



هيئة الإمارات للمواصفات والمقاييس  
Emirates Authority For Standardization & Metrology



UNITED NATIONS  
ECONOMIC COMMISSION FOR EUROPE

# IECEX International Conference 2012

## A Manufacturer's Perspective



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Endress + Hauser*

**IECEX 2012, Dubai,  
20+21 March 2012**



Pascagoula, Mississippi, refinery (Chevron)



Level



Pressure



Flow



Temperature



Liquid  
Analysis



Registration



Systems  
Components



Services



Solutions



IECEX International Conference – Dubai 2012

## IECEX Equipment Certification

A manufacturer's perspective of the process  
- Gaining global market access -

20-21 March 2012

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Endress+Hauser Meßtechnik, Germany

Endress+Hauser 

People for Process Automation

23/08/2010

Dr. G. Klotz-Engmann

Slide 1



Endress+Hauser at a glance

Endress+Hauser 

## The Endress+Hauser Group

Endress+Hauser  
Dubai



- Holding company in Reinach, Switzerland
- 19 production facilities in 11 countries
- Endress+Hauser sales centers in more than 40 countries
- Representatives in over 70 other countries
- Three regional sales support centers

We are worldwide yet still close to our customers!



## Our customers – Process Industry

Endress+Hauser provides safe and reliable instrumentation for many industries



### Chemicals

We make processes safe



### Food & Beverages

We ensure absolute hygiene



### Environmental

We take care of our environment



### Life Science

We observe the highest standards



### Oil & Gas

We guarantee high accuracy



### Power & Energy

We help to use resources efficiently



### Primaries & Metal

We provide robust solutions



### Renewable Energies

We focus on sustainable development



### Pulp & Paper

We support with modern techniques



### Marine Business

We combine tradition with innovation

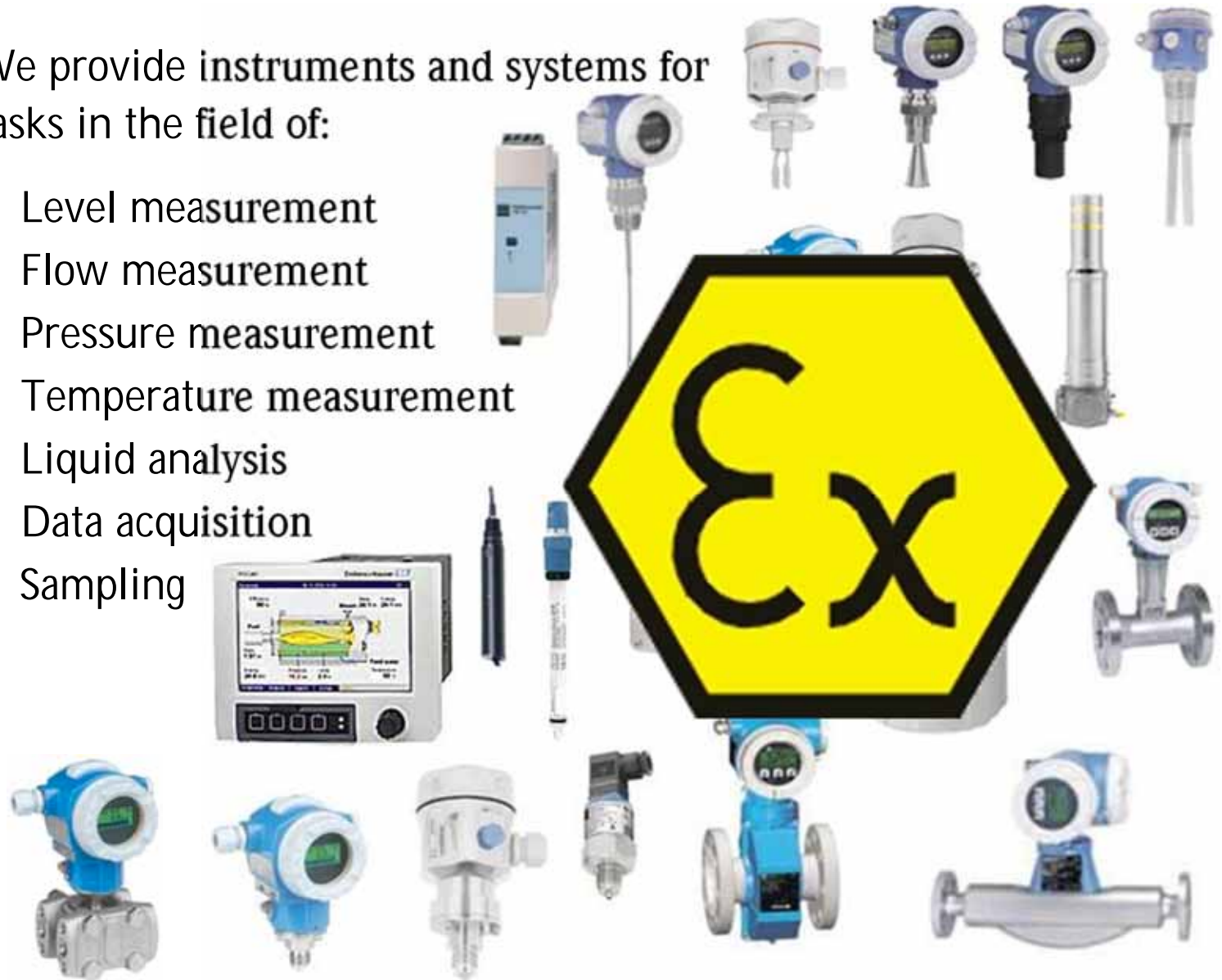
We speak the language of our customers!



