	Definition	Suitable for use in Zone
1	Equipment with a "very high" degree of safety	0 and 20
2	Equipment with a "high" degree of safety	1 and 21
3	Equipment with a "normal" degree of safety	2 and 22

Equipment group

Hazard	Group	Example	Equipment
Gas	I	Methane	Intended for use in mines
	IIA	Propane	Intended for use in other locations than mines
	IIB	Ethylene	
	IIC	Hydrogen	
Dust	IIIA	Combustible flyings	Intended for use in other locations than mines
	IIIB	Non-conductive dust	
	IIIC	Conductive dust	

Temperature class

The equipment must be chosen so that its surface temperature does not exceed the ignition temperature of the explosive gas present. Below are some examples of flammable gases classification according to their ignition temperature (this list is not exhaustive).

Gas group			Temperature class and maximum surface temperature of the equipment					
			T1 450 °C	T2 300 °C	T3 200 °C	T4 135 °C	T5 100 °C	T6 85 °C
IIA	IIB	IIC	Methane	Butane	Kerosene	Acetaldehyde		
			Toluene	Ethanol	Nonane			
			Xylene	Methanol	Octane			
				Propanol	Pentane			
				Propane				
			City gas	Ethylene oxide		Ethyl ether		
			Hydrogen	Acetylene				Carbon disulphide

DISCLAIMER

DALEMANS cannot be liable for direct or indirect damages arising out of the non-observance of its instructions. Every effort has been made to ensure the accuracy of the information given in this document. Nevertheless, DALEMANS decline any responsibility in the event of errors or omissions in this document.

ENVIRONMENTAL COMPLIANCE

Waste Electrical & Electronic Equipment (WEEE Directive)



This symbol on the product and/or accompanying documents means that you are held to respect the regulation in force on the collection and recycling of Waste Electrical and Electronic Equipment (WEEE).

These provisions are intended to preserve the natural resources used for manufacturing this product and to avoid the dispersion of substances potentially harmful for the environment and human health.

Therefore, to dispose of your end-of-life product, you **MUST** hand it over to a designated collection point for the recycling of electrical and electronic equipment. For further information about the collection points in your area contact your local city authority.

QUALITY ASSURANCE



This product has been designed, manufactured and controlled within the framework of an ISO 9001 certified Quality Assurance system which has been assessed by a Notified Body according to Annex IV and VII of the Directive 2014/34/EU (ATEX).

1. INTRODUCTION

The **DAX 420** gas detector is intended for monitoring industrial and commercial confined areas. **DAX 420** is suitable for use in hazardous areas of explosive atmospheres. It operates in association with a compatible control unit or with a Programmable Logic Controller (PLC) to provide early warnings of gas hazard. For further information about the detectable gases or the list of compatible control units, please contact DALEMANS.

1.1. Certification

DALEMANS declares that the **DAX 420** gas detector complies with the acceptable variations originating from the type that has received the EC-Type Examination Certificate number FTZU 09 ATEX 0182X. The measuring function, as defined under Annex II clause 1.5.5. of the ATEX directive 2014/34/EU, is not matter of this certificate. The said equipment is suitable for use in explosive atmospheres of hazardous areas, zone 1 and 2. Moreover, this equipment fulfils the provisions of the following standards:

- EN 60079-0
- EN 60079-1
- EN 60079-31

The label below is affixed to the junction box of the detector. This marking applies to the detector overall assembly. The marking label affixed to the sensing head applies only to the sensing head. If missing, the detector is not certified for use in hazardous areas.

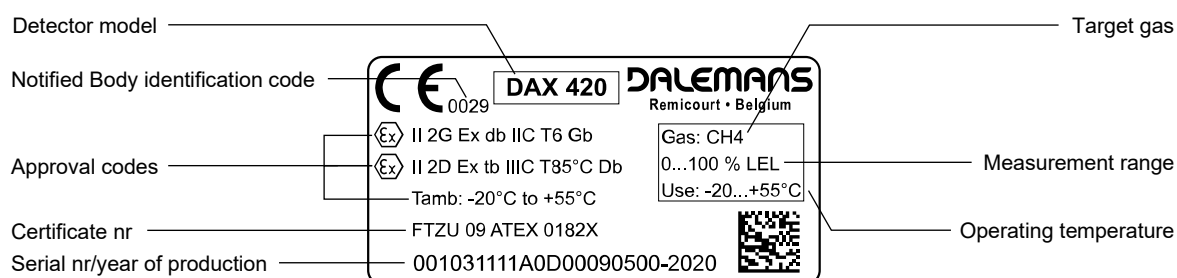


Figure 1: identification and certification label

Approval Code	Definition (see "Directive 2014/34/EU" for further details)
II	Non-mining electrical equipment group for potentially explosive atmospheres.
2G	Category 2 equipment intended for use in areas where GAS explosive atmospheres are likely to occur (zone 1).
Ex db	Protection by flameproof enclosure "d" with a "high" level of protection (EPL Gb).
IIC	Equipment group II subdivision according to the nature of the explosive gas atmosphere (methane, propane, ethylene, hydrogen, acetylene).
T6	Temperature class according to the maximum surface temperature of the equipment in explosive GAS atmosphere (T6=85 °C).
Gb	Gas Equipment Protection Level
2D	Category 2 equipment intended for use in areas where DUST explosive atmospheres are likely to occur (zone 21).
Ex tb	Dust ignition protection by enclosure "t" with a "high" level of protection (EPL Db).
IIIC	Equipment group III subdivision for conductive dust explosive atmospheres (combustible dust with electrical resistivity equal to or less than 10 ³ ohm.m).
T85 °C	Maximum surface temperature of the equipment for dust explosive atmospheres.
Db	Dust Equipment Protection Level
Tamb	Ambient temperature range according which the temperature class (T6) and the maximum surface temperature (T85 °C) have been rated.

