

EU-Konformitätserklärung Nr. E.020.008 **Declaration of Conformity No. E.020.008**

Wir FlowVision GmbH

We (Name des Anbieters / supplier's name)

**Im Erlet 6
D-90518 Altdorf
Germany**

(Anschrift / adress)

erklären in alleiniger Verantwortung, dass die Produkte
declare under our sole responsibility that the products

Diese Konformitätserklärung entspricht der Europäischen Norm EN 45014 „Allgemeine Kriterien für Konformitätserklärungen von Anbietern“. Die Grundlage der Kriterien sind internationale Dokumente, insbesondere ISO/IEC-Leitfaden 22, 1982, „Information on manufacturer's declaration of conformity with standards or other technical specifications“.

This Declaration of Conformity is suitable to the European Standard EN 45014. „General criteria for supplier's declaration of conformity“. The basis for the criteria has been found in international documentation, particularly in: ISO/IEC Guide 22, 1982, „Information on manufacturer's declaration of conformity with standards or other technical specifications“.

Kalorimetrischer Messkopf

Typ: CST-EX-...

(Bezeichnung, Typ oder Modell, Los-, Chargen- oder Serien-Nr. möglichst Herkunft und Stückzahl / name, type or model, batch or serial number, possibly sources and number of items)

auf die sich diese Erklärung bezieht, mit der/den folgenden Norm(en) oder normativen Dokument(en) übereinstimmt.
to which this declaration relates is in conformity with the following standard(s) or other normative document(s).

EN 60079-0:2012+A11:2013

aktuelle Ausgabe/current edition:

EN 60079-0:2018+AC:2020-02 *

EN 60079-11:2012

EN 60079-26:2015

** Die EN 60079-0:2012+A11:2013 wurde mit der aktuellen Ausgabe verglichen. Der Messkopf CST-EX ist von den bedeutenden technischen Änderungen der aktuellen Norm nicht betroffen. / EN 60079-0:2012+A11:2013 has been compared with the current edition. The monitoring head CST-EX is not impacted by the major technical changes of the current edition.*

(Titel und/oder Nr. sowie Ausgabedatum der Norm(en) oder der anderen normativen Dokumente / Title and /or number and date of issue of the standard(s) or other normative document(s))

Gemäß den Bestimmungen der Richtlinie(n)
Following the provisions of Directive(s) (falls zutreffend / if applicable)

2014/34/EU ATEX-Richtlinie
2014/34/EU ATEX directive

EU Baumusterprüfbescheinigung Nummer
EU-Type Examination Certificate Number

EPS 14 ATEX 1 682 X Revision 1

Benannte Stelle Qualitätssicherung Produktion / Kennnummer
Notified body quality management production / Identification Number

TÜV Rheinland / 0035

Altdorf, 02.03.2023



Norbert Gliedstein
Geschäftsführer
Managing Director



Oliver Amm
Ex-Beauftragter
Ex-Representative

Anhang zur EU-Konformitätserklärung Nr. E.020.008
Annex to Declaration of Conformity No. E.020.008

Europäische Normen:
European standards:

*EN 60079-0:2018+AC:2020-02 Explosionsgefährdete Bereiche - Teil 0:
Betriebsmittel - Allgemeine Anforderungen*

*Explosive atmospheres - Part 0:
Equipment - General requirements*

EN 60079-11:2012

*Explosionsgefährdete Bereiche - Teil 11:
Geräteschutz durch Eigensicherheit "i"*

*Explosive atmospheres - Part 11:
Equipment protection by intrinsic safety "i"*

EN 60079-26:2015

*Explosionsfähige Atmosphäre - Teil 26:
Betriebsmittel mit Geräteschutzniveau (EPL) Ga*

*Explosive atmospheres - Part 26:
Equipment with equipment protection level (EPL) Ga*

(1) **EU - Type Examination Certificate**

(2) Equipment and protective systems intended for use in potentially explosive atmospheres – Directive 2014/34/EU

(3) EU - Type Examination Certificate Number

EPS 14 ATEX 1 682 X

Revision 1

(4) Equipment: Monitoring Head CST-Ex

(5) Manufacturer: FlowVision GmbH

(6) Address: Im Erlet 6
90518 Altdorf
Germany

(7) This equipment and any acceptable variation thereto are specified in the annex to this certificate and the documentation therein referred to.

