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 DEK 22.0008X** Page 1 of 4 Certificate history:

Status: **Current** Issue No: 0

Date of Issue: 2022-08-01

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

Equipment: **Level Switch Liquiphant HART, types FTL51B, FTL62 and FTL64**

Optional accessory:

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

Marking:
Ex db IIC T6…T1 Ga/Gb
Ex db IIC T6…T1 Gb
Ex ta IIIC T_{200} xxx °C Da / Ex tb IIIC T_L xxx ° C Db
Ex tb IIIC T_L xxx °C Db
Ex tc IIIC T xxx °C Dc
Ex ia IIC T6…T1 Ga
Ex ia IIC T6…T1 Ga/Gb
Ex ia IIC T6…T1 Gb
Ex db ia IIC T6…T1 Ga/Gb
Ex db ia IIC T6…T1 Gb
Ex ia IIIC T_{200} xxx °C Da / Ex ia IIIC T_L xxx °C Db
Ex ia IIIC T_L xxx °C Db
Ex ec IIC T6…T1 Gc

Approved for issue on behalf of the IECEx Certification Body: **R. Schuller**

Position: **Certification Manager**

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:

DEKRA Certification B.V.
Meander 1051
6825 MJ Arnhem
Netherlands

IECEx Certificate of Conformity

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

Manufacturing locations:

Endress+Hauser SE+Co. KG
Hauptstraße 1
Maulburg 79689
Germany

Endress+Hauser (Suzhou) Automation Instrumentation Co. Ltd.
China – Singapore Industrial Park (SIP)
Su-Hong-Zhong-Lu, No. 491
Jiangsu Province, 215021 Suzhou
China

Endress+Hauser (USA)
Automation Instrumentation Inc.
2340 Endress Place
Greenwood, Indiana 46143
United States of America

See following pages for more 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 60079-26:2021-02 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 60079-7:2017 Edition:5.1	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 Report:

NL/DEK/ExTR22.0032/00

Quality Assessment Report:

DE/TUN/QAR06.0003/09

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

The device Level Switch Liquiphant HART, type FTL51B, FTL62 and FTL64 is a Level-Limit-Switch for process Liquids used in explosive atmospheres caused by the presence of combustible gases, fluids, vapours or dusts.

The device with the 4…20mA-Interface (FEL60H = MA10 + SA10) can be used for the Point Level Detection for Max- or Min-Applications by means of a symmetrical vibrating fork. The electronic inserts in the transmitter enclosure, convert the fork frequency into an electrical signal.

The enclosure is either a single electronics compartment version made of aluminium or stainless steel or a dual compartment version made of aluminium or stainless steel providing a separate electronics and a terminal compartment. The stainless steel sensor is directly fitted to the enclosure.

For the connection of the sensor to the L+P enclosures a thread adapter M48–M30 is used. In general, the Liquiphant Probe is designed with the complete metallic part (Fork, tube and process connection) to be used as Zone Separation Element according IEC 60079-26.

The device can be a compact or a tube extended version with a length up to 6m.

Optionally the electronics compartment can be equipped with a Graphic display or with a Graphic display with Bluetooth in combination with a windowed cover.

The degree of protection of the equipment is IP64 in accordance with IEC 60079-0.
The degree of protection of the equipment is IP66/IP68 (1.83 m during 24 h) in accordance with IEC 60529.

For the Nomenclature, Thermal data, Electrical data refer to Annex 1 to NL/DEK/ExTR22.0032/00 .

SPECIFIC CONDITIONS OF USE: YES as shown below:
- For maximum surface temperature, ambient temperature range and maximum process temperatures see Annex 1 to NL/DEK/ExTR22.0032/00 and safety instructions.

- The flameproof joints are not intended to be repaired.

- The Level Switch Liquiphant HART shall be installed and maintained such that hazards caused by electrostatic discharge are excluded.

- For Level Switch Liquiphant HART 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 and friction between the enclosure and iron or steel are excluded.

- For Level Switch Liquiphant HART, 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.

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Additional manufacturing locations:

Endress+Hauser (Brasil) Instrumentação e Aut.Ltda.
Estrada Municipal Antonio Sesti
600 Bairro Recreio Costa Verde
Itatiba, SP - 13254-085
Brazil

Endress+Hauser (India) Automation Instrumentation Pvt. Ltd.
M-192, Waluj MIDC, Aurangabad - 431 136
Maharashtra State
India

Annex:

225553600-Annex1 to ExTR22.0032.00.pdf

Nomenclature:

1) type FTL51B

FTL51B – aa bb c d e f g h ii jj kkk + yy ll mm nn oo pp qq rr zz ss

aa = 010	**Approval:**	
	***A**	ATEX/IEC II 1G Ex ia IIC T6 Ga
	***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
	***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, II 3D Ex tc IIIC Dc
	***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:**	
	BA	FEL60H, 2-wire 4…20 mA HART + test button
	9Y	Changes not explosion protection relevant.
c = 030	**Display, Operating:**	
	A	W/o; switch
	E	Graphic display with touch control
	F	Graphic display with touch control + Bluetooth
	Y	Changes not explosion protection relevant
d = 040	**Housing:**	
	B	Single compartment; Alu, coated
	M	Dual compartment L-shape; Alu, coated
	N	Dual compartment L-shape; 316L
	Y	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
	M	Plug M12, IP66/67 NEMA Type 4X
	Y	Changes not explosion protection relevant
f = 060	**Application:**	
	A	Process max 150 °C/302 °F, max 64bar
	B	Process max 150 °C/302 °F, max 100bar
	9	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	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	Changes not explosion protection relevant