2. DESCRIPTION

2.1. Overview

The **DAX 420** gas detector is designed to detect the presence of toxic gas or to measure flammable gas levels up to 100 % of the Lower Explosive Limit (LEL). It operates using a CATALYTIC or an INFRARED sensor whose measure is converted by the transmitter into a 4-20 mA electrical signal which varies according to the gas concentration. This signal is delivered to the control unit or the Programmable Logic Controller (PLC) through a 3-wire current loop.

The **DAX 420** is suitable for:

- Use in hazardous areas other than mines (ATEX group II - equipment category 2);
- Use in zone 1 and 2 (gas) and 21 and 22 (dust) hazardous areas of explosive atmospheres;
- Operating at temperature from -20 °C to +55 °C for T6 temperature class.

The **DAX 420** comprises the following main parts:

- The flameproof “d” metal sensing head.
- The flameproof “d” metal junction box.
- The flameproof “d” metal cable gland.
- The 4-20 mA transmitter circuit board.
- The 3-position connector for electrical connection.

The overall assembly has a flameproof “d” type of protection and an IP6X ingress protection. Possible failures are indicated by the “Fault” LED of the 4-20 mA transmitter.

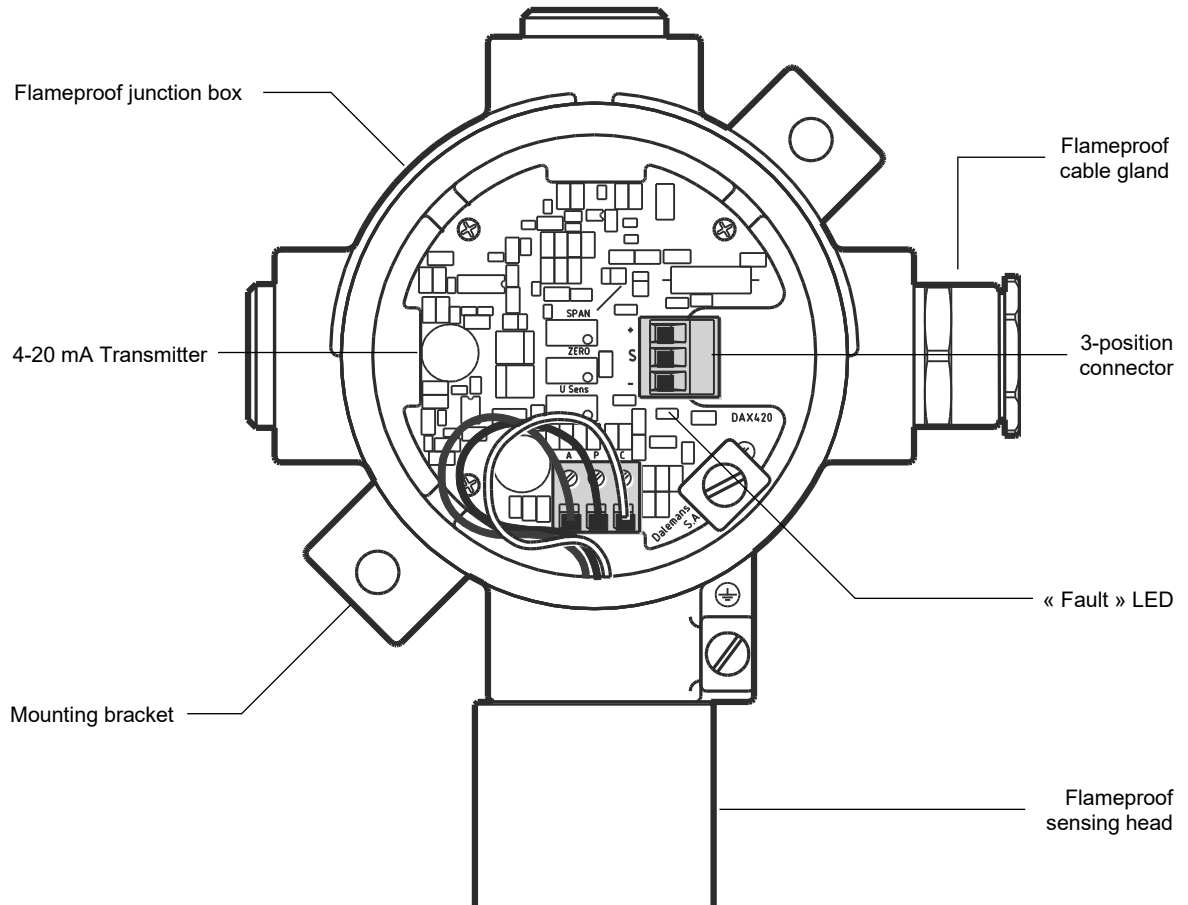


Figure 2: DAX 420 gas detector overview

2.2. Catalytic sensing head

The catalytic sensing head operates on the principle of catalytic combustion. The sensing element consists of a matched pair of elements typically referred to as a passive “P” element and an active “A” element. Both are made of an electrically heated (400 °C) platinum wire coil embedded within a bead. The bead of the active element is covered with a catalyst layer. The passive element is used as a reference compensating for external temperature. If combustible gas/air mixture is present in ambient air, catalytic combustion reaction takes place on the active element. The heat of reaction on the catalyst layer produces a variation in the resistance of the active element. This resistance variation, which is a function of gas concentration, is measured by the 4-20 mA transmitter of the detector.

The catalytic sensing head of the **DAX 420** consists of:

- A flameproof “d” sensor housing (body + top).
- A sintered metal filter.
- A catalytic sensor (pellistor).
- A plastic sensor sleeve.

The sensor housing is a stainless steel assembly (body and top) which can be dismantled to allow plug-in sensor or sintered metal filter replacement.

