

LVL-M4

Vibration Limit Switch

ATEX:

II 1/2 G Ex ia IIC T6...T1 Ga/Gb

II 2 G Ex ia IIC T6...T1 Gb

II 1/2 D Ex ia IIIC Txxx°C Da/Db

II 2 D Ex ia IIIC Txxx°C Db

IECEX:

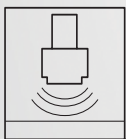
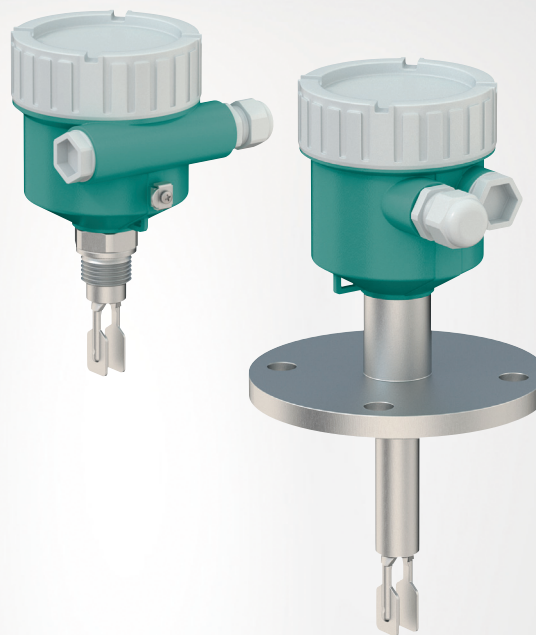
Ex ia IIC T6...T1 Ga/Gb

Ex ia IIC T6...T1 Gb

Ex ia IIIC Txxx°C Da/Db

Ex ia IIIC Txxx°C Db

Temperature Tables



With regard to the supply of products, the current issue of the following document is applicable:
The General Terms of Delivery for Products and Services of the Electrical Industry, published by the Central Association of the Electrical Industry (Zentralverband Elektrotechnik und Elektroindustrie (ZVEI) e.V.) in its most recent version as well as the supplementary clause: "Expanded reservation of proprietorship"

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1 Associated Documentation

The corresponding datasheets, manuals, instruction manuals, declarations of conformity, EUtype examination certificates, certificates, and control drawings if applicable are an integral part of this document. You can find this information under www.pepperl-fuchs.com.

This document does not substitute the instruction manual.

For full information on the product, refer to the instruction manual and further documentation on the Internet at www.pepperl-fuchs.com.

This document is an integral part of the following documents:

- Manual: DOCT-8107
- Brief instructions: DOCT-8111
- Instruction manual: DOCT-8309

For specific device information such as the year of construction, scan the QR code on the device. As an alternative, enter the serial number in the serial number search at www.pepperl-fuchs.com.

2 Supplementary Documentation

Information for explosion protection:

The information can be found on the Internet at www.pepperl-fuchs.com.

3 Manufacturer's Certificates

EU Declaration of Conformity

Declaration number: DOC-7442

EU Type-Examination Certificate

Certificate number: CSANe 23ATEX1157X

List of applied standards: see EU Declaration of Conformity

IEC Declaration of Conformity

Certificate number: IECEX CSAE 23.0044X

List of applied standards: see IECEX certificate



Note

Further information is available on the product detail page of the devices on the internet at www.pepperl-fuchs.com.

Enter the order designation in the search field → Select the appropriate product → Open the product detail page → Open the **Approvals+Certificates** tab.

4 Manufacturer Address

Pepperl+Fuchs Group
Lilienthalstraße 200, 68307 Mannheim, Germany
Internet: www.pepperl-fuchs.com

5 Device Versions

Device type	Basic specifications	Optional specifications
LVL-M4	-XXXXXX-XXXXXX-XX	+XX

The X-marked letters of the type code are placeholders for versions of the device.

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

Basic specifications

Option	Type of probe
A	Compact version
B	Short tube version
C	Tube extension

Option	Housing, material
A	Single compartment, aluminum, coated
D	Dual compartment, L-shape, aluminum, coated
G	Single compartment, 316L, cast

Option	Electrical connection
B ¹	Gland M20, brass nickel plated, IP66/68, NEMA type 4X/6P
C ²	Gland M20, 316L, IP66/68, NEMA type 4X/6P
F	Thread M20, IP66/68, NEMA type 4X/6P
G	Thread G1/2, IP66/68, NEMA type 4X/6P
I	Thread NPT3/4, IP66/68, NEMA type 4X/6P

¹ Only in connection with feature **Housing, material**, option **A, D**

² Only in connection with feature **Housing, material**, option **A, G**

Option	Application, temperature
A	Process: max. 150 °C/302 °F, max. 64 bar
B	Process: max. 150 °C/302 °F, max. 100 bar

