IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	**IECEx KIWA 19.0010X**	Page 1 of 4	Certificate history:
Status:	**Current**	Issue No: 2	Issue 1 (2021-02-03) Issue 0 (2019-06-24)
Date of Issue:	2023-04-04		

Applicant: **Endress+Hauser SE+Co. KG**
Hauptstrasse 1
79689 Maulburg
Germany

Equipment: **Liquid Level Switches Liquiphant, types FTL41, FTL51B, FTL62, FTL63 and FTL64**

Optional accessory:

Type of Protection: **Ex d,e,i,t,n**

Marking:
Ex db IIC T6...T1 Ga/Gb or Gb
Ex db eb IIC T6...T1 Ga/Gb or Gb
Ex ta/tb IIIC Tx °C Da/Db
Ex tb IIIC Tx °C Db
Ex tc IIIC Tx °C Dc
Ex ia IIC T6...T1 Ga, Ga/Gb or Gb
Ex db ia IIC T6...T1 Ga/Gb or Gb
Ex ia IIIC Tx °C Da/Db or Db
Ex ec IIC T6...T1 Gc
Ex ec nC IIC T6...T1 Gc

Approved for issue on behalf of the IECEx Certification Body: **Dave Magee**

Position: **Senior Director of Operations, Toronto**

Signature:
(for printed version)

Date:
(for printed version)

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2. This certificate is not transferable and remains the property of the issuing body.
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Certificate issued by:

CSA Group
178 Rexdale Blvd
Toronto Ontario M9W 1R3
Canada

IECEx Certificate of Conformity

Manufacturer: **Endress+Hauser SE+Co. KG**
Hauptstrasse 1
79689 Maulburg
Germany

Manufacturing locations: **refer to Annex 4 for additional manufacturing locations**

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements.This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :
The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Edition:7.0	Explosive atmospheres - Part 0: Equipment - General requirements
IEC 60079-1:2014-06 Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-11:2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-15:2017 Edition:5.0	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
IEC 60079-26:2021-02 Edition:4.0	Explosive atmospheres - Part 26: Equipment with Separation Elements or combined Levels of Protection
IEC 60079-31:2013 Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
IEC 60079-7:2015 Edition:5.0	Explosive atmospheres – Part 7: Equipment protection by increased safety "e"

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Reports:

NL/KIWA/ExTR19.0011/00 NL/KIWA/ExTR19.0011/01 NL/KIWA/ExTR19.0011/02

Quality Assessment Report:

DE/TUN/QAR06.0003/10

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EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

Liquid Level Switches Liquiphant, types FTL41, FTL51B, FTL62, FTL63 and FTL64 (and OEM versions OFTL41, OFTL51B, OFTL62, OFTL63 and OFTL64) for use in explosive atmospheres caused by the presence of combustible gases, fluids, vapours or dusts, directly detect a liquid level by means of a symmetrical vibrating fork. The different electronic inserts in the transmitter enclosure, convert the fork frequency into an electrical signal.

The Liquid Level Switches Liquiphant are used for the measurement of the density or concentration of a process fluid, if provided with the electronics insert type FEL60D and connected to the Endress+Hauser Interface type FML621.

The enclosure is either a single electronics compartment version made of plastic, aluminium or stainless steel or a dual compartment version made of aluminium providing a separate electronics and a terminal compartment. The stainless steel sensor is directly fitted to the enclosure. Optionally the electronics compartment can be equipped with either a Bluetooth or an LED module in combination with a windowed cover.

For the type designation code, electrical or thermal data refer to Annex 1 to 3.

SPECIFIC CONDITIONS OF USE: YES as shown below:
- The equipment shall be install in a manner that will result in a sufficiently tight joint (IP66 or IP67 according to IEC 60529) or a flameproof joint according to IEC 60079-1 (joints specified for a volume ≤ 100 cm3) between one hazardous area to the other.
- The flameproof joints are not intended to be repaired.
- To avoid electrostatic discharge the Liquid Level Switches Liquiphant shall be cleaned only with a damp cloth.
- For Liquid Level Switches Liquiphant with an aluminium enclosure, when used as EPL Ga equipment, shall be installed in such a way that, even in the event of rare incidents, ignition sources due to impact are excluded.
- For Liquid Level Switches Liquiphant, when used as EPL Gc equipment shall only be used in an area of not more than pollution degree 2, as defined in IEC 60664-1.
- The FTL63 with a sensor that is mechanical polishing and installed in the boundary of EPL Ga/Gb or EPL Da/Db shall not be exposed to environmental conditions that could affect the partition.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
Issue 1 – this Issue introduced the following changes:

1. Addition of a types FTL62 (coated (ECTFE, PFA non-conductive and conductive, Enamel) sensor version) and FTL64 (high temperature (HT) sensor version with sensor lengths upto 6 meter in type of protection Ex-d) (and OEM versions OFTL62 and OFTL64);
2. Addition of a -50 °C version with an alternative potting material;
3. Addition of new O-ring Material (FPM) at position Probe to Enclosure and 2nd-Source Suppliers for Blind Plug/Cable Gland Position;
4. Addition of an alternative BT module version VU121 (VA13-01 extended with modelcode VA13-02) with a closed battery lid to allow a T6 classification (T4 classification was based on cell temperature);
5. Change of electronic module FEL61 (not relevant for the type of protection (only used for Ex-d and Ex t);
6. Correction of typos in descriptive documents.

Issue 2 – this Issue introduced the following changes:

1. Addition of a types FTL63 sensor versions for hygienic applications (and OEM versions OFTL63);
2. Addition enamel or other coating for types FTL64 (already available for FTL62 sensor versions);
3. Separation of Temperature tables for Ex i electronic inserts and probe types;
4. Electronic inserts with Variants for Foam-Detection and Foam-Blanking (not relevant for the type of protection);
5. Ex i Devices with glass window without BT-Module or LED-Module;
6. New version of M12 Connecting plug stainless steel for Ex ia IIC;
7. Update of IEC 60079-26 from 2014, 3rd Edition to 2021, 4th Edition;
8. Addition of an alternative Ex-d Bushing for enclosure type HA46;
9. Correction of typos in order code(s)

Annexes:

Annex 1 to IECEx KIWA 19.0010X Issue 2_(03-2023).pdf
Annex 2 to IECEx KIWA 19.0010X Issue 2_(03-2023).pdf
Annex 3 to IECEx KIWA 19.0010X Issue 2_(03-2023.pdf
Annex 4 to IECEx KIWA 19.0010X Issue 2_(03-2023).pdf

Type designation - FTL41

	FTL41 – aa bb c d e f g h ii jj kkk + mm nn oo qq rr ss	(Basic performance)
aa = 010	Approval:	
	*B	ATEX/IEC II 1/2G Ex ia IIC T6...T1 Ga/Gb ATEX/IEC II 2G Ex ia IIC T6...T1 Gb
	*C	ATEX/IEC II 1/2G Ex db IIC T6...T1 Ga/Gb ATEX/IEC II 2G Ex db IIC T6...T1 Gb
bb = 020	Output:	
	A2	FEL42, 3-wire PNP 10-55VDC
	A4	FEL44, Relay DPDT 19-253VAC/19-55VDC Contact 253V/6A
	A8	FEL48, 2-wire NAMUR
	9Y	Modification of one of the above named electronics in: Switch point, switch time or switch–density. Changes not explosion protection relevant
c = 030	Display; Operation:	
	A	W/o; switch
	Y	Modification of the above named option in: Color of LED. Changes not explosion protection relevant
d = 040	Housing; Material:	
	A	Single compartment; plastic
	B	Single compartment; Alu, coated
	Y	Modification of one of the above named option in: Color or Coating type. Enclosure partly potted, Enclosure prepared for lead-sealed. Cover with window Changes not explosion protection relevant
e = 050	Electrical Connection:	
	A	Gland M20, plastic, IP66/68, NEMA Type 4X/6P
	B	Gland M20, brass nickel plated, 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
	H	Thread NPT1/2, IP66/68 NEMA Type 4X/6P
	I	Thread NPT3/4, IP66/68 NEMA Type 4X/6P
	M	Plug M12, IP66/67 NEMA Type 4X
	Y	Modification of one of the above named option: : NPT1/2-Reduction glued in to Encl. Assembled with third party cert. Cable gland or Blanking Element, blue plastic Ex i cable gland, Plug connector for Ex i. For Ex i Inst. Cable pre. assembled. Changes not explosion protection relevant
f = 060	Application:	
	A	Process max 150°C, 40 bar
	9	Modification of the above named option in: Reduction of Process Temperature or Pressure, Fork angled Changes not explosion protection relevant
g = 080	Surface finish:	
	A	Standard Ra <3,2um/126uin
	Y	Modification of the above named option in: Ra < 1,6um or better. Changes not explosion protection relevant
h = 085	Probe version:	
	1	Compact version
	2	Extension tube
	3	Short tube version
	9	Modification of the above named option: Shorter than standard version, Probe angled. Changes not explosionprotection relevant
ii = 090	Probe length, material:	
	AA to	Two characters representing different types of probe materials (316L or Alloy C) and length of probe in mm or inch
	YY	Modification of one of the above named option: Special version not given in the standard order code, Duplex Steel, different Alloy-C-version. Changes not explosion protection relevant
jj kkk = 105+110	Process connection type and size:	
	AA AAA to	Combination of two characters representing different types of process connections (Flange, thread, or Hygienic types), plus a triple number of combinations representing the different sizes of process connections. Not explosion protection relevant.
	99 9YY	Modification of one of the above named option in: Special version not given in the standard order code. Changes not explosion protection relevan

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	FTL41 – aa bb c d e f g h ii jj kkk + mm nn oo qq rr ss (Basic performance)	
mm = 570	Services:	
	HA to	H or I plus a character or figure representing different services like cleaned from oli+fat, cleaned for Oxyger applications, or settings to the device different from delivery standard. Not mandatory, multiple selection possible. Not explosion protection relevant.
	I9	Modification of one of the above named option: Special version not given in the standard order code. Switch point, switch time or switch –density, Foam Detection, Gold plated Relay Contacts. Changes not explosion protection relevant
nn = 580	Test, Certificate:	
	JA to	J or K plus a character or figure representing different production tests (Pressure test, He-Leakage test, PMI test, ...) or material certificates for the wetted materials. Not mandatory, multiple selection possible. Not explosion protection relevant.
	K9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevan
oo = 590	Additional approvals:	
	LD to L9	L plus a character or figure representing different additional approvals (WHG, ship building, CRN, ...). Not mandatory, multiple selection possible.
	L9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevan
qq = 610	Accessories mounted:	
	O9	Modification of one of the above named option: Special version not given in the standard order code, Sliding sleeve assembled. Changes not explosion protection relevant
rr = 620	Accessories enclosed:	
	PB	Weather protection cover, plastic
		Sliding sleeve
	R9	Modification of one of the above named option: Special version not given in the standard order code.Changes not explosion protection relevant
ss = 895	Marking:	
	Z1	Tagging (TAG), 316L plate, Paper plate, Customer plate, RFID TAG
	Z9	Modification of one of the above named option: Special version not given in the standard order code. Changes notexplosion protection relevant

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Type designation - OFTL41

	OFTL41 – aa bb c d e f g h ii jj kkk xx + mm nn oo qq rr ss	(Basic performance)
aa = 010	Approval:	
	*B	ATEX/IEC II 1/2G Ex ia IIC T6...T1 Ga/Gb ATEX/IEC II 2G Ex ia IIC T6...T1 Gb
	*C	ATEX/IEC II 1/2G Ex db IIC T6...T1 Ga/Gb ATEX/IEC II 2G Ex db IIC T6...T1 Gb
bb = 020	Output:	
	A2	FEL42, 3-wire PNP 10-55VDC
	A4	FEL44, Relay DPDT 19-253VAC/19-55VDC Contact 253V/6A
	A8	FEL48, 2-wire NAMUR
	9Y	Modification of one of the above named electronics in: Switch point, switch time or switch–density. Changes not explosion protection relevant
c = 030	Display; Operation:	
	A	W/o; switch
	Y	Modification of the above named option in: Color of LED. Changes not explosion protection relevant
d = 040	Housing; Material:	
	A	Single compartment; plastic
	B	Single compartment; Alu, coated
	Y	Modification of one of the above named option in: Color or Coating type. Enclosure partly potted, Enclosure prepared for lead-sealed. Cover with window Changes not explosion protection relevant
e = 050	Electrical Connection:	
	A	Gland M20, plastic, IP66/68, NEMA Type 4X/6P
	B	Gland M20, brass nickel plated, 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
	H	Thread NPT1/2, IP66/68 NEMA Type 4X/6P
	I	Thread NPT3/4, IP66/68 NEMA Type 4X/6P
	M	Plug M12, IP66/67 NEMA Type 4X
	Y	Modification of one of the above named option: : NPT1/2-Reduction glued in to Encl. Assembled with third party cert. Cable gland or Blanking Element, blue plastic Ex i cable gland, Plug connector for Ex i. For Ex i Inst. Cable pre. assembled. Changes not explosion protection relevant
f = 060	Application:	
	A	Process max 150°C, 40 bar
	9	Modification of the above named option in: Reduction of Process Temperature or Pressure, Fork angled Changes not explosion protection relevant
g = 080	Surface finish:	
	A	Standard Ra <3,2um/126uin
	Y	Modification of the above named option in: Ra < 1,6um or better. Changes not explosion protection relevant
h = 085	Probe version:	
	1	Compact version
	2	Extension tube
	3	Short tube version
	9	Modification of the above named option: Shorter than standard version, Probe angled. Changes not explosion protection relevant
ii = 090	Probe length, material:	
	AA to	Two characters representing different types of probe materials (316L or Alloy C) and length of probe in mm or inch
	YY	Modification of one of the above named option: Special version not given in the standard order code, Duplex Steel, different Alloy-C-version. Changes not explosion protection relevant
jj kkk = 105+110	Process connection type and size:	
	AA AAA to	Combination of two characters representing different types of process connections (Flange, thread, or Hygienic types), plus a triple number of combinations representing the different sizes of process connections. Not explosion protection relevant.
	99 9YY	Modification of one of the above named option in: Special version not given in the standard order code. Changes not explosion protection relevan

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	OFTL41 – aa bb c d e f g h ii jj kkk xx + mm nn oo qq rr ss	(Basic performance)
xx = 490	Customer Version:	
	AA to 99	Combination of two characters representing different customers as label partners for Liquiphan
mm = 570	Services:	
	HA to	H or I plus a character or figure representing different services like cleaned from oli+fat,cleaned for Oxygen applications, or settings to the device different from delivery standard. Not mandatory, multiple selection possible. Not explosion protection relevant.
	I9	Modification of one of the above named option: Special version not given in the standard order code. Switch point, switch time or switch –density, Foam Detection, Gold plated Relay Contacts. Changes not explosion protection relevant
nn = 580	Test, Certificate:	
	JA to	J or K plus a character or figure representing different production tests (Pressure test, He-Leakage test, PMI test, ...) or material certificates for the wetted materials. Not mandatory, multiple selection possible. Not explosion protection relevant.
	K9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevan
oo = 590	Additional approvals:	
	LD to L9	L plus a character or figure representing different additional approvals (WHG, ship building, CRN, ...). Not mandatory, multiple selection possible.
	L9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevan
qq = 610	Accessories mounted:	
	O9	Modification of one of the above named option: Special version not given in the standard order code, Sliding sleeve assembled. Changes not explosion protection relevant
rr = 620	Accessories enclosed:	
	PB	Weather protection cover, plastic
		Sliding sleeve
	R9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevan
ss = 895	Marking:	
	Z1	Tagging (TAG), 316L plate, Paper plate, Customer plate, RFID TAG
	Z9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevan

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Type designation – FTL51B

	FTL51B – aa bb c d e f g h ii jj kkk + yy ll mm nn oo pp qq rr zz ss	(High performance)
aa = 010	Approval:	
	*A	ATEX/IEC II 1G Ex ia IIC T6 Ga
	*B	ATEX/IEC II 1/2G, 2G Ex ia IIC/IIB T6 Ga/Gb
	*C	ATEX/IEC II 1/2G, 2G Ex db IIC/IIB T6 Ga/Gb
	*D	ATEX/IEC II 1/2G, 2G Ex de IIC/IIB T6 Ga/Gb
	*K	ATEX/IEC II 1/2G, 2G Ex ia IIC/IIB T6 Ga/Gb, II 1/2D, 2D Ex ia IIIC Da/Db
	*L	ATEX/IEC II 3G Ex ec IIC/IIB T6 Gc[1)], II 3D Ex tc IIIC Dc[1)]
	*M	ATEX/IEC II 1/2G, 2G Ex db IIC/IIB T6 Ga/Gb, II 1/2D, 2D Ex ta/tb IIIC Da/Db
bb = 020	Electronic, Output:	
	A1	FEL61, 2-wire 19-253VAC + test button
	A2	FEL62, 3-wire PNP 10-55VDC + test button
	A3	FEL64DC, relay DPDT 9-20VDC, contact 253V/6A + test button
	A4	FEL64, relay DPDT 19-253VAC/19-55VDC, contact 253V/6A + test button
	A7	FEL67, 2-wire PFM + test button
	A8	FEL68, 2-wire NAMUR + test button
	GA	FEL60D, density/concentration
	9Y	Modification of one of the above named electronic in: Switch point, switch time or switch –density. Changes not explosion protection relevant
c = 030	Display, Operating:	
	A	W/o; switch
	B	LED module outside visible; switch
	Y	Modification of the above named option in: Color of LED. Changes not explosion protection relevant
d = 040	Housing:	
	A	Single compartment; plastic
	B	Single compartment; Alu, coated
	C	Single compartment; 316L, cast
	M	Dual compartment L-shape; Alu, coated
	Y	Modification of one of the above named option in: Color or Coating type. Enclosure partly potted, Enclosure prepared for lead-sealed. Cover with window Changes not explosion protection relevant
e = 050	Electrical Connection:	
	A	Gland M20, plastic, IP66/68, NEMA Type 4X/6P
	B	Gland M20, brass nickel plated, IP66/68 NEMA Type 4X/6P
	C	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
	H	Thread NPT1/2, IP66/68 NEMA Type 4X/6P
	I	Thread NPT3/4, IP66/68 NEMA Type 4X/6P
	M	Plug M12, IP66/68 NEMA Type 4X/6P
	Y	Modification of one of the above named option: NPT1/2-Reduction glued in to Encl. Assembled with third party cert. Cable gland or Blanking Element, blue plastic Ex i cable gland, Plug connector for Ex i. For Ex i Inst. Cable pre. assembled. Changes not explosion protection relevant

1) Not applicable for ATEX Category 3 EU -Type Examination Certificate

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	FTL51B – aa bb c d e f g h ii jj kkk + yy ll mm nn oo pp qq rr zz ss (High performance)	
f = 060	Application:	
	A	Process max 150oC/302oF, max 64bar
	B	Process max 150oC/302oF, max 100bar
	C	Process max 80oC/176oF, max 25bar
	9	Modification of the above named option in: Changes not explosion protection relevant
g = 080	Surface finish:	
	A	Standard Ra <3,2um/126uin
	Y	Modification of the above named option in: Ra < 1,6um or better. Changes not explosion protection relevant
h = 085	Probe version:	
	1	Compact version
	2	Extension tube
	3	Short tube version
	9	Modification of the above named option: Shorter than standard version, Probe angled. Changes not explosion protection relevant
ii = 090	Probe length, material:	
	AA to	Two characters representing different types of probe materials (316L or Alloy C) and length of probe in mm or inch
	YY	Modification of one of the above named option: Special version not given in the standard order code, Duplex Steel, different Alloy-C-version. Changes not explosion protection relevant
jj kkk = 105 + 110	Process Connection, Sealing Surface:	
	AA AAA to	Combination of two characters representing different types of process connections (Flange, thread, or Hygienic types), plus a triple number of combinations representing the different sizes of process connections. Not explosion protection relevant.
	99 9YY	Modification of one of the above named option in: Special version not given in the standard order code. Changes not explosion protection relevan
yy = 500	Operating Language:	
	AA to	Customer operating language
	YY	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevan
ll = 540	Application Package:	
	EH to	E plus a character or figure representing different Application packages as Heartbeat Verification + Monitoring. Not mandatory, multiple selection possible.
	E9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevan
mm = 570	Services:	
	HA to	H or I plus a character or figure representing different services like cleaned from oli+fat, cleaned for Oxygen applications, or settings to the device different from delivery standard. Not mandatory, multiple selection possible.
	I9	Modification of one of the above named option: Special version not given in the standard order code. Switch point, switch time or switch –density, Foam Detection, Gold plated Relay Contacts; Changes not explosion protection relevant
nn = 580	Test, Certificate, Declaration:	
	JL	Ambient temperature -50oC/-58oF
	JN	Ambient temperature -52oC/-62oF
	JT	Ambient temperature -60oC/-76oF
	JA to	J or K plus a character or figure representing different production tests (Pressure test, He-Leakage test, PMI test, ...) or material certificates for the wetted materials. Not mandatory, multiple selection possible.
	K9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosionprotection relevant
oo = 590	Additional approvals:	
	LA to	L plus a character or figure representing different additional approvals (SIL, WHG, ship building, CRN, ...). Not mandatory, multiple selection possible.
	L9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevan

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	FTL51B – aa bb c d e f g h ii jj kkk + yy ll mm nn oo pp qq rr zz ss (High performance)	
pp = 600	Sensor design:	
	MR	Temperature separator
	MS	Temperature separator + Pressure tight feed through (Second line of defence)
	M9	Modification of one of the above named option: Special version not given in the standard order code, shorter, longer or angled version. Changes not explosion protection relevant
qq = 610	Accessories mounted:	
	NF	Bluetooth
	O9	Modification of one of the above named option: Special version not given in the standard order code, Sliding sleeve assembled. Changes not explosion protection relevant
rr = 620	Accessories enclosed:	
	PA	Weather protection cover, 316L
	PB	Weather protection cover, plastic
	R6	Test magnet outside
	R9	Modification of one of the above named option: Special version not given in the standard order code Sliding sleeve enclosed, Cable glands , Blanking Elements enclosed. Changes not explosion protection relevant
zz = 850	Firmware-Version:	
	01 to 99	Version of the firmware if available for the Electronic, Output (bb=020) Not explosion protection relevant
ss = 895	Marking:	
	Z1	Tagging (TAG), 316L plate, Paper plate, Customer plate, RFID TAG
	Z9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosionprotection relevant

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Type designation – OFTL51B

	OFTL51B – aa bb c d e f g h ii jj kkk xx + yy ll mm nn oo pp qq rr zz ss	(High performance)
aa = 010	Approval:	
	*A	ATEX/IEC II 1G Ex ia IIC T6 Ga
	*B	ATEX/IEC II 1/2G, 2G Ex ia IIC/IIB T6 Ga/Gb
	*C	ATEX/IEC II 1/2G, 2G Ex db IIC/IIB T6 Ga/Gb
	*D	ATEX/IEC II 1/2G, 2G Ex de IIC/IIB T6 Ga/Gb
	*K	ATEX/IEC II 1/2G, 2G Ex ia IIC/IIB T6 Ga/Gb, II 1/2D, 2D Ex ia IIIC Da/Db
	*L	ATEX/IEC II 3G Ex ec IIC/IIB T6 Gc[1)], II 3D Ex tc IIIC Dc[1)]
	*M	ATEX/IEC II 1/2G, 2G Ex db IIC/IIB T6 Ga/Gb, II 1/2D, 2D Ex ta/tb IIIC Da/Db
bb = 020	Electronic, Output:	
	A1	FEL61, 2-wire 19-253VAC + test button
	A2	FEL62, 3-wire PNP 10-55VDC + test button
	A3	FEL64DC, relay DPDT 9-20VDC, contact 253V/6A + test button
	A4	FEL64, relay DPDT 19-253VAC/19-55VDC, contact 253V/6A + test button
	A7	FEL67, 2-wire PFM + test button
	A8	FEL68, 2-wire NAMUR + test button
	GA	FEL60D, density/concentration
	9Y	Modification of one of the above named electronic in: Switch point, switch time or switch–density. Changes not explosion protection relevant
c = 030	Display, Operating:	
	A	W/o; switch
	B	LED module outside visible; switch
	Y	Modification of the above named option in: Color of LED. Changes not explosion protection relevant
d = 040	Housing:	
	A	Single compartment; plastic
	B	Single compartment; Alu, coated
	C	Single compartment; 316L, cast
	M	Dual compartment L-shape; Alu, coated
	Y	Modification of one of the above named option in: Color or Coating type. Enclosure partly potted, Enclosure prepared for lead-sealed. Cover with window Changes not explosion protection relevant
e = 050	Electrical Connection:	
	A	Gland M20, plastic, IP66/68, NEMA Type 4X/6P
	B	Gland M20, brass nickel plated, IP66/68 NEMA Type 4X/6P
	C	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
	H	Thread NPT1/2, IP66/68 NEMA Type 4X/6P
	I	Thread NPT3/4, IP66/68 NEMA Type 4X/6P
	M	Plug M12, IP66/68 NEMA Type 4X/6P
	Y	Modification of one of the above named option: NPT1/2-Reduction glued in to Encl. Assembled with third party cert. Cable gland or Blanking Element, blue plastic Ex i cable gland, Plug connector for Ex i. For Ex i Inst. Cable pre. assembled. Changes not explosion protection relevant

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	OFTL51B – aa bb c d e f g h ii jj kkk xx + yy ll mm nn oo pp qq rr zz ss (High performance)	
f = 060	Application:	
	A	Process max 150oC/302oF, max 64bar
	B	Process max 150oC/302oF, max 100bar
	C	Process max 80oC/176oF, max 25bar
	9	Modification of the above named option in: Changes not explosion protection relevant
g = 080	Surface finish:	
	A	Standard Ra <3,2um/126uin
	Y	Modification of the above named option in: Ra < 1,6um or better. Changes not explosion protection relevant
	YY	Modification of one of the above named option: Special version not given in the standard order code, Duplex Steel, different Alloy-C-version. Changes not explosion protection relevant
jj kkk = 105 + 110	Process Connection, Sealing Surface:	
	AA AAA	Combination of two characters representing different types of process connections (Flange, thread, or Hygienic types), plus a
	to	triple number of combinations representing the different sizes of process connections. Not explosion protection relevant.
	99 9YY	Modification of one of the above named option in: Special version not given in the standard order code. Changes not explosion protection relevant
xx = 490	Customer Version:	
	AA	Combination of two characters representing differentcustomers as label partners for Liquiphant
	to	
	99	
yy = 500	Operating Language:	
	AA	Customer operating language
	to	Modification of one of the above named option:
	YY	Special version not given in the standard order code. Changes not explosion protection relevant
ll = 540	Application Package:	
	EH	E plus a character or figure representing different Application packages as Heartbeat Verification + Monitoring.
	to	Not mandatory, multiple selection possible.
	E9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevant
mm = 570	Services:	
	HA	H or I plus a character or figure representing different services like cleaned from oli+fat, cleaned for Oxygen
	to	applications, or settings to the device different from delivery standard. Not mandatory, multiple selection possible.
	I9	Modification of one of the above named option: Special version not given in the standard order code. Switch point, switch time or switch –density, Foam Detection, Gold plated Relay Contacts; Changes not explosion protection relevant
nn = 580	Test, Certificate, Declaration:	
	JL	Ambient temperature -50oC/-58oF
	JN	Ambient temperature -52oC/-62oF
	JT	Ambient temperature -60oC/-76oF
	JA	J or K plus a character or figure representing different production tests (Pressure test, He-Leakage test, PMI test,
	to	...) or material certificates for the wetted materials. Not mandatory, multiple selection possible.
	K9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevant
oo = 590	Additional approvals:	
	LA	L plus a character or figure representing different additional approvals (SIL, WHG, ship building, CRN, ...).
	to	Not mandatory, multiple selection possible.
	L9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevant
pp = 600	Sensor design:	
	MR	Temperature separator
	MS	Temperature separator + Pressure tight feed through (Second line of defence)
	M9	Modification of one of the above named option: Special version not given in the standard order code, shorter, longer or angled version. Changes not explosion protection relevant

