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

Certificate No.: IECEx PTB 16.0020 Issue No: 0 Certificate history: Issue No. 0 (2017-07-24)

Status: **Current**

Date of Issue: **2017-07-24**

Applicant: **Hans Turck GmbH & Co KG**
Witzlebenstrasse 7
45472 Mülheim Ruhr
Germany

Equipment: **I/O fieldbus system excom® type EG-VA********/***-**** / 2GD**.*****
Optional accessory:

Type of Protection: **Increased Safety "e", Dust Protection by Enclosure "t", Flameproof Enclosure "d", Intrinsic Safety "i", Encapsulation "m", Powder Filling "q", Optical Radiation "op"**

Marking:

Ex e q d mb ib [ia Ga] [op is] IIC T4 Gb or
Ex eb qb db mb ib [ia Ga] [op is Gb] IIC T4 or
Ex tb [ia Da] [op is] IIIC T135°C Db or
Ex tb [ia Da] [op is Db] IIIC T135°C

Approved for issue on behalf of the IECEx Certification Body: Dr.-Ing. F. Lienesch

Position: Head of Department "Explosion Protection in Sensor Technology and Instrumentation"

Signature:
(for printed version)

Date:

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:

Physikalisch-Technische Bundesanstalt (PTB)
Bundesallee 100
38116 Braunschweig
Germany

Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin

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Date of Issue:	**2017-07-24**	Page 2 of 3
Manufacturer:	**Hans Turck GmbH & Co KG** Witzlebenstrasse 7 45472 Mülheim Ruhr **Germany**	

Additional Manufacturing location(s):

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 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-1 : 2007-04 Edition:6	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 60079-18 : 2009 Edition:3	Explosive atmospheres Part 18: Equipment protection by encapsulation "m"
IEC 60079-25 : 2010-02 Edition:2.0	Explosive atmospheres – Part 25: Intrinsically safe electrical systems
IEC 60079-26 : 2006 Edition:2	Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga
IEC 60079-28 : 2006-08 Edition:1	Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation
IEC 60079-31 : 2013 Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
IEC 60079-5 : 2007-03 Edition:3	Explosive atmospheres - Part 5: Equipment protection by powder filling "q"
IEC 60079-7 : 2006-07 Edition:4	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:

DE/PTB/ExTR15.0054/00

Quality Assessment Report:

DE/PTB/QAR06.0013/04

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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

see the attachement of this certificate.

SPECIFIC CONDITIONS OF USE: NO

Annex:

CoCA16_0020_00.pdf

Applicant: Hans Turck GmbH & Co. KG
Witzlebenstraße 7, 45472 Mülheim, Germany

Electrical Apparatus: I/O fieldbus system excom®
type EG-VA********/***-**** / 2GD**.*****

Description of equipment

The I/O fieldbus system excom®, type EG-VA********/***-**** / 2GD**.***** is a remote I/O fieldbus system consisting of module racks, power supply units and functional modules - each with a particular approval - , that generates intrinsically safe circuits for signal processing. Furthermore it comprises a choice of explosion protected accessory devices depending on customer requirements.

The basic element of the I/O fieldbus system is a system-enclosure designed to types of protection Increased Safety “e” and Dust Protection by Enclosure “t”. The system-enclosure is classified into three enclosure classes having specific minimum dimensions which refer to respective equipment variants.

Table 1

Enclosure class	Minimum width	Minimum height	Minimum depth
46	46 cm	55 cm	26 cm
65	65 cm	55 cm	26 cm
80	80 cm	55 cm	26 cm

The system-enclosure is equipped with a standard assembling of the fieldbus system comprising power supply units, module racks, gateway and optical fibre coupler, terminals, etc. and the functional modules. The functional modules are designed to Intrinsic Safety “i” type of protection and they are plugged onto the module rack.

The I/O fieldbus system excom®, type EG-VA********/***-**** / 2GD**.***** is definitely classified into temperature class T4. The assignment of the I/O fieldbus system excom®, type EG-VA********/***-**** / 2GD**.***** to the ambient temperature is carried out by module classes differentiated in power ranges of the total power of connected modules. The module classes represent here the maximum permissible operating temperatures of the modules. The assembling options with modules and their individual power is specified for each module class and must not be changed. Hence, the ambient temperature can be assigned freely as specified in the tables.

Table 2

Enclosure class 46		
Ambient temperature [°C]	Module class 70	Module class 60
	Total module power [W]	Total module power [W]
40	36	36
45	36	32
50	36	19
55	32	7
60	19	
65	7	

Table 3

Enclosure class 65		
Ambient temperature [°C]	Module class 70	Module class 60
	Total module power [W]	Total module power [W]
40	58	55
45	58	38
50	55	22
55	39	6
60	22	
65	6	

Table 4

Enclosure class 80 without moisture condensation protection		
Ambient temperature [°C]	Module class 70	Module class 60
	Total module power [W]	Total module power [W]
40	58	58
45	58	46
50	58	28
55	46	6
60	28	
65	6	

The system-enclosure of enclosure class 80H is intended to be equipped with a heating for protection against moisture condensation. Due to the resulting different operating temperatures inside the system-enclosure the graduated assignment of the ambient temperature to the total module power changes.

Table 5

Enclosure class 80H with moisture condensation protection		
Ambient temperature [°C]	Module class 70	Module class 60
	Total module power [W]	Total module power [W]
40	58	44
45	58	24
50	58	4
55	44	
60	24	
65	4	

For the assignment to an ambient temperature according to the aforementioned tables the total power of connected modules is always rounded to the next lower power value specified in the tables. An interpolation to intermediate values shall not be performed.

In addition to the standard assembling a special assembling is also intended in the case area 2 and 3.