Option	Electrical output
M	FEL68, 2-wire NAMUR with test button

Option	Approval
E5 ¹	ATEX/IEC II 1/2G, 2G Ex ia IIC T6 Ga/Gb, II 1/2D, 2D Ex ia IIIC Da/Db

¹ In connection with feature **Accessory mounted**, option **VB**, temperature class changes to T4...T1

Optional specifications

Option	Test, certificate, declaration
U1	Ambient temperature -50 °C/-58 °F

Option	Sensor design
DF	Pressure tight feed through (second line of defense)
TD	Temperature spacer

Option	Accessory mounted
VB ¹	Bluetooth module VU121 for NAMUR output

¹ Only in connection with feature **Housing, material**, option **A, D**

Option	Accessory enclosed
ST	Test magnet
WP ¹	Weather protection cover, plastic
WS ²	Weather protection cover, 316L

¹ Only in connection with feature **Housing, material**, option **A, G**

² Only in connection with feature **Housing, material**, option **D**

6 Temperature Tables

Optional specification, feature **Test, certificate, declaration**, option **U1**

i

Note

Lower limit of the ambient temperature for explosion protection changes to -50 °C .

General notes

Ex ia IIC

Optional specification, feature **Accessories enclosed**, option **WP**

i

Note

When using the weather protection cover: Reduce the values T_{amb} of P1, P2, P3 by 16 K.

Ex ia IIIC

Optional specification, feature **Accessories enclosed**, option **WP**

i

Note

When using the weather protection cover: Reduce the values T_{amb} by 16 K.

Description notes

i

Note

Unless otherwise indicated, the positions always refer to the basic specification.

Zone 0, Zone 1

- 1st column: basic specification, feature **Application, temperature**, option **A, B**
- 2nd column: temperature classes T6 (85 °C) to T1 (450 °C)
- Column P1 to P5: position (temperature value) on the axes of the derating
 - T_{amb} : ambient temperature in °C
 - T_{p} : process temperature in °C

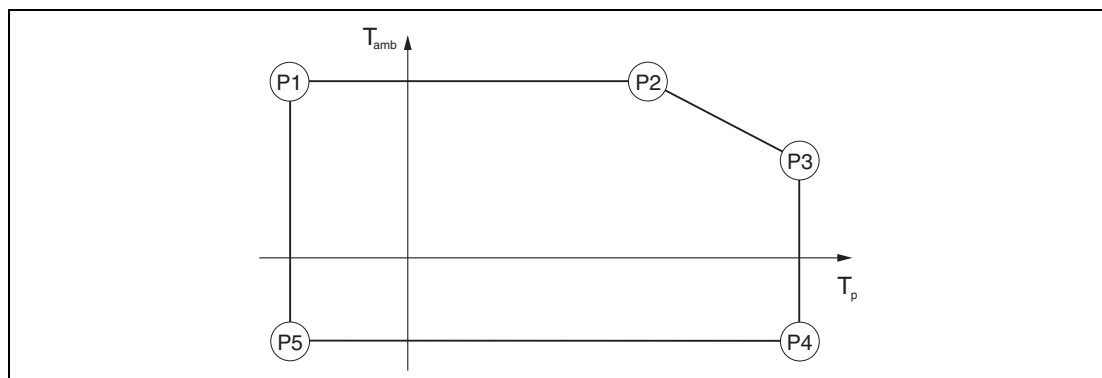


Figure 1

Zone 20, Zone 21 or Zone 21

- 1st column: basic specification, feature **Application, temperature**, option **A, B**
- 2nd column: Process temperature range in °C
- 3rd column: Ambient temperature range in °C
- 4th column: Maximum surface temperature in °C