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	OFTL51B – aa bb c d e f g h ii jj kkk xx + yy ll mm nn oo pp qq rr zz ss (High performance)	
qq = 610	Accessories mounted:	
	NF	Bluetooth
	O9	Modification of one of the above named option: Special version not given in the standard order code, Sliding sleeve assembled. Changes not explosion protection relevant
	R6	Test magnet outside
	R9	Modification of one of the above named option: Special version not given in the standard order code Sliding sleeve enclosed, Cable glands , Blanking Elements enclosed. Changes not explosion protection relevant
zz = 850	Firmware-Version:	
	01	Version of the firmware if available for the output order code 020=bb Not explosion protection relevant
	to	
	99	
ss = 895	Marking:	
	Z1	Tagging (TAG), 316L plate, Paper plate, Customer plate, RFID TAG
	Z9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevan

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Type designation – FTL62

	FTL62 – aa bb c d e f g h ii jj kkk + yy ll mm nn oo pp qq rr zz ss	(High performance)
aa = 010	Approval:	
	*B	ATEX/IEC II 1/2G, 2G Ex ia IIC/IIB T6 Ga/Gb
	*C	ATEX/IEC II 1/2G, 2G Ex db IIC/IIB T6 Ga/Gb
	*D	ATEX/IEC II 1/2G, 2G Ex de IIC/IIB T6 Ga/Gb
	*K	ATEX/IEC II 1/2G, 2G Ex ia IIC/IIB T6 Ga/Gb, II 1/2D, 2D Ex ia IIIC Da/Db
	*L	ATEX/IEC II 3G Ex ec IIC/IIB T6 Gc[1)], II 3D Ex tc IIIC Dc[1)]
	*M	ATEX/IEC II 1/2G, 2G Ex db IIC/IIB T6 Ga/Gb, II 1/2D, 2D Ex ta/tb IIIC Da/Db
bb = 020	Electronic, Output:	
	A1	FEL61, 2-wire 19-253VAC + test button
	A2	FEL62, 3-wire PNP 10-55VDC + test button
	A3	FEL64DC, relay DPDT 9-20VDC, contact 253V/6A + test button
	A4	FEL64, relay DPDT 19-253VAC/19-55VDC, contact 253V/6A + test button
	A7	FEL67, 2-wire PFM + test button
	A8	FEL68, 2-wire NAMUR + test button
	GA	FEL60D, density/concentration
	9Y	Modification of one of the above named electronic in: Switch point, switch time or switch –density. Changes not explosion protection relevant
c = 030	Display, Operating:	
	A	W/o; switch
	B	LED module outside visible; switch
	Y	Modification of the above named option in: Color of LED. Changes not explosion protection relevant
d = 040	Housing; Material:	
	A	Single compartment; plastic
	B	Single compartment; Alu, coated
	C	Single compartment; 316L, cast
	M	Dual compartment L-shape; Alu, coated
	Y	Modification of one of the above named option in: Color or Coating type. Enclosure partly potted, Enclosure prepared for lead-sealed. Changes not explosion protection relevant
e = 050	Electrical Connection:	
	A	Gland M20, plastic, IP66/68, NEMA Type 4X/6P
	B	Gland M20, brass nickel plated, IP66/68 NEMA Type 4X/6P
	C	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
	H	Thread NPT1/2, IP66/68 NEMA Type 4X/6P
	I	Thread NPT3/4, IP66/68 NEMA Type 4X/6P
	M	Plug M12, IP66/67 NEMA Type 4X
	Y	Modification of one of the above named option: NPT1/2-Reduction glued in to Encl. Assembled with third party cert. Cable gland or Blanking Element, blue plastic Ex i cable gland, Plug connector for Ex i. For Ex i Inst. Cable pre. assembled. Changes not explosion protection relevant
f = 060	Application:	
	C	Process max 80oC/176oF, max 25bar
	N	Process max 120oC/248oF, max 40bar (ECTFE)
	P	Process max 150oC/302oF, max 40bar (PFA)
	T	Process max 150oC/302oF, max 25bar (Email)
	9	Modification of the above named option in: Changes not explosion protection relevant

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	FTL62 – aa bb c d e f g h ii jj kkk + yy ll mm nn oo pp qq rr zz ss (High performance)	
g = 080	Surface Refinement:	
	N	Coating ECTFE
	P	Coating PFA (Edlon)
	Q	Coating PFA (RubyRed)
	R	Coating PFA (conductive)
	T	Coating Enamel
	Y	Coating Metal plating, electrically conductive and without risk of impact and friction sparks. E.g. tantalum, gold, ...
h = 085	Type of Probe:	
	2	Extension tube
	3	Short tube version
	9	Modification of the above named option: Shorter than standard version, Probe angled. Changes not explosion protection relevant
ii = 090	Sensor Length; Material:	
	BN to	Two characters representing different types of probe coating materials (ECTFE, PFA, ENAMEL) and length of probe in mm or inch
	YY	Modification of one of the above named option: Special version not given in the standard order code, Duplex Steel, different Alloy-C-version. Changes not explosion protection relevant
jj kkk = 105 + 110	Process Connection, Sealing Surface:	
	AA AAA to	Combination of two characters representing different types of process connections (Flanges), plus a triple number of combinations representing the different sizes of process connections. Not explosion protection relevant.
	99 9YY	Modification of one of the above named option in: Special version not given in the standard order code. Changes not explosion protection relevan
yy = 500	Operating Language:	
	AA	Customer operating language
	to YY	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevant
ll = 540	Application Package:	
	EH to	E plus a character or figure representing different Application packages as EH=Heartbeat Verification + Monitoring or EL= Prepared for Heartbeat Verification + Monitoring. Not mandatory.
	E9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevan
mm = 570	Services:	
	HA to	H or I plus a character or figure representing different services like cleaned from oli+fat, cleaned for Oxygen applications, or settings to the device different from delivery standard. Not mandatory, multiple selection possible.
	I9	Modification of one of the above named option: Special version not given in the standard order code. Switch point, switch time or switch –density, Foam Detection, Gold plated Relay Contacts; Changes not explosion protection relevant
nn = 580	Test, Certificate, Declaration:	
	JL	Ambient temperature -50 oC/-58 oF
	JN	Ambient temperature -52 oC/-62 oF
	JT	Ambient temperature -60 oC/-76 oF
	JA to	J or K plus a character or figure representing different production tests (Pressure test, He-Leakage test, PMI test, ...) or material certificates for the wetted materials. Not mandatory, multiple selection possible.
	K9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevan
oo = 590	Additional approvals:	
	LA to	L plus a character or figure representing different additional approvals (SIL, WHG, ship building, CRN, ...). Not mandatory, multiple selection possible.
	L9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevan

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	FTL62 – aa bb c d e f g h ii jj kkk + yy ll mm nn oo pp qq rr zz ss		(High performance)
pp = 600	Sensor design:		
	MR	Temperature separator	
	MS	Temperature separator + Pressure tight feed through (Second line of defence)	
	M9	Modification of one of the above named option: Special version not given in the standard order code, shorter, longer or angled version. Changes not explosion protection relevant	
qq = 610	Accessories mounted:		
	NF	Bluetooth	
	NG	Prepared for Bluetooth	
	O9	Modification of one of the above named option: Special version not given in the standard order code, Sliding sleeve assembled. Changes not explosion protection relevant	
rr = 620	Accessories enclosed:		
	PA	Weather protection cover, 316L	
	PB	Weather protection cover, plastic	
	R6	Test magnet outside	
	R9	Modification of one of the above named option: Special version not given in the standard order code Sliding sleeve enclosed, Cable glands , Blanking Elements enclosed. Changes not explosion protection relevant	
zz = 850	Firmware-Version:		
	01 to 99	Version of the firmware if available for the output order code 020=bt Not explosion protection relevant	
ss = 895	Marking:		
	Z1	Tagging (TAG), 316L plate, Paper plate, Customer plate, RFID TAG	
	Z9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosionprotection relevant	

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Type designation – OFTL62

	OFTL62 – aa bb c d e f g h ii jj kkk xx + yy ll mm nn oo pp qq rr zz ss	(High performance)
aa = 010	Approval:	
	*B	ATEX/IEC II 1/2G, 2G Ex ia IIC/IIB T6 Ga/Gb
	*C	ATEX/IEC II 1/2G, 2G Ex db IIC/IIB T6 Ga/Gb
	*D	ATEX/IEC II 1/2G, 2G Ex de IIC/IIB T6 Ga/Gb
	*K	ATEX/IEC II 1/2G, 2G Ex ia IIC/IIB T6 Ga/Gb, II 1/2D, 2D Ex ia IIIC Da/Db
	*L	ATEX/IEC II 3G Ex ec IIC/IIB T6 Gc[1)], II 3D Ex tc IIIC Dc[1)]
	*M	ATEX/IEC II 1/2G, 2G Ex db IIC/IIB T6 Ga/Gb, II 1/2D, 2D Ex ta/tb IIIC Da/Db
bb = 020	Electronic, Output:	
	A1	FEL61, 2-wire 19-253VAC + test button
	A2	FEL62, 3-wire PNP 10-55VDC + test button
	A3	FEL64DC, relay DPDT 9-20VDC, contact 253V/6A + test button
	A4	FEL64, relay DPDT 19-253VAC/19-55VDC, contact 253V/6A + test button
	A7	FEL67, 2-wire PFM + test button
	A8	FEL68, 2-wire NAMUR + test button
	GA	FEL60D, density/concentration
	9Y	Modification of one of the above named electronic in: Switch point, switch time or switch–density. Changes not explosion protection relevant
c = 030	Display, Operating:	
	A	W/o; switch
	B	LED module outside visible; switch
	Y	Modification of the above named option in: Color of LED. Changes not explosion protection relevant
d = 040	Housing; Material:	
	A	Single compartment; plastic
	B	Single compartment; Alu, coated
	C	Single compartment; 316L, cast
	M	Dual compartment L-shape; Alu, coated
	Y	Modification of one of the above named option in: Color or Coating type. Enclosure partly potted, Enclosure prepared for lead-sealed. Changes not explosion protection relevant
e = 050	Electrical Connection:	
	A	Gland M20, plastic, IP66/68, NEMA Type 4X/6P
	B	Gland M20, brass nickel plated, IP66/68 NEMA Type 4X/6P
	C	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
	H	Thread NPT1/2, IP66/68 NEMA Type 4X/6P
	I	Thread NPT3/4, IP66/68 NEMA Type 4X/6P
	M	Plug M12, IP66/67 NEMA Type 4X
	Y	Modification of one of the above named option: NPT1/2-Reduction glued in to Encl. Assembled with third party cert. Cable gland or Blanking Element, blue plastic Ex i cable gland, Plug connector for Ex i. For Ex i Inst. Cable pre. assembled. Changes not explosion protection relevant
f = 060	Application:	
	C	Process max 80oC/176oF, max 25bar
	N	Process max 120oC/248oF, max 40bar (ECTFE)
	P	Process max 150oC/302oF, max 40bar (PFA)
	T	Process max 150oC/302oF, max 25bar (Email)
	9	Modification of the above named option in: Changes not explosion protection relevant

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	OFTL62 – aa bb c d e f g h ii jj kkk xx + yy ll mm nn oo pp qq rr zz ss (High performance)	
g = 080	Surface Refinement:	
	N	Coating ECTFE
	P	Coating PFA (Edlon)
	Q	Coating PFA (RubyRed)
	R	Coating PFA (conductive)
	T	Coating Enamel
	Y	Coating Metal plating, electrically conductive and without risk of impact anc friction sparks. E.g. tantalum, gold, ...
h = 085	Probe version:	
	2	Extension tube
	3	Short tube version
	9	Modification of the above named option: Shorter than standard version, Probe angled. Changes not explosion protection relevan
ii = 090	Probe length, material:	
	BN to	Two characters representing different types of probe coating materials (ECTFE, PFA, ENAMEL) and length of probe in mm or inch
	YY	Modification of one of the above named option: Special version not given in the standard order code, Duplex Steel, different Alloy-C-version. Changes not explosion protection relevant
jj kkk = 105 + 110	Process Connection, Sealing Surface:	
	AA AAA to	Combination of two characters representing different types of process connections (Flanges), plus a triple number of combinations representing the different sizes of process connections. Not explosion protection relevant.
	99 9YY	Modification of one of the above named option in: Special version not given in the standard order code. Changes not explosion protection relevan
xx = 490	Customer Version:	
	AA to 99	Combination of two characters representing different customers as labelpartners for Liquiphant
yy = 500	Operating Language:	
	AA	Customer operating language
	to AY	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevant
ll = 540	Application Package:	
	EH to	E plus a character or figure representing different Application packages as EH=Heartbeat Verification + Monitoring or EL= Prepared for Heartbeat Verification + Monitoring. Not mandatory.
	E9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevan
mm = 570	Services:	
	HA to	H or I plus a character or figure representing different services like cleaned from oli+fat, cleaned for Oxygen applications, or settings to the device different from delivery standard. Not mandatory, multiple selection possible.
	I9	Modification of one of the above named option: Special version not given in the standard order code. Switch point, switch time or switch –density, Foam Detection, Gold plated Relay Contacts; Changes not explosion protection relevant
nn = 580	Test, Certificate, Declaration:	
	JL	Ambient temperature -50 oC/-58 oF
	JN	Ambient temperature -52 oC/-62 oF
	JT	Ambient temperature -60 oC/-76 oF
	JA to	J or K plus a character or figure representing different production tests (Pressure test, He-Leakage test, PMI test, ...) or material certificates for the wetted materials. Not mandatory, multiple selection possible.
	K9	Modification of one of the above named option: Special version not given in the standard order code. Changes notexplosion protection relevant
oo = 590	Additional approvals:	
	LA to	L plus a character or figure representing different additional approvals (SIL, WHG, ship building, CRN, ...). Not mandatory, multiple selection possible.
	L9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevan

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	OFTL62 – aa bb c d e f g h ii jj kkk xx + yy ll mm nn oo pp qq rr zz ss		(High performance)
pp = 600	Sensor design:		
	MR	Temperature separator	
	MS	Temperature separator + Pressure tight feed through (Second line of defence)	
	M9	Modification of one of the above named option: Special version not given in the standard order code, shorter, longer or angled version. Changes not explosion protection relevant	
qq = 610	Accessories mounted:		
	NF	Bluetooth	
	NG	Prepared for Bluetooth	
	O9	Modification of one of the above named option: Special version not given in the standard order code, Sliding sleeve assembled. Changes not explosion protection relevant	
rr = 620	Accessories enclosed:		
	PA	Weather protection cover, 316L	
	PB	Weather protection cover, plastic	
	R6	Test magnet outside	
	R9	Modification of one of the above named option: Special version not given in the standard order code Sliding sleeve enclosed, Cable glands , Blanking Elements enclosed. Changes not explosion protection relevant	
zz = 850	Firmware-Version:		
	01 to 99	Version of the firmware if available for the output order code020=bb Not explosion protection relevant	
ss = 895	Marking:		
	Z1	Tagging (TAG), 316L plate, Paper plate, Customer plate, RFID TAG	
	Z9	Modification of one of the above named option: Special version not given in the standard order code.Changes not explosion protection relevant	

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Type designation – FTL63

	FTL63 – aa bb c d e f g h ii jj kkk + yy ll mm nn oo pp qq rr zz ss	(High performance)
aa = 010	Approval:	
	*A	ATEX/IEC II 1G Ex ia IIC T6 Ga
	*B	ATEX/IEC II 1/2G, 2G Ex ia IIC/IIB T6 Ga/Gb
	*C	ATEX/IEC II 1/2G, 2G Ex db IIC/IIB T6 Ga/Gb
	*D	ATEX/IEC II 1/2G, 2G Ex de IIC/IIB T6 Ga/Gb
	*K	ATEX/IEC II 1/2G, 2G Ex ia IIC/IIB T6 Ga/Gb, II 1/2D, 2D Ex ia IIIC Da/Db
	*L	ATEX/IEC II 3G Ex ec IIC/IIB T6 Gc[1)], II 3D Ex tc IIIC Dc[1)]
	*M	ATEX/IEC II 1/2G, 2G Ex db IIC/IIB T6 Ga/Gb, II 1/2D, 2D Ex ta/tb IIIC Da/Db
bb = 020	Electronic, Output:	
	A1	FEL61, 2-wire 19-253VAC + test button
	A2	FEL62, 3-wire PNP 10-55VDC + test button
	A3	FEL64DC, relay DPDT 9-20VDC, contact 253V/6A + test button
	A4	FEL64, relay DPDT 19-253VAC/19-55VDC, contact 253V/6A + test button
	A7	FEL67, 2-wire PFM + test button
	A8	FEL68, 2-wire NAMUR + test button
	GA	FEL60D, density/concentration
	9Y	Modification of one of the above named electronic in: Switch point, switch time or switch –density. Changes not explosion protection relevant
c = 030	Display, Operating:	
	A	W/o; switch
	B	LED module outside visible; switch
	Y	Modification of the above named option in: Color of LED. Changes not explosion protection relevant
d = 040	Housing:	
	A	Single compartment; plastic
	B	Single compartment; Alu, coated
	C	Single compartment; 316L, cast
	M	Dual compartment L-shape; Alu, coated
	Y	Modification of one of the above named option in: Color or Coating type. Enclosure partly potted, Enclosure prepared for lead-sealed. Cover with window Changes not explosion protection relevant
e = 050	Electrical Connection:	
	A	Gland M20, plastic, IP66/68, NEMA Type 4X/6P
	B	Gland M20, brass nickel plated, IP66/68 NEMA Type 4X/6P
	C	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
	H	Thread NPT1/2, IP66/68 NEMA Type 4X/6P
	I	Thread NPT3/4, IP66/68 NEMA Type 4X/6P
	M	Plug M12, IP66/68 NEMA Type 4X/6P
	Y	Modification of one of the above named option: NPT1/2-Reduction glued in to Encl. Assembled with third party cert. Cable gland or Blanking Element, blue plastic Ex i cable gland, Plug connector for Ex i. For Ex i Inst. Cable pre. assembled. Changes not explosion protection relevant

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Ontario M9W 1R3, Canada

	FTL63 – aa bb c d e f g h ii jj kkk + yy ll mm nn oo pp qq rr zz ss	(High performance)
f = 060	Application:	
	A	Process max 150oC/302oF, max 64bar
	B	Process max 150oC/302oF, max 100bar
	C	Process max 80oC/176oF, max 25bar
	9	Modification of the above named option in: Changes not explosion protection relevant
g = 080	Surface finish:	
	A	Standard Ra <3,2um/126uin
	B	Hygienic Ra <0,76um/30uin
	D	Hygienic Ra <0,03um/12uin
	E	Hygienic Ra <0,03um/12uin electr. polished
	Y	Modification of the above named option in: Ra < 0,03um or better. Changes not explosion protection relevant
h = 085	Probe version:	
	1	Compact version
	2	Extension tube
	3	Short tube version
	9	Modification of the above named option: Shorter than standard version, Probe angled. Changes not explosion protection relevan
ii = 090	Probe length, material:	
	AA to	Two characters representing different types of probe materials (316L or Alloy C) and length of probe in mm or inch
	YY	Modification of one of the above named option: Special version not given in the standard order code, Duplex Steel, different Alloy-C-version. Changes not explosion protection relevant
jj kkk = 105 + 110	Process Connection, Sealing Surface:	
	AA AAA to	Combination of two characters representing different types of process connections (Flange, thread, or Hygienic types), plus a triple number of combinations representing the different sizes of process connections. Not explosion protection relevant.
	99 9YY	Modification of one of the above named option in: Special version not given in the standard order code. Changes not explosion protection relevan
yy = 500	Operating Language:	
	AA to	Customer operating language
	YY	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevan
ll = 540	Application Package:	
	EH to	E plus a character or figure representing different Application packages as EH=Heartbeat Verification + Monitoring. EL=Heartbeat Verification + Monitoring for NAMUR Output Not mandatory.
	E9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevan
mm = 570	Services:	
	HA to	H or I plus a character or figure representing different services like cleaned from oli+fat, cleaned for Oxygen applications, or settings to the device different from delivery standard. Not mandatory, multiple selection possible.
	I9	Modification of one of the above named option: Special version not given in the standard order code. Switch point, switch time or switch –density, Foam Detection, Gold plated Relay Contacts; Changes not explosion protection relevant
nn = 580	Test, Certificate, Declaration:	
	JL	Ambient temperature -50oC/-58oF
	JN	Ambient temperature -52oC/-62oF
	JT	Ambient temperature -60oC/-76oF
	JA to	J or K plus a character or figure representing different production tests (Pressure test, He-Leakage test, PMI test, ...) or material certificates for the wetted materials. Not mandatory, multiple selection possible.
	K9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosionprotection relevant

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	FTL63 – aa bb c d e f g h ii jj kkk + yy ll mm nn oo pp qq rr zz ss (High performance)	
pp = 590	Additional approvals:	
	LA to	L plus a character or figure representing different additional approvals (SIL, WHG, ship building, CRN, ...). Not mandatory, multiple selection possible.
	L9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevan
pp = 600	Sensor design:	
	MR	Temperature separator
	MS	Temperature separator + Pressure tight feed through (Second line of defence)
	M9	Modification of one of the above named option: Special version not given in the standard order code, shorter, longer or angled version. Changes not explosion protection relevant
qq = 610	Accessories mounted:	
	NF	Bluetooth
	NG	Prepared for Bluetooth
	O9	Modification of one of the above named option: Special version not given in the standard order code, Sliding sleeve assembled. Changes not explosion protection relevant
rr = 620	Accessories enclosed:	
	PA	Weather protection cover, 316L
	PB	Weather protection cover, plastic
	R6	Test magnet outside
	R9	Modification of one of the above named option: Special version not given in the standard order code Sliding sleeve enclosed, Cable glands , Blanking Elements enclosed. Changes not explosion protection relevant
zz = 850	Firmware-Version:	
	01 to 99	Version of the firmware if available for the Electronic,Output (bb=020) Not explosion protection relevant
ss = 895	Marking:	
	Z1	Tagging (TAG), 316L plate, Paper plate, Customer plate, RFID TAG
	Z9	Modification of one of the above named option: Special version not given in the standard ordercode. Changes not explosion protection relevant

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Type designation – OFTL63

	OFTL63 – aa bb c d e f g h ii jj kkk xx + yy ll mm nn oo pp qq rr zz ss	(High performance)
aa = 010	Approval:	
	*A	ATEX/IEC II 1G Ex ia IIC T6 Ga
	*B	ATEX/IEC II 1/2G, 2G Ex ia IIC/IIB T6 Ga/Gb
	*C	ATEX/IEC II 1/2G, 2G Ex db IIC/IIB T6 Ga/Gb
	*D	ATEX/IEC II 1/2G, 2G Ex de IIC/IIB T6 Ga/Gb
	*K	ATEX/IEC II 1/2G, 2G Ex ia IIC/IIB T6 Ga/Gb, II 1/2D, 2D Ex ia IIIC Da/Db
	*L	ATEX/IEC II 3G Ex ec IIC/IIB T6 Gc[1)], II 3D Ex tc IIIC Dc[1)]
	*M	ATEX/IEC II 1/2G, 2G Ex db IIC/IIB T6 Ga/Gb, II 1/2D, 2D Ex ta/tb IIIC Da/Db
bb = 020	Electronic, Output:	
	A1	FEL61, 2-wire 19-253VAC + test button
	A2	FEL62, 3-wire PNP 10-55VDC + test button
	A3	FEL64DC, relay DPDT 9-20VDC, contact 253V/6A + test button
	A4	FEL64, relay DPDT 19-253VAC/19-55VDC, contact 253V/6A + test button
	A7	FEL67, 2-wire PFM + test button
	A8	FEL68, 2-wire NAMUR + test button
	GA	FEL60D, density/concentration
	9Y	Modification of one of the above named electronic in: Switch point, switch time or switch –density. Changes not explosion protection relevant
c = 030	Display, Operating:	
	A	W/o; switch
	B	LED module outside visible; switch
	Y	Modification of the above named option in: Color of LED. Changes not explosion protection relevant
d = 040	Housing:	
	A	Single compartment; plastic
	B	Single compartment; Alu, coated
	C	Single compartment; 316L, cast
	M	Dual compartment L-shape; Alu, coated
	Y	Modification of one of the above named option in: Color or Coating type. Enclosure partly potted, Enclosure prepared for lead-sealed. Cover with window Changes not explosion protection relevant
e = 050	Electrical Connection:	
	A	Gland M20, plastic, IP66/68, NEMA Type 4X/6P
	B	Gland M20, brass nickel plated, IP66/68 NEMA Type 4X/6P
	C	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
	H	Thread NPT1/2, IP66/68 NEMA Type 4X/6P
	I	Thread NPT3/4, IP66/68 NEMA Type 4X/6P
	M	Plug M12, IP66/68 NEMA Type 4X/6P
	Y	Modification of one of the above named option: NPT1/2-Reduction glued in to Encl. Assembled with third party cert. Cable gland or Blanking Element, blue plastic Ex i cable gland, Plug connector for Ex i. For Ex i Inst. Cable pre. assembled. Changes not explosion protection relevant

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	OFTL63 – aa bb c d e f g h ii jj kkk xx + yy ll mm nn oo pp qq rr zz ss (High performance)	
f = 060	Application:	
	A	Process max 150oC/302oF, max 64bar
	B	Process max 150oC/302oF, max 100bar
	C	Process max 80oC/176oF, max 25bar
	9	Modification of the above named option in: Changes not explosion protection relevant
g = 080	Surface finish:	
	A	Standard Ra <3,2um/126uin
	B	Hygienic Ra <0,76um/30uin
	D	Hygienic Ra <0,03um/12uin
	E	Hygienic Ra <0,03um/12uin electr. polished
	Y	Modification of the above named option in: Ra < 0,03um or better. Changes not explosion protection relevant
h = 085	Probe version:	
	1	Compact version
	2	Extension tube
	3	Short tube version
	9	Modification of the above named option: Shorter than standard version, Probe angled. Changes not explosion protection relevant
ii = 090	Probe length, material:	
	AA to	Two characters representing different types of probe materials (316L or Alloy C) and length of probe in mm or inch
	YY	Modification of one of the above named option: Special version not given in the standard order code, Duplex Steel, different Alloy-C-version. Changes not explosion protection relevant
jj kkk = 105 + 110	Process Connection, Sealing Surface:	
	AA AAA to	Combination of two characters representing different types of process connections (Flange, thread, or Hygienic types), plus a triple number of combinations representing the different sizes of process connections. Not explosion protection relevant.
	99 9YY	Modification of one of the above named option in: Special version not given in the standard order code. Changes not explosion protection relevant
xx = 490	Customer Version:	
	AA to 99	Combination of two characters representing different customers as label partners for Liquiphant
yy = 500	Operating Language:	
	AA to	Customer operating language
	YY	Modification of one of the above named option: Special version not given in the standard ordercode. Changes not explosion protection relevant
ll = 540	Application Package:	
	EH to	E plus a character or figure representing different Application packages as Heartbeat Verification + Monitoring. Not mandatory, multiple selection possible.
	E9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevant
mm = 570	Services:	
	HA to	H or I plus a character or figure representing different services like cleaned from oli+fat, cleaned for Oxygen applications, or settings to the device different from delivery standard. Not mandatory, multiple selection possible.
	I9	Modification of one of the above named option: Special version not given in the standard order code. Switch point, switch time or switch –density, Foam Detection, Gold plated Relay Contacts; Changes not explosion protection relevant
nn = 580	Test, Certificate, Declaration:	
	JL	Ambient temperature -50oC/-58oF
	JN	Ambient temperature -52oC/-62oF
	JT	Ambient temperature -60oC/-76oF
	JA to	J or K plus a character or figure representing different production tests (Pressure test, He-Leakage test, PMI test, ...) or material certificates for the wetted materials. Not mandatory, multiple selection possible.
	K9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosionprotection relevant