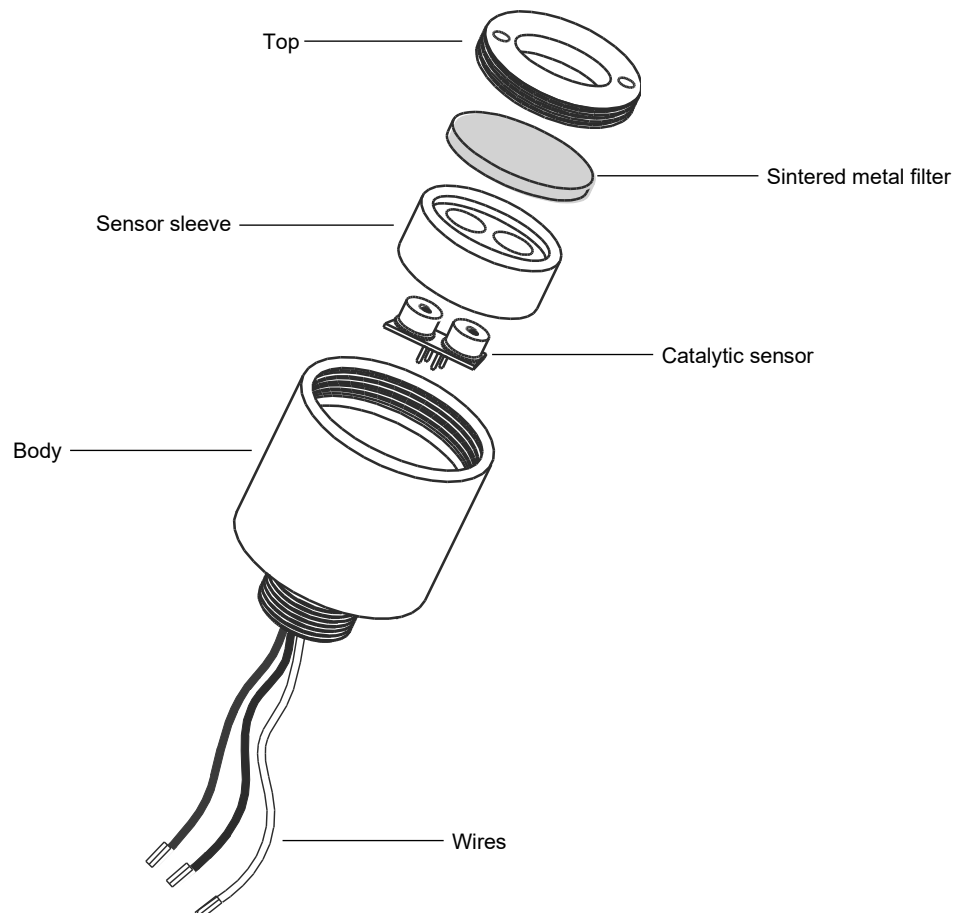


Figure 3: catalytic sensing head

2.3. Infrared sensing head

The infrared sensing head operates according to the Non Dispersive InfraRed principle (NDIR). The sensor comprises a sample chamber, an infrared light source (lamp) and a wavelength infrared detector. When a gas diffuses into the sample chamber it absorbs a portion of the infrared radiation of the lamp. The amount of infrared radiation absorbed by the gas is proportional to the gas concentration. The wavelength infrared detector measures the unabsorbed infrared radiation and delivers an output signal which is a function of the gas concentration in the ambient air.

The infrared sensing head of the **DAX 420** consists of:

- A flameproof “d” metal sensor housing (body + top).
- A sintered metal filter.
- A plastic sensor sleeve.
- An infrared sensor.

The sensor housing is a stainless steel assembly (body and top) which can be dismantled to allow plug-in sensor or sintered metal filter replacement.

