

LVL-M4

Vibration Limit Switch

ATEX:

II 3G Ex ec IIC T6...T1 Gc

II 3G Ex ec nC IIC T6...T1 Gc

II 3D Ex tc IIIC Txxx°C Dc

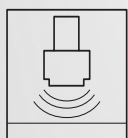
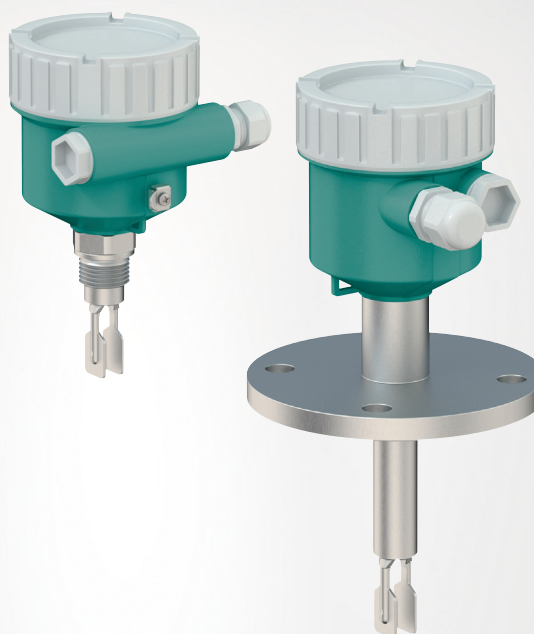
IECEX:

Ex ec IIC T6...T1 Gc

Ex ec nC IIC T6...T1 Gc

Ex tc IIIC Txxx°C Dc

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-8398

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
B	FEL64DC, relay DPDT, 9 V DC to 20 V DC, contact 253 V/6 A with test button
E	FEL62, 3-wire PNP, 10 V DC to 55 V DC with test button
N	FEL64, relay DPDT, 19 V AC to 253 V AC/19 V DC to 55 V DC, contact 253 V/6 A with test button
M	FEL68, 2-wire NAMUR with test button

Option	Approval
EM	ATEX II 3G Ex ec IIC T6...T1 Gc ¹ ATEX II 3G Ex ec nC IIC T6...T1 Gc ² ATEX II 3D Ex tc IIIC Txxx°C Dc IECEX Ex ec IIC T6...T1 Gc ⁴ IECEX Ex ec nC IIC T6...T1 Gc ⁵ IECEX Ex tc IIIC Txxx°C Dc

¹ Only in connection with feature **Electrical output**, option **E, M**

² Only in connection with feature **Electrical output**, option **B, N**

Optional specifications

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

Option	Accessory mounted
BL ¹	Bluetooth module VU121
VB ²	Bluetooth module VU121 for NAMUR output

¹ Only in connection with feature **Electrical output**, option **B, E, N**, feature **Housing, material**, option **A, D**

² Only in connection with feature **Electrical output**, option **M**, feature **Housing, material**, option **A, D**

Option	Accessory enclosed
ST ¹	Test magnet
WP ²	Weather protection cover, plastic
WS ³	Weather protection cover, 316L

¹ Only in connection with feature **Electrical output**, option **B, E, N, M**

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

³ Only in connection with feature **Housing, material**, option **D**

6 Safety Instructions: Installation

Continuous service temperature of the connecting cable/cable gland/cable entry:

- Basic specification, feature **Electrical output**, option **M**: $\geq T_{amb} + 20 \text{ K}$
- Basic specification, feature **Electrical output**, option **E**: $\geq T_{amb} + 35 \text{ K}$
- Basic specification, feature **Electrical output**, option **B, N**: $\geq T_{amb} + 45 \text{ K}$
- Basic specification, feature **Electrical output**, option **E** in connection with optional specification, feature **Sensor design**, option **DF, TD**: $\geq T_{amb} + 20 \text{ K}$
- Basic specification, feature **Electrical output**, option **B, N** in connection with optional specification, feature **Sensor design**, option **DF, TD**: $\geq T_{amb} + 25 \text{ K}$