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	OFTL63 – aa bb c d e f g h ii jj kkk xx + yy ll mm nn oo pp qq rr zz ss (High performance)	
oo = 590	Additional approvals:	
	LA to	L plus a character or figure representing different additional approvals (SIL, WHG, ship building, CRN, ...). Not mandatory, multiple selection possible.
	L9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevan
pp = 600	Sensor design:	
	MR	Temperature separator
	MS	Temperature separator + Pressure tight feed through (Second line ofdefence)
	M9	Modification of one of the above named option: Special version not given in the standard order code, shorter, longer or angled version. Changes not explosion protection relevant
qq = 610	Accessories mounted:	
	NF	Bluetooth
	O9	Modification of one of the above named option: Special version not given in the standard order code, Sliding sleeve assembled. Changes not explosion protection relevant
	R6	Test magnet outside
	R9	Modification of one of the above named option: Special version not given in the standard order code Sliding sleeve enclosed, Cable glands , Blanking Elements enclosed. Changes not explosion protection relevant
rr = 620	Accessories enclosed:	
	PA	Weather protection cover, 316L
	PB	Weather protection cover, plastic
	R6	Test magnet outside
	R9	Modification of one of the above named option: Special version not given in the standard order code Sliding sleeve enclosed, Cable glands , Blanking Elements enclosed. Changes not explosion protection relevant
zz = 850	Firmware-Version:	
	01 to 99	Version of the firmware if available for the output order code 020=bb Not explosion protection relevant
ss = 895	Marking:	
	Z1	Tagging (TAG), 316L plate, Paper plate, Customer plate, RFID TAG
	Z9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevan

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Type designation – FTL64

	FTL64 – aa bb c d e f g h ii jj kkk + yy ll mm nn oo pp qq rr zz ss	(High performance)
aa = 010	Approval:	
	*B	ATEX/IEC II 1/2G, 2G Ex ia IIC T6 Ga/Gb
	*C	ATEX/IEC II 1/2G, 2G Ex db IIC T6 Ga/Gb
	*D	ATEX/IEC II 1/2G, 2G Ex de IIC T6 Ga/Gb
	*K	ATEX/IEC II 1/2G, 2G Ex ia IIC T6 Ga/Gb, II 1/2D, 2D Ex ia IIIC Da/Db
	*L	ATEX/IEC II 3G Ex ec IIC T6 Gc[1)], II 3D Ex tc IIIC Dc[1)]
	*M	ATEX/IEC II 1/2G, 2G Ex db IIC T6 Ga/Gb, II 1/2D, 2D Ex ta/tb IIIC Da/Db
bb = 020	Electronic, Output:	
	A1	FEL61, 2-wire 19-253VAC + test button
	A2	FEL62, 3-wire PNP 10-55VDC + test button
	A3	FEL64DC, relay DPDT 9-20VDC, contact 253V/6A + test button
	A4	FEL64, relay DPDT 19-253VAC/19-55VDC, contact 253V/6A + test button
	A7	FEL67, 2-wire PFM + test button
	A8	FEL68, 2-wire NAMUR + test button
	GA	FEL60D, density/concentration
	9Y	Modification of one of the above named electronic in: Switch point, switch time or switch –density. Changes not explosion protection relevant
c = 030	Display, Operating:	
	A	W/o; switch
	B	LED module outside visible; switch
	Y	Modification of the above named option in: Color of LED. Changes not explosion protection relevant
d = 040	Housing; Material:	
	A	Single compartment; plastic
	B	Single compartment; Alu, coated
	C	Single compartment; 316L, cast
	M	Dual compartment L-shape; Alu, coated
	Y	Modification of one of the above named option in: Color or Coating type. Enclosure partly potted, Enclosure prepared for lead-sealed. Cover with window Changes not explosion protection relevant
e = 050	Electrical Connection:	
	A	Gland M20, plastic, IP66/68, NEMA Type 4X/6P
	B	Gland M20, brass nickel plated, IP66/68 NEMA Type 4X/6P
	C	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
	H	Thread NPT1/2, IP66/68 NEMA Type 4X/6P
	I	Thread NPT3/4, IP66/68 NEMA Type 4X/6P
	M	Plug M12, IP66/67 NEMA Type 4X
	Y	Modification of one of the above named option: NPT1/2-Reduction glued in to Encl. Assembled with third party cert. Cable gland or Blanking Element, blue plastic Ex i cable gland, Plug connector for Ex i. For Ex i Inst. Cable pre. assembled. Changes not explosion protection relevant
f = 060	Application:	
	D	Process max 280oC/536oF, max 100bar
	E	Process max 230oC/446oF, max 100bar
	R	Prozess max 230oC/446oF, max 40bar (PFA)
	9	Process max 300oC/572oF, max 100bar Modification of the above named option in: Changes not explosion protection relevant

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	FTL64 – aa bb c d e f g h ii jj kkk + yy ll mm nn oo pp qq rr zz ss (High performance)	
g = 080	Surface Refinement:	
	A	Standard Ra<3,2µm/126µin
	R	Coating PFA (conductive)
	Y	Modification of the above named option in: For Example: surface Refinement Ra<= 0,5µm, or Surface electropolished; Coated with ECFTE, Email, EDLON®, PFA or RubyRed, not explosion protection relevant
h = 085	Type of Probe:	
	1	Compact version
	2	Extension tube
	9	Modification of the above named option: Shorter than standard version, Probe angled. Changes not explosion protection relevant
ii = 090	Sensor Length; Material:	
	AC to	Two characters representing different types of probe materials (316L/AlloyC22) and length of probe in mm or inch
	YY	Modification of one of the above named option: Special version not given in the standard order code, Duplex Steel, different Alloy-C-version. Changes not explosion protection relevant
jj kkk = 105 + 110	Process Connection, Sealing Surface:	
	AA AAA to	Combination of two characters representing different types of process connections (Flanges), plus a triple number of combinations representing the different sizes of process connections. Not explosion protection relevant.
	99 9YY	Modification of one of the above named option in: Special version not given in the standard order code. Changes not explosion protection relevant
yy = 500	Operating Language:	
	AA	Customer operating language
	to AY	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevant
ll = 540	Application Package:	
	EH to	E plus a character or figure representing different Application packages as EH=Heartbeat Verification + Monitoring or EL= Prepared for Heartbeat Verification + Monitoring. Not mandatory.
	E9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevant
mm = 570	Services:	
	HA to	H or I plus a character or figure representing different services like cleaned from oli+fat, cleaned for Oxygen applications, or settings to the device different from delivery standard. Not mandatory, multiple selection possible.
	I9	Modification of one of the above named option: Special version not given in the standard order code. Switch point, switch time or switch –density, Foam Detection, Gold plated Relay Contacts; Changes not explosion protection relevant
nn = 580	Test, Certificate, Declaration:	
	JL	Ambient temperature -50 oC/-58 oF
	JN	Ambient temperature -52 oC/-62 oF
	JT	Ambient temperature -60 oC/-76 oF
	JA to	J or K plus a character or figure representing different production tests (Pressure test, He-Leakage test, PMI test, ...) or material certificates for the wetted materials. Not mandatory, multiple selection possible.
	K9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevant
oo = 590	Additional approvals:	
	LA to	L plus a character or figure representing different additional approvals (SIL, WHG, ship building, CRN, ...). Not mandatory, multiple selection possible.
	L9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevant
pp = 600	Sensor design:	
	-	No option available
	M9	Modification of one of the above named option: Special version not given in the standard order code, shorter, longer or angled version. Changes not explosion protection relevant

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	FTL64 – aa bb c d e f g h ii jj kkk + yy ll mm nn oo pp qq rr zz ss (High performance)	
qq = 610	Accessories mounted:	
	NF	Bluetooth
	NG	Prepared for Bluetooth
	O9	Modification of one of the above named option: Special version not given in the standard order code, Sliding sleeve assembled. Changes not explosion protection relevant
rr = 620	Accessories enclosed:	
	PA	Weather protection cover, 316L
	PB	Weather protection cover, plastic
	R6	Test magnet outside
	R9	Modification of one of the above named option: Special version not given in the standard order code Sliding sleeve enclosed, Cable glands , Blanking Elements enclosed. Changes not explosion protection relevant
zz = 850	Firmware-Version:	
	01 to 99	Version of the firmware if available for the Electronic, Output (bb=020) Not explosion protection relevant
ss = 895	Marking:	
	Z1	Tagging (TAG), 316L plate, Paper plate, Customer plate, RFID TAG
	Z9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevan

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Type designation – OFTL64

	OFTL64 – aa bb c d e f g h ii jj kkk xx + yy ll mm nn oo pp qq rr zz ss	(High performance)
aa = 010	Approval:	
	*B	ATEX/IEC II 1/2G, 2G Ex ia IIC T6 Ga/Gb
	*C	ATEX/IEC II 1/2G, 2G Ex db IIC T6 Ga/Gb
	*D	ATEX/IEC II 1/2G, 2G Ex de IIC T6 Ga/Gb
	*K	ATEX/IEC II 1/2G, 2G Ex ia IIC T6 Ga/Gb, II 1/2D, 2D Ex ia IIIC Da/Db
	*L	ATEX/IEC II 3G Ex ec IIC T6 Gc[1)], II 3D Ex tc IIIC Dc[1)]
	*M	ATEX/IEC II 1/2G, 2G Ex db IIC T6 Ga/Gb, II 1/2D, 2D Ex ta/tb IIIC Da/Db
bb = 020	Electronic, Output:	
	A1	FEL61, 2-wire 19-253VAC + test button
	A2	FEL62, 3-wire PNP 10-55VDC + test button
	A3	FEL64DC, relay DPDT 9-20VDC, contact 253V/6A + test button
	A4	FEL64, relay DPDT 19-253VAC/19-55VDC, contact 253V/6A + test button
	A7	FEL67, 2-wire PFM + test button
	A8	FEL68, 2-wire NAMUR + test button
	GA	FEL60D, density/concentration
	9Y	Modification of one of the above named electronic in: Switch point, switch time or switch –density. Changes not explosion protection relevant
c = 030	Display, Operating:	
	A	W/o; switch
	B	LED module outside visible; switch
	Y	Modification of the above named option in: Color of LED. Changes not explosion protection relevant
d = 040	Housing; Material:	
	A	Single compartment; plastic
	B	Single compartment; Alu, coated
	C	Single compartment; 316L, cast
	M	Dual compartment L-shape; Alu, coated
	Y	Modification of one of the above named option in: Color or Coating type. Enclosure partly potted, Enclosure prepared for lead-sealed. Cover with window Changes not explosion protection relevant
e = 050	Electrical Connection:	
	A	Gland M20, plastic, IP66/68, NEMA Type 4X/6P
	B	Gland M20, brass nickel plated, IP66/68 NEMA Type 4X/6P
	C	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
	H	Thread NPT1/2, IP66/68 NEMA Type 4X/6P
	I	Thread NPT3/4, IP66/68 NEMA Type 4X/6P
	M	Plug M12, IP66/67 NEMA Type 4X
	Y	Modification of one of the above named option: NPT1/2-Reduction glued in to Encl. Assembled with third party cert. Cable gland or Blanking Element, blue plastic Ex i cable gland, Plug connector for Ex i. For Ex i Inst. Cable pre. assembled. Changes not explosion protection relevant
f = 060	Application:	
	D	Process max 280oC/536oF, max 100bar
	E	Process max 230oC/446oF, max 100bar
	R	PFA coating, process max 220oC/428oF, max 40bar
	9	Process max 300oC/572oF, max 100bar Modification of the above named option in: Changes not explosion protection relevant

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	OFTL64 – aa bb c d e f g h ii jj kkk xx + yy ll mm nn oo pp qq rr zz ss (High performance)	
g = 080	Surface Refinement:	
	A	Standard Ra<3,2µm/126µin
	R	Coating PFA (conductive)
	Y	Modification of the above named option in: For Example: surface Refinement Ra<= 0,5µm, or Surface electropolished; Coated with ECFTE, Email, EDLON®, PFA or RubyRed, not explosion protection relevant
h = 085	Probe version:	
	1	Compact version
	2	Extension tube
	9	Modification of the above named option: Shorter than standard version, Probe angled. Changes not explosion protection relevant
ii = 090	Probe length, material:	
	AC to	Two characters representing different types of probe coating materials (ECTFE, PFA, ENAMEL) and length of probe in mm or inch
	YY	Modification of one of the above named option: Special version not given in the standard order code, Duplex Steel, different Alloy-C-version. Changes not explosion protection relevant
jj kkk = 105 + 110	Process Connection, Sealing Surface:	
	AA AAA to	Combination of two characters representing different types of process connections (Flanges), plus a triple number of combinations representing the different sizes of process connections. Not explosion protection relevant.
	99 9YY	Modification of one of the above named option in: Special version not given in the standard order code. Changes not explosion protection relevant
xx = 490	Customer Version:	
	AA to 99	Combination of two characters representing different customers as labelpartners for Liquiphant
yy = 500	Operating Language:	
	AA	Customer operating language
	to AY	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevant
ll = 540	Application Package:	
	EH to	E plus a character or figure representing different Application packages as EH=Heartbeat Verification + Monitoring or EL= Prepared for Heartbeat Verification + Monitoring. Not mandatory.
	E9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevant
mm = 570	Services:	
	HA to	H or I plus a character or figure representing different services like cleaned from oli+fat, cleaned for Oxygen applications, or settings to the device different from delivery standard. Not mandatory, multiple selection possible.
	I9	Modification of one of the above named option: Special version not given in the standard order code. Switch point, switch time or switch –density, Foam Detection, Gold plated Relay Contacts; Changes not explosion protection relevant
nn = 580	Test, Certificate, Declaration:	
	JL	Ambient temperature -50 oC/-58 oF
	JN	Ambient temperature -52 oC/-62 oF
	JT	Ambient temperature -60 oC/-76 oF
	JA to	J or K plus a character or figure representing different production tests (Pressure test, He-Leakage test, PMI test, ...) or material certificates for the wetted materials. Not mandatory, multiple selection possible.
	K9	Modification of one of the above named option: Special version not given in the standard order code. Changes notexplosion protection relevant
oo = 590	Additional approvals:	
	LA to	L plus a character or figure representing different additional approvals (SIL, WHG, ship building, CRN, ...). Not mandatory, multiple selection possible.
	L9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevant
pp = 600	Sensor design:	
	-	No option available
	M9	Modification of one of the above named option: Special version not given in the standard order code, shorter, longer or angled version. Changes not explosion protection relevant

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	OFTL64 – aa bb c d e f g h ii jj kkk xx + yy ll mm nn oo pp qq rr zz ss (High performance)	
qq = 610	Accessories mounted:	
	NF	Bluetooth
	NG	Prepared for Bluetooth
	O9	Modification of one of the above named option: Special version not given in the standard order code, Sliding sleeve assembled. Changes not explosion protection relevant
rr = 620	Accessories enclosed:	
	PA	Weather protection cover, 316L
	PB	Weather protection cover, plastic
	R6	Test magnet outside
	R9	Modification of one of the above named option: Special version not given in the standard order code Sliding sleeve enclosed, Cable glands , Blanking Elements enclosed. Changes not explosion protection relevant
zz = 850	Firmware-Version:	
	01 to 99	Version of the firmware if available for the output order code 020=bt Not explosion protection relevant
ss = 895	Marking:	
	Z1	Tagging (TAG), 316L plate, Paper plate, Customer plate, RFID TAG
	Z9	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevan

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Annex to:	**Certificate of Conformity IECEx KIWA 19.0010X, issue 2 EU – Type Examination Certificate KIWA 19ATEX0017 X Iss. 3 and Test Report NL/KIWA/ExTR19.0011/02**	
Applicant:	**Endress+Hauser SE+Co. KG**	
Apparatus:	**Liquid Level Switches Liquiphant, types FTL41, FTL51B, FTL62, FTL63 and FTL64 (and OEM versions OFTL41, OFTL51B, OFTL62, OFTL63 and OFTL64)**	

Electrical data

FEL42/62/62LT DC-PNP Electronic Insert

Pos.	Designation	Input	Load current
1.	Ex e[5]	U = 10 … 55V DC [1)2)] Pmax ≤ 0.5 W Imax= 10 mA	ILmax = ISCmax = 350 mA (incl. overload protection)
2.	Ex t[5]	U = 10 … 55V DC [1)2)] U = 10 … 35V DC [1)3)] Pmax ≤ 0.5 W; ≤ 1.2 W [6)] Imax= 10 mA	
3.	Ex d		

FEL44/64/64E/64LT Electronic Insert

Pos.	Designation	Input	Output
1.	Ex e[1)5)]	U = 19…253V AC[2)3)] / 50…60Hz Pmax 25 VA or U = 19…55V DC[2)3)] U = 19…35V DC[2)4)] Pmax = 1.3 W; ≤ 2.0 W [6)]	2 potential free change over contacts (DPDT) Umax=253 V AC[2);3)] Imax=6 A Pmax=1500 VA; cosφ=1 Pmax= 750 VA; cosφ=0.7 or Umax=30 V DC Imax=6 A Umax=125 V DC[2)3)] Umax=35 V DC[2)4)] Imax=0.2 A
2.	Ex t	Refer to pos. 1.	
3.	Ex d	Refer to pos. 1.	

FEL64DC/64DC_E/64DC_LT Electronic Insert

Pos.	Designation	Input	Output
1.	Ex e[1)5)]	U = 9…20V DC[2)3)4)] Pmax = 1.0 W; ≤ 1.7 W [6)]	2 potential free change over contacts (DPDT) Umax=253 V AC[2);3)] Imax=6 A Pmax=1500 VA; cosφ=1 Pmax= 750 VA; cosφ=0.7 or Umax=30 V DC Imax=6 A Umax=125 V DC[2)3)] Umax=35 V DC[2)4)] Imax=0.2 A
2.	Ex t	Refer to pos. 1.	
3.	Ex d	Refer to pos. 1.	

1) This rating is fully compatible with Ex nA acc. to EN/IEC 60079-15.
2) The range specified are maximum values which include 10% safety margin for typical power line variations.
3) Ambient temperature -50 °C… +70 °C
4) Ambient temperature -60 °C… +70 °C
5) Not applicable for ATEX Category 3 EU -Type Examination Certificate
6) When assembled with LED-Module

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FEL61/61LT Electronic Insert

Pos.	Designation	Input	Load current
1.	Ex e[5)]	U = 19...253 V AC [1)] Pmax < 2 VA at ILmax Imax= 10 mA	ILmax = ISCmax = 350 mA
2.	Ex t[5)]		
3.	Ex d		

FEL67 PFM Electronic Insert

Pos.	Designation	Input
1.	Ex i	Ui =14,6V Ii =100mA Pi =633mW Ci =3nF Li =0µH
2.	Ex e[1)5)]	Unom=12,5V DC[2)] Um =250V Pmax =100mW
3.	Ex t[5)]	Refer to pos. 2.
4.	Ex d	Refer to pos. 2.

FEL48/68 NAMUR Electronic Insert

Pos.	Designation	Input
1.	Ex i	Ui = 16 V Ii = 52 mA Pi = 170 mW Ci = 30 nF Li = N/A µH
2.	Ex e[5)]	Unom = 9.0 V DC[1)] Um = 250 V[2)]
3.	Ex t[5)]	Refer to pos. 2.
4.	Ex d	Refer to pos. 2.

FEL60D Density Electronic Insert

Pos.	Designation	Input
1.	Ex i	Ui = 27,6V Ii = 93mA Pi = 640mW Ci = 3nF Li = 3µH
2.	Ex e[1)5)]	Unom = 26V DC[2)] Um = 250V Pmax = 150mW
3.	Ex t[5)]	Refer to pos. 2.
4.	Ex d	Refer to pos. 2.

1) This rating is fully compatible with Ex nA acc. to EN/IEC 60079-15.
2) The range specified are maximum values which include 10% safety margin for typical power line variations.
5) Not applicable for ATEX Category 3 EU -Type Examination Certificate

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LED Module

Pos.	Designation	Input
1.	Ex e[5)]	Unom = 19..253 V AC[2)]; 12..55 V DC[2)] P_{max} = < 6 VA; <0.7 W Um = 250 V
2.	Ex t[5)]	Refer to pos. 1.
3.	Ex d	Refer to pos. 1.

BT Module

Pos.	Designation	Input
1.	Ex i	Ui = 10.0 V Ii = 16.0 mA[1)] Pi = 40.0 mW Ci = N/A µF Li = N/A µH
2.	Ex e[5)]	Unom = 3.3 V DC[2)] Um = 250 V
3.	Ex t[5)]	Refer to pos. 3.
4.	Ex d	Refer to pos. 3.

1) This rating is fully compatible with Ex nA acc. to EN/IEC 60079-15.
2) The range specified are maximum values which include 10% safety margin for typical power line variations.
5) Not applicable for ATEX Category 3 EU -Type Examination Certificate

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Endress+Hauser
People for Process Automation

ANNEX 1 TO TECHNICAL DESCRIPTION 961003139: TEMPERATURE DERATING TABLES OF LIQUIPHANT

Standard / Rule:	**Project: 15002539 + 15002760**
IECEx / ATEX / CSA	**Liquiphant**

Model name

Liquiphant

Type

FTL41 / FTL51B / FTL62 / FTL63 / FTL64

FTL41 FTL51B FTL62 FTL63 FTL64

Notes:			Project No.:	
Complete			**15002539 + 15002760**	
Status:	Date:	Author:		
Final	**14.02.2022**	**Burkhard Lutterbeck**		
Version:	Document ID:	File name:		Page:
03.00	**961003762-C**	961003762-C_Temp-Deratings_LT_sensors_V.03.00.docx		1 of 92

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0 History

Rev.	Short description
01.02 (A)	Initial submission.
02.00 (B)	Update Ex ia (XA01801F/XA01806F/XA01807F/XA01810F) T6 P2 from 70/70 to 67/67; Ex d: 020=GA= Density only available with Sensor 060=C; Including FTL62 + FTL64, Including -50°C=JL
03.00 (C)	Update Ex ia Gas XA´s : Differential Temp.-Tables for electronic inserts and Sensor designes (w/o Temperature Spacer); Inclusion of Product FTL63(Hygienic Sensor)

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1 Introduction

1.1 General

This description of temperature deratings of FTL41, FTL51B, FTL62 andFTL64 is an annex to the technical description 961003139-A and describes the thermal deratings of the LT sensors in details.

1.2 Electronics thermal data

Several parameters are involved like:
-the temperature rise on the electronics insert surface under fault condition which is less than 20K,
-the thermal derating of the different sensor types,
-the temperature derating of the different types of sensors and enclosures measured and calculated as followed.
The temperature rises at the outer surface of the device or the internal surface of an assembled electronics insert, additional module or terminals compared to the ambient temperature in dependence of the energy dissipation within the electronics, the type of enclosure and the type of protection used (assumed fault conditions) is given in the following tables.

The temperature increases listed in the following tables lead to the following temperature reductions depending on the temperature class (only for gas explosive atmosphere), the max. functional operating temperature of the electronic components, the process temperature T_P, the ambient temperature T_a, the sensor type and the used housing type. In most cases only the combination enclosure and cover HA05+CA10 will be considered as reflecting the worst case overall. Only for the Ex db or Ex db eb enclosure HA46 with CA10 covers, the calculation is separated, because this enclosure has a much better R_{th} from Tp at the Probe to T_a at the enclosure. In this case a separate calculation is prepared.

- Since the calculations use the permissible limit for the electronics and safety relevant components or due to the presence of a process temperature less than the ambient temperature, resulting in a cooling effect, values of Ta > 80 °C might have been calculated. The following tables reflecting the values mentioned in the adequate safety advices XAxxx are voluntarily limited to max. 70°C.

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1.3 Instructions to temperature deratings tables for gas explosive atmosphere

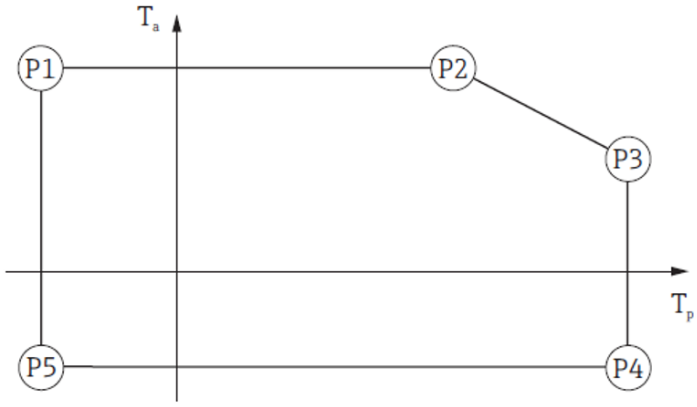

Figure 1-1 Temperature deratings curve

The heat dissipation of each electronics insert is equivalent to the power intake in normal operation state. The temperature increases lead to the following temperature reductions, depending on the temperature class T6 to T1, the electronics insert, the enclosure, the probe type, the process temperature T_P and the ambient temperature T_a.

- For Ex ia IIC...Ga type of protection in Zone 0, the process temperature is limited by the standard atmospheric temperature range -20...+60 °C acc. EN/IEC 60079-0.
- For Ex ia IIC...Ga type of protection outside Zone 0, the max. process temperature will be reduced by 5 K corresponding to the fault condition of the piezo-drive (refer to TR no. 970006950), in addition to the 5 K safety margin to the max. permitted temperature within a temperature class, making all together 10 K reduction.
- For Ex ia IIC...Ga/Gb, Ex ia IIC...Gb and Ex db types of protection, the max. process temperature will be reduced by 5 K corresponding to the fault condition of the piezo-drive (refer to TR no. 970006950), in addition to the 5 K safety margin to the max. permitted temperature within a temperature class, making all together 10 K reduction.
- For Ex db eb and Ex ec types of protection, the max. process temperature will be reduced by 5 K safety margin to the max. permitted temperature within a temperature class (refer to TR no. 970006950).
- For Ex ia IIC...Ga/Gb, Ex ia IIC...Gb types of protection, the min. ambient temperature is standard -40 °C and may drop down to -50 °C with option JL, and -52 °C with option JN.
- For Ex db type of protection, the min. ambient is standard -40 °C and may drop down to -50 °C with option JL, -52 °C with option JN or -60 °C with option JT.
- For Ex db eb type of protection, the min. ambient temperature is limited voluntarily at -40 °C taking into account the min. ambient temperature of -45 °C of the O-ring of the cover.
- For Ex ec type of protection, the min. ambient temperature is limited at -40 °C taking into account the min. ambient temperature of -40 °C of the terminal of manufacturer Phoenix.
- The min. process temperature is limited voluntarily at
  -40 °C for FTL41 and,
  -50 °C for FTL51B, FTL62, FTL63 and
  -60 °C for FTL64.

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1.4 Instructions to temperature deratings tables for dust explosive atmosphere

For applications in dust, a temperature test is done by test report 970006591, in which the surface temperatures of the device depending on the power dissipation of the electronic insert is measured in three different orientations of the device, without a dust layer and with the whole device immerged in more than 200 mm dust layer thickness T_{200} when the sensor is in Zone 20.

The comparison between temperature rises obtained with the whole device with and without dust layer T_{200} for the same device configuration showed a difference in all the cases less than 10 K, using this value avoided the necessity of an additional measure of the max. surface temperature T_{200} xx °C of the probe in Zone 20 in fault condition of the piezo-drive [1)].