## Our Products - Process Instrumentation

We provide instruments and systems for tasks in the field of:

- Level measurement
- Flow measurement
- Pressure measurement
- Temperature measurement
- Liquid analysis
- Data acquisition
- Sampling



## The IEC Ex System – Experience and Expectations

- Scope of the IEC Ex System
- Current situation for a manufacturer of Ex equipment
- Comparison between Ex-Certification Systems
- Experience with the IEC Ex system
  - Conformity assessment
  - Acceptance of test reports, certificates and QM surveillance
- Expectations and Vision



## Scope of the IEC Ex System

- The IECEx Certified Equipment Scheme
- The IECEx Certified Service Facilities Scheme
- The IECEx Conformity Mark Licensing System
- The IECEx Certification of Personnel Competencies (CoPC)



## Current Situation for Endress+Hauser

Endress+Hauser serves the global market - consequences:

- For global sales **national certificates** for many countries/regions are required (e.g. Europe, North America, China, Japan ....)
- Several **surveillance systems** with many factory audits (approx. 8-10 Ex-audits per year and factory location!)
- Extensive costs and long **time to market!** (0,5 ... 1 year certification process)










## Global Ex-certificates

Market	Europe (ATEX)	USA	CAN	China	Japan	Australia (IEC Ex)	others	Total
Market distribution	57 %	8 %	3 %	8,5 %	3,2%	< 2%	18,3%	100%
No. Certificates	282	178	190	120	193	91	246	1300
No. Audits p.a.	18 months	4	4	-	-	18 months	~1	8-10

