



INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

IECEx Certification Processes



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Mr Mark Amos
IECEx Secretariat
September 2019



IECEX System & Schemes

IEC System for Certification to Standards Relating to Equipment for use in Explosive (“Ex”) Atmospheres.





IECEX Certificate of Conformity (CoC)

A document issued under IECEx Rules indicating that adequate confidence is provided that a specified product, process, service or person is in conformity with a standard or specification.



Scope and **Standards** for IECEx include ...

- **Electrical & Non-electrical Equipment Conformance** (to IEC 60079-** & ISO 80079-** requirements)
- **Hazardous Area Classification** (to IEC 60079-10-*)
- **Ex Equipment Installation and Inspection**
(to IEC 60079-14 &/or IEC 60079-17)
- **Ex Equipment Maintenance, Repair, Overhaul and Reclamation** (to IEC 60079-19)
- **Personnel Competence** (to ISO/IEC 17024)



Forms of Certification

The IECEx System Schemes are all **Type 5** where certification is achieved and maintained through:

- **Type testing** of product samples, process outputs or persons to the requirements of all relevant Standards or specifications

PLUS

- Initial and continuous on-site **surveillance** assessment of quality management system implementation and the manufacturing and service processes

Forms of Certification

1st Party

- Self Declaration by supplier
- Rely on supplier's
 - Test Facilities
 - Test Procedures
 - Pass/Fail Criteria

2nd Party

- = 'Purchaser Assessment' ... *'buyer beware'*
- Rely on purchaser's
 - Test Facilities
 - Test Procedures
 - Pass/Fail Criteria
 - Reliance on product knowledge and test methods by purchaser

3rd Party

- Independent assessment by qualified and recognised Test Lab and Certification Body
 - ✓ No commercial influence
 - ✓ Traceability via accreditation
 - ✓ All suppliers treated the same
 - ✓ Confidence
 - ✓ Portability



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2nd Party

- = 'Purchaser Assessment' ... *'buyer beware'*
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IECEX = 3rd Party

- **Independent assessment by qualified and recognised Test Lab and Certification Body**
- ✓ **No commercial influence**
- ✓ **Traceability via accreditation**
- ✓ **All suppliers treated the same**
- ✓ **Confidence**
- ✓ **Portability**



Schemes within the IECEx System

IECEx System

IECEx Equipment Scheme
Certification of Ex Equipment



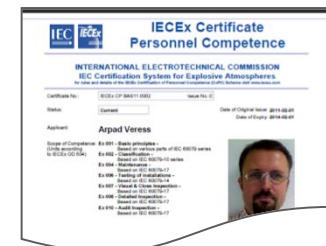
IECEx Conformity Mark License
Scheme



IECEx Services Scheme
Certification of Ex Service Providers



IECEx Certified Persons
Scheme (CoPC)
Competency to work in Ex field (New)





Schemes within the IECEx System

IECEx System

IECEx Equipment Scheme
Certification of Ex Equipment



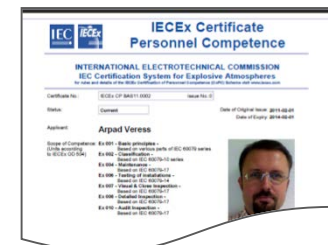
IECEx Conformity Mark License Scheme



IECEx Services Scheme
Certification of Ex Service Providers



IECEx Certified Persons Scheme (CoPC)
Competency to work in Ex field





IECEX Equipment Scheme

- **IECEX Test Report Summary (ExTR)**
PLUS
- **IECEX Quality Assessment Report (QAR)**
= FOUNDATION FOR
- **IECEX Certificate of Conformity (CoC)**



To obtain this certificate, the manufacturer prepares his application and submits it to the relevant IECEx Certification Body (ExCB). Samples of the equipment will be **tested** by the laboratory of the ExCB and a factory inspection will be organized. On-going periodic **audits** (factory inspections) ensure that the stringent standards are being maintained by the manufacturer, over time.

IECEX Test Report Summary (ExTR)



The **ExTR** demonstrates that a **sample** of ex-production product has been tested to all relevant requirements of all relevant IEC or ISO Standards and that the sample has satisfied all relevant requirements.



