



# 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](http://www.iecex.com)

Certificate No.:	<b>IECEX ETL 17.0050</b>	Page 1 of 4	<u>Certificate history:</u>
Status:	<b>Current</b>	Issue No: 6	Issue 5 (2021-09-14)
Date of Issue:	2022-02-16		Issue 4 (2020-03-31)
Applicant:	<b>Thermo Fisher Scientific</b> 27 Forge Parkway Franklin, MA 02038 <b>United States of America</b>		Issue 3 (2019-09-05)
Equipment:	<b>Toxic Vapor Analyzer (Kit) *See General Product Information</b>		Issue 2 (2019-08-30)
Optional accessory:			Issue 1 (2018-01-12)
Type of Protection:	<b>Intrinsic Safety 'ib', Flameproof 'db'</b>		Issue 0 (2017-08-18)
Marking:	Ex db ib IIC T3 Gb -10C < Ta < +45C IECEX ETL 17.0050		

Approved for issue on behalf of the IECEx  
Certification Body:

**Todd L. Relyea**

Position:

**Certification Officer**

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.
3. The Status and authenticity of this certificate may be verified by visiting [www.iecex.com](http://www.iecex.com) or use of this QR Code.



Certificate issued by:

**Intertek**  
3933 US Route 11 South  
Cortland NY 13045-2995  
United States of America

**intertek**



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Manufacturer: **Thermo Fisher Scientific**  
27 Forge Parkway  
Franklin, MA 02038  
**United States of America**

Additional manufacturing locations: **Thermo Fisher Scientific (Suzhou) Inst Co. Ltd**  
No.555, Jinfeng Road,  
New District,  
Suzhou, Jiangsu 215129,  
**China**

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](#) Explosive atmospheres - Part 0: Equipment - General requirements  
Edition:7.0

[IEC 60079-1:2014-06](#) Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"  
Edition:7.0

[IEC 60079-11:2011](#) Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"  
Edition:6.0

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:

[US/ETL/ExTR17.0003/00](#)  
[US/ETL/ExTR17.0003/03](#)

[US/ETL/ExTR17.0003/01](#)  
[US/ETL/ExTR17.0003/04](#)

[US/ETL/ExTR17.0003/02](#)  
[US/ETL/ExTR17.0003/05](#)

#### Quality Assessment Reports:

[GB/ITS/QAR21.0014/00](#)

[US/ETL/QAR16.0006/04](#)



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## **EQUIPMENT:**

Equipment and systems covered by this Certificate are as follows:

The product (TVA2020 Toxic Vapor Analyzer) is a complete Kit. This product is a vapor monitor for measuring compounds in air. The product (TVA2020 Toxic Vapor Analyzer (Kit)) comes in four main versions: 1. No Probe, 2. Sampling Probe, 3. Enhanced Probe, or 4. Combination of Sampling and Enhanced Probes. The complete Kit comes with three assemblies: 1. Analyzer with/without probe(s), 2. Battery Charger and 3. USB Barrier. The Analyzer is used in explosive atmospheres alone and the complete kit is used in non-explosive atmospheres only. The Analyzer is powered by Battery Pack. The Complete kit is powered by Mains and Computer.

The Analyzer is a portable gas detection equipment that consist of Battery Pack, Motherboard, Probe options (see above), with/without optional communication modules: 1. Bluetooth and/or 2. GPS or 3. None. The Analyzer uses either FID (Flame Ionization Detection) or PID (Photo Ionization Detection) or both options. The Analyzer includes refillable and replaceable hydrogen cylinder for use by the FID. For operation in Safe Area, the Analyzer is connected to Battery Charger for power and charging of Battery Pack and Computer via USB barrier for downloading data.