7 Temperature Tables

General notes

Ex ec IIC

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



Note

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

Ex tc IIIC

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



Note

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

Description notes



Note

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

Zone 2

- 1st line: basic specification, feature **Housing material**, option **A, D, G**
- 1st column: basic specification, feature **Application, temperature**, option **A, B**
- 2nd column: maximum load current
- 3rd 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

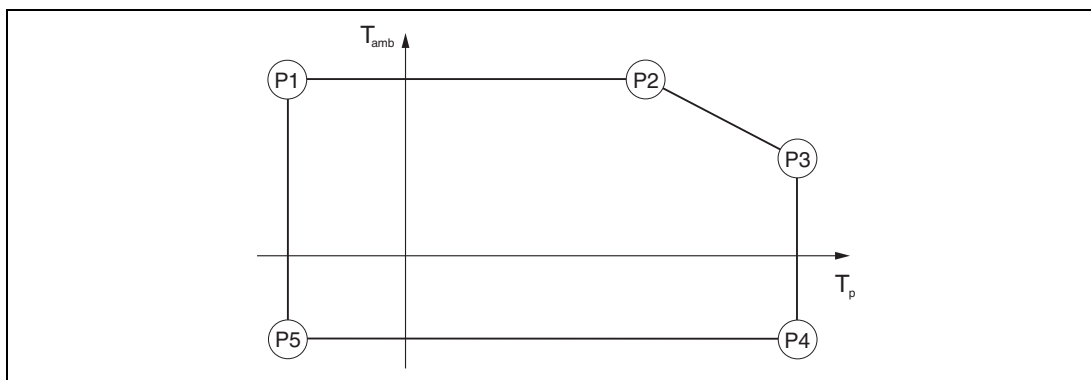


Figure 1

Zone 22

- 1st column: basic specification, feature **Application, temperature**, option **A, B**
- 2nd column: maximum load current
- 3rd column: Process temperature range in °C
- 4th column: Ambient temperature range in °C
- 5th column: Maximum surface temperature in °C

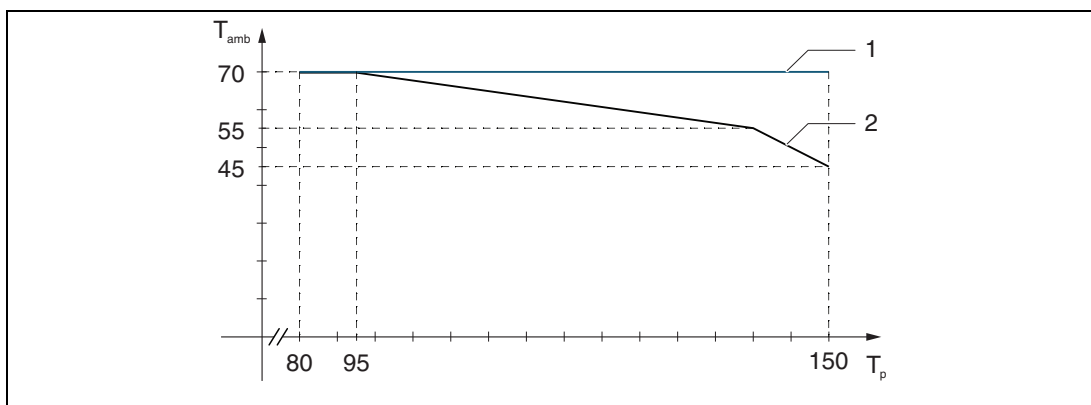


Figure 2

- T_{amb} Ambient temperature in °C
- T_p Process temperature in °C
- 1 with optional specification, feature **Sensor design**, option **DF, TD**
- 2 without optional specification, feature **Sensor design**, option **DF, TD**