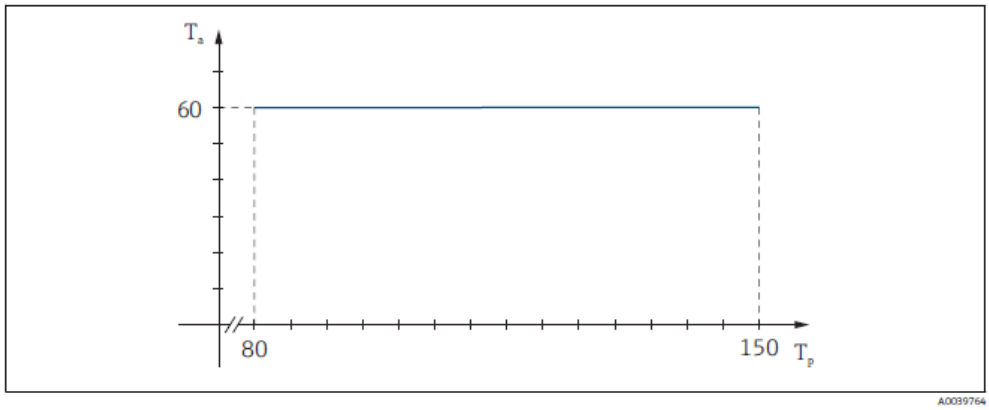
The surface temperature depends on the process and ambient temperatures (refer to TR no. 970006499), on the power dissipation of the electronics insert (refer to TR no. 970006591), on the type of electronics insert and finally on the type of explosion protection.

- For Ex ia IIIC...Da/Db type of protection, the max. surface temperature Txx °C of the enclosure in Zone 21 will be increased by 5 K above the max. process temperature, corresponding to the fault condition of the piezo-drive without dust layer, the max. surface temperature T_{200} xx °C of the probe in Zone 20 will be increased by additional 10 K [1)] to the 5 K of the enclosure, corresponding to the fault condition of the piezo-drive under a dust layer of thickness > 200 mm (refer to TR no. 970006950), making all together 15 K increasing above the process temperature.
- For Ex ia IIIC...Db type of protection, the max. surface temperature Txx °C of the whole device in Zone 21 will be increased by 5 K above the max. process temperature, corresponding to the fault condition of the piezo-drive without dust layer (refer to TR no. 970006950).
- For Ex ta/tb type of protection, the max. surface temperature Txx °C of the enclosure in Zone 21 will be increased by 5 K above the max. process temperature, corresponding to the fault condition of the piezo-drive without dust layer, the max. surface temperature T_{200} xx °C of the probe in Zone 20 will be increased by additional 10 K [1)] to the 5 K of the enclosure, corresponding to the fault condition of the piezo-drive under a dust layer of thickness > 200 mm (refer to TR no. 970006950), making all together 15 K increasing above the process temperature.
- For Ex tb type of protection, the max. surface temperature Txx °C of the whole device in Zone 21 will be increased by 5 K above the max. process temperature, corresponding to the fault condition of the piezo-drive without dust layer (refer to TR no. 970006950).
- For Ex tc type of protection, the max. surface temperature Txx °C of the whole device in Zone 22 is equivalent to the max. process temperature (refer to TR no. 970006950).
- For Ex ta/tb, Ex tb, Ex tc types of protection, the min. ambient temperature is limited voluntarily at -40 °C taking into account the min. ambient temperature of -45 °C of the O-ring of the cover.
- The min. process temperature is limited voluntarily at -50 °C for FTL51B, FTL62 and -60°C for FTL64.

1.4.1 Example of a deratings table and corresponding diagram of XA01810F-x

Sensor 060 = B		
	T_a = 60 T_p = 80...150	T85...155

Example



T_a *Ambient temperature in °C*
T_p *Process temperature in °C*

The values of Ta and Tp correspond to the max. permissible ambient and process temperatures in °C.
The values of Txxx correspond to the max. surface temperature in °C.

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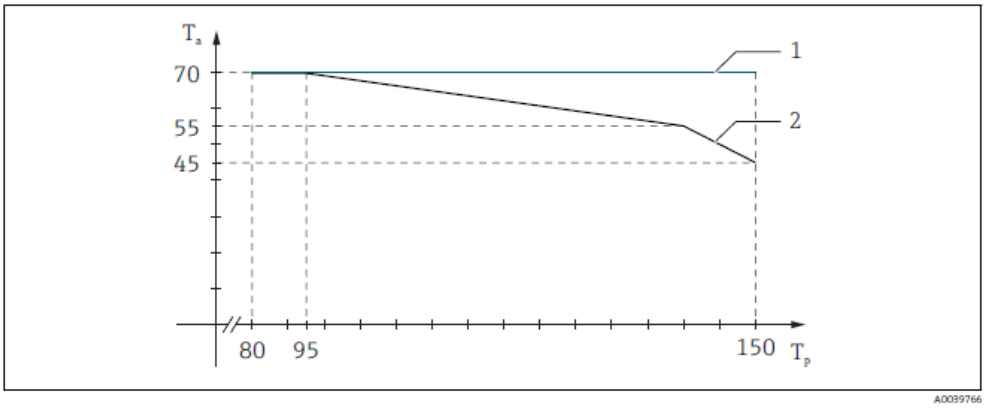
1.4.2 Example of deratings table and corresponding diagram of XA01811F-x

Sensor 060 = B	Option 600 =	Load current		
	~~MR, MS~~	350 mA		
			T_a = 70 T_p = 80...95	T80...95
			T_a = 55 T_p = 130	T130
			T_a = 45 T_p = 150	T150
	MR, MS	350 mA		
			T_a = 70 T_p = 80...150	T80...150

Example



T_a Ambient temperature in °C
T_p Process temperature in °C
1 With Optional Specification, ID Mx (Sensor Design) = MR, ...
2 Without Optional Specification, ID Mx (Sensor Design) = MR, ...

The values of Ta and Tp correspond to the max. permissible ambient and process temperatures in °C.
The values of Txxx correspond to the max. surface temperature in °C.

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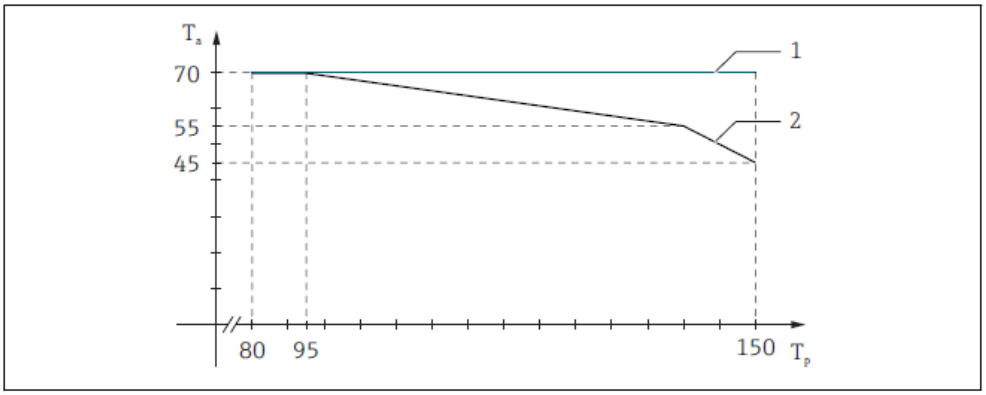
1.4.3 Example of deratings table and corresponding diagram of XA01812F-x

Sensor 060 = B	Option 600 =	Load current		
	~~MR, MS~~	350 mA		
			T_a = 70 T_p = 80...95	T85...100
			T_a = 55 T_p = 130	T135
			T_a = 45 T_p = 150	T155
	MR, MS	350 mA		
			T_a = 70 T_p = 80...150	T85...155

Example



T_a Ambient temperature in °C
T_p Process temperature in °C
1 With Optional Specification, ID Mx (Sensor Design) = MR, ...
2 Without Optional Specification, ID Mx (Sensor Design) = MR, ...

The values of Ta and Tp correspond to the max. permissible ambient and process temperatures in °C.
The values of Txxx correspond to the max. surface temperature in °C.

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2 Significant features of the product structure relevant for Temperature Derating

Position 3, 4 (Output) *[OC bb=020]*		
Selected option		**Description**
FTL41	A2	FEL62, 3-wire PNP 10-55VDC + test button
	A4	FEL64, relay DPDT 19-253VAC/19-55VDC contact 253V/6A + test button
	A8	FEL68, 2-wire NAMUR + test button
FTL51B FTL62 FTL63 FTL64	A1	FEL61, 2-wire 19-253VAC + test button
	A2	FEL62, 3-wire PNP 10-55VDC + test button
	A3	FEL64DC, relay DPDT 9-20VDC
	A4	FEL64, relay DPDT 19-253VAC/19-55VDC contact 253V/6A + test button
	A7	FEL67, 2-wire PFM + test button
	A8	FEL68, 2-wire NAMUR + test button
	GA	FEL60D, density/concentration

Position 6 (Housing; Material) *[OC d=040]*		
Selected option		**Description**
FTL41	A	Single compartment; plastic
	B	Single compartment; Alu, coated
FTL51B FTL62 FTL63 FTL64	A	Single compartment; plastic
	B	Single compartment; Alu, coated
	C	Single compartment; 316L, cast
	M	Dual compartment L-shape; Alu, coated

Position 8 (Application) *[OC f=060]*		
Selected option		**Description**
FTL51B FTL63	A	Process max 150°C/302°F, max 64bar
	B	Process max 150°C/302°F, max 100bar
	C	Process max 80°C/176°F, max 25bar
FTL62	C	Process max 80°C/176°F, max 25bar
	N	Process max 120oC/248oF, max 40bar (ECTFE)
	P	Process max 150oC/302oF, max 40bar (PFA)
	T	Process max 150oC/302oF, max 25bar (Email)
FTL64	D	Process max 280oC/536oF, max 100bar
	E	Process max 230oC/446oF, max 100bar
	R	Prozess max 230oC/446oF, max 40bar (PFA)

ID Jx, Kx (Test, Certificate, Declaration) *[OC nn=580]*		
Selected option		**Description**
FTL51B FTL62 FTL63 FTL64	JL	Ambient temperature -50oC/-58oF
	JN	Ambient temperature -52oC/-62oF
	JT	Ambient temperature -60oC/-76oF

ID Mx (Sensor Design) *[OC pp=600]*		
Selected option		**Description**
FTL51B FTL62 FTL63	MR	Temperature separator
	MS	Pressure tight feed through (Second line of defence)

ID Nx, Ox (Accessory Mounted) *[OC qq=610]*		
Selected option		**Description**
FTL41	-	Not available
FTL51B FTL62 FTL63 FTL64	NF	Bluetooth
	NG	Prepared for Heartbeat Verification + Monitoring + Bluetooth

ID Px, Rx (Accessory Enclosed) *[OC rr=620]*		
Selected option		**Description**
FTL41	PB	Weather protection cover, plastic
FTL51B FTL62 FTL63 FTL64	PA	Weather protection cover, 316L
	PB	Weather protection cover, plastic
	R6	Test magnet

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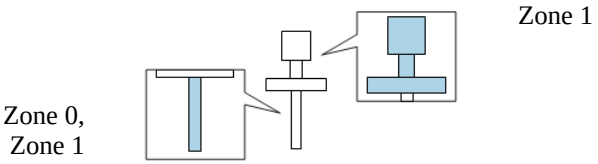
3 Temperature derating tables proper to each safety advice

3.1 Device FTL41-BB, Ex ia IIC...Ga/Gb, XA01801F-x

Optional specification, ID Px (Accessory Enclosed) = PB
When using the weather protection cover: Reduce the values T_a of P1, P2, P3 by 16 K.

Zone 0, Zone 1



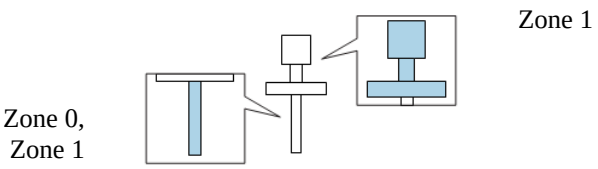
3.1.1 Electronics FEL48 (020 = A8)

Output 020 = A8	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
	T6	−40	70	74	70	80	66	80	−40	−40	−40
	T5	−40	70	70	70	95	70	95	−40	−40	−40
	T4	−40	70	70	70	130	62	130	−40	−40	−40
	T3...T1	−40	70	70	70	150	53	150	−40	−40	−40

3.2 Device FTL41-BC, Ex db, XA01802F-x

Optional specification, ID Px (Accessory Enclosed) = PB
When using the weather protection cover: Reduce the values T_a of P1, P2, P3 by 16 K.

Zone 0, Zone 1



3.2.1 Electronics FEL42 (020 = A2)

Output 020 = A2	Load current 350 mA	Temp. class	P1		P2		P3		P4		P5	
			T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
		T6	−40	70	70	70	75	70	75	−40	−40	−40
		T5	−40	70	70	70	90	70	90	−40	−40	−40
		T4	−40	70	70	70	125	55	125	−40	−40	−40
		T3...T1	−40	70	70	70	150	45	150	−40	−40	−40

3.2.2 Electronics FEL44 (020 = A4)

Output 020 = A4	Load current 2 A	Temp. class	P1		P2		P3		P4		P5	
			T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
		T6	−40	70	70	70	75	40	75	−40	−40	−40
		T5	−40	70	70	70	90	55	90	−40	−40	−40
		T4	−40	70	70	70	125	47	125	−40	−40	−40
		T3...T1	−40	70	70	70	150	38	150	−40	−40	−40

3.2.3 Electronics FEL48 (020 = A8)

Output 020 = A8		Temp. class	P1		P2		P3		P4		P5	
			T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
		T6	−40	70	70	70	75	70	75	−40	−40	−40
		T5	−40	70	70	70	90	70	90	−40	−40	−40
		T4	−40	70	70	70	125	70	125	−40	−40	−40
		T3...T1	−40	70	70	70	150	70	150	−40	−40	−40

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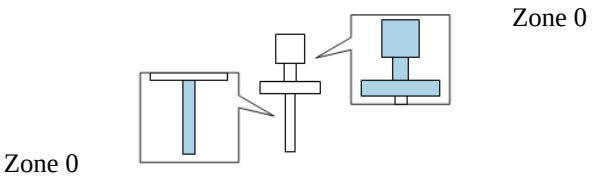
3.3 Device FTL51B-BA, FTL63-BA Ex ia IIC...Ga, XA01806F-x

Optional specification, ID Px (Accessory Enclosed) = PB
When using the weather protection cover: Reduce the values T_a of P1, P2, P3 by 16 K.

Zone 0

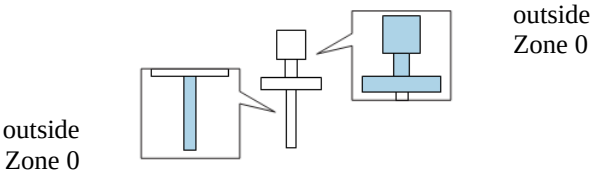


3.3.1 Electronics FEL67, FEL68, FEL60D (020 = A7, A8, GA) in Zone 0

Sensor 060 = A, B, C	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
	T6...T1 1)	−20	60	60	60	60	60	60	−20	−20	−20

1) Optional specification; ID (Output) = A8, and Optional specification, ID Nx, Ox (Accessory Mounted) =NG: Only valid for T4...T1

Outside Zone 0



3.3.2 Electronics FEL67, (020 = A7) outside Zone 0

ID Mx (Sensor Design) [OC pp=600≠MR,MS]

Sensor 060 = A, B 600 ≠ MR,MS	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
	T6 1)	−50	70 65 2)	71	70 65 2)	80	65	80	−40 -50 3) -52 4)	−50	−40 -50 3)- 52 4)
	T5 1)	−50	70 65 2)	94	70 65 2)	95	69	95	−40 -50 3) -52 4)	−50	−40 -50 3)- 52 4)
	T4	−50	70 65 2)	94	70 65 2)	130	54	130	−40 -50 3) -52 4)	−50	−40 -50 3) -52 4)
	T3...T1	−50	70 65 2)	94	70 65 2)	150	45	150	−40 -50 3) -52 4)	−50	−40 -50 3) -52 4)

1) Optional specification; ID (Output) = A8, and Optional specification, ID Nx, Ox (Accessory Mounted) =NG: Only valid for T4...T1
2) Only in connection with Optional specification; ID (Output) = A8, and ID Nx, Ox (Accessory Mounted) =NG
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
4) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL

3.3.3 Electronics FEL67, (020 = A7) outside Zone 0

ID Mx (Sensor Design) [OC pp=600=MR,MS]

Sensor 060 = A, B 600 = MR,MS	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
	T6 [1]	−50	70 65 [2]	75	70 65 [2]	80	69	80	−40 -50 [3] -52 [4]	−50	−40 -50 [3] -52 [4]
	T5 [1]	−50	70 65 [2]	95	70 65 [2]	95	70	95	−40 -50 [3] -52 [4]	−50	−40 -50 [3] -52 [4]
	T4	−50	70 65 [2]	130	70 65 [2]	130	70	130	−40 -50 [3] -52 [4]	−50	−40 -50 [3] -52 [4]
	T3...T1	−50	70 65 [2]	150	70 65 [2]	150	70	150	−40 -50 [3] -52 [4]	−50	−40 -50 [3] -52 [4]

1) Optional specification; ID (Output) = A8, and Optional specification, ID Nx, Ox (Accessory Mounted) =NG: Only valid for T4...T1
2) Only in connection with Optional specification; ID (Output) = A8, and ID Nx, Ox (Accessory Mounted) =NG
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
4) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL

3.3.4 Electronics FEL68, (020 = A8) outside Zone 0

ID Mx (Sensor Design) [OC pp=600≠MR,MS]

Sensor 060 = A, B 600 ≠ MR,MS	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
	T6 [1]	−50	70 65 [2]	74	70 65 [2]	80	66	80	−40 -50 [3] -52 [4]	−50	−40 -50 [3] -52 [4]
	T5 [1]	−50	70 65 [2]	90	70 65 [2]	95	70	95	−40 -50 [3] -52 [4]	−50	−40 -50 [3] -52 [4]
	T4	−50	70 65 [2]	112	70 65 [2]	130	62	130	−40 -50 [3] -52 [4]	−50	−40 -50 [3] -52 [4]
	T3...T1	−50	70 65 [2]	112	70 65 [2]	150	53	150	−40 -50 [3] -52 [4]	−50	−40 -50 [3] -52 [4]

1) Optional specification; ID (Output) = A8, and Optional specification, ID Nx, Ox (Accessory Mounted) =NG: Only valid for T4...T1
2) Only in connection with Optional specification; ID (Output) = A8, and ID Nx, Ox (Accessory Mounted) =NG
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
4) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL

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3.3.5 Electronics FEL68, (020 = A8) outside Zone 0

ID Mx (Sensor Design) [OC pp=600=MR,MS]

Sensor 060 = A, B 600 = MR,MS	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
	T6 [1]	−50	70 65 [2]	80	70 65 [2]	80	69	80	−40 -50 [3] -52 [4]	−50	−40 -50 [3] -52 [4]
	T5 [1]	−50	70 65 [2]	95	70 65 [2]	95	70	95	−40 -50 [3] -52 [4]	−50	−40 -50 [3] -52 [4]
	T4	−50	70 65 [2]	130	70 65 [2]	130	70	130	−40 -50 [3] -52 [4]	−50	−40 -50 [3] -52 [4]
	T3...T1	−50	70 65 [2]	150	70 65 [2]	150	70	150	−40 -50 [3] -52 [4]	−50	−40 -50 [3] -52 [4]

1) Optional specification; ID (Output) = A8, and Optional specification, ID Nx, Ox (Accessory Mounted) =NG: Only valid for T4...T1
2) Only in connection with Optional specification; ID (Output) = A8, and ID Nx, Ox (Accessory Mounted) =NG
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
4) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL

3.3.6 Electronics FEL60D, (020 = GA) outside Zone 0

Sensor 060 = C	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
	T6	−50	62	62	62	80	49 [1] 59 [2]	80	−40	−50	−40
	T5...T1	-50	70	80	70	80	70	80	-40	-50	-40

1) Order code pp=600≠MR,MS
2) Order code pp=600=MR,MS

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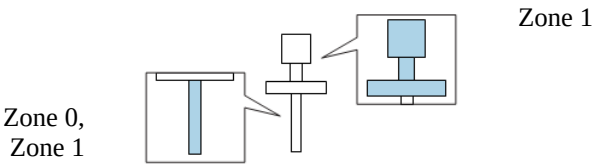
3.4 Device FTL51B-BB, FTL63-BB, Ex ia IIC...Ga/Gb or Gb, XA01807F-x Device FTL62-BB, Ex ia IIC...Ga/Gb or Gb, XA02025F-x

Optional specification, ID Px (Accessory Enclosed) = PB
When using the weather protection cover: Reduce the values T_a of P1, P2, P3 by 16 K.

Zone 0, Zone 1



3.4.1 Electronics FEL67, (020 = A7)

ID Mx (Sensor Design) [OC pp=600≠MR,MS]

Sensor 060 = A, B 600 ≠ MR,MS	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
	T6 [1]	−50	70 65 [2]	71	70 65 [2]	80	65	80	−40 -50 [3] -52 [4]	−50	−40 -50 [3] -52 [4]
	T5 [1]	−50	70 65 [2]	94	70 65 [2]	95	69	95	−40 -50 [3] -52 [4]	−50	−40 -50 [3] -52 [4]
	T4	−50	70 65 [2]	94	70 65 [2]	130 120 [5]	54	130 120 [5]	−40 -50 [3] -52 [4]	−50	−40 -50 [3] -52 [4]
	T3...T1	−50	70 65 [2]	94	70 65 [2]	150 120 [5]	45	150 120 [5]	−40 -50 [3] -52 [4]	−50	−40 -50 [3] -52 [4]

1) Optional specification; ID (Output) = A8, and Optional specification, ID Nx, Ox (Accessory Mounted) = NG: Only valid for T4...T1
2) Only in connection with Optional specification; ID (Output) = A8, and ID Nx, Ox (Accessory Mounted) =NG
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
4) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
5) ID (Application) = N = ECTFE; Tp_max = 120°C

3.4.2 Electronics FEL67, (020 = A7)

ID Mx (Sensor Design) [OC pp=600=MR,MS]

Sensor 060 = A, B 600 = MR,MS	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
	T6 [1]	−50	70 65 [2]	75	70 65 [2]	80	69	80	−40 -50 [3] -52 [4]	−50	−40 -50 [3] -52 [4]

	T5 [1]	−50	70 65 [2]	95	70 65 [2]	95	70	95	−40 -50 [3] -52 [4]	−50	−40 -50 [3] -52 [4]
	T4	−50	70 65 [2]	130	70 65 [2]	130 120[5]	70	130 120[5]	−40 -50 [3] -52 [4]	−50	−40 -50 [3] -52 [4]
	T3...T1	−50	70 65 [2]	150	70 65 [2]	150 120[5]	70	150 120[5]	−40 -50 [3] -52 [4]	−50	−40 -50 [3] -52 [4]

1) Optional specification; ID (Output) = A8, and Optional specification, ID Nx, Ox (Accessory Mounted) = NG: Only valid for T4...T1
2) Only in connection with Optional specification; ID (Output) = A8, and ID Nx, Ox (Accessory Mounted) =NG
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
4) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
5) ID (Application) = N = ECTFE; Tp_max = 120°C

3.4.3 Electronics FEL68, (020 = A8)

ID Mx (Sensor Design) [OC pp=600≠MR,MS]

Sensor 060 = A, B 600 ≠ MR,MS	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
	T6 [1]	−50	70 65 [2]	74	70 65 [2]	80	66	80	−40 -50 [3] -52 [4]	−50	−40 -50 [3] -52 [4]
	T5 [1]	−50	70 65 [2]	90	70 65 [2]	95	70	95	−40 -50 [3] -52 [4]	−50	−40 -50 [3] -52 [4]
	T4	−50	70 65 [2]	112	70 65 [2]	130 120[5]	62	130 120[5]	−40 -50 [3] -52 [4]	−50	−40 -50 [3] -52 [4]
	T3...T1	−50	70 65 [2]	112	70 65 [2]	150 120[5]	53	150 120[5]	−40 -50 [3] -52 [4]	−50	−40 -50 [3] -52 [4]

1) Optional specification; ID (Output) = A8, and Optional specification, ID Nx, Ox (Accessory Mounted) =NG: Only valid for T4...T1
2) Only in connection with Optional specification; ID (Output) = A8, and ID Nx, Ox (Accessory Mounted) =NG
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
4) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
5) ID (Application) = N = ECTFE; Tp_max = 120°C

3.4.4 Electronics FEL68, (020 = A8)

ID Mx (Sensor Design) [OC pp=600=MR,MS]

Sensor 060 = A, B 600 = MR,MS	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
	T6 [1]	−50	70 65 [2]	80	70 65 [2]	80	69	80	−40 -50 [3] -52 [4]	−50	−40 -50 [3] -52 [4]
	T5 [1]	−50	70 65 [2]	95	70 65 [2]	95	70	95	−40 -50 [3] -52 [4]	−50	−40 -50 [3] -52 [4]

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	T4	−50	70 65 [2]	130	70 65 [2]	130 120[5]	70	130 120[5]	−40 -50 [3] -52 [4]	−50	−40 -50 [3] -52 [4]
	T3...T1	−50	70 65 [2]	150	70 65 [2]	150 120[5]	70	150 120[5]	−40 -50 [3] -52 [4]	−50	−40 -50 [3] -52 [4]

1) Optional specification; ID (Output) = A8, and Optional specification, ID Nx, Ox (Accessory Mounted) =NG: Only valid for T4...T1
2) Only in connection with Optional specification; ID (Output) = A8, and ID Nx, Ox (Accessory Mounted) =NG
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
4) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
5) ID (Application) = N = ECTFE; Tp_max = 120°C

3.4.5 Electronics FEL60D, (020 = GA)

Sensor 060 = C	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
	T6	−50	62	62	62	80	49 [1] 59 [2]	80	−40	−50	−40
	T5...T1	-50	70	80	70	80	70	80	-40	-50	-40

1) Order code pp=600≠MR,MS
2) Order code pp=600=MR,MS

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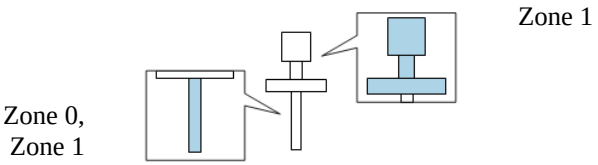
3.5 Device FTL51B-BC, FTL63-BC Ex db, XA01808F-x Device FTL62-BC, Ex db, XA02026F-x

Optional specification, ID Px (Accessory Enclosed) = PB
When using the weather protection cover: Reduce the values T_a of P1, P2, P3 by 16 K.