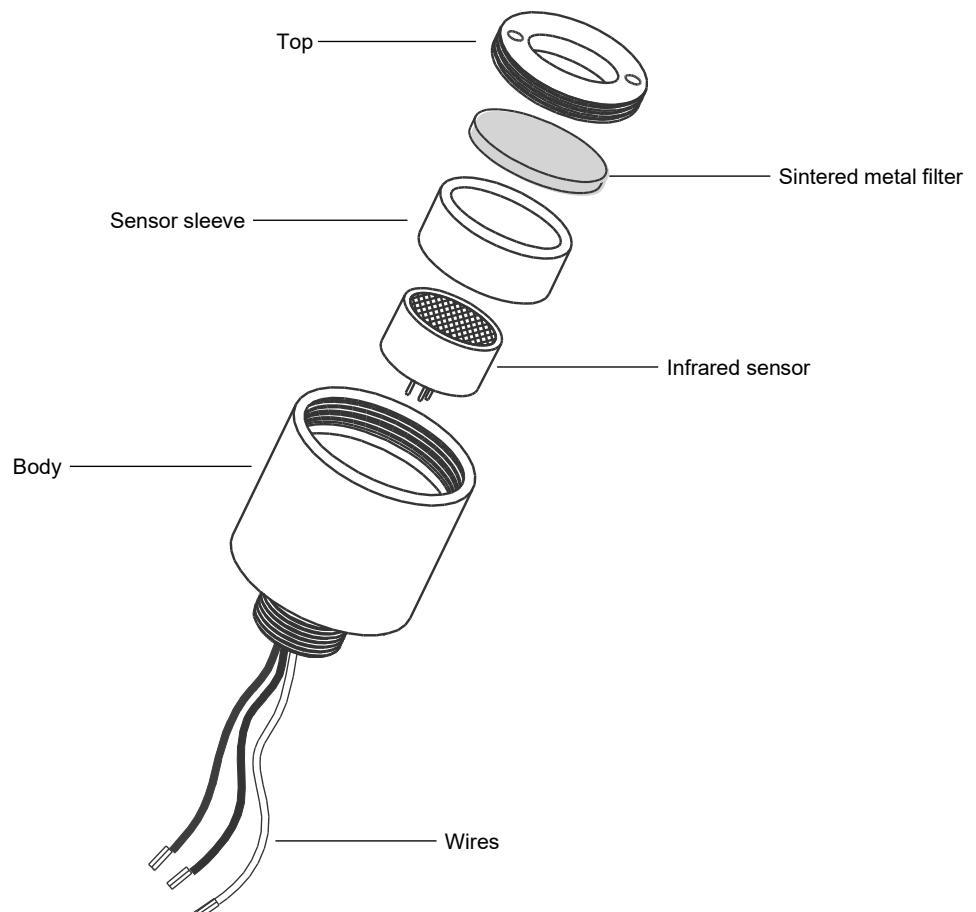


Figure 4: infrared sensing head

2.4. Dimensions

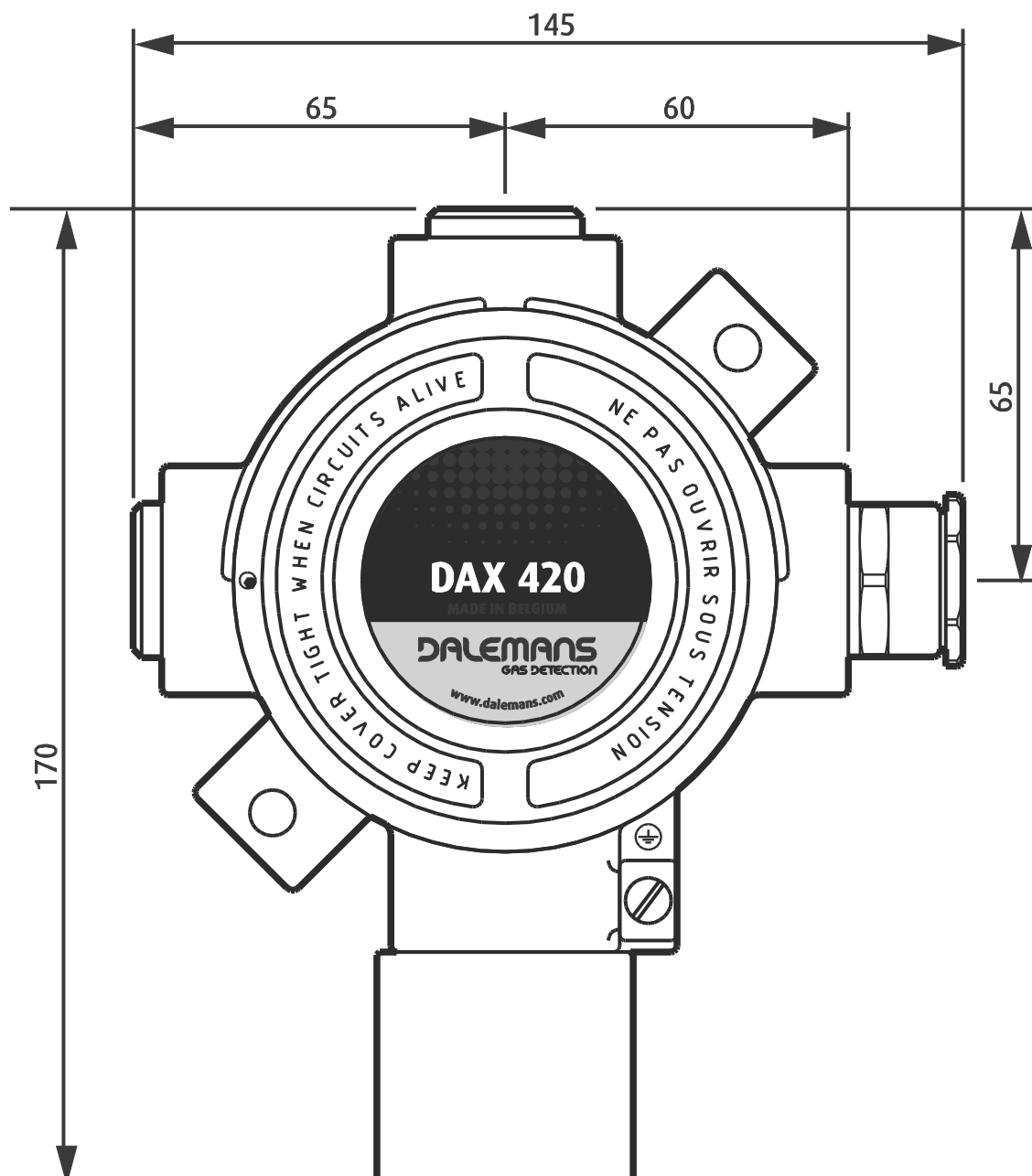


Figure 5: DAX 420 gas detector dimensions (in mm)

3. INSTALLATION

3.1. Location

Gas detectors must be placed so that potential gas accumulations are detected before they create a significant hazard. Inappropriate location of a detector can nullify the effect and the integrity of the gas detection system.

The placement of the detectors should be determined in consultation with experts having specialist knowledge of gas dispersion, with those who have knowledge of process plant system and equipment involved, and with safety and engineering personnel. Should you require any further guidance or assistance please contact DALEMANS or his local representative.

The location of every detector must be recorded and available to the safety personnel.