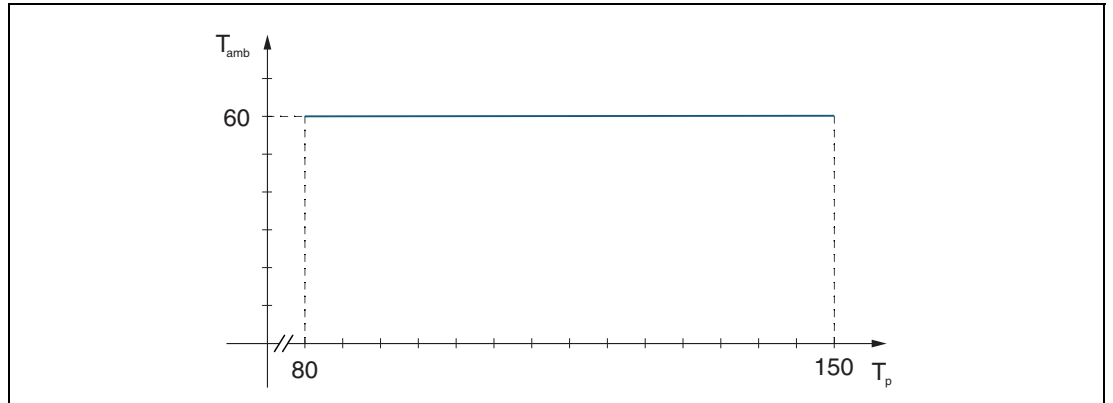


Figure 2

T_{amb} Ambient temperature in °C

T_p Process temperature in °C

Zone 0, Zone 1

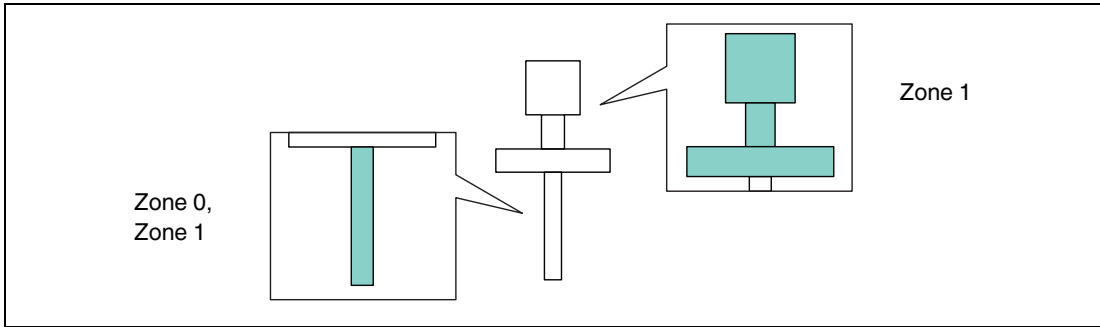


Figure 3

Basic specification, feature Application, temperature without optional specification, feature Sensor design, option DF, TD

Option A, B											
		P1		P2		P3		P4		P5	
		T _p	T _{amb}	T _p	T _{amb}	T _p	T _{amb}	T _p	T _{amb}	T _p	T _{amb}
	T6 ¹	-50	70 65 ²	74	70 65 ²	80	66	80	-40 -50 ³	-50	-40 -50 ³
	T5	-50	70 65 ²	90	70 65 ²	95	70	95		-50	
	T4	-50	70 65 ²	112	70 65 ²	130	62	130		-50	
	T3...T1	-50	70 65 ²	112	70 65 ²	150	53	150		-50	

¹ In connection with optional specification, feature **Accessory mounted**, option **VB**, temperature class changes to T4...T1

² Only in connection with optional specification, feature **Accessory mounted**, option **VB**

³ Only in connection with optional specification, feature **Test, certificate, declaration**, option **U1**

Table 1

Basic specification, feature Application, temperature with optional specification, feature Sensor design, option DF, TD

Option A, B											
		P1		P2		P3		P4		P5	
		T _p	T _{amb}	T _p	T _{amb}	T _p	T _{amb}	T _p	T _{amb}	T _p	T _{amb}
	T6 ¹	-50	70 65 ²	80	70 65 ²	80	69	80	-40 -50 ³	-50	-40 -50 ²
	T5	-50	70 65 ²	95	70 65 ²	95	70	95		-50	
	T4	-50	70 65 ²	130	70 65 ²	130	70	130		-50	
	T3...T1	-50	70 65 ²	150	70 65 ²	150	70	150		-50	

¹ In connection with optional specification, feature **Accessory mounted**, option **VB**, temperature class changes to T4...T1

² Only in connection with optional specification, feature **Accessory mounted**, option **VB**

³ Only in connection with optional specification, feature **Test, certificate, declaration**, option **U1**

Table 2

Zone 20, Zone 21

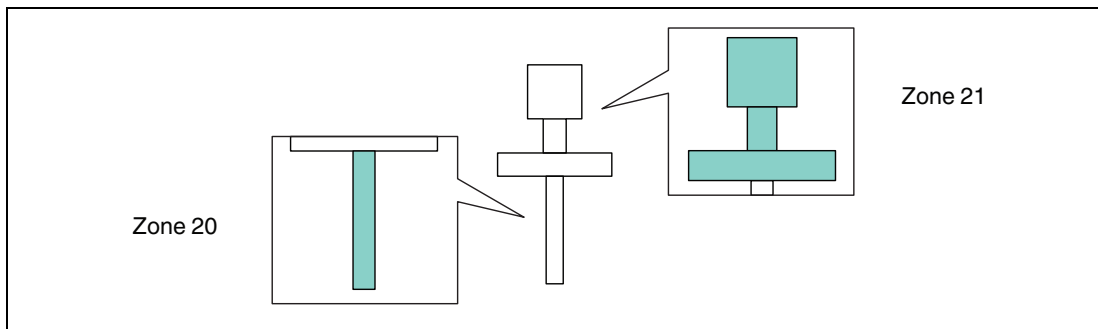


Figure 4

Basic specification, feature Application, temperature

Option A, B			
	$-50 \leq T_p \leq +150$	$-40 \leq T_{amb} \leq +60$ $-50 \leq T_{amb} \leq +60$ ¹	Zone 20: T_{200} -25 to +165 ²
			Zone 21: T_L -48 to +155 ³