FTL51B – aa bb c d e f g h ii jj kkk + yy ll mm nn oo pp qq rr zz ss

jj kkk	**Process Connection, Sealing Surface:**	
=	**AA AAA**	
105		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.
110		
	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	**Operating Language:**	
=	**AA**	Customer operating language
500	**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	**Application Package:**	
=	**EH**	E plus a character or figure representing different Application packages as
540		EH=Heartbeat Verification + Monitoring.
	to	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	**Services:**	
=	**HA**	H or I plus a character or figure representing different services like cleaned from oli+fat, cleaned for Oxygen applications, or settings to the
570	**to**	device different from delivery standard. Not mandatory, multiple selection possible.
		Modification of one of the above named option:
	I9	Special version not given in the standard order code.
		Changes not explosion protection relevant
nn	**Test, Certificate, Declaration:**	
=	**JL**	Ambient temperature -50 °C/-58 °F
580	**JN**	Ambient temperature -52 °C/-62 °F
	JT	Ambient temperature -60 °C/-76 °F
	JA	J or K plus a character or figure representing different production tests (Pressure test, He-Leakage test, PMI test, …) or material
	to	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	**Additional approvals:**	
=	**LA**	L plus a character or figure representing different additional approvals (SIL, WHG, ship building, CRN, …).
590	**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	**Sensor design:**	
=	**MR**	Temperature separator
600	**MS**	Temperature separator + Pressure tight feed through (Second line of defense)
		Modification of one of the above named option:
	M9	Special version not given in the standard order code, shorter, longer or angled version.
		Changes not explosion protection relevant
qq	**Accessories mounted:**	
=	**NA**	Overvoltage protection
610	**OB**	Plug marking according to IEC/ATEX Ex d
	O9	Changes not explosion protection relevant
rr	**Accessories enclosed:**	
=	**PA**	Weather protection cover, 316L
620	**PB**	Weather protection cover, plastic
	R9	Changes not explosion protection relevant
zz	**Firmware-Version:**	
=	**01**	Tagging (TAG), 316L plate, Paper plate, Customer plate, RFID TAG
850	**to 99**	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevant
ss	**Marking:**	
=	**Z1**	Tagging (TAG), 316L plate, Paper plate, Customer plate, RFID TAG
895	**Z9**	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevant

2) type FTL62

FTL62 – aa bb c d e f g h ii jj kkk + yy ll mm nn oo pp qq rr zz ss

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,
	***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, II 3D Ex tc IIIC Dc
	***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:**	
	BA	FEL60H, 2-wire 4…20 mA HART + test button
	9Y	Changes not explosion protection relevant
c = 030	**Display, Operating:**	
	A	W/o; switch
	E	Graphic display with touch control
	F	Graphic display with touch control + Bluetooth
	Y	Changes not explosion protection relevant
d = 040	**Housing; Material:**	
	B	Single compartment; Alu, coated
	M	Dual compartment L-shape; Alu, coated
	N	Dual compartment L-chape; 316L
	Y	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
	M	Plug M12, IP66/67 NEMA Type 4X
	Y	Changes not explosion protection relevant
f = 060	**Application:**	
	N	Process max 120 °C/248 °F, max 40bar (ECTFE)
	P	Process max 150 °C/302 °F, max 40bar (PFA)
	T	Process max 150 °C/302 °F, max 25bar (Email)
	9	Changes not explosion protection relevant
g = 080	**Surface Refinement:**	
	N	Coating ECTFE
	P	Coating PFA (Edlon)
	Q	Coating PFA (RubyRed)
	R	Coating PFA (conductive)
	T	Coating Enamel
h = 085	**Type of Probe:**	
	2	Extension tube
	3	Short tube version
	9	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
		Modification of one of the above named option:
	YY	Special version not given in the standard order code, Duplex Steel, different Alloy-C-version. Changes not explosion protection relevant

FTL62 – aa bb c d e f g h ii jj kkk + yy ll mm nn oo pp qq rr zz ss

jj kkk	**Process Connection, Sealing Surface:**	
=	**AA AAA**	Combination of two characters representing different types of process connections (Flanges), plus a
105	**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:
110		Special version not given in the standard order code. Changes not explosion protection relevant
yy	**Operating Language:**	
=	**AA**	Customer operating language
500	**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	**Application Package:**	
=	**EH**	E plus a character or figure representing different Application packages as
540		EH=Heartbeat Verification + Monitoring or
	to	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	**Services:**	
=	**HA**	H or I plus a character or figure representing different services like cleaned from oli+fat, cleaned for Oxygen applications, or settings to the
570	**to**	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. Changes not explosion protection relevant
nn	**Test, Certificate, Declaration:**	
=	**JL**	Ambient temperature -50 °C/-58 °F
580	**JN**	Ambient temperature -52 °C/-62 °F
	JT	Ambient temperature -60 °C/-76 °F
	JA	J or K plus a character or figure representing different production tests (Pressure test, He-Leakage test, PMI test, …) or material
	to	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	**Additional approvals:**	
=	**LA**	L plus a character or figure representing different additional approvals (SIL, WHG, ship building, CRN, …).
590	**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	**Sensor design:**	
=	**MR**	Temperature separator
600	**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	**Accessories mounted:**	
=	**NA**	Overvoltage protection
610	**OB**	Plug marking according to IEC/ATEX Ex d
	O9	Changes not explosion protection relevant
rr	**Accessories enclosed:**	
=	**PA**	Weather protection cover, 316L
620	**PB**	Weather protection cover, plastic
	R9	Changes not explosion protection relevant
zz	**Firmware-Version:**	
=	**01**	Version of the firmware if available for the Electronic, Output (bb=020)
850	**to 99**	Not explosion protection relevant
ss	**Marking:**	
=	**Z1**	Tagging (TAG), 316L plate, Paper plate, Customer plate, RFID TAG
895	**Z9**	Modification of one of the above named option:
		Special version not given in the standard order code. Changes not explosion protection relevant