Consider the following points when positioning a gas detector:

- The detector should be readily accessible for maintenance and electrical safety inspection.
- It must be possible to fit all accessories or test equipment for maintenance and servicing.
- Hazard level and potential sources of gas leak must be taken into account.
- Consider the combination of sources of gas release with propagation effects.
- The detector should be protected against operational hazards of the plant.
- The detector should be protected against vibrations and mechanical impacts.
- The detector should never be positioned directly above or below a water point.
- For outdoor installation, a protection against rain and/or sun exposition shall be installed.
- The detector should not be mounted in air currents.
- Always observe the operational temperature range of the sensor (refer to “Specifications”).
- To detect a gas which is lighter than air, place the detector at a high level.
- To detect a gas which is heavier than air, place the detector at a low level.
- If the gas density is close to air density, place detectors at both high and low levels.
- Gas density increases when temperature decreases.
- When mounting the detector at a high level, DALEMANS recommend using a “Collecting cone” accessory.

The following table gives examples of detector locations depending on the gas to detect:

Gas *	Formula	Density (air = 1)	Position
Cracked gas	-	0.47	High
Hydrogen	H ₂	0.07	
Methane	CH ₄	0.55	
Natural gas	-	0.68	
Butane	C ₄ H ₁₀	2.05	Low
Carbon dioxide	CO ₂	1.53	
Ethylene oxide	C ₂ H ₄ O	1.52	
Isobutane	(CH ₃) ₃ CH	2.00	
Propane	C ₃ H ₈	1.56	High and low
Acetylene	C ₂ H ₂	0.90	
Propane-air	-		

* This list is not exhaustive

3.2. Mounting

The **DAX 420** gas detector should be mounted flat on a wall according to the dimensions below.

- Attach the detector using suitable screws and plugs.
- Always use the original wall mounting bracket supplied with the detector.
- The sensing head should never be installed pointing upwards.
- Ensure that dust will not block the sensor and that water will not run into the detector.

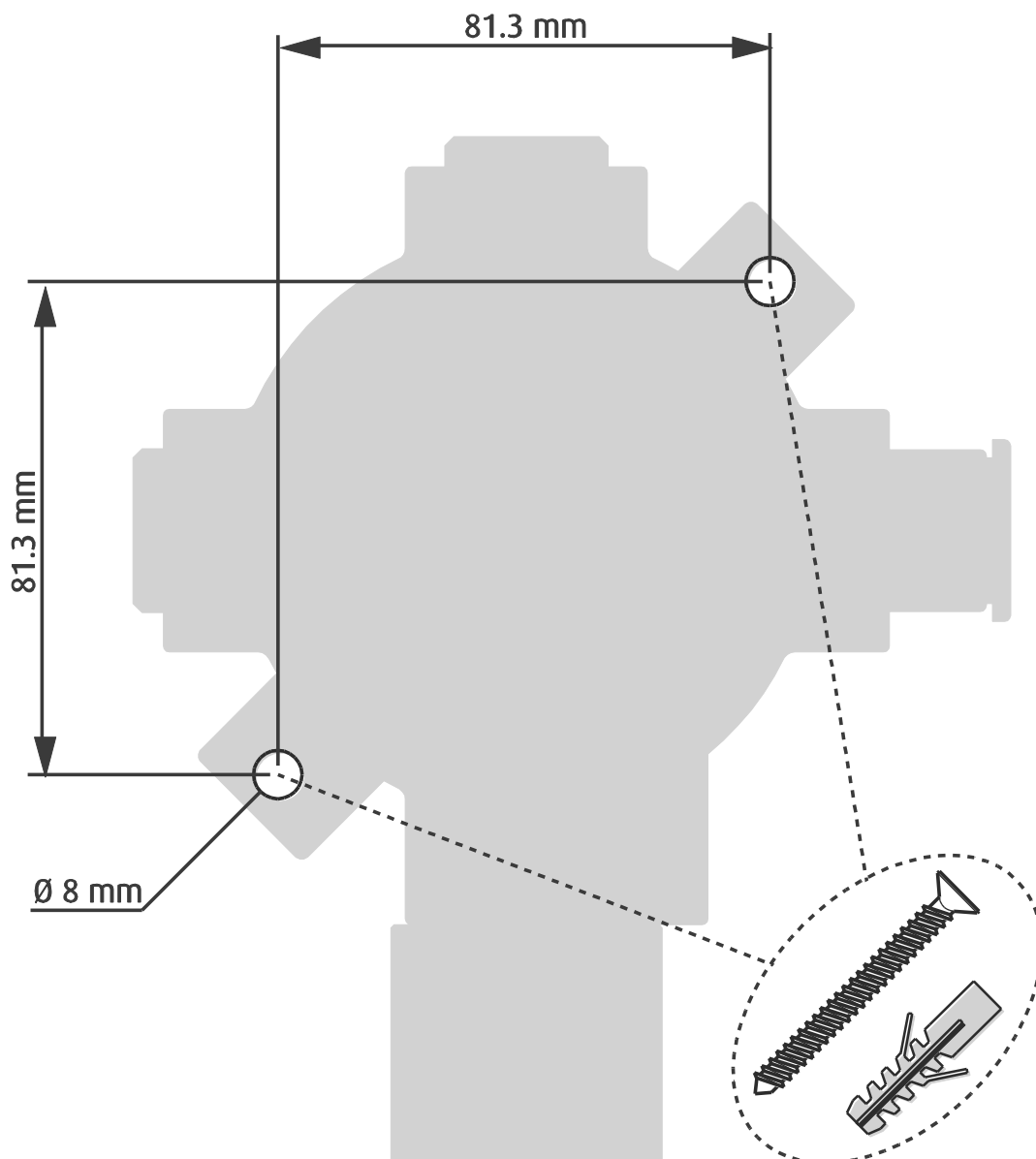


Figure 6: DAX 420 gas detector vertical mounting

3.3. Field wiring



Field wiring must comply with local regulations and standards in force. Always ensure that the electrical requirements of the DAX 420 gas detector meet the capability of the associated control unit or PLC (see “Specifications”).