(8) Bureau Veritas Consumer Products Services Germany GmbH, notified body No. 2004 in accordance with Article 21 given in the Directive 2014/34/EU of the European Parliament and of the Council of 26 February 2014, certifies that this equipment has been found to comply with the essential health and safety requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II of the Directive. The examination and test results are recorded in the confidential documentation under the reference number 14TH0133.

(9) Compliance with the essential health and safety requirements has been assured by compliance with:

EN 60079-0:2012+A11:2013


EN 60079-11:2012

EN 60079-26:2015

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the annex to this certificate.

(11) This EU - Type Examination Certificate relates only to the design and examination of the specified equipment in accordance with Directive 2014/34/EU. Further requirements of this Directive apply to the manufacture of this equipment and its placing on the market. Those requirements are not covered by this certificate.

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

 II 1/2 G Ex ia IIC T4 Ga/Gb

 II 1 D Ex ia IIIC T100°C...T130°C Da



Certification department of explosion protection

Nuremberg, 2017-07-19


H. Schaffer



- (13) **Annex**
- (14) **EU - Type Examination Certificate EPS 14 ATEX 1 682 X**

Revision 1

(15) Description of equipment:

The calorimetric monitoring head CST-Ex is an intrinsically safe apparatus. It is powered by an associated apparatus, e.g. the Flow Meter FC01-Ex. Connections between the intrinsically safe area and the non-intrinsically safe area are provided via certified safety barriers. In addition the FC01-Ex processes output signals from the monitoring head CST-Ex. The system is used for stationary measuring, control and indication of flow velocity, flow rate and medium temperature of liquid, gaseous and dust media.

Electrical data:

Only for use with the Flow Meter FC01-Ex (see manual) with the following certified safety barriers from the manufacturer R. Stahl:

9002/13-199-225-001 (heating current)
 9002/22-032-300-111 (measurement current)
 9002/77-093-040-001 resp. 9002/22-093-040-001 (R(Tdiff) and R(Tref))

All internal inductances L_i and capacitances C_i are negligibly small.

(16) Reference number: 14TH0133

(17) Special conditions for safe use:

Instructions of the user manual have to be observed, particularly with regard to reduced ambient temperatures.

Explosion protection depends in particular on the leak-tightness of the sensor tips. Therefore the monitoring head shall only be used in media, to which the material is suited with regard to corrosion resistance.

With Titanium sensors as wetted parts, a probable occurrence of impact or friction sparking has to be excluded by using suitable mounting methods.

Maximum surface temperatures (for dust) as a function of medium temperatures:

max. medium temperature [°C]	max. surface temperature [°C]
45	100
50	105
55	110
60	115
65	120
70	125
75	130

(18) Essential health and safety requirements:

Met by compliance with standards.



Certification department of explosion protection

Nuremberg, 2017-07-19

Certificate

Quality Assurance Notification



Directive 2014/34/EU

Registration No.: **01 220 186517**

The Certification Body for Explosion Protection
of TÜV Rheinland Industrie Service GmbH
Reported under no. 0035
certifies:

Certificate Holder:



FlowVision GmbH
Im Erlet 6
90518 Altdorf
Germany

Scope:

Production, final equipment inspection and testing of
sensors and devices for signal processing

Types of protection: d, ia, t

An audit was performed, Report No. 186517. Proof has
been furnished that the requirements according to
Directive 2014/34/EU Annex IV are fulfilled.