IECEX Equipment Scheme

IECEX Quality Assessment Report Summary (QAR)



The QAR demonstrates that all manufacturing locations where the certified product is manufactured have been audited and have been confirmed as capable of manufacturing product identical in design and performance to the tested sample. The QAR has a three year life and at the end of the three years a full audit is required. Surveillance audits are also conducted during the three year period. The frequency of surveillance audits is determined by ISO 9001 and ISO 80079-34 certification status of the manufacturer.




IECEX Equipment QAR Elements

 		IECEX Quality Assessment Report	
QAR Reference No.	GB/BAS/QAR17.0012/00	Status	Current
QAR Free Ref. No.	7718	Date of issue	2017-07-06
Detail of change	N/A	Valid until	2020-05-24
Site(s) audited	AV Technology Limited T/A AVT Reliability,2 Easter Court,Europa Boulevard,Warrington,Cheshire,WA5 7ZB	Audit Date	2017-05-24
Issuing ExCB	BAS - SGS Baseefa Limited		
Manufacturer	AV Technology Limited T/A AVT Reliability,2 Easter Court,Europa Boulevard,Warrington,Cheshire,WA5 7ZB		
Country of Manufacture	United Kingdom		
Product information	Measuring devices		
Protection concept	Ex i		
Related QARs	GB/BAS/QAR17.0012/00		



IECEX Equipment Certificate Example



IECEX Certificate of Conformity


INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
for rules and details of the IECEX Scheme visit www.ieceex.com

Certificate No.:	IECEX BAS 17.0063X	Issue No.:	0	Certificate history: <input type="text"/>
Status:	Current			
Date of Issue:	2017-06-22	Page 1 of 4		
Applicant:	Eaton Electric Limited Great Marlings Butterfield Luton Bedfordshire LU2 8DL United Kingdom			
Equipment:	FC5-5512-222 to -241 MTL Foundation Fieldbus Junction Box			
Optional accessory:				
Type of Protection:	Increased Safety, Type of Protection 'n' & intrinsic safety			
Marking:	Ex ec nA [Ic] IIC T4 Gc (-40°C ≤ Ta ≤ +60°C)			
Approved for Issue on behalf of the IECEX Certification Body:	R. S. Sinclair			
Position:	Technical Manager			

1. This certificate and schedule may only be reproduced in full.
 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 the Official IECEX Website.

Certificate issued by:

SGS Baseefa Limited
 Rockhead Business Park
 Staden Lane
 Buxton, Derbyshire, SK17 9RZ
 United Kingdom



Certificate No.:	IECEX BAS 17.0063X	
Date of Issue:	2017-06-22	Issue No.: 0
		Page 2 of 4
Manufacturer:	Eaton Electric Limited Great Marlings Butterfield Luton Bedfordshire LU2 8DL United Kingdom	
Additional Manufacturing location(s):	MTL Instruments Pvt Limited No 3 Old Mahaballpuram Road Sholinganallur Chennai 600119 India	

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 D2 and Operational Documents as amended.

STANDARDS:
 The electrical apparatus 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 : 2011 Edition: 6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-11 : 2011 Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "I"
IEC 60079-15 : 2010 Edition: 4	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
IEC 60079-7 : 2006-07 Edition: 4	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
IEC 60079-7 : 2015 Edition: 5.0	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

This Certificate does not indicate compliance with electrical 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:
 GB/BAS/EXTR17.0152/00

Quality Assessment Report:
 GB/BAS/QAR06.0022/06 GB/BAS/QAR07.0017/06



IECEX Equipment Certificate Elements

		IECEX Certificate of Conformity	
INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres			
Certificate No.:	IECEX BAS 15.0065X	issue No.: 1	Certificate history: Issue No. 1 (2017-8-4) Issue No. 0 (2015-6-16)
Status:	Current		
Date of Issue:	2017-08-04	Page 1 of 5	
Applicant:	Trox Limited 10a Newby Road Hazel Grove Stockport Cheshire SK7 5DY United Kingdom		
Equipment:	TX9042 Programmable Sensor Controller		
Optional accessory:			
Type of Protection:	Intrinsic Safety		
Marking:	Ex ia I Ma (-20°C ≤ Ta ≤ +40°C)		
Approved for issue on behalf of the IECEX Certification Body:		R S Sinclair	



IECEX Equipment Certificate Elements

Manufacturer: **Pepperl + Fuchs GmbH**
Lilienthalstrasse 200
68307 Mannheim
Germany