An I/O fieldbus system excom®, type EG-VA********/***-**** / 2GD**.***** with special assembling in the case area 2 is only applied and marked for a specific ambient temperature. The assignment of a special assembling to a maximum permissible ambient temperature is carried out on the basis of the total power of this assembling variant.

This special assembling in the case area 2 comprises a choice of explosion protected additional devices which can substitute particular devices from the standard assembling according to customer requirements. If this special assembling corresponds to the module class it has no impact on the assignment of the ambient temperature to the module power. However, the ambient temperature is not freely assignable due to the power dependency of a special assembling, Table 6.

Table 6

Ambient temperature [°C]	GK46[1]		GK65[1]		GK80[1]		GK80H[2]	
	MK60[3]	MK70[3]	MK60[3]	MK70[3]	MK60[3]	MK70[3]	MK60[3]	MK70[3]
	Total power of the special assembling [W]							
40	10.2	10.2	15.8	16.6	16.6	16.6	11.9	16.6
45	9.1	10.2	11.3	16.6	13.3	16.6	6.3	16.6
50	5.6	10.2	6.6	15.8	8.3	16.6	0.8	16.6
55	2.2	9.1	2.2	11.3	2.2	13.3		12.7
60		5.6		6.6		8.3		7.2
65		2.2		2.2		2.2		1.6

1) Enclosure class 46, 65, 80 2) Enclosure class 80 with heating for moisture condensation protection
3) Module class 60, 70

A special assembling in the case area 3 having a lower permissible operating temperature that deviates from the module class requires a specification of the ambient temperature for the I/O fieldbus system excom®, type EG-VA********/***-**** / 2GD**.***** according to the permissible operating temperature of the special assembling. In this case assembling is only possible in the range of constant power dissipation of the enclosure and up to a maximum power dissipation of 4 W. The value of the operating temperature shall be classified to the next lower value specified in the table 7 to 10.

Table 7

Enclosure class 46 Special assembling		
Ambient temperature [°C]	Module class 70	Module class 60
	Operating temperature in the range of constant power dissipation [°C]	
40	44	44
45	49	49
50	54	53
55	59	57
60	63	
65	67	

Table 8

Enclosure class 65 Special assembling		
Ambient temperature [°C]	Module class 70	Module class 60
	Operating temperature in the range of constant power dissipation [°C]	
40	46	46
45	51	50
50	56	54
55	60	58
60	64	
65	68	

Table 9

Enclosure class 80 without moisture condensation protection Special assembling		
Ambient temperature [°C]	Module class 70	Module class 60
	Operating temperature in the range of constant power dissipation [°C]	
40	46	44
45	51	49
50	56	53
55	60	58
60	63	
65	68	

Table 10

Enclosure class 80H with moisture condensation protection Special assembling		
Ambient temperature [°C]	Module class 70	Module class 60
	Operating temperature in the range of constant power dissipation [°C]	
40	49	47
45	52	49
50	56	53
55	60	
60	63	
65	68	

Electrical data

For electrical data of all applied apparatus including supply devices and power supply units, reference is made to the operating instructions manual. The manual also includes an associated list of modules assigned to the respective module class which can be installed.

The specifications of the types of protection in the marking of the I/O fieldbus system excom®, type EG-VA********/***-**** / 2GD**.***** may vary in dependency of the assembling.

The marking for maximum standard assembling reads:

Ex e q d mb ib [ia Ga] [op is] IIC T4 Gb

or

Ex eb qb db mb ib [ia Ga] [op is Gb] IIC T4

or

Ex tb [ia Da] [op is] IIIC T135°C Db

or

Ex tb [ia Da] [op is Db] IIIC T135°C

The marking of an I/O fieldbus system excom®, type EG-VA********/***-**** / 2GD**.***** with special assembling can be extended by the types of protection of the separately certified equipment.

Type code

EG-VA * * * * * * * * / * * * - * * * * / 2 G D * * . * * * * * **

Special number for explosion protected additional equipment, of category 2, as moisture condensation protection, special drilling pattern, size deviating from enclosure class, etc.
B**** Special assembling with specified ambient temperature

Module classes:
60 assembled with modules as from $T_{amb\ Modul}$ + 60°C
70 assembled with modules as from $T_{amb\ Modul}$ + 70°C

0 No installation of segment couplers, e.g. type OC11Ex
1 One segment coupler, type OC11Ex installed
2 Two segment couplers, type OC11Ex installed
3 One alternative segment coupler installed (details in BV…)
4 Two alternative segment couplers installed (details in BV…)

0 Without series assembly type MT-PPS
1 With series assembly type MT-PPS
2 Installation of one power supply unit 230/115V AC
3 Installation of two power supply units 230/115V AC

01 Module rack MT08-2G
02 Module rack MT16-2G
10 Module rack MT16-2G/MSA

0 Blind plate (drilling by user acc. to operating instructions manual)
1 Flange plate M16 drill holes, max. assembling
2 Flange plate M20 drill holes, max. assembling
3 Special variant, e.g. drilling pattern (included in BV.. number)
4 Flange plate M16 drill holes, standard assembling
5 Flange plate M20 drill holes, standard assembling

0 without inspection window
1 with inspection window

0 Enclosure material stainless steel 1.4301
1 Enclosure material stainless steel 1.4404
2 other alloys with identical thermal resistance

Enclosure classes:
TT Enclosure depth in cm (Standard: 26)
(H)HH Enclosure height in cm (Standard: 55)
(B)BB(H)HHTT (B)BB Enclosure width in cm (Standard: 46, 65, 80)

Notes for operation

The state of the standards each certified for the modules, type AIH40Ex, type AIH41Ex and type AOH40Ex given in the operating instructions manual, represents an older state and does not correspond to the state of the test specification of the test report. Hence, these modules are not subject matter of this system assessment.

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