## Comparison between Ex-Certification Systems

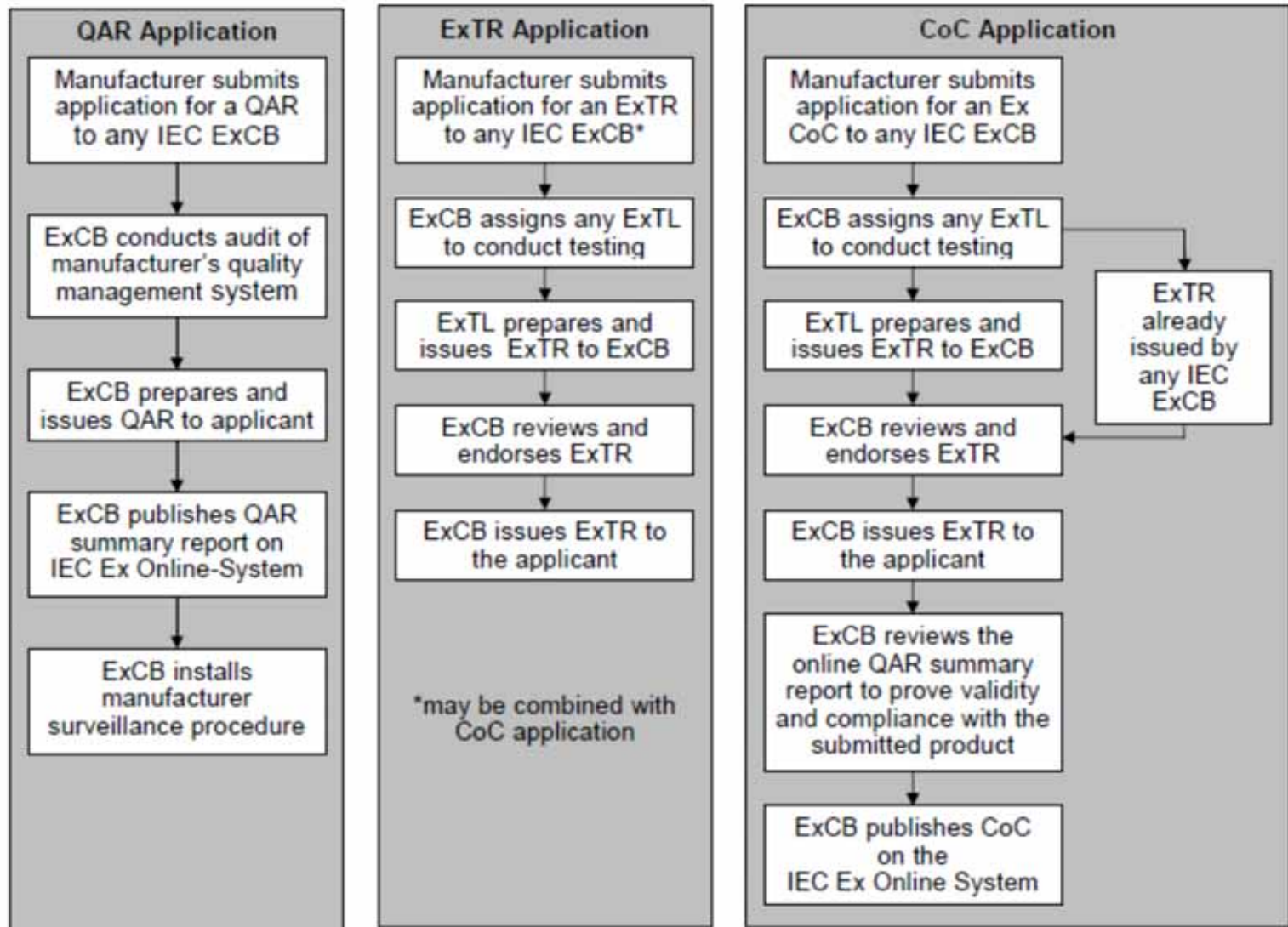
	ATEX	NEC/CEC	IEC Ex
Regulatory status	Mandatory system	Mandatory system	Voluntary system
Conformity basis	EU-Directives (EHSR) (EN-Standards)	US/CN-Standards e.g. ISA, UL, FM, CSA	IEC Standards
Area classification	Zone System	Zone system or Class/Division system	Zone System
Conformity assessor	Ex Notified Bodies (ExNB) Manufacturer	NRTLs (UL, FM, CSA,...)	Ex Certifying Bodies (ExCB) Ex Testlabs (ExTL)
Quality system	EN 13980 Regular audits (12-18 Months)	Quarterly audits (!)	OD005/IEC60079-34 Regular audits (12-18 Months)
Issued documents	- EC-Type Examination Certificate - Test Report (on request) - QM certificate/report	- Certificate of conformity - Test Report - Audit report	- Certificate of Conformity - Test report (ExTR) - Quality Assessment Report → <u>Online System</u>
Acceptance of CoC	Europe	North America	Australia, New Zealand
Conformity mark	4 	  	
Acceptance of TR	Europe, Northamerica, Japan China Brasil	North America, Europe	36 IEC Ex Member States