Zone 0, Zone 1



3.5.1 Electronics FEL61, (020 = A1)

060= Application	040= Enclosure	600= Sensor Design	Max Current	Temp. class	P1		P2		P3		P4		P5	
					T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
A,B	B,C	~~MR,MS~~	180 mA	T6	-50	55	55	55	80	46	80	-40 -50[1)] -52[2)] -60[3)]	-50	-40 -50[1)] -52[2)] -60[3)]
				T5	-50	70	70	70	95	61	95		-50	
				T4	-50	70	76	70	130 120[4)]	50	130 120[4)]		-50	
				T3…T1	-50	70	76	70	150 120[4)]	42	150 120[4)]		-50	
		MR,MS	180 mA	T6	-50	55	55	55	80	53	80	-40 -50[1)] -52[2)] -60[3)]	-50	-40 -50[1)] -52[2)] -60[3)]
				T5	-50	70	70	70	95	68	95		-50	
				T4	-50	70	94	70	130 120[4)]	67	130 120[4)]		-50	
				T3…T1	-50	70	94	70	150 120[4)]	65	150 120[4)]		-50	
		MR,MS	350 mA	T6	-50	37	49	37	80	34	80	-40 -50[1)] -52[2)] -60[3)]	-50	-40 -50[1)] -52[2)] -60[3)]
				T5	-50	52	64	52	95	49	95		-50	
				T4	-50	69	69	69	130 120[4)]	64	130 120[4)]		-50	
				T3…T1	-50	69	69	69	150 120[4)]	62	150 120[4)]		-50	

1) If insulated
2) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
4) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT
5) Position 9 Surface Refinement = N (ECTFE), Tp max. 120 °C

060= Application	040= Enclosure	600= Sensor Design	Max Current	Temp. class	P1		P2		P3		P4		P5	
					T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
A,B	M	~~MR,MS~~	180 mA	T6	-50	63	64	63	80	59	80	-40 -50[1)] -52[2)] -60[3)]	-50	-40 -50[1)] -52[2)] -60[3)]
				T5	-50	70	95	70	95	70	95		-50	
				T4	-50	70	112	70	130 120[4)]	66	130 120[4)]		-50	

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060= Application	040= Enclosure	600= Sensor Design	Max Current	Temp. class	P1		P2		P3		P4		P5	
					T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
				T3… T1	-50	70	112	70	150 120[4]	61	150 120[4]		-50	
		MR,MS	180 mA	T6	-50	62	70	62	80	62	80	-40 -50[1] -52[2] -60[3]	-50	-40 -50[1] -52[2] -60[3]
				T5	-50	70	95	70	95	70	95		-50	
				T4	-50	70	130	70	130 120[4]	70	130 120[4]		-50	
				T3… T1	-50	70	150	70	150 120[4]	70	150 120[4]		-50	
		~~MR,MS~~	350 mA	T6	-50	38	39	38	80	29	80	-40 -50[1] -52[2] -60[3]	-50	-40 -50[1] -52[2] -60[3]
				T5	-50	53	54	53	95	44	95		-50	
				T4	-50	70	72	70	130 120[4]	57	130 120[4]		-50	
				T3… T1	-50	70	72	70	150 120[4]	53	150 120[4]		-50	
		MR,MS	350 mA	T6	-50	36	80	36	80	36	80	-40 -50[1] -52[2] -60[3]	-50	-40 -50[1] -52[2] -60[3]
				T5	-50	51	95	51	95	51	95		-50	
				T4	-50	67	130	67	130 120[4]	67	130 120[4]		-50	
				T3… T1	-50	66	150	66	150 120[4]	66	150 120[4]		-50	

1) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
2) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT
4) Position 9 Surface Refinement = N (ECTFE), Tp max. 120 °C

3.5.2 Electronics FEL62, (020 = A2)

c	600= Sensor Design	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
A,B	~~MR,MS~~	350 mA	T6	-50	55	55	55	80	46	80	-40 -50[1] -52[2] -60[3]	-50	-40 -50[1] -52[2] -60[3]
			T5	-50	70	70	70	95	61	95		-50	
			T4	-50	70	76	70	130 120[4]	50	130 120[4]		-50	
			T3… T1	-50	70	76	70	150 120[4]	42	150 120[4]		-50	
	MR,MS	350 mA	T6	-50	55	55	55	80	53	80	-40 -50[1] -52[2] -60[3]	-50	-40 -50[1] -52[2] -60[3]
			T5	-50	70	70	70	95	68	95		-50	
			T4	-50	70	94	70	130 120[4]	67	130 120[4]		-50	
			T3… T1	-50	70	94	70	150 120[4]	65	150 120[4]		-50	

1) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
2) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT
4) Position 9 Surface Refinement = N (ECTFE), Tp max. 120 °C

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3.5.3 Electronics FEL64 (020 = A3, A4)

060 = Application	040 = Housing	600= Sensor Design	Max Current	Temp. class	P1		P2		P3		P4		P5	
					T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
A,B	B,C	~~MR,MS~~	2 A	T6	-50	52	52	52	80	42	80	-40 -50[1)] -52[2)] -60[3)]	-50	-40 -50[1)] -52[2)] -60[3)]
				T5	-50	67	67	67	95	57	95		-50	
				T4	-50	70	77	70	130 120[4)]	70	130 120[4)]		-50	
				T3… T1	-50	70	77	70	150 120[4)]	70	150 120[4)]		-50	
		MR,MS	2 A	T6	-50	52	52	52	80	50	80	-40 -50[1)] -52[2)] -60[3)]	-50	-40 -50[1)] -52[2)] -60[3)]
				T5	-50	67	67	67	95	65	95		-50	
				T4	-50	70	100	70	130 120[4)]	67	130 120[4)]		-50	
				T3… T1	-50	70	100	70	150 120[4)]	66	150 120[4)]		-50	
		MR,MS	4 A	T6	-50	41	50	41	80	39	80	-40 -50[1)] -52[2)] -60[3)]	-50	-40 -50[1)] -52[2)] -60[3)]
				T5	-50	56	65	56	95	54	95		-50	
				T4	-50	69	76	69	130 120[4)]	64	130 120[4)]		-50	
				T3… T1	-50	69	76	69	150 120[4)]	63	150 120[4)]		-50	
A,B	M	~~MR,MS~~	2 A	T6	-50	55	56	55	80	50	80	-40 -50[1)] -52[2)] -60[3)]	-50	-40 -50[1)] -52[2)] -60[3)]
				T5	-50	70	71	70	95	65	95		-50	
				T4	-50	70	94	70	130 120[4)]	61	130 120[4)]		-50	
				T3… T1	-50	70	94	70	150 120[4)]	57	150 120[4)]		-50	
		MR,MS	2 A	T6	-50	55	59	55	80	53	80	-40 -50[1)] -52[2)] -60[3)]	-50	-40 -50[1)] -52[2)] -60[3)]
				T5	-50	70	74	70	95	68	95		-50	
				T4	-50	70	130 120[4)]	70	130 120[4)]	70	130 120[4)]		-50	
				T3… T1	-50	70	148 120[4)]	70	150 120[4)]	69	150 120[4)]		-50	
		MR,MS	4 A	T6	-50	45	62	45	80	44	80	-40 -50[1)] -52[2)] -60[3)]	-50	-40 -50[1)] -52[2)] -60[3)]
				T5	-50	60	77	60	95	59	95		-50	
				T4	-50	70	113	70	130 120[4)]	69	130 120[4)]		-50	
				T3… T1	-50	70	115	70	150 120[4)]	67 69[4)]	150 120[4)]		-50	

1) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
2) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT
4) Position 9 Surface Refinement = N (ECTFE), Tp max. 120 °C

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3.5.4 Electronics FEL67, FEL68 (020 = A7, A8)

Encl. 040 = B,C,M	Sensor 060 = (FTL51B) A,B (FTL62) N,P,Q,R,T			Temp. class	P1		P2		P3		P4		P5	
					T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
				T6	−50	70	80	70	80	70	80	-40 -50[1)] -52 [2)] -60 [3)]	−50	-40 -50[1)] -52 [2)] -60 [3)]
				T5	−50	70	95	70	95	70	95	-40 -50[1)] -52 [2)] -60 [3)]	−50	-40 -50[1)] -52 [2)] -60 [3)]
				T4	−50	70	130 120[4)]	70	130 120[4)]	70	130 120[4)]	-40 -50[1)] -52 [2)] -60 [3)]	−50	-40 -50[1)] -52 [2)] -60 [3)]
				T3...T1	−50	70	130 120[4)]	70	150 120[4)]	65	150 120[4)]	-40 -50[1)] -52 [2)] -60 [3)]	−50	-40 -50[1)] -52 [2)] -60 [3)]

1) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
2) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT
4) Position 9 Surface Refinement = N (ECTFE), Tp max. 120 °C

3.5.5 Electronics FEL60D (020 = GA)

Encl. 040 = B,C,M	Sensor 060 = (FTL51B) C (FTL62) C			Temp. class	P1		P2		P3		P4		P5	
					T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
				T6...T1	−50	70	80	70	80	70	80	−40	−50	−40

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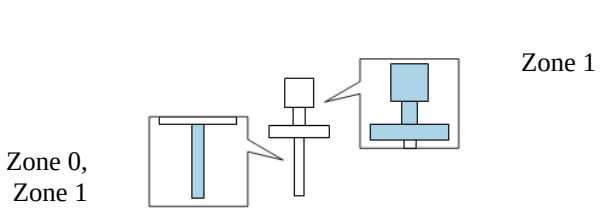
3.6 Device FTL51B-BD, FTL63-BD Ex db eb, XA01809F-x Device FTL62-BD, Ex db eb, XA02027F-x



3.6.1 Electronics FEL61, (020 = A1)

Sensor 060 = A, B	Option 600 =	Load current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
	~~MR, MS~~	180 mA											
			T6	−50	70	70	70	80	59	80	−40	−50	−40
			T5	−50	70	70	70	95	70	95	−40	−50	−40
			T4	−50	70	70	70	130 120 1)	70	130 120 1)	−40	−50	−40
			T3...T1	−50	70	70	70	150 120 1)	69	150 120 1)	−40	−50	−40
	MR, MS	180 mA											
			T6	−50	70	70	70	80	62	80	−40	−50	−40
			T5	−50	70	70	70	95	70	95	−40	−50	−40
			T4	−50	70	70	70	130 120 1)	70	130 120 1)	−40	−50	−40
			T3...T1	−50	70	70	70	150 120 1)	70	150 120 1)	−40	−50	−40
	MR, MS	350 mA											
			T4	−50	70	70	70	130 120 1)	55	130 120 1)	−40	−50	−40
			T3...T1	−50	70	70	70	150 120 1)	54	150 120 1)	−40	−50	−40

1) Position 9 Surface Refinement = N (ECTFE), Tp max. 120 °C

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3.6.2 Electronics FEL62, (020 = A2)

Sensor 060 = A, B	Option 600 =	Load current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
	~~MR~~, ~~MS~~	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	130 120 1)	66	130 120 1)	−40	−50	−40
			T3...T1	−50	70	70	70	150 120 1)	54	150 120 1)	−40	−50	−40
	MR, MS	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	130 120 1)	70	130 120 1)	−40	−50	−40
			T3...T1	−50	70	70	70	150 120 1)	70	150 120 1)	−40	−50	−40

1) Position 9 Surface Refinement = N (ECTFE), Tp max. 120 °C

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3.6.3 Electronics FEL64, (020 = A3, A4)

Sensor 060 = A, B	Option 600 =	Load current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
	~~MR, MS~~	2 A											
			T6	−50	55	55	55	80	50	80	−40	−50	−40
			T5	−50	70	70	70	95	65	95	−40	−50	−40
			T4	−50	70	70	70	130 120 [1)]	65	130 120 [1)]	−40	−50	−40
			T3...T1	−50	70	70	70	150 120 [1)]	65	150 120 [1)]	−40	−50	−40
	MR, MS	2 A											
			T6	−50	55	55	55	80	54	80	−40	−50	−40
			T5	−50	70	70	70	95	68	95	−40	−50	−40
			T4	−50	52	52	52	130 120 [1)]	70	130 120 [1)]	−40	−50	−40
			T3...T1	−50	70	70	70	150 120 [1)]	70	150 120 [1)]	−40	−50	−40
	MR, MS	4 A											
			T6	−50	45	45	45	80	44	80	−40	−50	−40
			T5	−50	60	60	60	95	59	95	−40	−50	−40
			T4	−50	67	67	67	130 120 [1)]	63	130 120 [1)]	−40	−50	−40
			T3...T1	−50	67	67	67	150 120 [1)]	62	150 120 [1)]	−40	−50	−40

1) Position 9 Surface Refinement = N (ECTFE), Tp max. 120 °C

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3.6.4 Electronics FEL67, FEL68, FEL60D (020 = A7, A8, GA)

Sensor 060 = A,B	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
	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	130 120 [1)]	70	130 120 [1)]	−40	−50	−40
	T3...T1	−50	70	70	70	150 120 [1)]	70	150 120 [1)]	−40	−50	−40

1) Position 9 Surface Refinement = N (ECTFE), Tp max. 120 °C

Sensor 060 = C	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
	T6...T1	−50	70	70	70	80	70	80	−40	−50	−40

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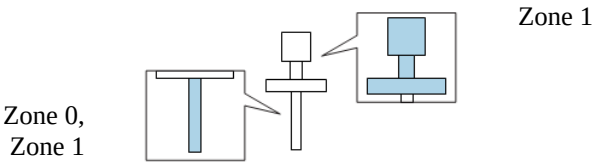
3.7 Device FTL51B-BK, FTL63-BK; Ex ia IIC/IIIC, XA01810F-x Device FTL62-BK, Ex ia IIC/IIIC, XA02028F-x

Optional specification, ID Px (Accessory Enclosed) = PB
When using the weather protection cover: Reduce the values T_a of P1, P2, P3 by 16 K.

Zone 0, Zone 1



3.7.1 Electronics Gas FEL67, (020 = A7)

ID Mx (Sensor Design) [OC pp=600≠MR,MS]

Sensor 060 = A, B 600 ≠ MR,MS	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
	T6 1)	−50	70 65 2)	71	70 65 2)	80	65	75	−40 -50 3) -52 4)	−50	−40 -50 3) -52 4)
	T5 1)	−50	70 65 2)	94	70 65 2)	95	69	90	−40 -50 3) -52 4)	−50	−40 -50 3) -52 4)
	T4	−50	70 65 2)	94	70 65 2)	130 120 5)	54	125 120 5)	−40 -50 3) -52 4)	−50	−40 -50 3) -52 4)
	T3...T1	−50	70 65 2)	94	70 65 2)	150 120 5)	45	150 120 5)	−40 -50 3) -52 4)	−50	−40 -50 3) -52 4)

1) Optional specification; ID (Output) = A8, and Optional specification, ID Nx, Ox (Accessory Mounted) =NG: Only valid for T4...T1
2) Only in connection with Optional specification; ID (Output) = A8, and ID Nx, Ox (Accessory Mounted) =NG
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL=-50 °C
4) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN= -52 °C
5) Position 9 (Surface Refinement)=N (ECTFE), Tp max. 120 °C

3.7.2 Electronics FEL67, (020 = A7)

ID Mx (Sensor Design) [OC pp=600=MR,MS]

Sensor 060 = A, B 600 = MR,MS	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
	T6 1)	−50	70 65 2)	75	70 65 2)	80	69	80	−40 -50 3) -52 4)	−50	−40 -50 3) -52 4)
	T5 1)	−50	70 65 2)	95	70 65 2)	95	70	95	−40 -50 3) -52 4)	−50	−40 -50 3) -52 4)

	T4	−50	70 65 2)	130	70 65 2)	130 120 5)	70	130 120 5)	−40 -50 3) -52 4)	−50	−40 -50 3) -52 4)
	T3...T1	−50	70 65 2)	150	70 65 2)	150 120 5)	70	150 120 5)	−40 -50 3) -52 4)	−50	−40 -50 3) -52 4)

1) Optional specification; ID (Output) = A8, and Optional specification, ID Nx, Ox (Accessory Mounted) = NG: Only valid for T4...T1
2) Only in connection with Optional specification; ID (Output) = A8, and ID Nx, Ox (Accessory Mounted) =NG
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
4) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
5) ID (Application) = N = ECTFE; Tp_max = 120°C

3.7.3 Electronics FEL68, (020 = A8)

ID Mx (Sensor Design) [OC pp=600≠MR,MS]

Sensor 060 = A, B 600 ≠ MR,MS	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
	T6 1)	−50	70 65 2)	74	70 65 2)	80	66	80	−40 -50 3) -52 4)	−50	−40 -50 3) -52 4)
	T5 1)	−50	70 65 2)	90	70 65 2)	95	70	95	−40 -50 3) -52 4)	−50	−40 -50 3) -52 4)
	T4	−50	70 65 2)	112	70 65 2)	130 120 5)	62	130 120 5)	−40 -50 3) -52 4)	−50	−40 -50 3) -52 4)
	T3...T1	−50	70 65 2)	112	70 65 2)	150 120 5)	53	150 120 5)	−40 -50 3) -52 4)	−50	−40 -50 3) -52 4)

1) Optional specification; ID (Output) = A8, and Optional specification, ID Nx, Ox (Accessory Mounted) =NG: Only valid for T4...T1
2) Only in connection with Optional specification; ID (Output) = A8, and ID Nx, Ox (Accessory Mounted) =NG
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
4) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
5) ID (Application) = N = ECTFE; Tp_max = 120°C

3.7.4 Electronics FEL68, (020 = A8)

ID Mx (Sensor Design) [OC pp=600=MR,MS]

Sensor 060 = A, B 600 = MR,MS	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
	T6 1)	−50	70 65 2)	80	70 65 2)	80	69	80	−40 -50 3) -52 4)	−50	−40 -50 3) -52 4)
	T5 1)	−50	70 65 2)	95	70 65 2)	95	70	95	−40 -50 3) -52 4)	−50	−40 -50 3) -52 4)
	T4	−50	70 65 2)	130	70 65 2)	130 120 5)	70	130 120 5)	−40 -50 3) -52 4)	−50	−40 -50 3) -52 4)

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	T3...T1	−50	70 65 2)	150	70 65 2)	150 120 5)	70	150 120 5)	−40 -50 3) -52 4)	−50	−40 -50 3) -52 4)

1) Optional specification; ID (Output) = A8, and Optional specification, ID Nx, Ox (Accessory Mounted) =NG: Only valid for T4...T1
2) Only in connection with Optional specification; ID (Output) = A8, and ID Nx, Ox (Accessory Mounted) =NG
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
4) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
5) ID (Application) = N = ECTFE; Tp_max = 120°C

3.7.5 Electronics FEL60D, (020 = GA)

Sensor 060 = C	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
	T6	−50	62	62	62	80	49 1) 59 2)	80	−40	−50	−40
	T5...T1	-50	70	80	70	80	70	80	-40	-50	-40

1) Order code pp=600≠MR,MS
2) Order code pp=600=MR,MS

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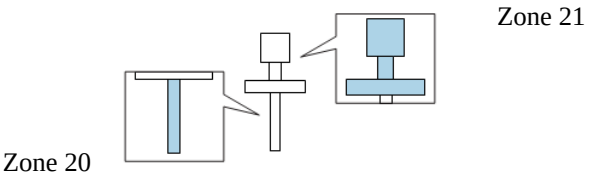
Optional specification, ID Px (Accessory Enclosed) = PB
When using the weather protection cover: Reduce the values T_a by 16 K.

Zone 20, Zone 21



3.7.6 Electronics Dust FEL67, FEL68, FEL60D (020 = A7, A8, GA)

060 Application: A,B(FTL51B) / N,P,T (FTL62)		
Process temperature range	Ambient temperature range	Maximum surface temperature
-50 °C <= Tp <= 150 °C[3)]	-52/-50/-40 °C ≤ Ta ≤ 60 °C	Zone 20 Da: T_{200} -25 °C ... T_{200}165 °C[1)] Zone 21 Db: T_L-48 °C... T_L155 °C[2)]

060 Application: C		
Process temperature range	Ambient temperature range	Maximum surface temperature
-50 °C <= Tp <= 80 °C	-40 °C ≤ Ta ≤ 60 °C	Zone 20 Da: T_{200} -25 °C ... T_{200}95 °C[1)] Zone 21 Db: T_L-35 °C... T_L85 °C[2)]

1) Under dust submersion > 200 mm: T_{200}
2) Under maximum dust layer accumulation on the device: T_L
3) Position 9 (Surface Refinement)= N (ECTFE), Tp max. 120 °C

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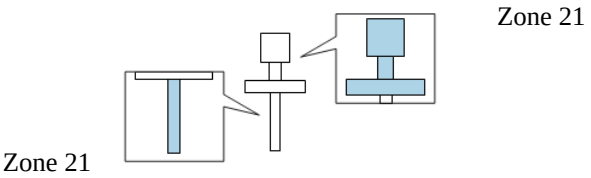
Optional specification, ID Px (Accessory Enclosed) = PB
When using the weather protection cover: Reduce the values T_a by 16 K.

Zone 21



060 Application: A,B(FTL51B) / N,P,T (FTL62)		
Process temperature range	Ambient temperature range	Maximum surface temperature
-50 °C <= Tp <= 150 °C[2)]	-52/-50/-40 °C ≤ Ta ≤ 60 °C	Zone 21 Db: T_L-48 °C... T_L155 °C[1)]

060 Application: C		
Process temperature range	Ambient temperature range	Maximum surface temperature
-50 °C <= Tp <= 80 °C	-40 °C ≤ Ta ≤ 60 °C	Zone 21 Db: T_L-35 °C... T_L85 °C[1)]

1) Under maximum dust layer accumulation on the device: T_L
2) Position 9 (Surface Refinement)= N (ECTFE), Tp max. 120 °C

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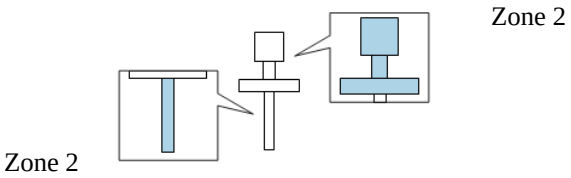
3.8 Device FTL51B-BL, FTL63-BL Ex ec / Ex tc, XA01811F-x Device FTL62-BL, Ex ec / Ex tc, XA02029F-x

Optional specification, ID Px (Accessory Enclosed) = PB
When using the weather protection cover: Reduce the values T_a of P1, P2, P3 by 16 K.

Zone 2



3.8.1 Electronics Gas FEL62, (020 = A2)

Sensor (FTL51B) 060=A,B (FTL62) N,P,Q,R,T	Option 600 =	Load current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
	~~MR~~, ~~MS~~	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	130 120[1)]	55	130 120[1)]	−40	−50	−40
			T3...T1	−50	70	70	70	150 120[1)]	45	150 120[1)]	−40	−50	−40
	MR, MS	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	130 120[1)]	70	130 120[1)]	−40	−50	−40
			T3...T1	−50	70	70	70	150 120[1)]	70	150	−40 120[1)]	−50	−40

1) FTL62: 060(Surface Refinement)= N (ECTEFE), Tp max120 °C

3.8.2 Electronics Gas FEL64, (020 = A3, A4)

Sensor (FTL51B) 060 = A,B (FTL62) 060= N,P,Q,R,T	Option 600 =	Load current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
	~~MR~~, ~~MS~~	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	130 120[1)]	47	130 120[1)]	−40	−50	−40
			T3...T1	−50	70	78	70	150 120[1)]	38	150 120[1)]	−40	−50	−40

	MR, MS	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	130 120[1)]	67	130 120[1)]	−40	−50	−40
			T3...T1	−50	70	104	70	150 120[1)]	65	150 120[1)]	−40	−50	−40
	MR, MS	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	130 120[1)]	65	130 120[1)]	−40	−50	−40
			T3...T1	−50	70	77	70	150 120[1)]	63	150 120[1)]	−40	−50	−40

1) FTL62: 060(Surface Refinement)= N (ECTEFE), Tp max120 °C

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3.8.3 Electronics Gas FEL67, FEL68, FEL60D (020 = A7, A8, GA)

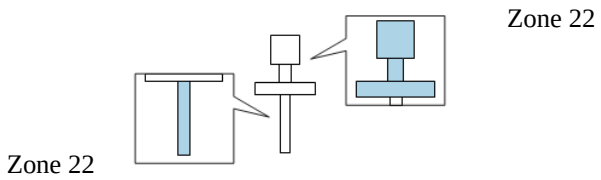
Sensor (FTL51B) 060 = A,B (FTL62) 060=N,P,Q,R,T	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
	T6	−50	70	70	70	80	70	80	−40	−50	−40
	T5	−50	70	70	70	95	70	95	−40	−50	−40
	T4	−50	70	70	70	130 120[1)]	70	130 120[1)]	−40	−50	−40
	T3...T1	−50	70	70	70	150 120[1)]	70	150 120[1)]	−40	−50	−40

1) FTL62: 060(Surface Refinement)= N (ECTEFE), Tp max120 °C

Sensor 060 = C	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
	T6...T1	−50	70	70	70	80	70	80	−40	−50	−40

Optional specification, ID Px (Accessory Enclosed) = PB
When using the weather protection cover: Reduce the values T_a by 16 K.

Zone 22



3.8.4 Electronics Dust FEL62, (020 = A2)

Sensor FTL51B 060=A,B FTL62 060= N,P,Q,R,T			Process temperature Range	Ambient Temperature Range	Maximum surface Temperature
	~~MR, MS~~	350 mA	-50 °C ≤ Tp ≤ 95 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 22 Dc: T-40 °C...T95 °C
			-50 °C ≤ Tp ≤ 130 °C	-40 °C ≤ Ta ≤ 55 °C	Zone 22 Dc: T-40 °C...T130 °C
			-50 °C ≤ Tp ≤ 150 °C -50 °C ≤ Tp ≤ 120 °C [1)]	-40 °C ≤ Ta ≤ 45 °C	Zone 22 Dc: T-40 °C...T150 °C Zone 22 Dc: T-40 °C...T120 °C[1)]
	MR, MS		-50 °C ≤ Tp ≤ 150 °C -50 °C ≤ Tp ≤ 120 °C [1)]	-40 °C ≤ Ta ≤ 70 °C	Zone 22 Dc: T-40 °C...T150 °C Zone 22 Dc: T-40 °C...T120 °C[1)]

1) FTL62: 060(Surface Refinement)= N (ECTEFE), Tp max120 °C

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3.8.5 Electronics Dust FEL64, (020 = A3, A4)

Sensor			Process temperature Range	Ambient Temperature Range	Maximum surface Temperature
FTL51B 060=A,B FTL62 060= N,P,Q,R,T	~~MR, MS~~	2 A, 4A	-50 °C ≤ Tp ≤ 80 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 22 Dc: T-40 °C...T80 °C
			-50 °C ≤ Tp ≤ 90 °C	-40 °C ≤ Ta ≤ 66 °C	Zone 22 Dc: T-40 °C...T90 °C
			-50 °C ≤ Tp ≤ 120 °C	-40 °C ≤ Ta ≤ 53 °C	Zone 22 Dc: T-40 °C...T120 °C Zone 22 Dc: T-40 °C...T120 °C[1)]
			-50 °C ≤ Tp ≤ 150 °C -50 °C ≤ Tp ≤ 120 °C [1)]	-40 °C ≤ Ta ≤ 40 °C	Zone 22 Dc: T-40 °C...T150 °C Zone 22 Dc: T-40 °C...T120 °C[1)]
		6 A	-50 °C ≤ Tp ≤ 90 °C	-40 °C ≤ Ta ≤ 64 °C	Zone 22 Dc: T-40 °C...T90 °C
			-50 °C ≤ Tp ≤ 120 °C	-40 °C ≤ Ta ≤ 51 °C	Zone 22 Dc: T-40 °C...T120 °C
			-50 °C ≤ Tp ≤ 150 °C -50 °C ≤ Tp ≤ 120 °C [1)]	-40 °C ≤ Ta ≤ 38 °C	Zone 22 Dc: T-40 °C...T150 °C Zone 22 Dc: T-40 °C...T120 °C[1)]
	MR, MS	2 A	-50 °C ≤ Tp ≤ 125 °C -50 °C ≤ Tp ≤ 120 °C [1)]	-40 °C ≤ Ta ≤ 70 °C	Zone 22 Dc: T-40 °C...T125 °C Zone 22 Dc: T-40 °C...T120 °C[1)]
			-50 °C ≤ Tp ≤ 150 °C -50 °C ≤ Tp ≤ 120 °C [1)]	-40 °C ≤ Ta ≤ 67 °C	Zone 22 Dc: T-40 °C...T150 °C Zone 22 Dc: T-40 °C...T120 °C[1)]
		4A	-50 °C ≤ Tp ≤ 116 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 22 Dc: T-40 °C...T116 °C
			-50 °C ≤ Tp ≤ 150 °C -50 °C ≤ Tp ≤ 120 °C [1)]	-40 °C ≤ Ta ≤ 67 °C	Zone 22 Dc: T-40 °C...T150 °C Zone 22 Dc: T-40 °C...T120 °C[1)]
		6 A	-50 °C ≤ Tp ≤ 97 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 22 Dc: T-40 °C...T97 °C
			-50 °C ≤ Tp ≤ 150 °C -50 °C ≤ Tp ≤ 120 °C [1)]	-40 °C ≤ Ta ≤ 65 °C	Zone 22 Dc: T-40 °C...T150 °C Zone 22 Dc: T-40 °C...T120 °C[1)]

1) FTL62: 060(Surface Refinement)= N (ECTEFE), Tp max120 °C

3.8.6 Electronics Dust FEL67, FEL68, FEL60D (020 = A7, A8, GA)

Sensor			Process temperature Range	Ambient Temperature Range	Maximum surface Temperature
FTL51B 060=A,B,C FTL62 060= N,P,Q,R,T			-50 °C ≤ Tp ≤ 80 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 22 Dc: T-40 °C...T80 °C
			-50 °C ≤ Tp ≤ 150 °C -50 °C ≤ Tp ≤ 120 °C [1)]	-40 °C ≤ Ta ≤ 50 °C	Zone 22 Dc: T-40 °C...T150 °C Zone 22 Dc: T-40 °C...T120 °C[1)]

1) FTL62: 060(Surface Refinement)= N (ECTEFE), Tp max120 °C

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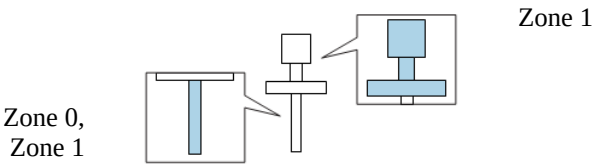
3.9 Device FTL51B-BM, FTL63-BM Ex db / Ex ta/tb, XA01812F-x Device FTL62-BM, Ex db / Ex ta/tb, XA02030F-x

Optional specification, ID Px (Accessory Enclosed) = PB
When using the weather protection cover: Reduce the values T_a of P1, P2, P3 by 16 K.