- DALEMANS recommend using colour coded cable with solid wires.
- The acceptable cross sectional area of the cable is **0.75 to 2.5 mm²**.
- The overall cable diameter must be within the range given below.

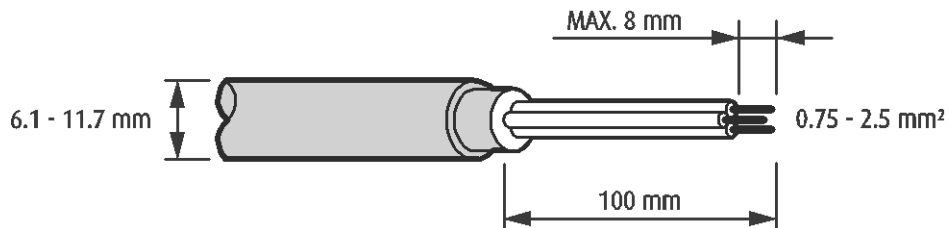


Figure 7: DAX 420 wiring

- Pass the cable through the gland to the desired position, then tighten the seal nut by hand until resistance is felt (when the seal contacts the cable). Tighten with a spanner one further turn.
- The cable shielding or screening must be grounded at the control unit / PLC.
- The maximum acceptable cable length depends on the level of the supply voltage applied to the detector and the cross sectional area of the wires.

The table and the diagram below give examples:

Cross-section	Cable length (L)	
	+20 Vdc	+24 Vdc
0.75 mm ²	200 m	900 m
1.50 mm ²	350 m	1000 m
2.50 mm ²	600 m	1000 m

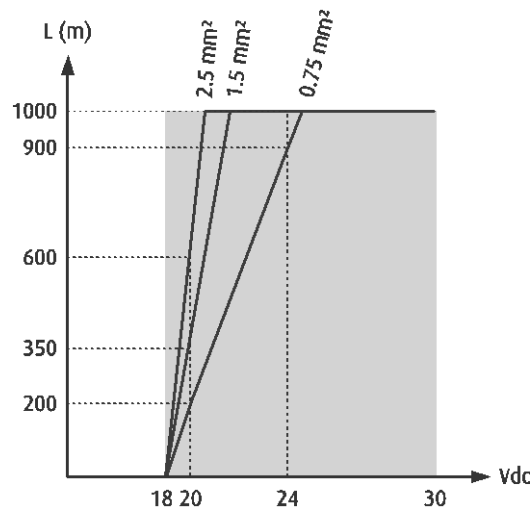


Figure 8: maximum cable length

3.4. Connection to a DALEMANS control unit



For instructions about the electrical connection of the control unit, please refer to the original equipment instruction manual.

To connect the **DAX 420** gas detector:

- Loosen the locking screw of the junction box cover using the 1.5 mm hex key.
- Completely turn the cover counterclockwise to unscrew it.
- Loosen the cable gland cap nut, insert the cable into the cable gland and tighten.
- Connect the wires to the 3-position connector according to the diagram below.
- The cable wires must be stripped and plugged so that the gap between the wire insulation and the metal edge of the terminal connection does not exceed 1 mm distance.
- Equipotential bonding may be provided using either the internal or the external connection. If the external connection is used, the cross sectional area of the bonding conductor should be of at least 4 mm².
- Screw the cover back onto the junction box and hand tighten ¼ turn.
- Put the locking screw of the cover back in place and tighten with the 1.5 mm hex key.

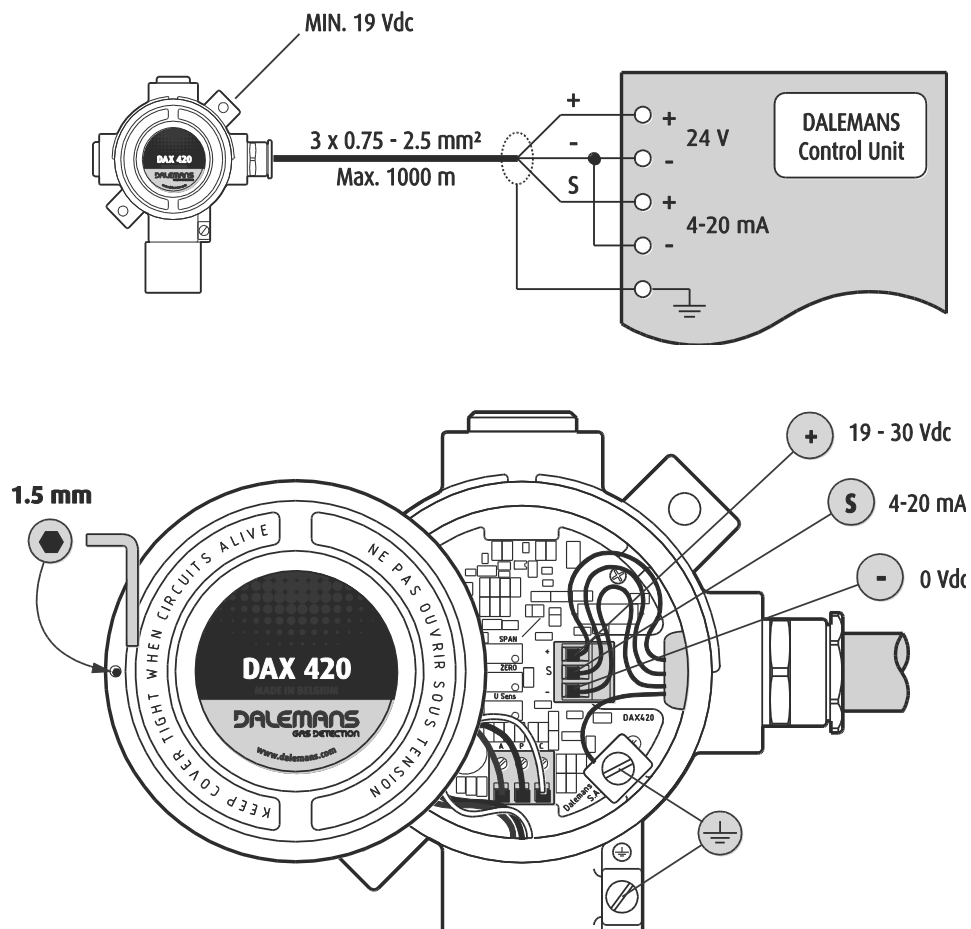


Figure 9: connection to a DALEMANS control unit

3.5. Connection to a Programmable Logic Controller (PLC)



For instructions about the electrical connection of the PLC, please refer to the original equipment instruction manual.