**The Analyzer uses protection types Ex d (FID assembly) and Ex ib (Other parts of Analyzer). The Battery Charger and USB Barrier are accessories used with Analyzer in non-explosive atmosphere**

*see Annex for manufacturer documents, ratings, routine test required and IECEx Certified component utilized*

**SPECIFIC CONDITIONS OF USE: NO**



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## **DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)**

**Free Reference Number:** G104500144

- Modifications to battery board to provide additional current limiting components.
- Modifications to critical component specifications on battery board to provide components more suited to vibration and mechanical stresses.
- Specification of alternate components on battery board to alleviate supply chain issues.
- Specification of alternative encapsulation material on battery board.
- Minor amendments to battery board Gerber file.
- Removal of Shanghai alternative manufacturing location.
- Addition of Suzhou alternative manufacturing location.

## **Annex:**

[Annex for IECEx Certificate of Conformity - IECEx ETL 17.0050 - Issue 6\\_1.pdf](#)



# Annex to IECEx Certificate of Conformity

<b>Certificate No:</b>	<b>IECEX ETL 17.0050</b>	<b>Issue No. 6</b>
<b>Annex No. 1</b>		

<b>Technical Documents</b>			
<b>Title:</b>	<b>Drawing No.:</b>	<b>Rev. Level:</b>	<b>Date:</b>
Layout, TVA2020 Motherboard	110362-00	C	10/19/2015
Assy, TVA2020 Motherboard	110363-00.pdf	C02	3/14/2021
BOM, TVA2020 Motherboard	110363-00(BOM).pdf	C02	3/18/2021
Assy, TVA2020 Motherboard w BT & GPS	110363-03	C	3/23/2021
Schematic, TVA2020 Motherboard	110364-00	C01	3/14/2021
PUI Audio Indicator Spec Sheet	110501-00	B	8/24/2017
Layout, Bluetooth Board	110427-00	B	7/23/2014
Assy, Bluetooth Board	110428-00.pdf	B01	2/20/2019
BOM, Bluetooth Board	110428-00(BOM).pdf	B01	2/20/2019
Schematic, Bluetooth Board	110429-00	B	8/12/2014
Layout, GPS Board	112351-00	B	3/15/2021
Assy, GPS Board	112352-00.pdf	B	3/15/2021
BOM, GPS Board	112352-00(BOM).pdf	B	3/16/2021
Schematic, GPS Board	112353-00	B	3/15/2021
Schematic, TVA2020 Pre-Amp/FID	110405-00	C03	1/19/2018
Layout, TVA2020 Pre-Amp/FID	110527-00	C	10/3/2014
Assembly, TVA2020 Pre-Amp/FID	110528-00.pdf	C03	1/19/2018
BOM, TVA2020 Pre-Amp/FID	110528-00(BOM).pdf	C03	1/19/2018
Layout, Pre-Amp Barrier Board	116442-00	B	10/26/2016
BOM, Pre-Amp Barrier Board	116443-00.xls	B	10/26/2016
Assy, Pre-Amp Barrier Board	116443-00.pdf	B	10/26/2016
Schematic, Pre-Amp Barrier Board	116444-00	B	10/26/2016
Layout, TVA2020 Pump Board	110810-00	B	4/27/2017
Assy, TVA2020 Pump Board	110811-00.pdf	B	10/27/2016
BOM, TVA2020 Pump Board	110811-00(BOM).pdf	B	4/27/2017
Schematics, TVA2020 Pump Board	110812-00	B	10/27/2016
Layout, Probe Head Board	111183-00	E	10/27/2016
Assy, Probe Head Board	111184-00.pdf	E02	3/12/2021
BOM, Probe Head Board	111184-00(BOM).pdf	E02	3/17/2021
Schematics, Probe Head Board	111185-00	E	3/3/2017
Layout, USB Barrier Board	113454-00	C	5/10/2016
Assy, USB Barrier Board	113455-00.pdf	C	5/10/2016
BOM, USB Barrier Board	113455-00(BOM).pdf	C	5/10/2016
Schematics, USB Barrier Board	113456-00	C	5/10/2016
Layout, TVA2020 Battery Charger Board	110927-00	F	3/15/2021
BOM, TVA2020 Battery Charger Board	110928-00(BOM).pdf	F	3/18/2021
Assy, TVA2020 Battery Charger Board	110928-00.pdf	F	2/15/2021
Schematics, TVA2020 Battery Charger Board	110929-00	F	3/15/2021
Label, Charger	114042-XX	E	4/30/2021
*Layout, Battery Board	115672-00	E	1/19/2022
*Assy, Battery Board	115673-00.pdf	E	1/19/2022
*BOM, Battery Board	115673-00(BOM).pdf	E	2/21/2022
*Schematics, Battery Board	115674-00	E	1/19/2022
Battery Datasheet, Li-Ion Cell 3.7V- 1.8Ah	112627-00	B	10/9/2015
Potted, Cell	112626-00	C	10/26/2016
Cable Assy, Red Wire	112635-00	B	10/20/2016
Epoxy Datasheet	112639-00	B	10/20/2016
*Battery Pack, 6 cells and PCB	112654-00	C	12/13/2021
*Epoxy, Potting	112656-00	C	1/17/2022
*Battery	56-011811	G	12/13/2021
Control Document, Flamepath	112846-00	F	7/13/2020