## Experience with the IEC Ex system

### Conformity assessment procedure:

- independent application for ExTR, QAR or CoC to any ExCB ☺
- **electronic submission** of application documents ☺
- **combined application** for e.g. ATEX+IEC Ex (harmon. Standards) ☺
- very **formal**, conformity to standards strictly requested ☹
- very detailed and **extensive test report**, time consuming ☹  
(formalized report partially prepared by applicant)
- **manufacturer tests** partially accepted (OD0024) ☺
- simple application procedure for **licensed equipment** ☺

# Independent procedures for applying for QAR, ExTR, CoC



# Online Certificates



## IECEX Certificate of Conformity

**INTERNATIONAL ELECTROTECHNICAL COMMISSION**  
**IEC Certification Scheme for Explosive Atmospheres**  
for rules and details of the IECEX Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.:	IECEX PTB 07.0006	Issue No.:	1
Status:	Current	<div style="border: 1px solid black; padding: 2px; font-size: 0.8em;">                     Certificate history:                      Issue No. 1 (2010-6-18)                      Issue No. 0 (2007-3-9)                 </div>	
Date of Issue:	2010-06-18	Page 1 of 4	
Applicant:	Endress+Hauser Flowtec AG Kogenstrasse 7 4153 Reinach BL 1 Switzerland		
Electrical Apparatus: Optional accessory:	Mass Flowmeter, types CHGmass, LPGmass and Cubemass		
Type of Protection:	General Requirements (Gas, Dust), Increased Safety, Encapsulation, Flameproof Enclosure, Intrinsic Safety, Protection by Enclosure		
Marking:	Ex d [ia] / Ex de mb [ia] IIC T <sup>+</sup> - T1 **TS(CHGmass), T2(LPGmass, Cubemass) Ex ID A21 IP6X *** 1C ***see documentation		
Approved for issue on behalf of the IECEx Certification Body:	Dr.-Ing. Ulrich Johannsmeyer		
Position:	Department Head "Intrinsic Safety and Safety of Systems"		
Signature: (for printed version)	<hr style="border: 0; border-top: 1px solid black; width: 100%;"/>		
Date:	<hr style="border: 0; border-top: 1px solid black; width: 100%;"/>		

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

IECEX Technical Report: DE/PTB/ExTR07.0024/00 details

ExTR :	
ExTR Reference Number*: (automatic numbering)	DE/PTB/ExTR07.0024/00
Status*:	Issued
ExTR Free Reference Number*:	DE/PTB/ExTR07.0024/00
Date of Issue*: (yyyy-mm-dd)	2007-03-22
List of Standards Covered*:	IEC 60079-0 (Ed.4.0); IEC 60079-1 (Ed.4); IEC 60079-11 (Ed.4); IEC 60079-18 (Ed.1); IEC 60079-28 (Ed.1); IEC 60079-7 (Ed.3)
Issuing ExTL*:	PTB - Physikalisch-Technische Bundesanstalt (PTB)
Endorsing ExCB*:	PTB - Physikalisch-Technische Bundesanstalt (PTB)
Manufacturer*:	Endress+Hauser GmbH+Co. KG Hauptstraße 1 70689 Maulburg
Country of Manufacture*:	Germany
Ex Protection*:	Zone 0/1 resp. Zone 1 Ex ia IIC T <sup>+</sup> resp. Zone 0/1 resp. Zone 1 Ex em [ia] IIC T <sup>+</sup> resp. Zone 0/1 resp. Zone 1 Ex d [ia] IIC T <sup>+</sup>
Ratings:	
Product*:	Microwave unit Microplot M
Model Reference*:	FMR 2...-
Related IECEX Certificates:	-
Comment:	
Attachment:	