Use an external stabilized power supply for the detector (+24 Vdc). Ensure that the polarity of the **DAX 420** output signal matches the polarity of the PLC input.

To connect the **DAX 420** gas detector:

- Loosen the locking screw of the junction box cover using the 1.5 mm hex key and completely turn the cover counterclockwise to unscrew it.
- Loosen the cable gland cap nut, insert the cable into the cable gland and tighten.
- Connect the wires to the 3-position connector according to the diagram below.
- The cable wires must be stripped and plugged so that the gap between the wire insulation and the metal edge of the terminal connection does not exceed 1 mm distance.
- Equipotential bonding may be provided using either the internal or the external connection. If the external connection is used, the cross sectional area of the bonding conductor should be of at least 4 mm².
- Screw the cover back onto the junction box and hand tighten ¼ turn.
- Put the locking screw of the cover back in place and tighten with the the 1.5 mm hex key.
- Connect a shunt resistor across the PLC input. Choose the resistor value according to the PLC input scale. The resistor must have a power rating of at least 1 Watt.

Example :

PLC input scale from 1 to 5 Vdc

Loop current I_{Loop} is 20 mA

$$R_{Shunt} = \frac{5}{I_{Loop}} = \frac{5}{0.02} = 250 \text{ ohms}$$

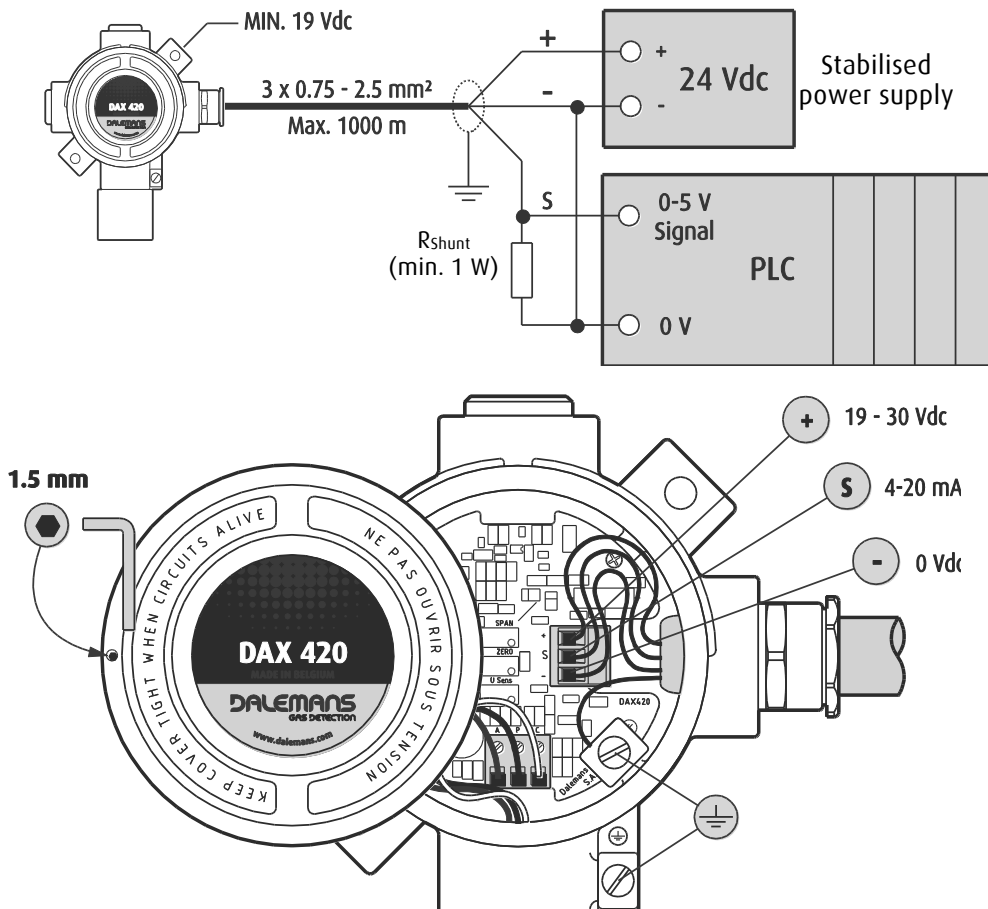


Figure 10: connection to a PLC

4. MAINTENANCE



Prior to carrying out maintenance or service operations on the gas detector, inhibit the safety function of the detector on the associated control unit or PLC and secure any output device connected to the system to prevent false alarms and unintended actuations.

Never open the detector when flammable gas is present.

Regularly remove dust from the detector **WITH A DAMP CLOTH ONLY** to avoid the risk of electrostatic sparks.

4.1. Calibration

Gas detectors must be calibrated at least once a year to mitigate the possible loss of sensitivity of the sensor. This calibration must be performed according to the procedure given by DALEMANS or his local representative, and in any case by qualified personnel who will have received a suitable training.

4.2. Sintered metal filter replacement

If contamination of the sintered metal filter by solvent, gas or vapour has occurred, the sensing head must be replaced and the inspection frequency should be increased twofold.