¹ Only in connection with optional specification, feature **Test, certificate, declaration**, option **U1**

² With 200 mm dust deposit

³ With dust accumulation T_L

Table 3

Zone 21

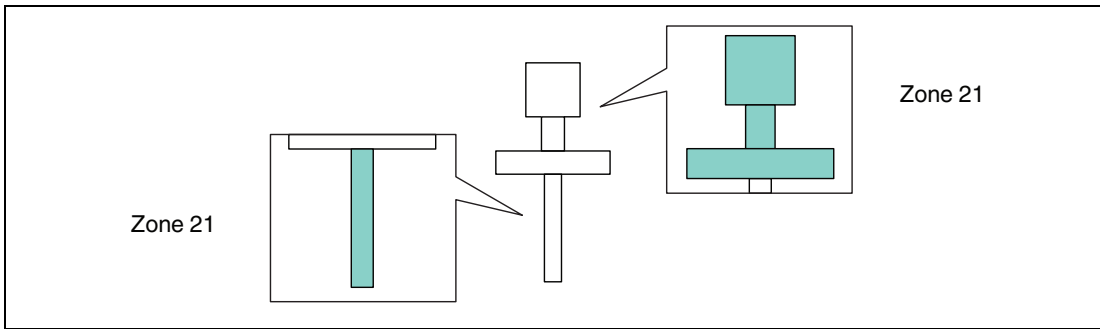


Figure 5

Basic specification, feature Application, temperature

Option A, B			
	$-50 \leq T_p \leq +150$	$-40 \leq T_{amb} \leq +60$ $-50 \leq T_{amb} \leq +60$ ¹	$T_L -48$ to $+155$ ²

¹ Only in connection with optional specification, feature **Test, certificate, declaration**, option **U1**

² With dust accumulation T_L

Table 4

7 Connection Data

Optional specification, feature **Accessory mounted**, option **VB**

When using the Bluetooth® module: No changes to the connection values.

Associated intrinsically safe power supply unit with max. electrical specifications below the characteristic values of the electronic inserts

Basic specification, feature Electrical output

Option	Power supply circuit
M	$U_i = 16$ V $I_i = 52$ mA $P_i = 170$ mW $L_i = 0$ $C_i = 30$ nF

Table 5

Cable entry parameters

Ex ia IIC

Not relevant.

Ex ia IIIC

Cable gland: Basic specification, feature **Electrical connection**, option **B** mandatory for feature **Housing, material**, option **A, D**

Thread	Clamping range	Material	Sealing insert	O-ring
M20x1.5	Ø8 to 10.5 mm ¹ (Ø6.5 to 13 mm) ²	Ms, nickel-plated	Silicone	EPDM (Ø17x2)

¹ Standard

² Separate clamping inserts available

Table 6

Cable gland: Basic specification, feature **Electrical connection**, option **C** preferably for feature **Housing, material**, option **G** and possible for feature **Housing, material**, option **A, D**

Thread	Clamping range	Material	Sealing insert	O-ring
M20x1.5	Ø7 to 12 mm	1.4404	NBR	EPDM (Ø17x2)

Table 7



Note

- The tightening torque refers to cable glands installed by the manufacturer:
 - Recommended torque to connect the cable gland into the housing: 3.75 Nm
 - Recommended torque to tighten the cable into the cable gland: 3.5 Nm
 - Maximum torque to tighten the cable into the cable gland: 10 Nm
 - This value may be different depending on the type of cable. However, the maximum value must not be exceeded.
-
- Only suitable for fixed installation. The operator must pay attention to a suitable strain relief of the cable.
 - To maintain the ingress protection of the housing: Install the housing cover, cable glands and blind plugs correctly.
 - The cable glands are suitable for a low risk of mechanical danger (4 Joule) and must be mounted in a protected position if larger impact energy levels are expected.

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Explosion Protection

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- Industrial HMI
- Mobile Computing and Communications
- HART Interface Solutions
- Surge Protection
- Wireless Solutions
- Level Measurement

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- Photoelectric Sensors
- Industrial Vision
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- Rotary Encoders
- Positioning Systems
- Inclination and Acceleration Sensors
- Fieldbus Modules
- AS-Interface
- Identification Systems
- Displays and Signal Processing
- Connectivity

Pepperl+Fuchs Quality

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