The due date for all future audits is 10th of February

Validity:

The certificate is valid from 2024-02-16 until 2027-02-15
First certification 2009



Köln, 2024-02-08

TÜV Rheinland Industrie Service GmbH
Am Grauen Stein, D-51105 Köln
Dipl.-Ing. (FH) Ralf Biegalla

File: Dokument1

EU-Konformitätserklärung
EU Declaration of Conformity
Déclaration de Conformité UE



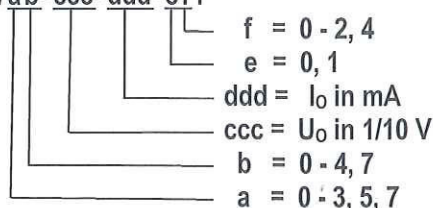
R. STAHL Schaltgeräte GmbH • Am Bahnhof 30 • 74638 Waldenburg, Germany
erklärt in alleiniger Verantwortung / declares in its sole responsibility / déclare sous sa seule responsabilité

dass das Produkt:
that the product:
que le produit:

Sicherheitsbarriere
Safety Barrier
Barrière de Sécurité

Typ(en) / type(s) / type(s):

9001/ab-ccc-ddd-ef1
9002/ab-ccc-ddd-ef1



mit den Anforderungen der folgenden Richtlinien und Normen übereinstimmt.
is in conformity with the requirements of the following directives and standards.
est conforme aux exigences des directives et des normes suivantes.

Richtlinie(n) / Directive(s) / Directive(s)	Norm(en) / Standard(s) / Norme(s)
2014/34/EU ATEX-Richtlinie 2014/34/EU <i>ATEX Directive</i> 2014/34/UE <i>Directive ATEX</i>	EN 60079-0:2012 / A11:2013 EN 60079-11:2012 EN 60079-15:2010
Kennzeichnung / marking / marquage:	II 3 (1) G Ex nA [ia Ga] IIC T4 Gc II (1) D [Ex ia Da] IIIC
EG-Baumusterprüfbescheinigung: <i>EC Type Examination Certificate:</i> <i>Attestation d'examen CE de type:</i>	PTB 01 ATEX 2088 X (9001/**_**_**_**1) PTB 01 ATEX 2053 X (9002/**_**_**_**1) (Physikalisch-Technische Bundesanstalt, Bundesallee 100, 38116 Braunschweig, Germany, NB0102)
Produktnormen nach Niederspannungsrichtlinie: <i>Product standards according to Low Voltage Directive:</i> <i>Normes des produit pour la Directive Basse Tension:</i>	In Anlehnung / According to / Selon: EN 50178:1997 EN 61010-1:2010
2014/30/EU EMV-Richtlinie 2014/30/EU <i>EMC Directive</i> 2014/30/UE <i>Directive CEM</i>	EN 61326-1:2013
2011/65/EU RoHS-Richtlinie 2011/65/EU <i>RoHS Directive</i> 2011/65/UE <i>Directive RoHS</i>	EN 50581:2012



Waldenburg, 2017-10-04

Ort und Datum
Place and date
Lieu et date

i.V.

Carsten Brenner
Leiter Geschäftsbereich Automation
Vice President Business Unit Automation
Vice-président Business Unit Automation

i.V.

Johannes Rückgauer
Leiter Qualitätsmanagement
Director Quality Management
Directeur Assurance de Qualité

6. SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 2053 X

(Translation)

Equipment: Safety barrier, type 9002/..-...-...-...1

Marking:  II 3 (1) G Ex nA [ja Ga] IIC T4 Gc AND II (1) D [Ex ia Da] IIIC

Manufacturer: R. STAHL Schaltgeräte GmbH

Address: Am Bahnhof 30, 74638 Waldenburg, Germany

Description of supplements and modifications

The safety-related specification applies without changes. It is, however, again represented as a summary of the current state.