3) type FTL64

FTL64 – aa bb c d e f g h ii jj kkk + yy ll mm nn oo pp qq rr zz ss

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
	***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, II 3D Ex tc IIIC Dc
	***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:**	
	BA	FEL60H, 2-wire 4…20 mA HART + test button
	9Y	Changes not explosion protection relevant
c = 030	**Display, Operating:**	
	A	W/o; switch
	E	Graphic display with touch control
	F	Graphic display with touch control + Bluetooth
	Y	Changes not explosion protection relevant
d = 040	**Housing; Material:**	
	B	Single compartment; Alu, coated
	M	Dual compartment L-shape; Alu, coated
	N	Dual compartment L-shape; 316L
	Y	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
	M	Plug M12, IP66/67 NEMA Type 4X
	Y	Changes not explosion protection relevant
f = 060	**Application:**	
	D	Process max 280 °C/536 °F, max 100bar
	E	Process max 230 °C/446 °F, max 100bar
	R	Prozess max 230 °C/446 °F, max 40bar (PFA)
	9	Process max 300 °C/572 °F, max 100bar Modification of the above named option in: Changes not explosion protection relevant
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 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

FTL64 – aa bb c d e f g h ii jj kkk + yy ll mm nn oo pp qq rr zz ss

jj kkk	**Process Connection, Sealing Surface:**	
=	**AA AAA**	Combination of two characters representing different types of process connections (Flanges), plus a
105	**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:
110		Special version not given in the standard order code. Changes not explosion protection relevant
yy	**Operating Language:**	
=	**AA**	Customer operating language
500	**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	**Application Package:**	
=	**EH**	E plus a character or figure representing different Application packages as
540		EH=Heartbeat Verification + Monitoring or
	to	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	**Services:**	
=	**HA**	H or I plus a character or figure representing different services like cleaned from oli+fat, cleaned for Oxygen applications, or settings to the
570	**to**	device different from delivery standard. Not mandatory, multiple selection possible.
	I9	Changes not explosion protection relevant
nn	**Test, Certificate, Declaration:**	
=	**JL**	Ambient temperature -50 °C/-58 °F
580	**JN**	Ambient temperature -52 °C/-62 °F
	JT	Ambient temperature -60 °C/-76 °F
	JA	J or K plus a character or figure representing different production tests (Pressure test, He-Leakage test, PMI test, …) or material
	to	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	**Additional approvals:**	
=	**LA**	L plus a character or figure representing different additional approvals (SIL, WHG, ship building, CRN, …).
590	**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	**Sensor design:**	
=	**-**	No option available
600		Modification of one of the above named option:
	M9	Special version not given in the standard order code, shorter, longer or angled version. Changes not explosion protection relevant
qq	**Accessories mounted:**	
=	**NA**	Overvoltage protection
610	**OB**	Plug marking according to IEC/ATEX Ex d
	O9	Changes not explosion protection relevant
rr	**Accessories enclosed:**	
=	**PA**	Weather protection cover, 316L
620	**PB**	Weather protection cover, plastic
	R9	Changes not explosion protection relevant
zz	**Firmware-Version:**	
=	**01**	Version of the firmware if available for the Electronic, Output (bb=020)
850	**to**	Not explosion protection relevant
	99	
ss	**Marking:**	
=	**Z1**	Tagging (TAG), 316L plate, Paper plate, Customer plate, RFID TAG
895	**Z9**	Modification of one of the above named option: Special version not given in the standard order code. Changes not explosion protection relevant

Thermal data

1) Temperature classification Ex ia IIC

FTL51B – Ex ia IIC T6…T1 Ga or Ex ia IIC T6…T1 Ga/Gb or Ex ia IIC T6…T1 Gb

Type	Process connection type	Temperature class	Process temperature [1] $T_{p\ min} \leq T_p \leq T_{p\ max}$		Ambient temperature [1] $T_{a\ min} \leq T_a \leq T_{a\ max}$	
FTL51B w/o VA11 (ordercode 030 = A)	Compact + Pipe ext.	T6	-40°C	+75°C	-40°C	+50°C
			-40°C	+60°C	-40°C	+55°C
		T5	-40°C	+90°C	-40°C	+55°C
		T4…T1	-40°C	+120°C	-40°C	+50°C
	Compact + Pipe ext. + Temp. sep.	T6	-40°C	+75°C	-40°C	+60°C
		T5	-40°C	+90°C	-40°C	+65°C
		T4	-40°C	+125°C	-40°C	+65°C
		T3…T1	-40°C	+150°C	-40°C	+65°C
FTL51B with VA11 (ordercode 030 = E, F)	Compact + Pipe ext.	T6	-40°C	+75°C	-40°C	+45°C
			-40°C	+60°C	-40°C	+50°C
		T5	-40°C	+90°C	-40°C	+50°C
		T4…T1	-40°C	+120°C	-40°C	+45°C
	Compact + Pipe ext. + Temp. sep.	T6	-40°C	+75°C	-40°C	+55°C
		T5	-40°C	+90°C	-40°C	+60°C
		T4	-40°C	+125°C	-40°C	+55°C
		T3…T1	-40°C	+150°C	-40°C	+55°C