Additional Manufacturing location(s):
Pepperl + Fuchs Asia Pte. Ltd.
18 Ayer Rajah Crescent
Singapore 139942
PT. Pepperl + Fuchs
Bintan
SD 56, 57 Lobam, Bintan
Industrial Estate
IND-Pulau Bintan
Riau
Indonesia

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 electrical apparatus 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 : 2011 Explosive atmospheres - Part 0: General requirements
Edition: 6.0

IEC 60079-7 : 2015 Explosive atmospheres – Part 7: Equipment protection by increased safety "e"
Edition: 5.0

*This Certificate **does not** indicate compliance with electrical 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:
GB/BAS/EXTR17.0237/00

Quality Assessment Report:

DE/PTB/QAR06.0007/04

DE/PTB/QAR06.0008/08



IECEX Equipment Certificate Elements



IECEX Certificate of Conformity

Certificate No.:

IECEX SIR 16.0059X

Date of Issue:

2017-08-03

Issue No.: 1

Page 3 of 4

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The Sentry SPU – GBP200/-----Y is part of the SENTRY GB-200 system and is a wireless temperature measuring system utilized for example for the surveillance of the critical parts of rotating machinery. The system is based on radar technology and the use of wireless passive sensors. A low energy and high frequency radio (radar) pulse is generated and transmitted to the sensor. The sensor reflects the pulse back to antenna and then to the signal processing unit. The temperature of the sensor determines the shape and characteristics of this reflected pulse.

Refer to the Annexe for additional information



Schemes within the IECEx System

IECEx System

IECEx Equipment Scheme

Certification of Ex Equipment



IECEx Conformity Mark License Scheme



IECEx Services Scheme

Certification of Ex Service Providers



IECEx Certified Persons Scheme (CoPC)

Competency to work in Ex field





IECEX Certified Service Facility Scheme

Certifying providers of

- *Design*
- *Selection*
- *Installation*
- *Inspection*
- *Maintenance*
- *Repair*
- *Overhaul*
- *Reclamation*

services on Ex Equipment

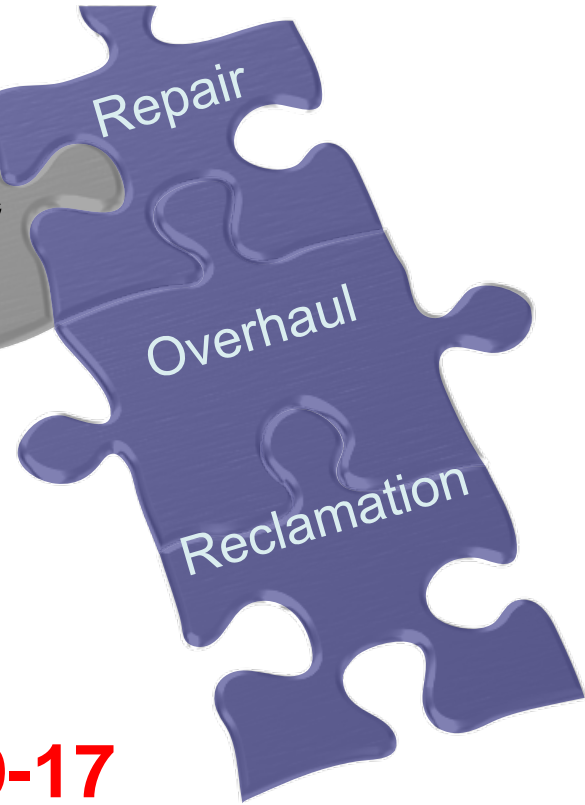
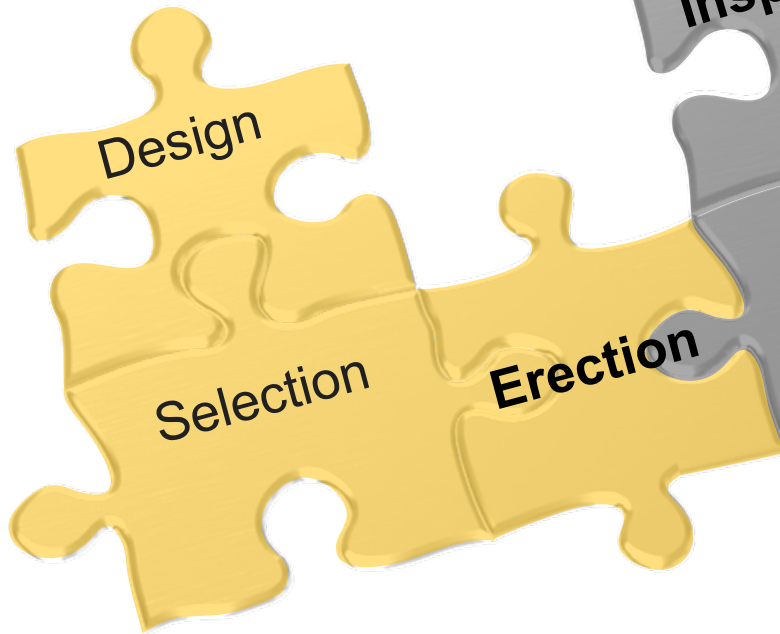