Certificate issued by:



**Intertek Testing Services NA, Inc**  
3933 US Route 11, Cortland, NY  
13045, U.S.A.

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SFT-IECEX-OP-19f (26 October 2018)



## Annex to IECEx Certificate of Conformity

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Technical Documents			
Title:	Drawing No.:	Rev. Level:	Date:
Adapter, Molding	112963-00	E	6/7/2016
Bezel, Display Molding	112964-00	C	10/24/2015
TVA2020, Casing Front	34-011690-0010	F	2/13/2020
TVA2020, Housing, Front	34-011690-0011	G	2/12/2020
TVA2020, Overmold, Front	34-011690-0012	C	10/9/2015
TVA2020, Casing, Rear	34-011690-0020	E	2/13/2020
TVA2020, Housing, Rear	34-011690-0021	D	2/13/2020
TVA2020, Overmold, Rear	34-011690-0022	C	10/12/2015
Ring, Nozzle Retention	34-011878	B	9/29/2015
Handle, Enhanced Probe, Left	34-011948	B	10/9/2015
Handle, Enhanced Probe, Right	34-011949	B	10/9/2015
Handle, Simple Probe, Right	34-011952	B	10/2/2015
Handle, Simple Probe, Left	34-011953	B	10/2/2015
Pump, TVA2020	111241-00	A	4/9/2012
Sensor, PID	111256-00	C	2/22/2017
Display Module, LCD Board	112245-00	F	2/8/2021
Ampire, Display	P0152FV	E	Not Available
Interconnection Diagram	114302-XX	D	2/7/2019
*Label Drawing, TVA2020	116005-XX	E	1/17/2022
Instrument Manual	117061-00	n/a	5/11/2021
VA2020 Interconnection Table	117506-00	A	8/15/2017
Product Safety Specifications	117576-00	C	4/30/2021
Keypad, TVA2020	117624-00	B	11/21/2018
Enhanced Probe Window (8 x 20)	117625-00	B	2/20/2019
Label, Barrier, TVA2020	117777-XX	C	4/30/2021
NDA Protected Schematics	117851-XX	A	3/22/2017
Assy, Enhanced Probe	56-011950-XXXX	E	11/4/2016
Assy, TVA2020	118641-XXXX	B	2/14/2019
TVA Model Code Document	TVA2020-Model	G	Not Available
Label, Protective Overlay	118579-00	A	10/26/2017
Handle, Hydrogen Tank	114011-00	A	8/8/2013
Assy, TVA2020, China	119903-XXXX	A	2/11/2019
Instrument Manual, China	119943-00	n/a	5/11/2021
BOM, Bluetooth Module, Laird	120124-00 (BOM)	A	7/22/2020
Assy, Bluetooth Module, Potted	120124-01	A	10/16/2020
Schematic, Bluetooth Module, Laird	120125-00	A	7/22/2020
Ceramic Potting Epoxy	121128-00	A	Not Available

Note: An \* is included before the title of documents that are new or revised.