Zone 2

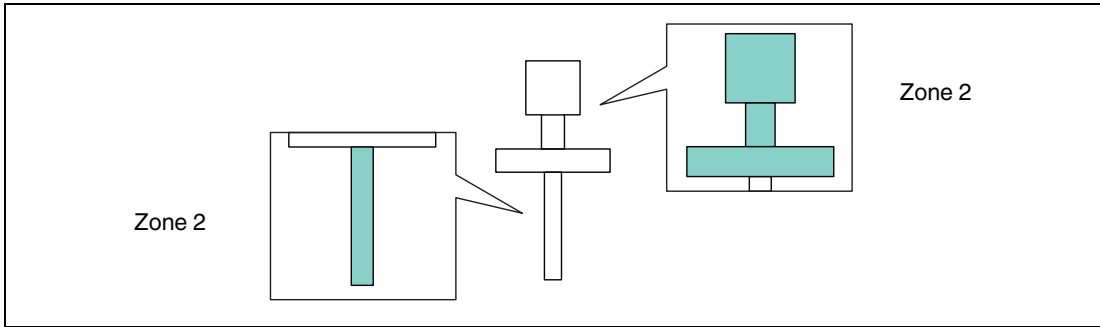


Figure 3

Basic specification, feature Electrical output, option E

Without optional specification, feature Sensor design, option DF, TD

Option A, G, D											
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}
350 mA											
	T6	-50	70	70	70	80	70	80	-40	-50	-40
	T5	-50	70	70	70	95	70	95	-40	-50	-40
	T4	-50	70	70	70	130	55	130	-40	-50	-40
	T3...T1	-50	70	70	70	150	45	150	-40	-50	-40

Table 1

With optional specification, feature Sensor design, option DF, TD

Option A, G, D											
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}
350 mA											
	T6	-50	70	70	70	80	70	80	-40	-50	-40
	T5	-50	70	70	70	95	70	95	-40	-50	-40
	T4	-50	70	70	70	130	70	130	-40	-50	-40
	T3...T1	-50	70	70	70	150	70	150	-40	-50	-40

Table 2

Basic specification, feature Electrical output, option B, N

Without optional specification, feature Sensor design, option DF, TD

Option A, G, D											
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}
2 A											
T6		-50	52	53	52	80	40	80	-40	-50	-40
T5		-50	67	68	67	95	55	95	-40	-50	-40
T4		-50	70	78	70	130	47	130	-40	-50	-40
T3...T1		-50	70	78	70	150	47	150	-40	-50	-40

Table 3

With optional specification, feature Sensor design, option DF, TD

Option A, G, D											
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}
2 A											
T6		-50	52	58	52	80	50	80	-40	-50	-40
T5		-50	67	73	67	95	65	95	-40	-50	-40
T4		-50	70	104	70	130	67	130	-40	-50	-40
T3...T1		-50	70	104	70	150	65	150	-40	-50	-40
4 A											
T6		-50	43	54	43	80	40	80	-40	-50	-40
T5		-50	58	69	58	95	55	95	-40	-50	-40
T4		-50	70	77	70	130	65	130	-40	-50	-40
T3...T1		-50	70	77	70	150	63	150	-40	-50	-40

Table 4

Basic specification, feature Electrical output, option M

Option A, G, D											
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		-50	70	70	70	80	70	80	-40	-50	-40
T5		-50	70	70	70	95	70	95	-40	-50	-40
T4		-50	70	70	70	130	70	130	-40	-50	-40
T3...T1		-50	70	70	70	150	70	150	-40	-50	-40

Table 5

Zone 22

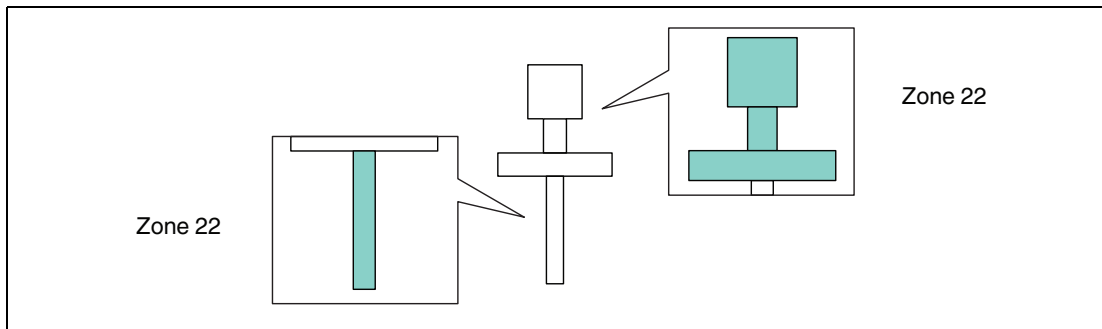


Figure 4

Basic specification, feature Electrical output, option E

Without optional specification, feature Sensor design, option DF, TD

Option A, B			
	350 mA		
		$-50 \leq T_p \leq +95$	$-40 \leq T_{amb} \leq +70$
		$-50 \leq T_p \leq +130$	$-40 \leq T_{amb} \leq +55$
		$-50 \leq T_p \leq +150$	$-40 \leq T_{amb} \leq +45$
			T -40 to +95
			T -40 to +130
			T -40 to +150