Zone 0, Zone 1



3.9.1 Electronics Gas FEL61, (020 = A1)

060= Application	040= Enclosure	600= Sensor Design	Max Current	Temp. class	P1		P2		P3		P4		P5	
					T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
A,B	B,C	~~MR,MS~~	180 mA	T6	-50	55	55	55	80	46	80	-40 -50[1] -52[2] -60[3]	-50	-40 -50[1] -52[2] -60[3]
				T5	-50	70	70	70	95	61	95		-50	
				T4	-50	70	76	70	130 120[4]	50	130 120[4]		-50	
				T3... T1	-50	70	76	70	150 120[4]	42	150 120[4]		-50	
		MR,MS	180 mA	T6	-50	55	55	55	80	53	80	-40 -50[1] -52[2] -60[3]	-50	-40 -50[1] -52[2] -60[3]
				T5	-50	70	70	70	95	68	95		-50	
				T4	-50	70	94	70	130 120[4]	67	130 120[4]		-50	
				T3... T1	-50	70	94	70	150 120[4]	65	150 120[4]		-50	
		MR,MS	350 mA	T6	-50	37	49	37	80	34	80	-40 -50[1] -52[2] -60[3]	-50	-40 -50[1] -52[2] -60[3]
				T5	-50	52	64	52	95	49	95		-50	
				T4	-50	69	69	69	130 120[4]	64	130 120[4]		-50	
				T3... T1	-50	69	69	69	150 120[4]	62	150 120[4]		-50	

1) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
2) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT
4) 080 (Surface Refinement)= N (ECTFE) Tp_max=120 °C

ANNEX 1 TO TECHNICAL DESCRIPTION 961003139: TEMPERATURE DERATING TABLES OF LIQUIPHANT

Liquiphant IECEx / ATEX / CSA

060= Application	040= Enclosure	600= Sensor Design	Max Current	Temp. class	P1		P2		P3		P4		P5	
					T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
A,B	M	~~MR,MS~~	180 mA	T6	-50	63	64	63	80	59	80	-40 -50[1)] -52[2)] -60[3)]	-50	-40 -50[1)] -52[2)] -60[3)]
				T5	-50	70	95	70	95	70	95		-50	
				T4	-50	70	112	70	130 120[4)]	66	130 120[4)]		-50	
				T3…T1	-50	70	112	70	150 120[4)]	61	150 120[4)]		-50	
		MR,MS	180 mA	T6	-50	62	70	62	80	62	80	-40 -50[1)] -52[2)] -60[3)]	-50	-40 -50[1)] -52[2)] -60[3)]
				T5	-50	70	95	70	95	70	95		-50	
				T4	-50	70	130	70	130 120[4)]	70	130 120[4)]		-50	
				T3…T1	-50	70	150	70	150 120[4)]	70	150 120[4)]		-50	
		~~MR,MS~~	350 mA	T6	-50	38	39	38	80	29	80	-40 -50[1)] -52[2)] -60[3)]	-50	-40 -50[1)] -52[2)] -60[3)]
				T5	-50	53	54	53	95	44	95		-50	
				T4	-50	70	72	70	130 120[4)]	57	130 120[4)]		-50	
				T3…T1	-50	70	72	70	150 120[4)]	53	150 120[4)]		-50	
		MR,MS	350 mA	T6	-50	36	80	36	80	36	80	-40 -50[1)] -52[2)] -60[3)]	-50	-40 -50[1)] -52[2)] -60[3)]
				T5	-50	51	95	51	95	51	95		-50	
				T4	-50	67	130	67	130 120[4)]	67	130 120[4)]		-50	
				T3…T1	-50	66	150	66	150 120[4)]	66	150 120[4)]		-50	

1) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
2) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT
4) 080 (Surface Refinement)= N (ECTFE) Tp_max=120 °C

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3.9.2 Electronics Gas FEL62, (020 = A2)

c	600= Sensor Design	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
A,B	~~MR,MS~~	350 mA	T6	-50	55	55	55	80	46	80	-40 -50[1)] -52[2)] -60[3)]	-50	-40 -50[1)] -52[2)] -60[3)]
			T5	-50	70	70	70	95	61	95		-50	
			T4	-50	70	76	70	130 120[4)]	50	130 120[4)]		-50	
			T3… T1	-50	70	76	70	150 120[4)]	42	150 120[4)]		-50	
	MR,MS	350 mA	T6	-50	55	55	55	80	53	80	-40 -50[1)] -52[2)] -60[3)]	-50	-40 -50[1)] -52[2)] -60[3)]
			T5	-50	70	70	70	95	68	95		-50	
			T4	-50	70	94	70	130 120[4)]	67	130 120[4)]		-50	
			T3… T1	-50	70	94	70	150 120[4)]	65	150 120[4)]		-50	

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3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT
4) 080 (Surface Refinement)= N (ECTFE) Tp_max=120 °C

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3.9.3 Electronics Gas FEL64, (020 = A3, A4)

060 = Application	040 = Housing	600= Sensor Design	Max Current	Temp. class	P1		P2		P3		P4		P5	
					T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
A,B	B,C	~~MR,MS~~	2 A	T6	-50	52	52	52	80	42	80	-40 -50[1)] -52[2)] -60[3)]	-50	-40 -50[1)] -52[2)] -60[3)]
				T5	-50	67	67	67	95	57	95		-50	
				T4	-50	70	77	70	130 120[4)]	70	130 120[4)]		-50	
				T3…T1	-50	70	77	70	150 120[4)]	70	150 120[4)]		-50	
		MR,MS	2 A	T6	-50	52	52	52	80	50	80	-40 -50[1)] -52[2)] -60[3)]	-50	-40 -50[1)] -52[2)] -60[3)]
				T5	-50	67	67	67	95	65	95		-50	
				T4	-50	70	100	70	130 120[4)]	67	130 120[4)]		-50	
				T3…T1	-50	70	100	70	150 120[4)]	66	150 120[4)]		-50	
		MR,MS	4 A	T6	-50	41	50	41	80	39	80	-40 -50[1)] -52[2)] -60[3)]	-50	-40 -50[1)] -52[2)] -60[3)]
				T5	-50	56	65	56	95	54	95		-50	
				T4	-50	69	76	69	130 120[4)]	64	130 120[4)]		-50	
				T3…T1	-50	69	76	69	150 120[4)]	63	150 120[4)]		-50	
A,B	M	~~MR,MS~~	2 A	T6	-50	55	56	55	80	50	80	-40 -50[1)] -52[2)] -60[3)]	-50	-40 -50[1)] -52[2)] -60[3)]
				T5	-50	70	71	70	95	65	95		-50	
				T4	-50	70	94	70	130 120[4)]	61	130 120[4)]		-50	
				T3…T1	-50	70	94	70	150 120[4)]	57	150 120[4)]		-50	
		MR,MS	2 A	T6	-50	55	59	55	80	53	80	-40 -50[1)] -52[2)] -60[3)]	-50	-40 -50[1)] -52[2)] -60[3)]
				T5	-50	70	74	70	95	68	95		-50	
				T4	-50	70	130 120[4)]	70	130 120[4)]	70	130 120[4)]		-50	
				T3…T1	-50	70	148 120[4)]	70	150 120[4)]	69	150 120[4)]		-50	
		MR,MS	4 A	T6	-50	45	62	45	80	44	80	-40 -50[1)] -52[2)] -60[3)]	-50	-40 -50[1)] -52[2)] -60[3)]
				T5	-50	60	77	60	95	59	95		-50	
				T4	-50	70	113	70	130 120[4)]	69	130 120[4)]		-50	
				T3…T1	-50	70	115	70	150 120[4)]	67 69[4)]	150 120[4)]		-50	

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2) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT
4) 080 (Surface Refinement)= N (ECTFE) Tp_max=120 °C

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3.9.4 Electronics Gas FEL67, FEL68 (020 = A7, A8)

Encl. 040 = B,C,M	Sensor 060 = (FTL51B) A,B (FTL62) N,P,Q,R,T			Temp. class	P1		P2		P3		P4		P5	
					T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
				T6	−50	70	80	70	80	70	80	-40 -50[1)] -52 [2)] -60 [3)]	−50	-40 -50[1)] -52 [2)] -60 [3)]
				T5	−50	70	95	70	95	70	95	-40 -50[1)] -52 [2)] -60 [3)]	−50	-40 -50[1)] -52 [2)] -60 [3)]
				T4	−50	70	130 120[4)]	70	130 120[4)]	70	130 120[4)]	-40 -50[1)] -52 [2)] -60 [3)]	−50	-40 -50[1)] -52 [2)] -60 [3)]
				T3...T1	−50	70	130 120[4)]	70	150 120[4)]	65	150 120[4)]	-40 -50[1)] -52 [2)] -60 [3)]	−50	-40 -50[1)] -52 [2)] -60 [3)]

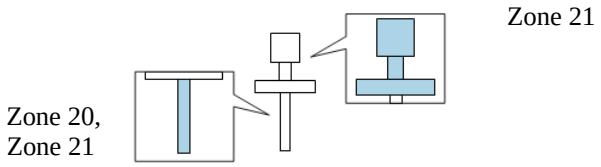
1) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
2) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT
4) 080 (Surface Refinement)= N (ECTFE) Tp_max=120 °C

3.9.5 Electronics FEL60D (020 = GA)

Encl. 040 = B,C,M	Sensor 060 = (FTL51B) C (FTL62) C			Temp. class	P1		P2		P3		P4		P5	
					T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
				T6...T1	−50	70	80	70	80	70	80	−40	−50	−40

Optional specification, ID Px (Accessory Enclosed) = PB
When using the weather protection cover: Reduce the values T_a by 16 K.

Zone 20, Zone 21



3.9.6 Electronics Dust FEL61, (020 = A1)

060= Application A,B	600= Sensor design	Max Current	Process temperature Range	Ambient Temperature Range	Maximum surface Temperature
	~~MR,MS~~	150 mA	-50 °C ≤ Tp ≤ 80 °C	-40 °C ≤ Ta ≤ 68 °C	Zone 20/21 Da/Db:: T-40 °C...T80 °C
			-50 °C ≤ Tp ≤ 95 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db:: T-40 °C...T95 °C
			-50 °C ≤ Tp ≤ 130°C	-40 °C ≤ Ta ≤ 60 °C	Zone 20/21 Da/Db:: T-40 °C...T130 °C
			-50 °C ≤ Tp ≤ 150 °C	-40 °C ≤ Ta ≤ 50 °C	Zone 20/21 Da/Db:: T-40 °C...T150 °C
	MR,MS		-50 °C ≤ Tp ≤ 80 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db:: T-40 °C...T80 °C
			-50 °C ≤ Tp ≤ 95 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db:: T-40 °C...T95 °C
			-50 °C ≤ Tp ≤ 130°C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db:: T-40 °C...T130 °C
			-50 °C ≤ Tp ≤ 150 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db:: T-40 °C...T150 °C
	~~MR,MS~~	350 mA	-50 °C ≤ Tp ≤ 80 °C	-40 °C ≤ Ta ≤ 60 °C	Zone 20/21 Da/Db:: T-40 °C...T80 °C
			-50 °C ≤ Tp ≤ 95 °C	-40 °C ≤ Ta ≤ 67 °C	Zone 20/21 Da/Db:: T-40 °C...T95 °C
			-50 °C ≤ Tp ≤ 130°C	-40 °C ≤ Ta ≤ 54 °C	Zone 20/21 Da/Db:: T-40 °C...T130 °C
			-50 °C ≤ Tp ≤ 150 °C	-40 °C ≤ Ta ≤ 46 °C	Zone 20/21 Da/Db:: T-40 °C...T150 °C
	MR,MS		-50 °C ≤ Tp ≤ 80 °C	-40 °C ≤ Ta ≤ 68 °C	Zone 20/21 Da/Db:: T-40 °C...T80 °C
			-50 °C ≤ Tp ≤ 95 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db:: T-40 °C...T95 °C
			-50 °C ≤ Tp ≤ 130°C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db:: T-40 °C...T130 °C
			-50 °C ≤ Tp ≤ 150 °C	-40 °C ≤ Ta ≤ 69 °C	Zone 20/21 Da/Db:: T-40 °C...T150 °C

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3.9.7 Electronics Dust FEL62, (020 = A2)

060= Application A,B			Process temperature Range	Ambient Temperature Range	Maximum surface Temperature
		350 mA	-50 °C ≤ Tp ≤ 80 °C	-40 °C ≤ Ta ≤ 60 °C	Zone 20/21 Da/Db:: T-40 °C...T80 °C
			-50 °C ≤ Tp ≤ 95 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db:: T-40 °C...T95 °C
			-50 °C ≤ Tp ≤ 130°C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db:: T-40 °C...T130 °C
			-50 °C ≤ Tp ≤ 150 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db:: T-40 °C...T150 °C

3.9.8 Electronics Dust FEL64, (020 = A3, A4)

060= Application A,B			Process temperature Range	Ambient Temperature Range	Maximum surface Temperature
	~~MR, MS~~	2 A/ 4 A	-50 °C ≤ Tp ≤ 80 °C	-40 °C ≤ Ta ≤ 50 °C	Zone 20/21 Da/Db:T-40 °C...T80 °C
			-50 °C ≤ Tp ≤ 95 °C	-40 °C ≤ Ta ≤ 65 °C	Zone 20/21 Da/Db:T-40 °C...T95 °C
			-50 °C ≤ Tp ≤ 130 °C	-40 °C ≤ Ta ≤ 50 °C	Zone 20/21 Da/Db:T-40 °C...T130 °C
			-50 °C ≤ Tp ≤ 150 °C	-40 °C ≤ Ta ≤ 45 °C	Zone 20/21 Da/Db:T-40 °C...T150 °C
		6 A	-50 °C ≤ Tp ≤ 80 °C	-40 °C ≤ Ta ≤ 37 °C	Zone 20/21 Da/Db:T-40 °C...T80 °C
			-50 °C ≤ Tp ≤ 95 °C	-40 °C ≤ Ta ≤ 50 °C	Zone 20/21 Da/Db:T-40 °C...T95 °C
			-50 °C ≤ Tp ≤ 130 °C	-40 °C ≤ Ta ≤ 45 °C	Zone 20/21 Da/Db:T-40 °C...T130 °C
			-50 °C ≤ Tp ≤ 150 °C	-40 °C ≤ Ta ≤ 40 °C	Zone 20/21 Da/Db:T-40 °C...T150 °C
	MR, MS MR, MS	2 A/ 4A	-50 °C ≤ Tp ≤ 80 °C	-40 °C ≤ Ta ≤ 58 °C	Zone 20/21 Da/Db:T-40 °C...T80 °C
			-50 °C ≤ Tp ≤ 95 °C	-40 °C ≤ Ta ≤ 65 °C	Zone 20/21 Da/Db:T-40 °C...T95 °C
			-50 °C ≤ Tp ≤ 130 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db:T-40 °C...T130 °C
			-50 °C ≤ Tp ≤ 150 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db:T-40 °C...T150 °C
		6 A	-50 °C ≤ Tp ≤ 80 °C	-40 °C ≤ Ta ≤ 52 °C	Zone 20/21 Da/Db:T-40 °C...T80 °C
			-50 °C ≤ Tp ≤ 95 °C	-40 °C ≤ Ta ≤ 60 °C	Zone 20/21 Da/Db:T-40 °C...T95 °C
			-50 °C ≤ Tp ≤ 130 °C	-40 °C ≤ Ta ≤ 60 °C	Zone 20/21 Da/Db:T-40 °C...T130 °C
			-50 °C ≤ Tp ≤ 150 °C	-40 °C ≤ Ta ≤ 58 °C	Zone 20/21 Da/Db:T-40 °C...T150 °C

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3.9.9 Electronics Dust FEL67, FEL68, FEL60D (020 = A7, A8, GA)

060= Application C			Process temperature Range	Ambient Temperature Range	Maximum surface Temperature
			-50 °C ≤ Tp ≤ 80 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db:T-40 °C...T80 °C

060= Application A,B			Process temperature Range	Ambient Temperature Range	Maximum surface Temperature
			-50 °C ≤ Tp ≤ 80 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db:T-40 °C...T80 °C
			-50 °C ≤ Tp ≤ 150 °C)	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db:T-40 °C...T150 °C

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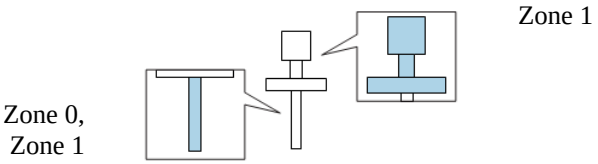
3.10 Device FTL64-BB, Ex ia IIC ...Ga/Gb or Gb, XA02031F-x

Optional specification, ID Px (Accessory Enclosed) = PB
When using the weather protection cover: Reduce the values T_a of P1, P2, P3 by 16 K.

Zone 0, Zone 1



3.10.1 Electronics FEL67, (020 = A7)

Application 060 = E,R	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_p	T_a	T_p	T_a	T_p
	T6 1)	-60	70 65 2)	77	70 65 2)	80	70	80	−40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T5 1)	-60	70 65 2)	95	70 65 2)	95	70	95	−40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T4	-60	70 65 2)	130	70 65 2)	130	70	130	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T3	-60	70 65 2)	195	70 65 2)	195	70	195	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T2...T1 1)	-60	70 65 2)	206	70 65 2)	230	68	230	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)

Application 060 = D,9	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_p	T_a	T_p	T_a	T_p
	T6 1)	-60	70 65 2)	80	70 65 2)	80	70	80	−40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T5 1)	-60	70 65 2)	95	70 65 2)	95	70	95	−40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T4	-60	70 65 2)	130	70 65 2)	130	70	130	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T3	-60	70 65 2)	195	70 65 2)	195	70	195	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T2	-60	70 65 2)	270	70 65 2)	280 290 5)	68	280 290 5)	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T1	-60	70 65 2)	270	70 65 2)	280 300 5)	68	280 300 5)	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)

1) Optional specification; ID (Output) = A8, and Optional specification, ID Nx, Ox (Accessory Mounted) = NG: Only valid for T4...T1
2) Only in connection with Optional specification; ID (Output) = A8, and ID Nx, Ox (Accessory Mounted) = NG
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
4) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
5) Only in connection with specification ID (Application) = 9 special version, and only for max. 50 cumulative hours

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3.10.2 Electronics FEL68, (020 = A8)

Application 060 = E,R	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_p	T_a	T_p	T_a	T_p
	T6 [1]	-60	70 65 [2]	80	70 65 [2]	80	70	80	−40 -50 [3] -52 [4]	-60	-40 -50 [3] -52 [4]
	T5 [1]	-60	70 65 [2]	95	70 65 [2]	95	70	95	−40 -50 [3] -52 [4]	-60	-40 -50 [3] -52 [4]
	T4	-60	70 65 [2]	130	70 65 [2]	130	70	130	-40 -50 [3] -52 [4]	-60	-40 -50 [3] -52 [4]
	T3	-60	70 65 [2]	195	70 65 [2]	195	70	195	-40 -50 [3] -52 [4]	-60	-40 -50 [3] -52 [4]
	T2...T1	-60	70 65 [2]	230	70 65 [2]	230	68	230	-40 -50 [3] -52 [4]	-60	-40 -50 [3] -52 [4]

Application 060 = D,9	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_p	T_a	T_p	T_a	T_p
	T6 [1]	-60	70 65 [2]	80	70 65 [2]	80	70	80	−40 -50 [3] -52 [4]	-60	-40 -50 [3] -52 [4]
	T5 [1]	-60	70 65 [2]	95	70 65 [2]	95	70	95	−40 -50 [3] -52 [4]	-60	-40 -50 [3] -52 [4]
	T4	-60	70 65 [2]	130	70 65 [2]	130	70	130	-40 -50 [3] -52 [4]	-60	-40 -50 [3] -52 [4]
	T3	-60	70 65 [2]	195	70 65 [2]	195	70	195	-40 -50 [3] -52 [4]	-60	-40 -50 [3] -52 [4]
	T2	-60	70 65 [2]	280	70 65 [2]	280 290 [5]	70	280 290 [5]	-40 -50 [3] -52 [4]	-60	-40 -50 [3] -52 [4]
	T1	-60	70 65 [2]	280	70 65 [2]	280 300 [5]	70	280 300 [5]	-40 -50 [3] -52 [4]	-60	-40 -50 [3] -52 [4]

1) Optional specification; ID (Output) = A8, and Optional specification, ID Nx, Ox (Accessory Mounted) = NG: Only valid for T4...T1
2) Only in connection with Optional specification; ID (Output) = A8, and ID Nx, Ox (Accessory Mounted) = NG
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
4) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
5) Only in connection with specification ID (Application) = 9 special version, and only for max. 50 cumulative hours

3.10.3 Electronics FEL60D, (020 = GA)

Application 060 = E,R	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_p	T_a	T_p	T_a	T_p
	T6 [1]	-60	62	63	62	80	60	80	−40 -50 [3] -52 [4]	-60	-40 -50 [3] -52 [4]
	T5 [1]	-60	70 65 [2]	95	70 65 [2]	95	70	95	−40 -50 [3] -52 [4]	-60	-40 -50 [3] -52 [4]
	T4	-60	70 65 [2]	130	70 65 [2]	130	70	130	-40 -50 [3]	-60	-40 -50 [3]

									-52 4)		-52 4)
	T3	-60	70 65 2)	195	70 65 2)	195	70	195	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T2...T1	-60	70 65 2)	201	70 65 2)	230	68	230	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)

Application 060 = D,9	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_p	T_a	T_p	T_a	T_p
	T6 1)	-60	62	64	62	80	61	80	−40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T5 1)	-60	70 65 2)	95	70 65 2)	95	70	95	−40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T4	-60	70 65 2)	130	70 65 2)	130	70	130	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T3	-60	70 65 2)	195	70 65 2)	195	70	195	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T2	-60	70 65 2)	261	70 65 2)	280 290 5)	68	280 290 5)	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T1	-60	70 65 2)	261	70 65 2)	280 300 5)	68	280 300 5)	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)

1) Optional specification; ID (Output) = A8, and Optional specification, ID Nx, Ox (Accessory Mounted) = NG: Only valid for T4...T1
2) Only in connection with Optional specification; ID (Output) = A8, and ID Nx, Ox (Accessory Mounted) = NG
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
4) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
5) Only in connection with specification ID (Application) = 9 special version, and only for max. 50 cumulative hours

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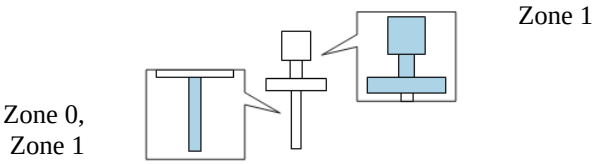
3.11 Device FTL64-BC, Ex db, XA02032F-x

Optional specification, ID Px (Accessory Enclosed) = PB
When using the weather protection cover: Reduce the values T_a of P1, P2, P3 by 16 K.