Temperature separator: order code 600 = MR, MS
Accessory “weather cap – plastic” (order code 620 = PB) reduces $T_{a,max}$ by 10 K due to insulating property.
Note[1] – for order code 580 = “JL” (“JN”) the lower temperature decreases to -50°C (-52°C)

FTL62- Ex ia IIC T6…T1 Ga/Gb or Ex ia IIC T6…T1 Gb

Type	Process connection type	Temperature class	Process temperature [1] $T_{p\ min} \leq T_p \leq T_{p\ max}$		Ambient temperature [1] $T_{a\ min} \leq T_a \leq T_{a\ max}$	
FTL62 w/o VA11 ((ordercode 030 = A)	Pipe ext.	T6	-40°C	+75°C	-40°C	+50°C
			-40°C	+60°C	-40°C	+55°C
		T5	-40°C	+90°C	-40°C	+55°C
		T4…T1	-40°C	+120°C	-40°C	+50°C
	Pipe ext. + Temp. sep.	T6	-40°C	+75°C	-40°C	+60°C
		T5	-40°C	+90°C	-40°C	+65°C
		T4	-40°C	+125°C	-40°C	+65°C
			-40°C	+120°C[2]	-40°C	+65°C
		T3…T1	-40°C	+150°C	-40°C	+65°C
			-40°C	+120°C[2]	-40°C	+65°C
FTL62 with VA11 (ordercode 030 = E, F)	Pipe ext.	T6	-40°C	+75°C	-40°C	+45°C
			-40°C	+60°C	-40°C	+50°C
		T5	-40°C	+90°C	-40°C	+50°C
		T4…T1	-40°C	+120°C	-40°C	+45°C
	Pipe ext. + Temp. sep.	T6	-40°C	+75°C	-40°C	+55°C
		T5	-40°C	+90°C	-40°C	+60°C
		T4	-40°C	+125°C	-40°C	+55°C
			-40°C	+120°C[2]	-40°C	+55°C
		T3…T1	-40°C	+150°C	-40°C	+55°C
			-40°C	+120°C[2]	-40°C	+55°C

Temperature separator: order code 600 = MR, MS
Accessory “weather cap – plastic” (order code 620 = PB) reduces $T_{a,max}$ by 10 K due to insulating property.
Note[1] for order code 580 = “JL” (“JN”) the lower temperature decreases to -50°C (-52°C)
Note[2] for order code 080 = “N: Coating ECTFE” the max. process temperature is limited to +120°C

FTL64 – Ex db ia IIC T6…T1 Ga/Gb or Ex db ia IIC T6…T1 Gb

Type	Process connection type	Temperature class	Process temperature [1] $T_{p\,min} \le T_p \le T_{p\,max}$		Ambient temperature [1] $T_{a\,min} \le T_a \le T_{a\,max}$	
FTL64 (w/o VA11) Order code 060 = E,R T_{pmax}=230°C	Pipe ext.	T6	-60°C	+80°C	-40°C	+65°C
		T5	-60°C	+95°C	-40°C	+70°C
		T4	-60°C	+130°C	-40°C	+65°C
		T3	-60°C	+195°C	-40°C	+60°C
		T2…T1	-60°C	+230°C	-40°C	+60°C
FTL64 (with VA11) Order code 060 = E,R T_{pmax}=230°C	Pipe ext.	T6	-60°C	+80°C	-40°C	+55°C
		T5	-60°C	+95°C	-40°C	+60°C
		T4	-60°C	+130°C	-40°C	+60°C
		T3	-60°C	+195°C	-40°C	+55°C
		T2…T1	-60°C	+230°C	-40°C	+55°C
FTL64 (w/o VA11) Order code 060 = D,9 T_{pmax}=280°C / 300°C	Pipe ext.	T6	-60°C	+80°C	-40°C	+65°C
		T5	-60°C	+95°C	-40°C	+70°C
		T4	-60°C	+130°C	-40°C	+65°C
		T3	-60°C	+195°C	-40°C	+65°C
		T2	-60°C	+280°C	-40°C	+60°C
			-60°C	+290°C [2]	-40°C	+60°C
		T1	-60°C	+300°C [2]	-40°C	+60°C
FTL64 (with VA11) Order code 060 = D,9 T_{pmax}=280°C / 300°C	Pipe ext.	T6	-60°C	+80°C	-40°C	+55°C
		T5	-60°C	+95°C	-40°C	+60°C
		T4	-60°C	+130°C	-40°C	+60°C
		T3	-60°C	+195°C	-40°C	+55°C
		T2	-60°C	+280°C	-40°C	+55°C
			-60°C	+290°C [2]	-40°C	+55°C
		T1	-60°C	+300°C [2]	-40°C	+55°C