Table 6

With optional specification, feature Sensor design, option DF, TD

Option A, B			
	350 mA		
		$-50 \leq T_p \leq +150$	$-40 \leq T_{amb} \leq +70$
			T -40 to +150

Table 7

Basic specification, feature Electrical output, option B, N

Without optional specification, feature Sensor design, option DF, TD

Option A, B				
		2 A, 4 A		
		$-50 \leq T_p \leq +80$	$-40 \leq T_{amb} \leq +70$	T -40 to +80
		$-50 \leq T_p \leq +90$	$-40 \leq T_{amb} \leq +66$	T -40 to +90
		$-50 \leq T_p \leq +120$	$-40 \leq T_{amb} \leq +53$	T -40 to +120
		$-50 \leq T_p \leq +150$	$-40 \leq T_{amb} \leq +40$	T -40 to +150
		6 A		
		$-50 \leq T_p \leq +90$	$-40 \leq T_{amb} \leq +64$	T -40 to +90
		$-50 \leq T_p \leq +120$	$-40 \leq T_{amb} \leq +51$	T -40 to +120
		$-50 \leq T_p \leq +150$	$-40 \leq T_{amb} \leq +38$	T -40 to +150

Table 8

With optional specification, feature Sensor design, option DF, TD

Option A, B				
		2 A		
		$-50 \leq T_p \leq +125$	$-40 \leq T_{amb} \leq +70$	T -40 to +125
		$-50 \leq T_p \leq +150$	$-40 \leq T_{amb} \leq +67$	T -40 to +150
		4 A		
		$-50 \leq T_p \leq +116$	$-40 \leq T_{amb} \leq +70$	T -40 to +116
		$-50 \leq T_p \leq +150$	$-40 \leq T_{amb} \leq +67$	T -40 to +150
		6 A		
		$-50 \leq T_p \leq +97$	$-40 \leq T_{amb} \leq +70$	T -40 to +97
		$-50 \leq T_p \leq +150$	$-40 \leq T_{amb} \leq +65$	T -40 to +150

Table 9

Basic specification, feature Electrical output, option M

Option A, B				
		$-50 \leq T_p \leq +80$	$-40 \leq T_{amb} \leq +70$	T -40 to +80
		$-50 \leq T_p \leq +150$	$-40 \leq T_{amb} \leq +50$	T -40 to +150

Table 10

8 Connection Data

Optional specification, feature **Access mounted**, option **BL, VB**

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

Basic specification, feature Electrical output

Option	Power supply circuit	Output
E	U = 10 to 55 V DC P _{max} < 0.5 W	I _{max} = 350 mA
B	U = 9 to 20 V DC P _{max} < 1 W	2 potential free change-over contacts, 2 A Ex e, 6 A Ex t ¹ 4 A Ex e, 6 A Ex t ¹
N	U = 19 to 253 V AC, 50/60 Hz or 19 to 55 V DC P _{max} < 25 VA or < 1.3 W	
M	U = 4 to 8.2 V DC	NAMUR, I _{max} = 3.8 mA

¹ Only in connection with optional specification, feature **Sensor design**, option **DF, TD**

Table 11

Your automation, our passion.

Explosion Protection

- Intrinsic Safety Barriers
- Signal Conditioners
- FieldConnex® Fieldbus
- Remote I/O Systems
- Electrical Ex Equipment
- Purge and Pressurization
- Industrial HMI
- Mobile Computing and Communications
- HART Interface Solutions
- Surge Protection
- Wireless Solutions
- Level Measurement

Industrial Sensors

- Proximity Sensors
- Photoelectric Sensors
- Industrial Vision
- Ultrasonic Sensors
- 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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www.pepperl-fuchs.com/quality