Zone 0, Zone 1



3.11.1 Electronics FEL61, (020 = A1)

Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
E,R	B,C	180 mA	T6	-60	61	69	61	80	60	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	70	95	70	95	70	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	70	130	70	130	70	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	70	193	70)	195	69	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2… T1	-60	70	193	70	230	65	230	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
		350 mA	T6	-60	37	57	37	80	36	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	52	72	52	95	51	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	69	69	69	130	66	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	69	69	69	195	63	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2… T1	-60	69	69	69	230	61	230	-40 -50 1) -52 3 -60 3)	-60	-40 -50 1) -52 2) -60 3)

1) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
2) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT

ANNEX 1 TO TECHNICAL DESCRIPTION 961003139: TEMPERATURE DERATING TABLES OF LIQUIPHANT

Liquiphant IECEx / ATEX / CSA

Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
D,9	B,C	180 mA	T6	-60	61	72	61	80	60	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	70	95	70	95	70	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	70	130	70	130	70	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	70	195	70	195	70	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2	-60	70	230	70	280 290 4)	67	280 290 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T1	-60	70	230	70	280 300 4)	67	280 300 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
		350 mA	T6	-60	37	58	37	80	36	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	52	73	52	95	51	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	69	69	69	130	66	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	69	69	69	195	63	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2	-60	69	69	69	280 290 4)	59	280 290 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T1	-60	69	69	69	280 300 4)	59	280 300 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)

1) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
2) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT
4) Only in connection with specification 060 (Application) = 9 (300°C)

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Liquiphant IECEx / ATEX / CSA

Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
E,R	M	180 mA	T6	-60	63	68	63	80	62	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	70	95	70	95	70	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	70	130	70	130	70	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	70	195	70	195	70	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2…T1	-60	70	230	70	230	70	230	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
		350 mA	T6	-60	37	57	37	80	36	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	52	72	52	95	51	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	69	69	69	130	66	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	69	69	69	195	63	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2…T1	-60	69	69	69	230	61	230	-40 -50 1) -52 3 -60 3)	-60	-40 -50 1) -52 2) -60 3)

1) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
2) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT

Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
D,9	M	180 mA	T6	-60	63	70	63	80	60	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	70	95	70	95	70	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	70	130	70	130	70	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)

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ANNEX 1 TO TECHNICAL DESCRIPTION 961003139: TEMPERATURE DERATING TABLES OF LIQUIPHANT

Liquiphant IECEx / ATEX / CSA

Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
			T3	-60	70	195	70	195	70	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2	-60	70	280	70	280 290 4)	70	280 290 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T1	-60	70	280	70	280 300 4)	67	280 300 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
		350 mA	T6	-60	37	58	37	80	36	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	52	73	52	95	51	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	69	69	69	130	66	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	69	69	69	195	63	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2	-60	69	69	69	280 290 4)	62	280 290 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T1	-60	69	69	69	280 300 4)	59	280 300 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)

1) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
2) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT
4) Only in connection with specification 060 (Application) = 9 (300°C)

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3.11.2 Electronics FEL62, (020 = A2)

Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
E,R	B,C	350 mA	T6	-60	55	55	55	80	53	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	70	70	70	95	68	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	70	102	70	130	68	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	70)	102	70	195	64	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2… T1	-60	70	102	70	230	62	230	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)

1) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
2) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT

Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
D,9	B,C	350 mA	T6	-60	55	56	55	80	54	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	70	71	70	95	69	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	70	112	70	130	69	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	70	112	70	195	66	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2	-60	70	112	70	280 290 4)	62	280 290 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T1	-60	70	112	70	280 300 4)	62	280 300 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)

1) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
2) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT
4) Only in connection with specification 060 (Application) = 9 (300°C)

ANNEX 1 TO TECHNICAL DESCRIPTION 961003139: TEMPERATURE DERATING TABLES OF LIQUIPHANT

Liquiphant IECEx / ATEX / CSA

Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
E,R	M	350 mA	T6	-60	54	71	54	80	53	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	69	86	69	95	68	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	70	130	70	130	70	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	70	133	70	195	67	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2… T1	-60	70	133	70	230	65	230	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)

1) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
2) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT

Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
D,9	M	350 mA	T6	-60	54	77	54	80	53	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	69	70	69)	95	68	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	70	130	70	130	70	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	70	154	70	195	68	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2	-60	70	154	70	280 290 4)	65	280 290 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T1	-60	70	154	70	280 300 4)	65	280 300 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)

1) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
2) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT
4) Only in connection with specification 060 (Application) = 9 (300°C)

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3.11.3 Electronics FEL64, (020 = A3, A4)

Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
E,R	B,C	2 A	T6	-60	52	53	52	80	50	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	67	68	67	95	65	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	70	110	70	130	68	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	70	110	70	195	65	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2… T1	-60	70	110	70	230	63	230	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
		4 A	T6	-60	42	51	42	80	40	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	57	66	57	95	55	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	69	78	69	130	66	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	69	78	69	195	62	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2… T1	-60	69	78	69	230	60	230	-40 -50 1) -52 3 -60 3)	-60	-40 -50 1) -52 2) -60 3)

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Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
D,9	B,C	2 A	T6	-60	52	53	52	80	50	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	67	68	67	95	65	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)

ANNEX 1 TO TECHNICAL DESCRIPTION 961003139: TEMPERATURE DERATING TABLES OF LIQUIPHANT

Liquiphant IECEx / ATEX / CSA

Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
			T4	-60	70	122	70	130	69	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	70	122	70	195	66	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2	-60	70	122	70	280 290 4)	63	280 290 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T1	-60	70	122	70	280 300 4)	62	280 300 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
		4 A	T6	-60	42	54	42	80	40	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	57	69	57	95	55	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	69	81	69	130	66	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	69	81	69	195	64	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2	-60	69	81	69	280 290 4)	60	280 290 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T1	-60	69)	81	69	280 300 4)	59	280 300 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)

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3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT
4) Only in connection with specification 060 (Application) = 9 (300°C)

Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
E,R	M	2 A	T6	-60	55	61	55	80	54	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	70	76	70	95	69	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)

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ANNEX 1 TO TECHNICAL DESCRIPTION 961003139: TEMPERATURE DERATING TABLES OF LIQUIPHANT

Liquiphant IECEx / ATEX / CSA

Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
			T4	-60	70	130	70	130	70	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	70	176	70	195	69	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2…T1	-60	70	176	70	230	67	230	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
		4 A	T6	-60	45	66	45	80	44	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	60	81	60	95	59	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	70	124	70	130	69	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	70	124	70	195	66	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2…T1	-60	70	124	70	230	65	230	-40 -50 1) -52 3 -60 3)	-60	-40 -50 1) -52 2) -60 3)

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Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
D,9	M	2 A	T6	-60	55	62	55	80	54	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	70	77	70	95	69	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	70	130	70	130	70	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	70	195	70	195	70	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2	-60	70	208	70	280 290 4)	67	280 290 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)

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ANNEX 1 TO TECHNICAL DESCRIPTION 961003139: TEMPERATURE DERATING TABLES OF LIQUIPHANT

Liquiphant IECEx / ATEX / CSA

Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
			T1	-60	70	208	70	280 300[4)]	66	280 300[4)]	-40 -50 [1)] -52 [2)] -60 [3)]	-60	-40 -50 [1)] -52 [2)] -60 [3)]
		4 A	T6	-60	45	73	45	80	44	80	−40 -50 [1)] -52 [2)] -60 [3)]	-60	-40 -50 [1)] -52 [2)] -60 [3)]
			T5	-60	60	88	60	95	59	95	−40 -50 [1)] -52 [2)] -60 [3)]	-60	-40 -50 [1)] -52 [2)] -60 [3)]
			T4	-60	70	130	70	130	70	130	-40 -50 [1)] -52 [2)] -60 [3)]	-60	-40 -50 [1)] -52 [2)] -60 [3)]
			T3	-60	70	142	70	195	68	195	-40 -50 [1)] -52 [2)] -60 [3)]	-60	-40 -50 [1)] -52 [2)] -60 [3)]
			T2	-60	70[)]	142	70	280 290[4)]	65	280 290[4)]	-40 -50 [1)] -52 [2)] -60 [3)]	-60	-40 -50 [1)] -52 [2)] -60 [3)]
			T1	-60	70	142	70	280 300[4)]	64	280 300[4)]	-40 -50 [1)] -52 [2)] -60 [3)]	-60	-40 -50 [1)] -52 [2)] -60 [3)]

1) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
2) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT
4) Only in connection with specification 060 (Application) = 9 (300°C)

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3.11.4 Electronics FEL67, FEL68 (020 = A7, A8)

Application 060 =	Housing; Material 040=		Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
E,R	B,C,M		T6	-60	70	80	70	80	70	80	−40 -50 2) -52 3) -60 4)	-60	-40 -50 2) -52 3) -60 4)
			T5	-60	70 65 1)	95	70 65 1)	95	70	95	−40 -50 2) -52 3) -60 4)	-60	-40 -50 2) -52 3) -60 4)
			T4	-60	70 65 1)	130	70 65 1)	130	70	130	-40 -50 2) -52 3) -60 4)	-60	-40 -50 2) -52 3) -60 4)
			T3	-60	70 65 1)	195	70 65 1)	195	70	195	-40 -50 2) -52 3) -60 4)	-60	-40 -50 2) -52 3) -60 4)
			T2… T1	-60	70 65 1)	200	70 65 1)	230	67	230	-40 -50 2) -52 3) -60 4)	-60	-40 -50 2) -52 3) -60 4)

1) Only in connection with Optional specification; ID (Output) = A8, and ID Nx, Ox (Accessory Mounted) = NG
2) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
4) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT

Application 060 =	Housing; Material 040=		Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
D,9	B,C,M		T6	-60	70	80	70	80	70	80	−40 -50 2) -52 3) -60 4)	-60	-40 -50 2) -52 3) -60 4)
			T5	-60	70 65 1)	95	70 65 1)	95	70	95	−40 -50 2) -52 3) -60 4)	-60	-40 -50 2) -52 3) -60 4)
			T4	-60	70 65 1)	130	70 65 1)	130	70	130	-40 -50 2) -52 3) -60 4)	-60	-40 -50 2) -52 3) -60 4)
			T3	-60	70 65 1)	195	70 65 1)	195	70	195	-40 -50 2) -52 3) -60 4)	-60	-40 -50 2) -52 3) -60 4)
			T2	-60	70 65 1)	230	70 65 1)	280 290 5)	69	280 290 5)	-40 -50 2) -52 3) -60 4)	-60	-40 -50 2) -52 3) -60 4)
			T1	-60	70 65 1)	279	70 65 1)	280 300 5)	68	280 300 5)	-40 -50 2) -52 3) -60 4)	-60	-40 -50 2) -52 3) -60 4)

1) Only in connection with Optional specification; ID (Output) = A8, and ID Nx, Ox (Accessory Mounted) = NG
2) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
4) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT

5) Only in connection with specification 060 (Application) = 9 (300°C)

3.11.5 Electronics FEL60D (020 = GA)

Application 060 =	Housing; Material 040=	Temp. class	P1		P2		P3		P4		P5	
			T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
D,E,R,9	B,C,M	T6...T1	-60	70	70	70	75	70	80	−40	-60	−40

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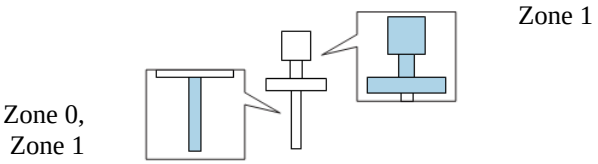
3.12 Device FTL64-BD, Ex db eb, XA02033F-x

Optional specification, ID Px (Accessory Enclosed) = PB
When using the weather protection cover: Reduce the values T_a of P1, P2, P3 by 16 K.

Zone 0, Zone 1



3.12.1 Electronics FEL61, (020 = A1)

Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
E,R	M	180 mA	T6	-60	63	68	63	80	62	80	−40	-60	−40
			T5	-60	70	95	70	95	70	95	−40	-60	−40
			T4	-60	70	130	70	130	70	130	−40	-60	−40
			T3	-60	70	195	70	195	70	195	−40	-60	−40
			T2… T1	-60	70	230	70	230	70	230	−40	-60	−40
		350 mA	T6	-60	37	57	37	80	36	80	−40	-60	−40
			T5	-60	52	72	52	95	51	95	−40	-60	−40
			T4	-60	69	69	69	130	66	130	−40	-60	−40
			T3	-60	69	69	69	195	63	195	−40	-60	−40
			T2… T1	-60	69	69	69	230	61	230	−40	-60	−40

Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
D,9	M	180 mA	T6	-60	63	70	63	80	60	80	−40	-60	−40
			T5	-60	70	95	70	95	70	95	−40	-60	−40
			T4	-60	70	130	70	130	70	130	−40	-60	−40
			T3	-60	70	195	70	195	70	195	−40	-60	−40
			T2	-60	70	280	70	280 290[1)]	70	280 290[1)]	−40	-60	−40
			T1	-60	70	280	70	280 300[1)]	67	280 300[1)]	−40	-60	−40
		350 mA	T6	-60	37	58	37	80	36	80	−40	-60	−40
			T5	-60	52	73	52	95	51	95	−40	-60	−40

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Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
			T4	-60	69	69	69	130	66	130	−40	-60	−40
			T3	-60	69	69	69	195	63	195	−40	-60	−40
			T2	-60	69	69	69	280 290[1)]	62	280 290[1)]	−40	-60	−40
			T1	-60	69	69	69	280 300[1)]	59	280 300[1)]	−40	-60	−40

1) Only in connection with specification 060 (Application) = 9 (300°C)

3.12.2 Electronics FEL62, (020 = A2)

Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
E,R	M	350 mA	T6	-60	54	71	54	80	53	80	−40	-60	−40
			T5	-60	69	86	69	95	68	95	−40	-60	−40
			T4	-60	70	130	70	130	70	130	−40	-60	−40
			T3	-60	70	133	70	195	67	195	−40	-60	−40
			T2… T1	-60	70	133	70	230	65	230	−40	-60	−40

Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
D,9	M	350 mA	T6	-60	54	77	54	80	53	80	−40	-60	−40
			T5	-60	69	70	69[)]	95	68	95	−40	-60	−40
			T4	-60	70	130	70	130	70	130	−40	-60	−40
			T3	-60	70	154	70	195	68	195	−40	-60	−40
			T2	-60	70	154	70	280 290[1)]	65	280 290[1)]	−40	-60	−40
			T1	-60	70	154	70	280 300[1)]	65	280 300[1)]	−40	-60	−40

1) Only in connection with specification 060 (Application) = 9 (300°C)

3.12.3 Electronics FEL64, (020 = A3, A4)

Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
E,R	M	2 A	T6	-60	55	61	55	80	54	80	−40	-60	−40
			T5	-60	70	76	70	95	69	95	−40	-60	−40

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Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
			T4	-60	70	130	70	130	70	130	−40	-60	−40
			T3	-60	70	176	70	195	69	195	−40	-60	−40
			T2… T1	-60	70	176	70	230	67	230	−40	-60	−40
		4 A	T6	-60	45	66	45	80	44	80	−40	-60	−40
			T5	-60	60	81	60	95	59	95	−40	-60	−40
			T4	-60	70	124	70	130	69	130	−40	-60	−40
			T3	-60	70	124	70	195	66	195	−40	-60	−40
			T2… T1	-60	70	124	70	230	65	230	−40	-60	−40

Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
D,9	M	2 A	T6	-60	55	62	55	80	54	80	−40	-60	−40
			T5	-60	70	77	70	95	69	95	−40	-60	−40
			T4	-60	70	130	70	130	70	130	−40	-60	−40
			T3	-60	70	195	70	195	70	195	−40	-60	−40
			T2	-60	70	208	70	280 290[1)]	67	280 290[1)]	−40	-60	−40
			T1	-60	70	208	70	280 300[1)]	66	280 300[1)]	−40	-60	−40
		4 A	T6	-60	45	73	45	80	44	80	−40	-60	−40
			T5	-60	60	88	60	95	59	95	−40	-60	−40
			T4	-60	70	130	70	130	70	130	−40	-60	−40
			T3	-60	70	142	70	195	68	195	−40	-60	−40
			T2	-60	70[)]	142	70	280 290[1)]	65	280 290[1)]	−40	-60	−40
			T1	-60	70	142	70	280 300[1)]	64	280 300[1)]	−40	-60	−40

1) Only in connection with specification 060 (Application) = 9 (300°C)

3.12.4 Electronics FEL67, FEL68, (020 = A7, A8)

Application 060 =	Housing; Material 040=		Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
E,R	M		T6	-60	70	80	70	80	70	80	−40	-60	−40
			T5	-60	70 65 [1)]	95	70 65 [1)]	95	70	95	−40	-60	−40

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Application 060 =	Housing; Material 040=		Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
			T4	-60	70 65 1)	130	70 65 1)	130	70	130	−40	-60	−40
			T3	-60	70 65 1)	195	70 65 1)	195	70	195	−40	-60	−40
			T2… T1	-60	70 65 1)	200	70 65 1)	230	67	230	−40	-60	−40

5) Only in connection with Optional specification; ID (Output) = A8, and ID Nx, Ox (Accessory Mounted) = NG

Application 060 =	Housing; Material 040=		Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
D,9	M		T6	-60	70	80	70	80	70	80	−40	-60	−40
			T5	-60	70 65 1)	95	70 65 1)	95	70	95	−40	-60	−40
			T4	-60	70 65 1)	130	70 65 1)	130	70	130	−40	-60	−40
			T3	-60	70 65 1)	195	70 65 1)	195	70	195	−40	-60	−40
			T2	-60	70 65 1)	230	70 65 1)	280 290 2)	69	280 290 2)	−40	-60	−40
			T1	-60	70 65 1)	279	70 65 1)	280 300 2)	68	280 300 2)	−40	-60	−40

6) Only in connection with Optional specification; ID (Output) = A8, and ID Nx, Ox (Accessory Mounted) = NG
7) Only in connection with specification 060 (Application) = 9 (300°C)

3.12.5 Electronics FEL60D, (020 = GA)

Application 060 =	Housing; Material 040=	Temp. class	P1		P2		P3		P4		P5	
			T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
D,E,R,9	M	T6…T1	-60	70	70	70	75	70	80	−40	-60	−40

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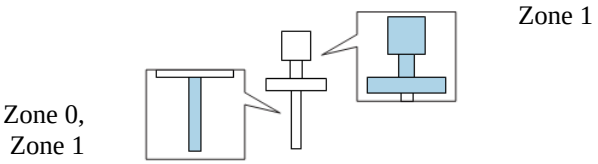
3.13 Device FTL64-BK, Ex ia IIC / IIIC, XA02034F-x

Optional specification, ID Px (Accessory Enclosed) = PB
When using the weather protection cover: Reduce the values T_a of P1, P2, P3 by 16 K.

Zone 0, Zone 1



3.13.1 Electronics Gas FEL67, (020 = A7)

Application 060 = E,R	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_p	T_a	T_p	T_a	T_p
	T6 1)	-60	70 65 2)	77	70 65 2)	80	70	80	−40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T5 1)	-60	70 65 2)	95	70 65 2)	95	70	95	−40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T4	-60	70 65 2)	130	70 65 2)	130	70	130	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T3	-60	70 65 2)	195	70 65 2)	195	70	195	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T2...T1	-60	70 65 2)	206	70 65 2)	230	68	230	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)

Application 060 = D,9	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_p	T_a	T_p	T_a	T_p
	T6 1)	-60	70 65 2)	80	70 65 2)	80	70	80	−40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T5 1)	-60	70 65 2)	95	70 65 2)	95	70	95	−40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T4	-60	70 65 2)	130	70 65 2)	130	70	130	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T3	-60	70 65 2)	195	70 65 2)	195	70	195	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T2	-60	70 65 2)	270	70 65 2)	280 290 5)	68	280 290 5)	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T1	-60	70 65 2)	270	70 65 2)	280 300 5)	68	280 300 5)	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)

1) Optional specification; ID (Output) = A8, and Optional specification, ID Nx, Ox (Accessory Mounted) = NG: Only valid for T4...T1
2) Only in connection with Optional specification; ID (Output) = A8, and ID Nx, Ox (Accessory Mounted) = NG
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
4) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
5) Only in connection with specification ID (Application) = 9 special version, and only for max. 50 cumulative hours

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3.13.2 Electronics FEL68, (020 = A8)

Application 060 = E,R	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_p	T_a	T_p	T_a	T_p
	T6 1)	-60	70 65 2)	80	70 65 2)	80	70	80	−40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T5 1)	-60	70 65 2)	95	70 65 2)	95	70	95	−40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T4	-60	70 65 2)	130	70 65 2)	130	70	130	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T3	-60	70 65 2)	195	70 65 2)	195	70	195	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T2...T1	-60	70 65 2)	230	70 65 2)	230	68	230	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)

Application 060 = D,9	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_p	T_a	T_p	T_a	T_p
	T6 1)	-60	70 65 2)	80	70 65 2)	80	70	80	−40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T5 1)	-60	70 65 2)	95	70 65 2)	95	70	95	−40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T4	-60	70 65 2)	130	70 65 2)	130	70	130	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T3	-60	70 65 2)	195	70 65 2)	195	70	195	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T2	-60	70 65 2)	280	70 65 2)	280 290 5)	70	280 290 5)	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T1	-60	70 65 2)	280	70 65 2)	280 300 5)	70	280 300 5)	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)

1) Optional specification; ID (Output) = A8, and Optional specification, ID Nx, Ox (Accessory Mounted) = NG: Only valid for T4...T1
2) Only in connection with Optional specification; ID (Output) = A8, and ID Nx, Ox (Accessory Mounted) = NG
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
4) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
5) Only in connection with specification ID (Application) = 9 special version, and only for max. 50 cumulative hours

3.13.3 Electronics FEL60D, (020 = GA)

Application 060 = E,R	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_p	T_a	T_p	T_a	T_p
	T6 1)	-60	62	63	62	80	60	80	−40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T5 1)	-60	70 65 2)	95	70 65 2)	95	70	95	−40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T4	-60	70 65 2)	130	70 65 2)	130	70	130	-40 -50 3)	-60	-40 -50 3)

									-52 4)		-52 4)
	T3	-60	70 65 2)	195	70 65 2)	195	70	195	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T2...T1	-60	70 65 2)	201	70 65 2)	230	68	230	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)

Application 060 = D,9	Temp. class	P1		P2		P3		P4		P5	
		T_p	T_a	T_p	T_a	T_p	T_p	T_a	T_p	T_a	T_p
	T6 1)	-60	62	64	62	80	61	80	−40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T5 1)	-60	70 65 2)	95	70 65 2)	95	70	95	−40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T4	-60	70 65 2)	130	70 65 2)	130	70	130	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T3	-60	70 65 2)	195	70 65 2)	195	70	195	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T2	-60	70 65 2)	261	70 65 2)	280 290 5)	68	280 290 5)	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)
	T1	-60	70 65 2)	261	70 65 2)	280 300 5)	68	280 300 5)	-40 -50 3) -52 4)	-60	-40 -50 3) -52 4)

1) Optional specification; ID (Output) = A8, and Optional specification, ID Nx, Ox (Accessory Mounted) = NG: Only valid for T4...T1
2) Only in connection with Optional specification; ID (Output) = A8, and ID Nx, Ox (Accessory Mounted) = NG
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
4) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
5) Only in connection with specification ID (Application) = 9 special version, and only for max. 50 cumulative hours

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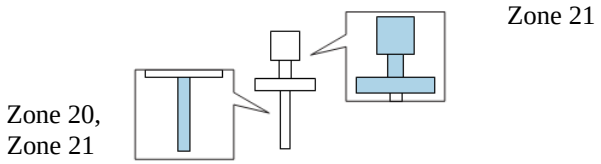
Optional specification, ID Px (Accessory Enclosed) = PB
When using the weather protection cover: Reduce the values T_a of P1, P2, P3 by 16 K.

Zone 20, Zone 21



3.13.4 Electronics Dust FEL67, FEL68, FEL60D (020 = A7, A8, GA) Zone 20/21

060 Application: E,R		
Process temperature range	Ambient temperature range	Maximum surface temperature
-60 °C <= Tp <= 230 °C[1)]	-52/-50/-40 °C ≤ Ta ≤ 60 °C	Zone 20 Da: T_{200} -45 °C … T_{200}245 °C[2)] Zone 21 Db: T_L-55 °C… T_L235 °C[3)]

060 Application: D,9		
Process temperature range	Ambient temperature range	Maximum surface temperature
-60 °C <= Tp <= 280 °C -60 °C <= Tp <= 300 °C[4)]	-52/-50/-40 °C ≤ Ta ≤ 60 °C	Zone 20 Da: T_{200} -45 °C … T_{200}295 °C[2)] Zone 21 Db: T_L-55 °C… T_L305 °C[3)]

1) Position 9 (Surface Refinement)=R (PFA conductive), Tp max.230°C
2) Under dust submersion >= 200 mm : T_{200}
3) Under maximum dust layer accumulation on the device: TL
4) Position 8 (Application) = 9 = Tp max:300 °C

3.13.5 Electronics Dust FEL67, FEL68, FEL60D (020 = A7, A8, GA) Zone 21

060 Application: E,R		
Process temperature range	Ambient temperature range	Maximum surface temperature
-60 °C <= Tp <= 230 °C	-52[3)]/-50[2)]/-40 °C ≤ Ta ≤ 60 °C	Zone 21 Db: T_L -55 °C … T_L 235 °C[4)]

060 Application: D,9		
Process temperature range	Ambient temperature range	Maximum surface temperature
-60 °C <= Tp <= 280 °C -60 °C <= Tp <= 300 °C[1)]	-52[3)]/-50[2)]/-40 °C ≤ Ta ≤ 60 °C	Zone 21 Db: T_L -45 °C … T_L 285 °C[4)] Zone 21 Db: T_L -45 °C … T_L 305 °C[1)4)]

1) Position 8 =9 (300°C)
2) Only in connection with Optional specification, ID Jx, Kx = JL
3) Only in connection with Optional specification, ID Jx, Kx = JN
4) With dust accumulation T_L

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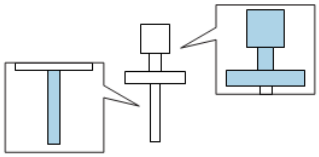
3.14 Device FTL64-BL, Ex ec, XA02035F-x

Optional specification, ID Px (Accessory Enclosed) = PB
When using the weather protection cover: Reduce the values T_a of P1, P2, P3 by 16 K.

Zone 2



3.14.1 Gas Electronics Gas FEL62, (020 = A2)

Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
E,R	B,C	350 mA	T6	-60	52	65	52	80	51	80	−40	-60	-40
			T5	-60	67	80	67	95	66	95	−40	-60	-40
			T4	-60	67	82	67	130	64	130	−40	-60	-40
			T3	-60	67	82	67	195	60	195	−40	-60	-40
			T2… T1	-60	67	82	67	230	58	230	−40	-60	-40
E,R	M	350 mA	T6	-60	55	55	55	80	53	80	−40	-60	-40
			T5	-60	70	70	70	95	68	95	−40	-60	-40
			T4	-60	70	130	70	130	70	130	−40	-60	-40
			T3	-60	70	133	70	195	67	195	−40	-60	-40
			T2… T1	-60	70	133	70	230	65	230	−40	-60	-40

Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
D,9	B,C	350 mA	T6	-60	52	71	52	80	51	80	−40	-60	-40
			T5	-60	67	86	67	95	66	95	−40	-60	-40
			T4	-60	67	87	67	130	65	130	−40	-60	-40
			T3	-60	67	87	67	195	62	195	−40	-60	-40
			T2	-60	67	87	67	280 290[1)]	58	280 290[1)]	−40	-60	-40
			T1	-60	67	87	67	280 300[1)]	58	280 300[1)]	−40	-60	-40
D,9	M	350 mA	T6	-60	55	56	55	80	54	80	−40	-60	-40
			T5	-60	70	71	70	95	69	95	−40	-60	-40

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Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
			T4	-60	70	130	70	130	70	130	−40	-60	-40
			T3	-60	70	154	70	195	68	195	−40	-60	-40
			T2	-60	70	154	70	280 290[1)]	65	280 290[1)]	−40	-60	-40
			T1	-60	70	154	70	280 300[1)]	65	280 300[1)]	−40	-60	-40

1) Only in connection with specification 060 (Application) = 9 (300°C)

3.14.2 Gas Electronics Gas FEL64, (020 = A3, A4)

Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
E,R	B,C	2 A	T6	-60	52	60	52	80	50	80	−40	-60	-40
			T5	-60	67	75	67	95	65	95	−40	-60	-40
			T4	-60	70	118	70	130	69	130	−40	-60	-40
			T3	-60	70	118	70	195	64	195	−40	-60	-40
			T2… T1	-60	70	118	70	230	61	230	−40	-60	-40
		4 A	T6	-60	43	58	43	80	41	80	−40	-60	-40
			T5	-60	58	73	58	95	56	95	−40	-60	-40
			T4	-60	70	80	70	130	67	130	−40	-60	-40
			T3	-60	70	80	70	195	63	195	−40	-60	-40
			T2… T1	-60	70	80	70	230	59	230	−40	-60	-40
E,R	M	2 A	T6	-60	55	61	55	80	54	80	−40	-60	-40
			T5	-60	70	76	70	95	69	95	−40	-60	-40
			T4	-60	70	130	70	130	70	130	−40	-60	-40
			T3	-60	70	176	70	195	69	195	−40	-60	-40
			T2… T1	-60	70	176	70	230	67	230	−40	-60	-40
		4 A	T6	-60	45	66	45	80	44	80	−40	-60	-40
			T5	-60	60	81	60	95	59	95	−40	-60	-40
			T4	-60	70	124	70	130	69	130	−40	-60	-40
			T3	-60	70	124	70	195	66	195	−40	-60	-40

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ANNEX 1 TO TECHNICAL DESCRIPTION 961003139: TEMPERATURE DERATING TABLES OF LIQUIPHANT

Liquiphant IECEx / ATEX / CSA

Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
			T2... T1	-60	70	124	70	230	65	230	−40	-60	-40

Application 060 =	Housing; Material 040=	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
D,9	B,C	2 A	T6	-60	52	64	52	80	51	80	−40	-60	-40
			T5	-60	67	79	67	95	66	95	−40	-60	-40
			T4	-60	70	130	70	130	70	130	−40	-60	-40
			T3	-60	70	139	70	195	67	195	−40	-60	-40
			T2	-60	70	139	70	280 290[1)]	63	280 290[1)]	−40	-60	-40
			T1	-60	70	139	70	280 300[1)]	63	280 300[1)]	−40	-60	-40
		4 A	T6	-60	43	66	43	80	42	80	−40	-60	-40
			T5	-60	58	80	58	95	57	95	−40	-60	-40
			T4	-60	70	85	70	130	68	130	−40	-60	-40
			T3	-60	70	85	70	195	65	195	−40	-60	-40
			T2	-60	70	85	70	280 290[1)]	61	280 290[1)]	−40	-60	-40
			T1	-60	70	85	70	280 300[1)]	60	280 300[1)]	−40	-60	-40
D,9	M	2 A	T6	-60	55	62	55	80	54	80	−40	-60	-40
			T5	-60	70	77	70	95	69	95	−40	-60	-40
			T4	-60	70	130	70	130	70	130	−40	-60	-40
			T3	-60	70	195	70	195	70	195	−40	-60	-40
			T2	-60	70	208	70	280 290[1)]	67	280 290[1)]	−40	-60	-40
			T1	-60	70	208	70	280 300[1)]	66	280 300[1)]	−40	-60	-40
		4 A	T6	-60	45	73	45	80	44	80	−40	-60	-40
			T5	-60	60	88	60	95	59	95	−40	-60	-40
			T4	-60	70	130	70	130	70	130	−40	-60	-40
			T3	-60	70	142	70	195	68	195	−40	-60	-40
			T2	-60	70	142	70	280 290[1)]	65	280 290[1)]	−40	-60	-40
			T1	-60	70	142	70	280 300[1)]	64	280 300[1)]	−40	-60	-40