Accessory “weather cap – plastic” (order code 620 = PB) reduces $T_{a,max}$ by 10 K due to insulating property.
Note[1] for order code 580 = “JL” (“JN”) the lower temperature decreases to -50°C (-52°C)
Note[2] only in connection with order code 060 = “9: Tp=300°C”

2) Temperature classification Ex ia IIIC

FTL51B –
Ex ia IIIC T_{200} 135 °C Da / Ex ia IIIC T_L 135 °C Db or Ex ia IIIC T_L 135 °C Db
Ex ia IIIC T_{200} 155 °C Da / Ex ia IIIC T_L 155 °C Db or Ex ia IIIC T_L 155 °C Db

Type	Process connection type	Maximum surface temperature[1)] EPL Da and EPL Db part	Process temperature [2)] $T_{p\ min} \leq T_p \leq T_{p\ max}$		Ambient temperature [2)] $T_{a\ min} \leq T_a \leq T_{a\ max}$	
FTL51B w/o VA11 (ordercode 030 = A)	Compact + Pipe ext.	T135°C	-40°C	+80°C	-40°C	+60°C
			-40°C	+100°C	-40°C	+55°C
			-40°C	+120°C	-40°C	+50°C
	Compact + Pipe ext. + Temp. sep.	T155°C	-40°C	+130°C	-40°C	+65°C
			-40°C	+150°C	-40°C	+65°C
FTL51B with VA11 (ordercode 030 = E, F)	Compact + Pipe ext.	T135°C	-40°C	+80°C	-40°C	+50°C
			-40°C	+100°C	-40°C	+45°C
			-40°C	+120°C	-40°C	+45°C
	Compact + Pipe ext.+ Temp. sep.	T155°C	-40°C	+130°C	-40°C	+55°C
			-40°C	+150°C	-40°C	+55°C

Temperature separator: order code 600 = MR, MS
Note[1)] the surface temperature depends only on the applied process temperature
Note[2)] for order code 580 = “JL” (“JN”) the lower temperature decreases to -50°C (-52°C)

FTL62 –
Ex ia IIIC T_{200} 135 °C Da / Ex ia IIIC T_L 135 °C Db or Ex ia IIIC T_L 135 °C Db
Ex ia IIIC T_{200} 155 °C Da / Ex ia IIIC T_L 155 °C Db or Ex ia IIIC T_L 155 °C Db

Type	Process connection type	Maximum surface temperature[1)] EPL Da and EPL Db part	Process temperature [2)] $T_{p\ min} \leq T_p \leq T_{p\ max}$		Ambient temperature [2)] $T_{a\ min} \leq T_a \leq T_{a\ max}$	
FTL62 w/o VA11 (ordercode 030 = A)	Pipe ext.	T135°C	-40°C	+80°C	-40°C	+60°C
			-40°C	+100°C	-40°C	+55°C
			-40°C	+120°C	-40°C	+50°C
	Pipe ext. + Temp. sep.	T155°C	-40°C	+130°C	-40°C	+65°C
			-40°C	+120°C[3)]	-40°C	+65°C
			-40°C	+150°C	-40°C	+65°C
			-40°C	+120°C[3)]	-40°C	+65°C
FTL62 with VA11 (ordercode 030 = E, F)	Pipe ext.	T135°C	-40°C	+80°C	-40°C	+50°C
			-40°C	+100°C	-40°C	+45°C
			-40°C	+120°C	-40°C	+45°C
	Pipe ext.+ Temp. sep.	T155°C	-40°C	+130°C	-40°C	+55°C
			-40°C	+120°C[3)]	-40°C	+55°C
			-40°C	+150°C	-40°C	+55°C
			-40°C	+120°C[3)]	-40°C	+55°C

Temperature separator: order code 600 = MR, MS
Note[1)] the surface temperature depends only on the applied process temperature
Note[2)] for order code 580 = “JL” (“JN”) the lower temperature decreases to -50°C (-52°C)
Note[3)] for order code 080 = “N: Coating ECTFE” the max. process temperature is limited to +120°C

FTL64 –
Ex ia IIIC T_{200} 235 °C Da / Ex ia IIIC T_L 235 °C Db or Ex ia IIIC T_L 235 °C Db

Type	Process connection type	Maximum surface temperature[1)] EPL Da and EPL Db part	Process temperature $T_{p\ min} \leq T_p \leq T_{p\ max}$		Ambient temperature [2)] $T_{a\ min} \leq T_a \leq T_{a\ max}$	
FTL64 w/o VA11 Order code 030 = A and 060 = E, R T_{pmax}=230°C	Pipe ext.	T235°C	-60°C	+80°C	-40°C	+70°C
			-60°C	+130°C	-40°C	+65°C
			-60°C	+195°C	-40°C	+60°C
			-60°C	+230°C	-40°C	+60°C
FTL64 with VA11 Order code 030 =E,F and 060 = E, R T_{pmax}=230°C	Pipe ext.	T235°C	-60°C	+80°C	-40°C	+60°C
			-60°C	+130°C	-40°C	+60°C
			-60°C	+195°C	-40°C	+55°C
			-60°C	+230°C	-40°C	+55°C

Note[1)] the surface temperature depends only on the applied process temperature
Note[2)] for order code 580 = "JL" ("JN") the lower temperature decreases to -50°C (-52°C)

FTL64 –
Ex ia IIIC T_{200} 285 °C Da / Ex ia IIIC T_L 285 °C Db or Ex ia IIIC T_L 285 °C Db
Ex ia IIIC T_{200} 305 °C Da / Ex ia IIIC T_L 305 °C Db or Ex ia IIIC T_L 305 °C Db