The equipment can be installed outside of the hazardous area or inside up to category II 3 G (additional protection by an enclosure required). As an associated apparatus it provides two intrinsically safe circuits of category II 1 G or II 1 D respectively.

Overall conformity is confirmed in accordance with the currently applicable standards mentioned below.

The terminals for the equipotential bonding conductor are infallibly connected to the local equipotential bonding system.

The maximum permissible range of the ambient temperature reads $-20\text{ °C} \leq T_a \leq +60\text{ °C}$ (+50 °C) according to the following tables.

6. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 2053 X

Elektrische Daten

Non-intrinsically safe circuits
(terminals 1 and 2)

type of protection Non-Sparking Ex nA Gc,
safety-related maximum voltage for application as
associated apparatus:

$$U_m = 253 \text{ V}$$

Nominal data according to the following table:

Type	T _a [°C]	Channel I		Channel II	
		U _N [V]	I _N [mA]	U _N [V]	I _N [mA]
9002/00-120-024-001	60	-9.5	7.7	-9.5	7.7
9002/00-260-138-001	60	-22.5	62	-17.5	37
9002/00-280-186-001	60	-25	69	-25	69
9002/10-187-020-001	60	+6	11	-6	11
9002/10-187-270-001	60	+6	122	-6	122
9002/10-210-030-001	60	+8	21	-8	21
9002/11-120-024-001	60	+9.5	7.7	+9.5	7.7
9002/11-130-360-001	60	+10	100	+1	19
9002/11-137-029-001	60	+10	10	+10	10
9002/11-199-030-001	60	+16	10	+16	10
9002/11-260-138-001	60	+22.5	62	+17.5	37
9002/11-280-112-001	60	+24	8	+24	23
9002/11-280-186-001	60	+25	69	+25	69
9002/11-280-244-001	60	+24	70	+24	48
9002/11-280-293-001	60	+25	69	+6	88
9002/11-280-293-021	60	+25	69	+6	88
9002/13-199-225-001	60	+16	125	+16	80
9002/13-252-121-041	60	+20..35	80	+22	80
9002/13-280-093-001	60	+24	67	+24	67
9002/13-280-100-041	60	+20..35	35	+26	35
9002/13-280-110-001	60	+24	80	+24	80
9002/13-280-188-001	60	+24	70	+24	70
9002/22-016-383-111	60	0.35	40	0.35	40
9002/22-032-300-111	60	±0.7	33	±0.7	33
9002/22-048-442-111	60	±1.4	78	±1.4	78
9002/22-158-200-001	60	±5.5	57	±5.5	57
9002/22-240-024-001	60	±9	7.7	±9	7.7
9002/22-240-160-001	60	±9	50	±9	50
9002/33-280-000-001	60	+25.5	50	+25.5	50
9002/34-280-000-001	60	+16	100	-5	100
9002/77-093-040-001	60	±6	11	±6	11
9002/77-093-300-001	60	±6	73	±6	73
9002/77-100-400-001	60	±6	87	±6	87
9002/77-150-300-001	60	±12	95	±12	95
9002/77-220-146-001	50	±18	50	±18	50
9002/77-220-296-001	50	±18	80	±18	80
9002/77-280-094-001	60	±24	33	±24	33

6. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 2053 X

Intrinsically safe circuits
(terminals 3 and 4)

type of protection Intrinsic Safety Ex ia IIB/IIC Ga
or Ex ia IIIC Da, linear characteristic,
maximum values according to the following table