# Online Quality Assessment Report (QAR)

IECEX Quality Assessment Report: DE/TUN/QAR06.0003/01 details

QAR :	
QAR Reference Number <sup>1)</sup> : (automatic numbering)	DE/TUN/QAR06.0003/01
Related QARs:	DE/TUN/QAR06.0003/00 DE/TUN/QAR06.0003/02
Status <sup>2)</sup> :	Issued
QAR Free Reference Number <sup>3)</sup> :	QAR TUN 04.0001
Date of Original Issue <sup>4)</sup> : (yyyy-mm-dd)	2004-09-19
Details of change <sup>5)</sup> :	
Audit Date <sup>6)</sup> : (yyyy-mm-dd)	2007-09-17
Site(s) audited <sup>7)</sup> :	Endress+Hauser GmbH+Co. KG Hauptstraße 1 70689 Maulburg Germany Endress+Hauser GmbH+Co. KG Miniamstraße 87 34123 Kassel Germany Endress+Hauser (Suzhou) Automation Instrumentation Co. Ltd. 215021 Suzhou P.R. China
Issuing ExCB <sup>8)</sup> :	TUN - TÜV NORD CERT GmbH
Manufacturer <sup>9)</sup> :	Endress+Hauser GmbH+Co. KG Hauptstraße 1 70689 Maulburg Germany
Country of Manufacture <sup>10)</sup> :	Germany
Product Information <sup>11)</sup> :	Flameproof enclosures d Increased safety e Intrinsic safety i Encapsulation m Protection by intrinsic safety iD Protection by encapsulation mD Protection by enclosures iD Electrical apparatus with type of protection n
Valid until <sup>12)</sup> : (yyyy-mm-dd)	2010-09-16
Protection concept <sup>13)</sup> :	Apparatus and equipment for measurement and control
Related IECEX Certificates: (automatic linking)	IECEX BVS 08.0012 issue: 0 [Current] IECEX KEM 08.0021X issue: 0 [Current] IECEX BVS 08.0027X issue: 0 [Current] IECEX BK1 08.0009 issue: 0 [Current] IECEX KEM 08.0036U issue: 0 [Current] IECEX KEM 08.0048U issue: 0 [Current] IECEX BVS 09.0007X issue: 0 [Current] IECEX KEM 09.0016 issue: 0 [Current] IECEX KEM 09.0026 issue: 0 [Current] IECEX KEM 09.0016 issue: 1 [Current]

## Experience with the IEC Ex system

### Acceptance of **test report (ExTR)** for national certification:

- US/Canada: ExTR accepted for Zone System ☺  
ExTR may be accepted for division concept (e.g. IS)
- Russia, Ukraine, Belarus: ExTR accepted ☺
- China: ExTR accepted ☺
- South Korea: ExTR accepted ☺
- Hongkong, Taiwan, Vietnam, Indonesia (no IEC Ex members!):  
ExTR not accepted (but: Atex Testreport accepted)
- Japan: ExTR not generally accepted, many tests required ☹
- India: ExTR accepted ☺
- Brazil, Argentina, Chile: ExTR accepted ☺

## Experience with the IEC Ex system

### Acceptance of IEC Ex certificate

- legally accepted only in Australia and New Zealand ☹
  - no national Certificate required ☺
  - direct trade with IEC Ex certified equipment (Group II) ☺
- acceptance in other countries?  
e.g. Singapore, Middle East

### Acceptance of IEC Ex QAR:

- QAR of any ExCB accepted internally in the IEC Ex system ☺
- QAR for national certification not accepted ☹



## IEC Ex System – our expectation



- globally accepted IEC Ex Testreports
- globally accepted IEC Ex Certificates
- globally accepted surveillance (QAR)
- avoid multiple testing and audits!
- reduce time to market!



Only a vision ?



Level



Pressure



Flow



Temperature



Liquid  
Analysis



Registration



Systems  
Components



Services



Solutions

Thank you very much  
for your attention !