Type	Process connection type	Maximum surface temperature[1)] EPL Da and EPL Db part	Process temperature $T_{p\ min} \leq T_p \leq T_{p\ max}$		Ambient temperature [2)] $T_{a\ min} \leq T_a \leq T_{a\ max}$	
FTL64 w/o VA11 Order code 030 = A and 060 = D,9 T_{pmax}=280°C / 300°C	Pipe ext.	T285°C	-60°C	+80°C	-40°C	+70°C
			-60°C	+130°C	-40°C	+65°C
			-60°C	+195°C	-40°C	+65°C
			-60°C	+280°C	-40°C	+60°C
		T305°C	-60°C	+300°C[3)]	-40°C	+60°C
FTL64 with VA11 Order code 030 =E,F and 060 = D,9 T_{pmax}=280°C / 300°C	Pipe ext.	T285°C	-60°C	+80°C	-40°C	+60°C
			-60°C	+130°C	-40°C	+60°C
			-60°C	+195°C	-40°C	+55°C
			-60°C	+280°C	-40°C	+55°C
		T305°C	-60°C	+300°C[3)]	-40°C	+55°C

Note[1)] the surface temperature depends only on the applied process temperature
Note[2)] for order code 580 = “JL” (“JN”) the lower temperature decreases to -50°C (-52°C)
Note[3)] only in connection with order code 060 = “9: Tp=300°C”

3) Temperature classification Ex db IIC

FTL51B – Ex d IIC T6…T1 Ga/Gb or Ex d IIC T6…T1 Gb

Type	Process connection type	Temperature class	Process temperature [1] $T_{p\ min} \le T_p \le T_{p\ max}$		Ambient temperature [1] $T_{a\ min} \le T_a \le T_{a\ max}$	
FTL51B	Compact	T6	-40°C	+80°C	-40°C	+55°C
			-40°C	+60°C	-40°C	+60°C
		T5	-40°C	+95°C	-40°C	+60°C
		T4	-40°C	+100°C	-40°C	+60°C
			-40°C	+130C	-40°C	+50°C
		T3…T1	-40°C	+150°C	-40°C	+45°C
	Pipe ext. (= adapter with glass feedthrough)	T6	-40°C	+80°C	-40°C	+65°C
			-40°C	+60°C	-40°C	+70°C
		T5	-40°C	+95°C	-40°C	+70°C
		T4	-40°C	+100°C	-40°C	+70°C
			-40°C	+130°C	-40°C	+70°C
		T3…T1	-40°C	+150°C	-40°C	+65°C

Note[1] for order code 580 = “JL” (“JN”) the lower temperature decreases to -50°C (-52°C), for versions without window cover possible lower ambient temperature decreases to -60°C (order code option 580 = “JT”)

FTL62 – Ex d IIC T6…T1 Ga/Gb or Ex d IIC T6…T1 Gb

Type	Process connection type	Temperature class	Process temperature [1] $T_{p\ min} \le T_p \le T_{p\ max}$		Ambient temperature [1] $T_{a\ min} \le T_a \le T_{a\ max}$	
FTL62	Pipe ext. (= adapter with glass feedthrough)	T6	-40°C	+80°C	-40°C	+65°C
			-40°C	+60°C	-40°C	+70°C
		T5	-40°C	+95°C	-40°C	+70°C
		T4	-40°C	+130°C	-40°C	+70°C
			-40°C	+120°C[2]	-40°C	+70°C
		T3…T1	-40°C	+150°C	-40°C	+65°C
			-40°C	+120°C[2]	-40°C	+65°C

Note[1] for order code 580 = “JL” (“JN”) the lower temperature decreases to -50°C (-52°C), for versions without window cover possible lower ambient temperature decreases to -60°C (order code option 580 = “JT”)
Note[2] for order code 080 = “N: Coating ECTFE” the max. process temperature is limited to +120°C

FTL64 – Ex d IIC T6…T1 Ga/Gb or Ex d IIC T6…T1 Gb

Type	Process connection type	Temperature class	Process temperature $T_{p\ min} \leq T_p \leq T_{p\ max}$		Ambient temperature [1] $T_{a\ min} \leq T_a \leq T_{a\ max}$	
FTL64 Order code 060 = E,R T_{pmax}=230°C	Pipe ext.	T6	-60°C	+80°C	-40°C	+70°C
		T5	-60°C	+95°C	-40°C	+70°C
		T4	-60°C	+130°C	-40°C	+70°C
		T3	-60°C	+195°C	-40°C	+65°C
		T2…T1	-60°C	+230°C	-40°C	+65°C
FTL64 Order code 060 = D,9 T_{pmax}=280°C / 300°C	Pipe ext.	T6	-60°C	+80°C	-40°C	+70°C
		T5	-60°C	+95°C	-40°C	+70°C
		T4	-60°C	+130°C	-40°C	+70°C
		T3	-60°C	+195°C	-40°C	+70°C
		T2	-60°C	+280°C	-40°C	+65°C
			-60°C	+290°C[2]	-40°C	+65°C
		T1	-60°C	+300°C[2]	-40°C	+65°C

Note[1] for order code 580 = “JL” (“JN”) the lower temperature decreases to -50°C (-52°C), for versions without window cover possible lower ambient temperature decreases to -60°C (order code option 580 = “JT”)