1) Only in connection with specification 060 (Application) = 9 (300°C)

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3.14.3 Gas Electronics Gas FEL67, FEL68, (020 = A7, A8)

Application 060 =	Housing; Material 040=		Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
E,R	B,C,M		T6	-60	70	80	70	80	70	80	−40	-60	-40
			T5	-60	70	95	70	95	70	95	−40	-60	-40
			T4	-60	70	130	70	130	70	130	−40	-60	-40
			T3	-60	70	195	70	195	70	195	−40	-60	-40
			T2… T1	-60	70	200	70	230	67	230	−40	-60	-40

1) Only in connection with Optional specification; ID (Output) = A8, and ID Nx, Ox (Accessory Mounted) = NG

Application 060 =	Housing; Material 040=		Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
D,9	B,C,M		T6	-60	70	80	70	80	70	80	−40	-60	-40
			T5	-60	70	95	70	95	70	95	−40	-60	-40
			T4	-60	70	130	70	130	70	130	−40	-60	-40
			T3	-60	70	195	70	195	70	195	−40	-60	-40
			T2	-60	70	230	70	280 290[1)]	69	280 290[1)]	−40	-60	-40
			T1	-60	70	279	70	280 300[1)]	68	280 300[1)]	−40	-60	-40

1) Only in connection with specification 060 (Application) = 9 (300°C)

3.14.4 Gas Electronics Gas FEL60D, (020 = GA)

Application 060 =	Housing; Material 040=	Temp. class	P1		P2		P3		P4		P5	
			T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
D,E,R,9	B,C,M	T6…T1	-60	70	70	70	75	70	80	−40	-60	−40

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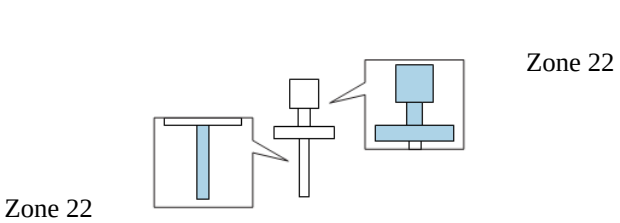

3.14.5 Dust Electronics Dust FEL62, (020 = A2)

E,R			Process temperature Range	Ambient Temperature Range	Maximum surface Temperature
		350 mA	-60 °C ≤ Tp ≤ 80 °C	-40 °C ≤ Ta ≤ 60 °C	Zone 22 Dc: T-40 °C...T80 °C
			-60 °C ≤ Tp ≤ 95 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 22 Dc: T-40 °C...T95 °C
			-60 °C ≤ Tp ≤ 130°C	-40 °C ≤ Ta ≤ 70 °C	Zone 22 Dc: T-40 °C...T130 °C
			-60 °C ≤ Tp ≤ 195 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 22 Dc: T-40 °C...T195 °C
			-60 °C ≤ Tp ≤ 230 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 22 Dc: T-40 °C...T230 °C

D,9			Process temperature Range	Ambient Temperature Range	Maximum surface Temperature
		350 mA	-60 °C ≤ Tp ≤ 95 °C	-40 °C ≤ Ta ≤ 60 °C	Zone 22 Dc: T-40 °C...T95 °C
			-60 °C ≤ Tp ≤ 130°C	-40 °C ≤ Ta ≤ 70 °C	Zone 22 Dc: T-40 °C...T130 °C
			-60 °C ≤ Tp ≤ 195 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 22 Dc: T-40 °C...T195 °C
			-60 °C ≤ Tp ≤ 280 °C -60 °C ≤ Tp ≤ 290 °C[1)]	-40 °C ≤ Ta ≤ 70 °C	Zone 22 Dc: T-40 °C...T280 °C Zone 22 Dc: T-40 °C...T290 °C[1)]
			-60 °C ≤ Tp ≤ 300 °C[1)]	-40 °C ≤ Ta ≤ 70 °C	Zone 22 Dc: T-40 °C...T300 °C[1)]

1) Position 8 (Application)= 9 (Special version), Tp max300 °C

3.14.6 Dust Electronics Dust FEL64, (020 = A3, A4)

E,R			Process temperature Range	Ambient Temperature Range	Maximum surface Temperature
		2 A/ 4 A /6 A	-60 °C ≤ Tp ≤ 80 °C	-40 °C ≤ Ta ≤ 60 °C	Zone 22Dc: T-40 °C...T80 °C
			-60 °C ≤ Tp ≤ 95 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 22Dc: T-40 °C...T95 °C
			-60 °C ≤ Tp ≤ 130 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 22Dc: T-40 °C...T130 °C

			-60 °C ≤ Tp ≤ 195 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 22Dc: T-40 °C...T195 °C
			-60 °C ≤ Tp ≤ 230 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 22Dc: T-40 °C...T230 °C

D,9			Process temperature Range	Ambient Temperature Range	Maximum surface Temperature
		2 A/ 4 A /6 A	-60 °C ≤ Tp ≤ 80 °C	-40 °C ≤ Ta ≤ 60 °C	Zone 22Dc: T-40 °C...T80 °C
			-60 °C ≤ Tp ≤ 95 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 22Dc: T-40 °C...T95 °C
			-60 °C ≤ Tp ≤ 130 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 22Dc: T-40 °C...T130 °C
			-60 °C ≤ Tp ≤ 195 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 22Dc: T-40 °C...T195 °C
			-60 °C ≤ Tp ≤ 280 °C -60 °C ≤ Tp ≤ 290 °C[1)]	-40 °C ≤ Ta ≤ 70 °C	Zone 22Dc: T-40 °C...T280 °C Zone 22Dc: T-40 °C...T290 °C[1)]
			-60 °C ≤ Tp ≤ 280 °C -60 °C ≤ Tp ≤ 300 °C[1)]	-40 °C ≤ Ta ≤ 70 °C	Zone 22Dc: T-40 °C...T280 °C Zone 22Dc: T-40 °C...T300 °C[1)]

1) Position 8 (Application)= 9 (Special Version), Tp max. 300 °C

3.14.7 Dust Electronics Dust FEL67, FEL68, FEL60D (020 = A7, A8, GA)

E,R			Process temperature Range	Ambient Temperature Range	Maximum surface Temperature
			-60 °C ≤ Tp ≤ 80 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 22Dc: T-40 °C...T80 °C
			-60 °C ≤ Tp ≤ 95 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 22Dc: T-40 °C...T95 °C
			-60 °C ≤ Tp ≤ 130 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 22Dc: T-40 °C...T130 °C
			-60 °C ≤ Tp ≤ 195 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 22Dc: T-40 °C...T195 °C
			-60 °C ≤ Tp ≤ 230 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 22Dc: T-40 °C...T230 °C

D,9			Process temperature Range	Ambient Temperature Range	Maximum surface Temperature
			-60 °C ≤ Tp ≤ 80 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 22Dc: T-40 °C...T80 °C
			-60 °C ≤ Tp ≤ 95 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 22Dc: T-40 °C...T95 °C
			-60 °C ≤ Tp ≤ 130 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 22Dc: T-40 °C...T130 °C
			-60 °C ≤ Tp ≤ 195 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 22Dc: T-40 °C...T195 °C
			-60 °C ≤ Tp ≤ 280 °C -60 °C ≤ Tp ≤ 290 °C[1)]	-40 °C ≤ Ta ≤ 70 °C	Zone 22Dc: T-40 °C...T280 °C Zone 22Dc: T-40 °C...T290 °C[1)]
			-60 °C ≤ Tp ≤ 280 °C -60 °C ≤ Tp ≤ 300 °C[1)]	-40 °C ≤ Ta ≤ 70 °C	Zone 22Dc: T-40 °C...T280 °C Zone 22Dc: T-40 °C...T300 °C[1)]

1) Position 8 (Application)= 9 (Special Version), Tp max. 300 °C

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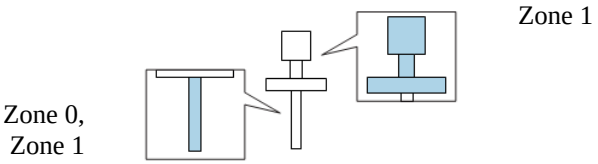
3.15 Device FTL64-BM, Ex db / Ex ta/tb, XA02036F-x

Optional specification, ID Px (Accessory Enclosed) = PB
When using the weather protection cover: Reduce the values T_a of P1, P2, P3 by 16 K.

Zone 0, Zone 1



3.15.1 Electronics Gas FEL61, (020 = A1)

060 = Application	040= Housing; Material	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
E,R	B,C	180 mA	T6	-60	61	69	61	80	60	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	70	95	70	95	70	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	70	130	70	130	70	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	70	193	70)	195	69	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2… T1	-60	70	193	70	230	65	230	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
		350 mA	T6	-60	37	57	37	80	36	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	52	72	52	95	51	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	69	69	69	130	66	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	69	69	69	195	63	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2… T1	-60	69	69	69	230	61	230	-40 -50 1) -52 3 -60 3)	-60	-40 -50 1) -52 2) -60 3)

1) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
2) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT

ANNEX 1 TO TECHNICAL DESCRIPTION 961003139: TEMPERATURE DERATING TABLES OF LIQUIPHANT

Liquiphant IECEx / ATEX / CSA

060 = Application	040= Housing; Material	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
D,9	B,C	180 mA	T6	-60	61	72	61	80	60	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	70	95	70	95	70	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	70	130	70	130	70	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	70	195	70	195	70	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2	-60	70	230	70	280 290 4)	67	280 290 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T1	-60	70	230	70	280 300 4)	67	280 300 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
		350 mA	T6	-60	37	58	37	80	36	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	52	73	52	95	51	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	69	69	69	130	66	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	69	69	69	195	63	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2	-60	69	69	69	280 290 4)	59	280 290 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T1	-60	69	69	69	280 300 4)	59	280 300 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)

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3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT
4) Only in connection with specification 060 (Application) = 9 (300°C)

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ANNEX 1 TO TECHNICAL DESCRIPTION 961003139: TEMPERATURE DERATING TABLES OF LIQUIPHANT

Liquiphant IECEx / ATEX / CSA

060 = Application	040= Housing; Material	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
E,R	M	180 mA	T6	-60	63	68	63	80	62	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	70	95	70	95	70	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	70	130	70	130	70	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	70	195	70	195	70	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2…T1	-60	70	230	70	230	70	230	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
		350 mA	T6	-60	37	57	37	80	36	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	52	72	52	95	51	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	69	69	69	130	66	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	69	69	69	195	63	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2…T1	-60	69	69	69	230	61	230	-40 -50 1) -52 3 -60 3)	-60	-40 -50 1) -52 2) -60 3)

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060 = Application	040= Housing; Material	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
D,9	M	180 mA	T6	-60	63	70	63	80	60	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	70	95	70	95	70	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	70	130	70	130	70	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)

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ANNEX 1 TO TECHNICAL DESCRIPTION 961003139: TEMPERATURE DERATING TABLES OF LIQUIPHANT

Liquiphant IECEx / ATEX / CSA

060 = Application	040= Housing; Material	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
			T3	-60	70	195	70	195	70	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2	-60	70	280	70	280 290 4)	70	280 290 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T1	-60	70	280	70	280 300 4)	67	280 300 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
		350 mA	T6	-60	37	58	37	80	36	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	52	73	52	95	51	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	69	69	69	130	66	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	69	69	69	195	63	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2	-60	69	69	69	280 290 4)	62	280 290 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T1	-60	69	69	69	280 300 4)	59	280 300 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)

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4) Only in connection with specification 060 (Application) = 9 (300°C)

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3.15.2 Electronics Gas FEL62, (020 = A2)

060 = Application	040= Housing; Material	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
E,R	B,C	350 mA	T6	-60	55	55	55	80	53	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	70	70	70	95	68	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	70	102	70	130	68	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	70)	102	70	195	64	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2… T1	-60	70	102	70	230	62	230	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)

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3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT

060 = Application	040= Housing; Material	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
D,9	B,C	350 mA	T6	-60	55	56	55	80	54	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	70	71	70	95	69	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	70	112	70	130	69	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	70	112	70	195	66	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2	-60	70	112	70	280 290 4)	62	280 290 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T1	-60	70	112	70	280 300 4)	62	280 300 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)

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4) Only in connection with specification 060 (Application) = 9 (300°C)

ANNEX 1 TO TECHNICAL DESCRIPTION 961003139: TEMPERATURE DERATING TABLES OF LIQUIPHANT

Liquiphant IECEx / ATEX / CSA

060 = Application	040= Housing; Material	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
E,R	M	350 mA	T6	-60	54	71	54	80	53	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	69	86	69	95	68	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	70	130	70	130	70	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	70	133	70	195	67	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2… T1	-60	70	133	70	230	65	230	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)

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3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT

060 = Application	040= Housing; Material	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
D,9	M	350 mA	T6	-60	54	77	54	80	53	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	69	70	69)	95	68	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	70	130	70	130	70	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	70	154	70	195	68	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2	-60	70	154	70	280 290 4)	65	280 290 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T1	-60	70	154	70	280 300 4)	65	280 300 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)

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3.15.3 Electronics Gas FEL64, (020 = A3, A4)

060 = Application	040= Housing; Material	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
E,R	B,C	2 A	T6	-60	52	53	52	80	50	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	67	68	67	95	65	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	70	110	70	130	68	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	70	110	70	195	65	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2… T1	-60	70	110	70	230	63	230	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
		4 A	T6	-60	42	51	42	80	40	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	57	66	57	95	55	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	69	78	69	130	66	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	69	78	69	195	62	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2… T1	-60	69	78	69	230	60	230	-40 -50 1) -52 3 -60 3)	-60	-40 -50 1) -52 2) -60 3)

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060 = Application	040= Housing; Material	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
D,9	B,C	2 A	T6	-60	52	53	52	80	50	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	67	68	67	95	65	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)

ANNEX 1 TO TECHNICAL DESCRIPTION 961003139: TEMPERATURE DERATING TABLES OF LIQUIPHANT

Liquiphant IECEx / ATEX / CSA

060 = Application	040= Housing; Material	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
			T4	-60	70	122	70	130	69	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	70	122	70	195	66	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2	-60	70	122	70	280 290 4)	63	280 290 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T1	-60	70	122	70	280 300 4)	62	280 300 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
		4 A	T6	-60	42	54	42	80	40	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	57	69	57	95	55	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	69	81	69	130	66	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	69	81	69	195	64	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2	-60	69	81	69	280 290 4)	60	280 290 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T1	-60	69)	81	69	280 300 4)	59	280 300 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)

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4) Only in connection with specification 060 (Application) = 9 (300°C)

060 = Application	040= Housing; Material	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
E,R	M	2 A	T6	-60	55	61	55	80	54	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	70	76	70	95	69	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)

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Liquiphant IECEx / ATEX / CSA

060 = Application	040= Housing; Material	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
			T4	-60	70	130	70	130	70	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	70	176	70	195	69	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2… T1	-60	70	176	70	230	67	230	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
		4 A	T6	-60	45	66	45	80	44	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	60	81	60	95	59	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	70	124	70	130	69	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	70	124	70	195	66	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2… T1	-60	70	124	70	230	65	230	-40 -50 1) -52 3 -60 3)	-60	-40 -50 1) -52 2) -60 3)

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060 = Application	040= Housing; Material	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
D,9	M	2 A	T6	-60	55	62	55	80	54	80	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T5	-60	70	77	70	95	69	95	−40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T4	-60	70	130	70	130	70	130	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T3	-60	70	195	70	195	70	195	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)
			T2	-60	70	208	70	280 290 4)	67	280 290 4)	-40 -50 1) -52 2) -60 3)	-60	-40 -50 1) -52 2) -60 3)

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ANNEX 1 TO TECHNICAL DESCRIPTION 961003139: TEMPERATURE DERATING TABLES OF LIQUIPHANT

Liquiphant IECEx / ATEX / CSA

060 = Application	040= Housing; Material	Max Current	Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
			T1	-60	70	208	70	280 300[4)]	66	280 300[4)]	-40 -50 [1)] -52 [2)] -60 [3)]	-60	-40 -50 [1)] -52 [2)] -60 [3)]
		4 A	T6	-60	45	73	45	80	44	80	−40 -50 [1)] -52 [2)] -60 [3)]	-60	-40 -50 [1)] -52 [2)] -60 [3)]
			T5	-60	60	88	60	95	59	95	−40 -50 [1)] -52 [2)] -60 [3)]	-60	-40 -50 [1)] -52 [2)] -60 [3)]
			T4	-60	70	130	70	130	70	130	-40 -50 [1)] -52 [2)] -60 [3)]	-60	-40 -50 [1)] -52 [2)] -60 [3)]
			T3	-60	70	142	70	195	68	195	-40 -50 [1)] -52 [2)] -60 [3)]	-60	-40 -50 [1)] -52 [2)] -60 [3)]
			T2	-60	70[)]	142	70	280 290[4)]	65	280 290[4)]	-40 -50 [1)] -52 [2)] -60 [3)]	-60	-40 -50 [1)] -52 [2)] -60 [3)]
			T1	-60	70	142	70	280 300[4)]	64	280 300[4)]	-40 -50 [1)] -52 [2)] -60 [3)]	-60	-40 -50 [1)] -52 [2)] -60 [3)]

1) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
2) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT
4) Only in connection with specification 060 (Application) = 9 (300°C)

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3.15.4 Electronics Gas FEL67, FEL68 (020 = A7, A8)

060 = Application	040= Housing; Material		Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
E,R	B,C,M		T6	-60	70	80	70	80	70	80	-40 -50 1) -52 2) -60 2)	-60	-40 -50 1) -52 2) -60 2)
			T5	-60	70	95	70	95	70	95	-40 -50 1) -52 2) -60 2)	-60	-40 -50 1) -52 2) -60 2)
			T4	-60	70	130	70	130	70	130	-40 -50 1) -52 2) -60 2)	-60	-40 -50 1) -52 2) -60 2)
			T3	-60	70	195	70	195	70	195	-40 -50 1) -52 2) -60 2)	-60	-40 -50 1) -52 2) -60 2)
			T2… T1	-60	70	200	70	230	67	230	-40 -50 1) -52 2) -60 2)	-60	-40 -50 1) -52 2) -60 2)

1) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
2) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT

060 = Application	040= Housing; Material		Temp. class	P1		P2		P3		P4		P5	
				T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
D,9	B,C,M		T6	-60	70	80	70	80	70	80	-40 -50 1) -52 2) -60 2)	-60	-40 -50 1) -52 2) -60 2)
			T5	-60	70	95	70	95	70	95	-40 -50 1) -52 2) -60 2)	-60	-40 -50 1) -52 2) -60 2)
			T4	-60	70	130	70	130	70	130	-40 -50 1) -52 2) -60 2)	-60	-40 -50 1) -52 2) -60 2)
			T3	-60	70	195	70	195	70	195	-40 -50 1) -52 2) -60 2)	-60	-40 -50 1) -52 2) -60 2)
			T2	-60	70	230	70	280 290 5)	69	280 290 5)	-40 -50 1) -52 2) -60 2)	-60	-40 -50 1) -52 2) -60 2)
			T1	-60	70	279	70	280 300 5)	68	280 300 5)	-40 -50 1) -52 2) -60 2)	-60	-40 -50 1) -52 2) -60 2)

1) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL
2) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JN
3) Only in connection with Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JT
4) Only in connection with specification 060 (Application) = 9 (300°C)

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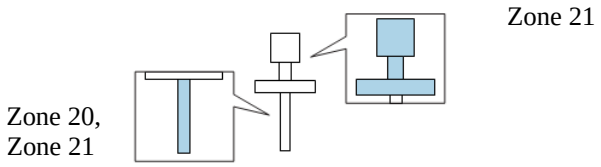
3.15.5 Electronics Gas FEL60D, (020 = GA)

060 = Application	040= Housing; Material	Temp. class	P1		P2		P3		P4		P5	
			T_p	T_a	T_p	T_a	T_p	T_p	T_p	T_a	T_p	T_a
D,E,R,9	B,C,M	T6...T1	-60	70	70	70	75	70	80	−40	-60	−40

Optional specification, ID Px (Accessory Enclosed) = PB
When using the weather protection cover: Reduce the values T_a by 16 K.

Zone 20, Zone 21



3.15.6 Electronics Dust FEL61, (020 = A1)

060= Application E,R	600= Sensor design	Max Current	Process temperature Range	Ambient Temperature Range	Maximum surface Temperature
		150 mA	-60 °C ≤ Tp ≤ 80 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T80 °C
			-60 °C ≤ Tp ≤ 95 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T95 °C
			-60 °C ≤ Tp ≤ 130°C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T130 °C
			-60 °C ≤ Tp ≤ 195 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T195 °C
			-60 °C ≤ Tp ≤ 230 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T230 °C
		350 mA	-60 °C ≤ Tp ≤ 95 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T95 °C
			-60 °C ≤ Tp ≤ 130°C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T130 °C
			-60 °C ≤ Tp ≤ 195 °C	-40 °C ≤ Ta ≤ 67 °C	Zone 20/21 Da/Db: T-40 °C...T195 °C
			-60 °C ≤ Tp ≤ 230 °C	-40 °C ≤ Ta ≤ 66 °C	Zone 20/21 Da/Db: T-40 °C...T230 °C

060= Application D,9	600= Sensor design	Max Current	Process temperature Range	Ambient Temperature Range	Maximum surface Temperature
		150 mA	-60 °C ≤ Tp ≤ 80 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T80 °C
			-60 °C ≤ Tp ≤ 95 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T95 °C
			-60 °C ≤ Tp ≤ 130°C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T130 °C
			-60 °C ≤ Tp ≤ 195 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T195 °C
			-60 °C ≤ Tp ≤ 280 °C -60 °C ≤ Tp ≤ 290 °C1)	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T280 °C Zone 20/21 Da/Db: T-40 °C...T290 °C1)
			-60 °C ≤ Tp ≤ 300 °C1)	-40 °C ≤ Ta ≤ 65 °C	Zone 20/21 Da/Db: T-40 °C...T300 °C1)
		350 mA	-60 °C ≤ Tp ≤ 95 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T95 °C
			-60 °C ≤ Tp ≤ 130°C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T130 °C
			-60 °C ≤ Tp ≤ 195 °C	-40 °C ≤ Ta ≤ 69 °C	Zone 20/21 Da/Db: T-40 °C...T195 °C
			-60 °C ≤ Tp ≤ 280 °C -60 °C ≤ Tp ≤ 290 °C1)	-40 °C ≤ Ta ≤ 65 °C	Zone 20/21 Da/Db: T-40 °C...T280 °C Zone 20/21 Da/Db: T-40 °C...T290 °C1)
			-60 °C ≤ Tp ≤ 300 °C1)	-40 °C ≤ Ta ≤ 65 °C	Zone 20/21 Da/Db: T-40 °C...T300 °C1)

1) Position 8 (Application)= 9 (Special version), Tp max300 °C

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3.15.7 Electronics Dust FEL62, (020 = A2)

E,R			Process temperature Range	Ambient Temperature Range	Maximum surface Temperature
		350 mA	-60 °C ≤ Tp ≤ 80 °C	-40 °C ≤ Ta ≤ 60 °C	Zone 20/21 Da/Db: T-40 °C...T80 °C
			-60 °C ≤ Tp ≤ 95 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T95 °C
			-60 °C ≤ Tp ≤ 130°C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T130 °C
			-60 °C ≤ Tp ≤ 195 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T195 °C
			-60 °C ≤ Tp ≤ 230 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T230 °C

D,9			Process temperature Range	Ambient Temperature Range	Maximum surface Temperature
		350 mA	-60 °C ≤ Tp ≤ 95 °C	-40 °C ≤ Ta ≤ 60 °C	Zone 20/21 Da/Db: T-40 °C...T95 °C
			-60 °C ≤ Tp ≤ 130°C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T130 °C
			-60 °C ≤ Tp ≤ 195 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T195 °C
			-60 °C ≤ Tp ≤ 280 °C -60 °C ≤ Tp ≤ 290 °C[1)]	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T280 °C Zone 20/21 Da/Db: T-40 °C...T290 °C[1)]
			-60 °C ≤ Tp ≤ 300 °C[1)]	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T300 °C[1)]

1) Position 8 (Application)= 9 (Special version), Tp max300 °C

3.15.8 Electronics Dust FEL64, (020 = A3, A4)

E,R			Process temperature Range	Ambient Temperature Range	Maximum surface Temperature
		2 A/ 4 A /6 A	-60 °C ≤ Tp ≤ 80 °C	-40 °C ≤ Ta ≤ 60 °C	Zone 20/21 Da/Db: T-40 °C...T80 °C
			-60 °C ≤ Tp ≤ 95 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T95 °C
			-60 °C ≤ Tp ≤ 130 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T130 °C
			-60 °C ≤ Tp ≤ 195 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T195 °C
			-60 °C ≤ Tp ≤ 230 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T230 °C

D,9			Process temperature Range	Ambient Temperature Range	Maximum surface Temperature
		2 A/ 4 A /6 A	-60 °C ≤ Tp ≤ 80 °C	-40 °C ≤ Ta ≤ 60 °C	Zone 20/21 Da/Db: T-40 °C...T80 °C
			-60 °C ≤ Tp ≤ 95 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T95 °C
			-60 °C ≤ Tp ≤ 130 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T130 °C
			-60 °C ≤ Tp ≤ 195 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T195 °C
			-60 °C ≤ Tp ≤ 280 °C -60 °C ≤ Tp ≤ 290 °C[1)]	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T280 °C Zone 20/21 Da/Db: T-40 °C...T290 °C[1)]
			-60 °C ≤ Tp ≤ 280 °C -60 °C ≤ Tp ≤ 300 °C[1)]	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T280 °C Zone 20/21 Da/Db: T-40 °C...T300 °C[1)]

1) Position 8 (Application)= 9 (Special Version), Tp max. 300 °C

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3.15.9 Electronics Dust FEL67, FEL68, FEL60D (020 = A7, A8, GA)

E,R			Process temperature Range	Ambient Temperature Range	Maximum surface Temperature
			-60 °C ≤ Tp ≤ 80 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T80 °C
			-60 °C ≤ Tp ≤ 95 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T95 °C
			-60 °C ≤ Tp ≤ 130 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T130 °C
			-60 °C ≤ Tp ≤ 195 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T195 °C
			-60 °C ≤ Tp ≤ 230 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T230 °C

D,9			Process temperature Range	Ambient Temperature Range	Maximum surface Temperature
			-60 °C ≤ Tp ≤ 80 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T80 °C
			-60 °C ≤ Tp ≤ 95 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T95 °C
			-60 °C ≤ Tp ≤ 130 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T130 °C
			-60 °C ≤ Tp ≤ 195 °C	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T195 °C
			-60 °C ≤ Tp ≤ 280 °C -60 °C ≤ Tp ≤ 290 °C[1)]	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T280 °C Zone 20/21 Da/Db: T-40 °C...T290 °C[1)]
			-60 °C ≤ Tp ≤ 280 °C -60 °C ≤ Tp ≤ 300 °C[1)]	-40 °C ≤ Ta ≤ 70 °C	Zone 20/21 Da/Db: T-40 °C...T280 °C Zone 20/21 Da/Db: T-40 °C...T300 °C[1)]

1) Position 8 (Application)= 9 (Special Version), Tp max. 300 °C

Annex to:	**Certificate of Conformity IECEx KIWA 19.0010X, issue 2 EU – Type Examination Certificate KIWA 19ATEX0017 X Iss. 3 and Test Report NL/KIWA/ExTR19.0011/02**	
Applicant:	**Endress+Hauser SE+Co. KG**	
Apparatus:	**Liquid Level Switches Liquiphant, types FTL41, FTL51B, FTL62, FTL63 and FTL64 (and OEM versions OFTL41, OFTL51B, OFTL62, OFTL63 and OFTL64)**	

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Date: 04 April 2023

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