EU-TYPE-EXAMINATION CERTIFICATE
(Translation)

(1)

(2) Equipment or Protective Systems Intended for Use in
Potentially Explosive Atmospheres - **Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number:

PTB 16 ATEX 2006   Issue: 0

(4) Product: I/O fieldbus system excom®, type EG-VA********/***-**** / 2GD**.*****

(5) Manufacturer: Hans Turck GmbH & Co.KG

(6) Address: Witzlebenstraße 7, 45472 Mülheim an der Ruhr, Germany

(7) This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential Test Report PTB Ex 17-23150.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 60079-0:2012+A11:2013,   EN 60079-1:2007,   EN 60079-5:2007,   EN 60079-7:2007,
EN 60079-11:2012,   EN 60079-18:2009,   EN 60079-25:2010,   EN 60079-26:2007,
EN 60079-28:2007,   EN 60079-31:2014

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design and construction of the specified product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

(12) The marking of the product shall include the following:

⟨Ex⟩ II 2 (1) G   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

⟨Ex⟩ II 2 (1) D   Ex tb [ia Da] [op is] IIIC T135 °C Db   or   Ex tb [ia Da] [op is Db] IIIC T135 °C

Konformitätsbewertungsstelle, Sektor Explosionsschutz   Braunschweig, July 24, 2017
On behalf of PTB:

Dr.-Ing. F. Lienesch
Regierungsdirektor

sheet 1/9

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(13)

S C H E D U L E

(14) **EU-Type Examination Certificate Number PTB 16 ATEX 2006, Issue: 0**

(15) <u>Description of Product</u>

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.

SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 16 ATEX 2006, Issue: 0

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	

SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 16 ATEX 2006, Issue: 0

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.

SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 16 ATEX 2006, Issue: 0

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	

SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 16 ATEX 2006, Issue: 0

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	

SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 16 ATEX 2006, Issue: 0

<u>Electrical data</u>

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〉 II 2(1) G   Ex e q d mb ib [ia Ga] [op is] IIC T4 Gb

or

〈Ex〉 II 2(1) G   Ex eb qb db mb ib [ia Ga] [op is Gb] IIC T4

or

〈Ex〉 II 2(1) D   Ex tb [ia Da] [op is] IIIC T135 °C Db
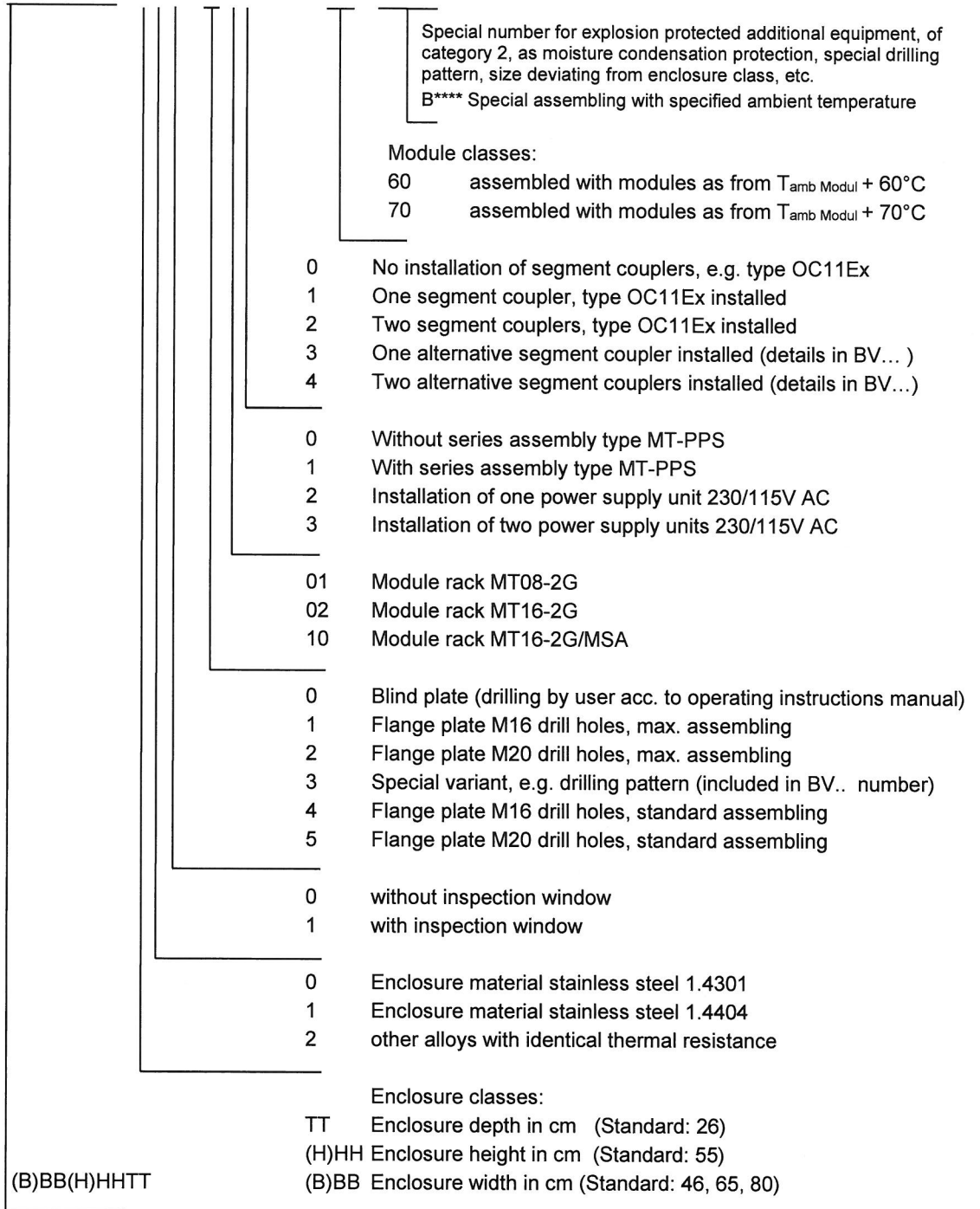
or

〈Ex〉 II 2(1) D   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.

SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 16 ATEX 2006, Issue: 0

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	Enclosure width in cm (Standard: 46, 65, 80)

(B)BB(H)HHTT

sheet 8/9

SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 16 ATEX 2006, Issue: 0

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.

(16) Test Report   PTB Ex17-23150

(17) Specific conditions of use

(18) Essential health and safety requirements

Met by compliance with the aforementioned standards.

Konformitätsbewertungsstelle, Sektor Explosionsschutz
On behalf of PTB:

Braunschweig, July 24, 2017

Dr.-Ing. F. Lienesch
Regierungsdirektor

sheet 9/9