Relevant IEC "Service" Standards

IEC 60079-19

IEC 60079-14



IEC 60079-17

KEY ELEMENTS OF SERVICE

People



- Knowledge
- Skills
- Experience
- Training

Technical



- Machinery
- Measurement
- Calibration

Quality



- Quality Management
- Commitment



IECEX Service Facility Certificate Elements

		IECEX CoC Certified Service Facility	
INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres			
Certificate No.:	IECEX DEK S0028	issue No.:0	Certificate history:
Status:	Current	Date of Issue: 2017-07-25	
Applicant:	Facta Aandrijftechniek B.V. Westerwerf 11 1911 JA Uitgeest The Netherlands		
Type of Service:	Repair and Overhaul according to IEC 60079-19		
Type of Protection:	03-5 Program - Repair Overhaul and Reclamation Flameproof Enclosure "d" Increased Safety "e" Oil Filled "o" Other Pressurisation "p" Type of Protection "n"		
Scope of Service:	Ex d, Ex e, Ex n, Ex o, Ex p and Ex t motors, transformers, generators and ventilators Non-electrical equipment, mainly pumps and gearboxes with types of protection c and k. On site repair		
Locations covered by this Certificate:	Facta Aandrijftechniek B.V. Westerwerf 11 1911 JA Uitgeest The Netherlands		
Facility Audit Report:	NL/DEK/FAR11.0007/06		



IECEX Service Facility FAR Elements

IEC		IECEX		IECEX Facility Assessment Report	
FAR Reference Number	NL/DEK/FAR11.0007/06	Status	Current		
Issuing ExCB	DEK - DEKRA Certification B.V.				
FAR Free Reference Number	217917700				
Date of Issue	2017-07-25	Audit date:	2017-06-14	Valid Until	2020-06-14
Site audited	Facta Aandrijftechniek B.V. Westerwerf 11 1911 JA Uitgeest	Service Facility	Facta Aandrijftechniek B.V. Westerwerf 11 1911 JA Uitgeest The Netherlands	Country / Location	The Netherlands
Detail of change	re-assessment performed with positive result.,Issue of a new DEKRA certificate on request of Facta.				
Type of Work Covered by Service Facility	Ex d, Ex e, Ex n, Ex o, Ex p and Ex t motors, generators and ventilators Non-electrical equipment, mainly pumps and gearboxes with types of protection c and k. On-site repair.				



Schemes within the IECEx System

IECEx System

IECEx Equipment Scheme
Certification of Ex Equipment



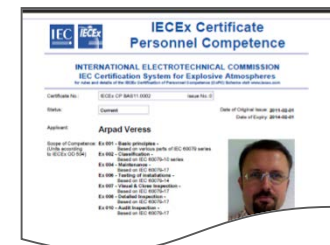
IECEx Conformity Mark License
Scheme



IECEx Services Scheme
Certification of Ex Service Providers



IECEx Certified Persons
Scheme (CoPC)
Competency to work in Ex field





IECEX CoPC Scheme - Units of Competence

**Unit Ex 001:
Basic Principles**

**Unit Ex 002: Zone
Classification**

**Unit Ex 003:
Installation**

**Unit Ex 004:
Maintenance**

**Unit Ex 006: Test
el. Installations**

**Unit Ex 005: Over-
haul & Repair**

**Unit Ex 007: Visual
& close Inspection**

**Unit Ex008:
Detailed Insp.**

**Unit Ex 009: Design
Electr. Installation**

**Unit Ex 010: perform
Audit insp. of install.**



Units of Competence

“Units of Competence” relate to different types and / or levels of work

Each IECEx Unit of Competence comprises:

- ***Scope***
- ***Pre-requisites***
- ***Elements and performance criteria***
- ***Scope Limitations***



Overall assessment

- **Knowledge assessment:**

75% of items in a knowledge test shall be answered correctly

- **Practical assessment:**

All items shall be correctly **demonstrated.**

Some units need **practical** assessment where the applicant needs to correctly ...