- Unscrew the sensing head top using the suitable tool OUT00000113.
- Replace the sinter metal filter with a new one MEC00000010.
- Screw the sensing head top back on again and tighten.
- Make sure the sensing head is still correctly fastened to the junction box.
- Perform calibration according to the procedure given by DALEMANS or his representative.

4.3. Sensing head replacement

- Loosen the locking screw of the junction box cover using the 1.5 mm hex key.
- Completely turn the cover counterclockwise to unscrew it.
- Disconnect the wires (red, blue, white) of the sensing head from the “APC” terminal block.
- Unscrew and remove the sensing head.
- Screw the new sensing head back on again and tighten with tool OUT00000113.
- Connect the three wires of the sensing head on the “APC” terminal block (Figure 2):
 - RED on terminal A
 - BLUE on terminal P
 - WHITE on terminal C
- Screw the cover back onto the junction box and hand tighten ¼ turn.
- Put the locking screw of the cover back in place and tighten with the 1.5 mm hex key.
- Power on the detector and restore its safety function on the control unit or the PLC.
- Perform calibration according to the procedure given by DALEMANS or his representative.

4.4. Troubleshooting

Problem	Possible cause(s)
"Fault" LED of the 4-20 mA transmitter is ON (Figure 2)	- Wrong or defective electrical connection. - Sensor disconnected or out of order. - Detector voltage out of range (19 - 30 Vdc).
The detector output signal is 0 mA ("Fault" signal active at the control unit/PLC)	- Sensor voltage (through "A" and "P" terminals) out of range. - Infrared sensor optical failure due to dust. - Sensor out of order.
Non-zero reading	Possible presence of gas in the detector area.
Non-zero reading when no gas is present	Detector needs calibration.
Reading too high or too low	
Zero reading in presence of gas	- Wrong or defective electrical connection. - Sintered or sensor blocked with dust. - Sintered or sensor contaminated. Replace sintered AND sensor.

4.5. Spare parts and accessories

Part or accessory	Part number
Cable gland - Ex "d" M20 (6.1 - 11.7 mm)	P R E 0 0 0 0 0 0 3 2
Junction box - Ex "d"	B O I 0 0 0 0 0 1 8 8
Key for locking screw (1.5 mm hex key)	O U T 0 0 0 0 0 1 1 5
Screw - M4 x 6 mm	V I S V I S 0 0 0 4 2
Screw - Locking screw of the junction box cover	V I S V I S 0 0 0 6 7
Sensing head - Catalytic (DAL17)	D E T 0 0 0 0 0 0 2 1
Sensing head - Catalytic (DAL21)	D E T 0 0 0 0 0 0 2 2
Sensing head for butane - Infrared (DIR-B)	D E T 0 0 0 0 0 0 2 7
Sensing head for methane - Infrared (DIR-M)	D E T 0 0 0 0 0 0 2 5
Sensing head for propane - Infrared (DIR-P)	D E T 0 0 0 0 0 0 2 6
Sensor sleeve (catalytic)	M E C 0 0 0 0 0 0 2 8
Sensor sleeve (infrared)	M E C 0 0 0 0 0 0 3 6
Sintered metal filter	M E C 0 0 0 0 0 0 1 0
Spanner for top of sensing head	O U T 0 0 0 0 0 1 1 3
Stopper plug - Ex d M20	P R E 0 0 0 0 0 0 3 3
Transmitter circuit board - 4-20 mA	B A S T R X 0 0 0 2 9

5. SPECIFICATIONS

MODEL	DAX 420	
Sensing head	1.4404 stainless steel (AISI 316L)	
Sintered metal filter		
Junction box	Aluminium	
Dimensions	170 x 145 x 90 mm	
Weight	1400 g	
Output signal	3-wire 4-20 mA current loop	
Settings	Zero and calibration by internal potentiometers	
Response time (T90)	< 30 s	
Operating voltage	19 - 30 Vdc	
Current consumption	Max. 90 mA	
Measurement principle	Catalytic	Infrared
Measurement range	<i>Other gases/ranges upon request</i>	<i>Other gases/ranges upon request</i>
Butane (C ₄ H ₁₀)	0 - 100 % LEL	0 - 100 % LEL
Methane (CH ₄)		
Propane (C ₃ H ₈)		
Carbon dioxide (CO ₂)	-	0 - 100 % LEL
Ethanol (C ₂ H ₆ O)	-	0 - 4 % vol.
Operating temperature	-20 °C to +55 °C	-20 °C to +50 °C
Storage temperature	-40 °C to +80 °C	-20 °C to +50 °C
Ambient humidity	20 - 90 % HR	0 - 95 % HR
Intermittent humidity	10 - 99 % HR	-
Pressure	90 - 110 kPa	-
Accuracy	± 3 % range < 60 % LEL	± 0,5 % range < 50 % LEL
	± 5 % range > 60 % LEL	± 1 % range > 50 % LEL
Expected operating life	> 2 years	> 5 years
Wiring	0.75 - 2.5 mm ² (solid wires)	
Maximum cable length	max. 1000 m	
Loop resistance	50 - 750 ohms	
Cable entry	1 x M20 / 6.1 - 11.7 mm (<i>other size upon request</i>)	
Ingress protection	IP6X (dust tight)	
Approval (ATEX)	GAS	DUST
Hazardous area	Zone 1 or 2	Zone 21 or 22
Equipment group	IIC	IIIC
Marking	 II 2G Ex db IIC T6 Gb  II 2D Ex tb IIIC T85°C Db Tamb = -20 °C to +55 °C for T6 et T85 °C	
Standards	EN 60079-0 EN 60079-1 EN 60079-31	
Certificate number	FTZU 09 ATEX 0182X	



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