Note[2] only in connection with order code 060 = “9: Tp=300°C”

4) Temperature classification Ex t IIIC

FTL51B –
Ex ta IIIC T_{200} 155 °C Da / Ex tb IIIC T_L 155 °C Db or Ex tb IIIC T_L 155 °C Db
Ex tc IIIC T 150 °C Dc

Type	Process connection type	Maximum surface temperature[1)] EPL Da and EPL Db part or EPL Dc	Process temperature [2)] $T_{p\ min} \leq T_p \leq T_{p\ max}$		Ambient temperature [2)] $T_{a\ min} \leq T_a \leq T_{a\ max}$	
FTL51B Ex ta/tb	Compact (Ordercode 085=1)	T155°C	-40°C	+80°C	-40°C	+65°C
			-40°C	+100°C	-40°C	+60°C
			-40°C	+120°C	-40°C	+55°C
			-40°C	+150°C	-40°C	+50°C
	Pipe ext. + Glass feedthrough (Ordercode 085=2,3)	T155°C	-40°C	+80°C	-40°C	+70°C
			-40°C	+100°C	-40°C	+70°C
			-40°C	+120°C	-40°C	+70°C
			-40°C	+150°C	-40°C	+70°C
FTL51B Ex tc Dc	Compact + Pipe ext. (Ordercode 085=1,2,3)	T150°C	-40°C	+80°C	-40°C	+65°C
			-40°C	+100°C	-40°C	+60°C
			-40°C	+120°C	-40°C	+55°C
			-40°C	+150°C	-40°C	+50°C
	Compact + Pipe ext. + Temp. sep.	T150°C	-40°C	+80°C	-40°C	+70°C
			-40°C	+100°C	-40°C	+70°C
			-40°C	+120°C	-40°C	+70°C
			-40°C	+150°C	-40°C	+70°C

Note[1)] the surface temperature depends only on the applied process temperature
Note[2)] for order code 580 = “JL” the lower temperature decreases to -50°C
Temperature separator: order code 600 = MR, MS

FTL62 –
Ex ta IIIC T_{200} 155 °C Da / Ex tb IIIC T_L 155 °C Db or Ex tb IIIC T_L 155 °C Db
Ex tc IIIC T 150 °C Dc

Type	Process connection type	Maximum surface temperature[1)] EPL Da and EPL Db part or EPL Dc	Process temperature [2)] $T_{p\ min} \leq T_p \leq T_{p\ max}$		Ambient temperature [2)] $T_{a\ min} \leq T_a \leq T_{a\ max}$	
FTL62 Ex ta/tb	Pipe ext. + Glass feed-through (Ordercode 085=2,3)	T155°C	-40°C	+80°C	-40°C	+70°C
			-40°C	+100°C	-40°C	+70°C
			-40°C	+120°C	-40°C	+70°C
			-40°C	+150°C	-40°C	+70°C
			-40°C	+120°C[3)]	-40°C	+70°C
FTL62 Ex tc Dc	Pipe ext. (Ordercode 085=2,3)	T150°C	-40°C	+80°C	-40°C	+65°C
			-40°C	+100°C	-40°C	+60°C
			-40°C	+120°C	-40°C	+55°C
			-40°C	+150°C	-40°C	+50°C
			-40°C	+120°C[3)]	-40°C	+55°C
	Pipe ext. + Temp. sep.	T150°C	-40°C	+80°C	-40°C	+70°C
			-40°C	+100°C	-40°C	+70°C
			-40°C	+120°C	-40°C	+70°C
			-40°C	+150°C	-40°C	+70°C
			-40°C	+120°C[3)]	-40°C	+70°C

Note[1)] the surface temperature depends only on the applied process temperature
Note[2)] for order code 580 = “JL” the lower temperature decreases to -50°C
Note[3)] for order code 080 = “N: Coating ECTFE” the max. process temperature is limited to +120°C
Temperature separator: order code 600 = MR, MS

FTL64 – Ex ta/tb, Ex tc
Ex ta IIIC T_{200} 235 °C Da / Ex tb IIIC T_L 235 °C Db or Ex tb IIIC T_L 235 °C Db
Ex tc IIIC T 230 °C Dc

Type	Process connection type	Maximum surface temperature[1)] EPL Da and EPL Db part	Process temperature $T_{p\ min} \leq T_p \leq T_{p\ max}$		Ambient temperature [2)] $T_{a\ min} \leq T_a \leq T_{a\ max}$	
FTL64 Order code 060 = E,R T_{pmax}=230°C	Pipe ext.	T235°C (T230°C for Ex tc)	-60°C	+80°C	-40°C	+70°C
			-60°C	+130°C	-40°C	+70°C
			-60°C	+195°C	-40°C	+70°C
			-60°C	+230°C	-40°C	+70°C

Note[1)] the surface temperature depends only on the applied process temperature
Note[2)] for order code 580 = “JL” the lower temperature decreases to -50°C

Ex ta IIIC T_{200} 285 °C Da / Ex tb IIIC T_L 285 °C Db or Ex tb IIIC T_L 285 °C Db
Ex tc IIIC T 280 °C Dc

Ex ta IIIC T_{200} 305 °C Da / Ex tb IIIC T_L 305 °C Db or Ex tb IIIC T_L 305 °C Db
Ex tc IIIC T 300 °C Dc