- Unit Ex 002: **demonstrate** a zone classification in Gas and in Dust area.
- Unit Ex 003: **demonstrate** installation of several equipment as 'd' enclosure, 'e' terminal box and intrinsic safety barriers and sensors by following wiring diagram
- Unit Ex 004: **demonstrate** maintenance of installation by doing the preparation, the check and the report
- Unit Ex 005: **demonstrate** the repair of a motor
- Unit Ex 006: **demonstrate** installation testing by doing the preparation, conducting testing and writing the report



Application Process Steps

Applicants need to:

- ✓ Choose the required Ex Competence unit(s)
- ✓ Select an IECEx Certification Body (ExCB)
- ✓ Complete and submit application form to ExCB
- ExCBs confirms acceptance of application
- ✓ Successfully complete the **knowledge** assessment of each requested Ex Competence units
- ✓ Successfully complete the **practical** assessment (if required for the Ex units requested in application)
- ExCB issues IECEx Certificate & IECEx ID Card



IECEx "CoPC" Certification Process

Appropriate Mix of Competences to be certified



ExCB examines:

Knowledge

Skills

Experience

IECEx Certified Person



5 Year Re-assessment

IECEx		IECEx Certificate Certified person	
INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres for rules and details of the IECEx Scheme visit www.iecex.com			
Certificate No.	KEM CP01EX	Status	Valid, Current, Cancelled
Date of Issue	2009-01-08	Date of Expiry	2012-01-08
Applicant	Ernest Walter Fickson Australia		
Field of Competencies	Installation according to IEC 60079-14 Inspection according to IEC 60079-15 Risk Classification according to IEC 60079-18 Repair according to IEC 60079-19		
Scope of Competencies	L1/L2 as per appropriate doc: 1. 2. 3. 4. 5. 6.		
PCRB Reference No.	As on file by ExCB		
This certificate is based on verification that the Applicant was assessed and found to comply with the IECEx Scheme requirements, taking into the field and scope of competencies stated above. This certificate is granted subject to the conditions as stated in IECEx Scheme Rules, IECEx-10 and Operational Documents as mentioned.			
Approved for Issue on behalf of the IECEx	Name: _____		
Certification Body:	Certification Authority: _____		
Signature (only on paper copy)	_____		
Date (only on paper copy)	_____		
1. This certificate may only be reproduced in full. 2. This certificate is for identification and records the property of the issuing body. 3. The status and authenticity of this certificate may be verified by making the IECEx website .			
CERTIFIED BY: KEMA Quality B.V. International BV 6525 AP Arnhem The Netherlands			
			



IECEX CoPC On-line Certificate example

		<h2>IECEX Certificate Personnel Competence</h2>
INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres <small>for rules and details of the IECEX Certification of Personnel Competence (CoPC) Scheme visit www.iecex.com</small>		
Certificate No.:	IECEX CP BAS11.0015	issue No.:2
Status:	Current	Date of Original Issue: 2011-11-22 Date of Expiry: 2015-12-17
Applicant:	Manggau Galawing	
Scope of Competence (Units according to IECEX OD 504)	<ul style="list-style-type: none">Ex 001 - Basic principles - Based on various parts of IEC 60079 seriesEx 002 - Classification - Based on IEC 60079-10 seriesEx 003 - Installation - Based on IEC 60079-14Ex 004 - Maintenance - Based on IEC 60079-17Ex 005 - Overhaul and repair - Based on IEC 60079-19Ex 006 - Testing of installations - Based on IEC 60079-14Ex 007 - Visual & Close Inspection - Based on IEC 60079-17Ex 008 - Detailed Inspection - Based on IEC 60079-17	



**Thank you for
your attention.**

Mark Amos
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**INTERNATIONAL
ELECTROTECHNICAL
COMMISSION**