Type	Process connection type	Maximum surface temperature[1)] EPL Da and EPL Db part	Process temperature $T_{p\ min} \leq T_p \leq T_{p\ max}$		Ambient temperature [2)] $T_{a\ min} \leq T_a \leq T_{a\ max}$	
FTL64 Order code 060 = D,9 T_{pmax}=280°C / 300°C	Pipe ext.	T285°C (T280°C for Ex tc)	-60°C	+80°C	-40°C	+70°C
			-60°C	+130°C	-40°C	+70°C
			-60°C	+195°C	-40°C	+70°C
			-60°C	+280°C	-40°C	+70°C
		T305°C (T300°C for Ex tc)	-60°C	+300°C[3)]	-40°C	+70°C

Note[1)] the surface temperature depends only on the applied process temperature
Note[2)] for order code 580 = “JL” the lower temperature decreases to -50°C
Note[3)] only in connection with order code 060 = “9: Tp=300°C”

5) Temperature classification Ex ec IIC
FTL51B – Ex ec IIC T6…T1 Gc

Type	Process connection type	Temperature class	Process temperature [1] $T_{p\ min} \leq T_p \leq T_{p\ max}$		Ambient temperature [1] $T_{a\ min} \leq T_a \leq T_{a\ max}$	
FTL51B	Compact + pipe ext. (Ordercode 085=1,2,3)	T6	-40°C	+80°C	-40°C	+55°C
			-40°C	+60°C	-40°C	+60°C
		T5	-40°C	+95°C	-40°C	+60°C
		T4	-40°C	+130°C	-40°C	+50°C
		T3…T1	-40°C	+150°C	-40°C	+45°C
	Compact + pipe ext. + Temp. sep.	T6	-40°C	+80°C	-40°C	+65°C
		T5	-40°C	+95°C	-40°C	+70°C
		T4	-40°C	+130°C	-40°C	+70°C
		T3…T1	-40°C	+150°C	-40°C	+70°C

Note[1] for order code 580 = "JL" the lower temperature decreases to -50°C
Temperature separator: order code 600 = MR, MS
Accessory "weather cap – plastic" (order code 620 = PB) reduces $T_{a,max}$ by 10 K due to insulating property.

FTL62 – Ex ec IIC T6…T1 Gc

Type	Process connection type	Temperature class	Process temperature [1] $T_{p\ min} \leq T_p \leq T_{p\ max}$		Ambient temperature [1] $T_{a\ min} \leq T_a \leq T_{a\ max}$	
FTL62	Pipe ext. (Ordercode 085=2,3)	T6	-40°C	+80°C	-40°C	+55°C
			-40°C	+60°C	-40°C	+60°C
		T5	-40°C	+95°C	-40°C	+60°C
		T4	-40°C	+130°C	-40°C	+50°C
			-40°C	+120°C[2]	-40°C	+55°C
		T3…T1	-40°C	+150°C	-40°C	+45°C
			-40°C	+120°C[2]	-40°C	+55°C
FTL62	Pipe ext. + Temp. Sep.	T6	-40°C	+80°C	-40°C	+65°C
		T5	-40°C	+95°C	-40°C	+70°C
		T4	-40°C	+130°C	-40°C	+70°C
			-40°C	+120°C[2]	-40°C	+70°C
		T3…T1	-40°C	+150°C	-40°C	+70°C
			-40°C	+120°C[2]	-40°C	+70°C

Note[1] for order code 580 = "JL" the lower temperature decreases to -50°C
Note[2] for order code 080 = "N: Coating ECTFE" the max. process temperature is limited to +120°C
Temperature separator: order code 600 = MR, MS
Accessory "weather cap – plastic" (order code 620 = PB) reduces $T_{a,max}$ by 10 K due to insulating property.

FTL64 – Ex ec IIC T6…T1 Gc

Type	Process connection type	Temperature class	Process temperature $T_{p\ min} \leq T_p \leq T_{p\ max}$		Ambient temperature [1] $T_{a\ min} \leq T_a \leq T_{a\ max}$	
FTL64 Order code 060 = E,R T_{pmax}=230°C	Pipe ext.	T6	-60°C	+80°C	-40°C	+70°C
		T5	-60°C	+95°C	-40°C	+70°C
		T4	-60°C	+130°C	-40°C	+70°C
		T3	-60°C	+195°C	-40°C	+65°C
		T2…T1	-60°C	+230°C	-40°C	+65°C
FTL64 Order code 060 = D,9 T_{pmax}=280°C / 300°C	Pipe ext.	T6	-60°C	+80°C	-40°C	+70°C
		T5	-60°C	+95°C	-40°C	+70°C
		T4	-60°C	+130°C	-40°C	+70°C
		T3	-60°C	+195°C	-40°C	+70°C
		T2	-60°C	+280°C	-40°C	+65°C
			-60°C	+290°C[2]	-40°C	+65°C
		T1	-60°C	+300°C[2]	-40°C	+65°C

Note[1] for order code 580 = “JL” the lower temperature decreases to -50°C
Note[2] only in connection with order code 060 = “9: Tp=300°C”
Accessory “weather cap – plastic” (order code 620 = PB) reduces $T_{a,max}$ by 10 K due to insulating property.

Electrical data

For non-IS application the device is supplied by a DC-Power supply with U < 35 V.
The max. power dissipation = 1W.

For IS application, the following maximum values apply:
U_i = 30 V DC; I_i = 300 mA; P_i = 1 W; C_i = 10 nF; L_i = 0