Limiting values L_o and C_o alternatively in the circuit

Type / Channel	T_a [°C]	U_o [V]	I_o [mA]	P_o [W]		IIC	IIB
9002/00-260-138-001 + 9002/11-260-138-001							
I	60	26	87	0.54	Lo / mH	2.7	15.5
					Co / μ F	0.099	0.77
II	60	20	51	0.245	Lo / mH	14	54
					Co / μ F	0.22	1.41
I + II	60	26	138	0.785	Lo / mH	0.81	5.1
					Co / μ F	0.087	0.67
9002/00-120-024-001 + 9002/11-120-024-001							
I	60	12	12	0.04	Lo / mH	240	850
					Co / μ F	1.41	9
II	60	12	12	0.04	Lo / mH	240	850
					Co / μ F	1.41	9
I + II	60	12	24	0.07	Lo / mH	63	230
					Co / μ F	1.1	7.1
9002/10-187-020-001							
I	60	9.33	20	0.05	Lo / mH	90	330
					Co / μ F	3.9	29
II	60	9.33	20	0.05	Lo / mH	90	330
					Co / μ F	3.9	29
I + II	60	18.7	20	0.09	Lo / mH	90	330
					Co / μ F	0.27	1.64
9002/10-187-270-001							
I	60	9.33	270	0.63	Lo / mH	0.23	2.2
					Co / μ F	3.9	29
II	60	9.33	270	0.63	Lo / mH	0.23	2.2
					Co / μ F	3.9	29
I + II	60	18.7	270	1.26	Lo / mH	0.23	2.2
					Co / μ F	0.27	1.64
9002/10-210-030-001							
I	60	10.5	30	0.08	Lo / mH	40	150
					Co / μ F	2.41	16.8
II	60	10.5	30	0.08	Lo / mH	40	150
					Co / μ F	2.41	16.8
I + II	60	21	30	0.16	Lo / mH	40	150
					Co / μ F	0.188	1.27
9002/00-280-186-001 + 9002/11-280-186-001							
I	60	28	93	0.65	Lo / mH	2	13
					Co / μ F	0.083	0.65
II	60	28	93	0.65	Lo / mH	2	13
					Co / μ F	0.083	0.65
I + II	60	28	186	1.3	Lo / mH	-	2.8
					Co / μ F	-	0.551

6. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 2053 X

Type / Channel	T _a [°C]	U _o [V]	I _o [mA]	P _o [W]		IIC	IIB
9002/11-130-360-001							
I	60	13	321	1.04	Lo / mH	0.19	1.6
					Co / µF	1	6.2
II	60	1.6	39	0.016	Lo / mH	24	91
					Co / µF	100	1000
I + II	60	13	360	1.17	Lo / mH	0.17	1.3
					Co / µF	0.79	5
9002/11-137-029-001							
I	60	13.7	14.5	0.05	Lo / mH	160	560
					Co / µF	0.79	5
II	60	13.7	14.5	0.05	Lo / mH	160	560
					Co / µF	0.79	5
I + II	60	13.7	29	0.1	Lo / mH	43	160
					Co / µF	0.67	4.18
9002/11-280-112-001							
I	60	28	109	0.76	Lo / mH	1.3	9
					Co / µF	0.083	0.65
II	60	28	3	0.02	Lo / mH	50	150
					Co / µF	0.083	0.65
I + II	60	28	112	0.78	Lo / mH	0.76	8.4
					Co / µF	0.065	0.551
9002/11-280-244-001							
I	60	28	184	1.29	Lo / mH	-	2.9
					Co / µF	-	0.65
II	60	28	60	0.42	Lo / mH	-	25
					Co / µF	-	0.65
I + II	60	28	244	1.71	Lo / mH	-	1.1
					Co / µF	-	0.62
9002/11-280-293-001 + 9002/11-280-293							
I	60	28	89	0.63	Lo / mH	2.2	14
					Co / µF	0.083	0.65
II	60	9.56	180	0.43	Lo / mH	0.6	5
					Co / µF	3.6	26
I + II	60	28	269	1.05	Lo / mH	-	0.56
					Co / µF	-	0.62
9002/11-199-030-001							
I	60	19.9	15	0.075	Lo / mH	160	560
					Co / µF	0.223	1.42
II	60	19.9	15	0.075	Lo / mH	160	560
					Co / µF	0.223	1.42
I + II	60	19.9	30	0.15	Lo / mH	40	150
					Co / µF	0.223	1.42

6. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 2053 X

Type / Channel	T _a [°C]	U _o [V]	I _o [mA]	P _o [W]		IIC	IIB
9002/13-199-225-001							
I	60	19.9	222	1.1	Lo / mH	0.39	3.18
					Co / µF	0.223	1.42
II	60	19.9	3	0.015	Lo / mH	1000	1000
					Co / µF	0.223	1.42
I + II	60	19.9	225	1.12	Lo / mH	0.37	3.15
					Co / µF	0.213	1.38
9002/13-252-121-041							
I	60	25.2	118	0.74	Lo / mH	1.3	7.4
					Co / µF	0.107	0.82
II	60	25.2	0	0.02	Lo / mH	50	150
					Co / µF	0.107	0.82
I + II	60	25.2	121	0.76	Lo / mH	1.25	7.35
					Co / µF	0.104	0.8
9002/13-280-093-001							
I	60	28	90	0.63	Lo / mH	2.2	14
					Co / µF	0.083	0.65
II	60	28	3	0.021	Lo / mH	50	150
					Co / µF	0.083	0.65
I + II	60	28	93	0.651	Lo / mH	2	13
					Co / µF	0.08	0.636
9002/13-280-100-041							
I	60	28	97	0.679	Lo / mH	1.8	12
					Co / µF	0.083	0.65
II	60	28	0	0.021	Lo / mH	50	150
					Co / µF	0.083	0.65
I + II	60	28	100	0.7	Lo / mH	1.55	11
					Co / µF	0.08	0.635
9002/13-280-110-001							
I	60	28	107	0.749	Lo / mH	1.35	9.6
					Co / µF	0.083	0.65
II	60	28	3	0.021	Lo / mH	50	150
					Co / µF	0.083	0.65
I + II	60	28	110	0.77	Lo / mH	1.25	9
					Co / µF	0.08	0.635
9002/13-280-188-001							
I	60	28	185	1.295	Lo / mH	-	2.85
					Co / µF	-	0.65
II	60	28	3	0.021	Lo / mH	-	150
					Co / µF	-	0.65
I + II	60	28	188	1.316	Lo / mH	-	2.7
					Co / µF	-	0.635

6. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 2053 X

Type / Channel	T _a [°C]	U _o [V]	I _o [mA]	P _o [W]		IIC	IIB
9002/22-016-383-111							
I	60	0.8	191.5	0.038	Lo / mH	0.54	4.4
					Co / µF	100	1000
II	60	0.8	191.5	0.038	Lo / mH	0.54	4.4
					Co / µF	100	1000
I + II	60	1.6	383	0.077	Lo / mH	0.16	0.96
					Co / µF	100	1000
9002/22-032-300-111							
I	60	1.6	150	0.06	Lo / mH	1.3	7
					Co / µF	100	1000
II	60	1.6	150	0.06	Lo / mH	1.3	7
					Co / µF	100	1000
I + II	60	3.2	300	0.12	Lo / mH	0.2	1.8
					Co / µF	100	1000
9002/22-048-442-111							
I	60	2.4	221	0.133	Lo / mH	0.4	3.19
					Co / µF	100	1000
II	60	2.4	221	0.133	Lo / mH	0.4	3.19
					Co / µF	100	1000
I + II	60	4.8	442	0.266	Lo / mH	0.12	0.54
					Co / µF	100	1000
9002/22-158-200-001							
I	60	7.9	100	0.198	Lo / mH	4	15
					Co / µF	8.8	115
II	60	7.9	100	0.198	Lo / mH	4	15
					Co / µF	8.8	115
I + II	60	15.8	200	0.395	Lo / mH	0.5	4
					Co / µF	0.478	2.88
9002/22-240-024-001							
I	60	12	12	0.04	Lo / mH	240	850
					Co / µF	1.41	9
II	60	12	12	0.04	Lo / mH	240	850
					Co / µF	1.41	9
I + II	60	24	24	0.08	Lo / mH	41	145
					Co / µF	0.125	0.93
9002/22-240-160-001							
I	60	12	80	0.24	Lo / mH	6	22
					Co / µF	1.41	9
II	60	12	80	0.24	Lo / mH	6	22
					Co / µF	1.41	9
I + II	60	24	160	0.48	Lo / mH	0.7	4
					Co / µF	0.125	0.93

6. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 2053 X

Type / Channel	T _a [°C]	U ₀ [V]	I ₀ [mA]	P ₀ [W]		IIC	IIB
9002/33-280-000-001							
I	60	28	„0“		Lo / mH	1000	1000
					Co / µF	0.083	0.65
II	60	28	„0“		Lo / mH	1000	1000
					Co / µF	0.083	0.65
I + II	60	28	„0“		Lo / mH	1000	1000
					Co / µF	0.083	0.65
9002/34-280-000-001							
I	60	20	„0“		Lo / mH	1000	1000
					Co / µF	0.22	1.41
II	60	8	„0“		Lo / mH	1000	1000
					Co / µF	8.4	100
I + II	60	28	„0“		Lo / mH	1000	1000
					Co / µF	0.083	0.65
9002/77-093-040-001 (auch als 9002/22...)							
I	60	9.3	20	0.05	Lo / mH	90	330
					Co / µF	4.1	31
II	60	9.3	20	0.05	Lo / mH	90	330
					Co / µF	4.1	31
I + II	60	9.3	40	0.09	Lo / mH	23	87
					Co / µF	4.1	31
9002/77-093-300-001 (auch als 9002/22...)							
I	60	9.3	150	0.35	Lo / mH	1.3	7
					Co / µF	4.1	31
II	60	9.3	150	0.35	Lo / mH	1.3	7
					Co / µF	4.1	31
I + II	60	9.3	300	0.7	Lo / mH	0.2	1.8
					Co / µF	4.1	31
9002/77-100-400-001							
I	60	10	200	0.5	Lo / mH	0.5	4
					Co / µF	3	20.2
II	60	10	200	0.5	Lo / mH	0.5	4
					Co / µF	3	20.2
I + II	60	10	400	1	Lo / mH	0.15	0.8
					Co / µF	3	20.2
9002/77-150-300-001							
I	60	15	150	0.56	Lo / mH	1.3	7
					Co / µF	0.58	3.55
II	60	15	150	0.56	Lo / mH	1.3	7
					Co / µF	0.58	3.55
I + II	60	15	300	1.13	Lo / mH	0.2	1.8
					Co / µF	0.58	3.55

6. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 2053 X

Type / Channel	T _a [°C]	U _o [V]	I _o [mA]	P _o [W]		IIC	IIB
9002/77-220-146-001							
I	50	22	73	0.4	Lo / mH	7	26
					Co / μF	0.165	1.14
II	50	22	73	0.4	Lo / mH	7	26
					Co / μF	0.165	1.14
I + II	50	22	146	0.8	Lo / mH	1.4	7.4
					Co / μF	0.165	1.14
9002/77-220-296-001							
I	50	22	148	0.81	Lo / mH	1.35	7.2
					Co / μF	0.165	1.14
II	50	22	148	0.81	Lo / mH	1.35	7.2
					Co / μF	0.165	1.14
I + II	50	22	296	1.63	Lo / mH	0.24	1.84
					Co / μF	0.165	1.14
9002/77-280-094-001							
I	60	28	47	0.33	Lo / mH	10.1	30
					Co / μF	0.083	0.65
II	60	28	47	0.33	Lo / mH	10.1	30
					Co / μF	0.083	0.65
I + II	60	28	94	0.66	Lo / mH	1.96	12.5
					Co / μF	0.083	0.65

6. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 2053 X

Limiting values L_o and C_o existing in combination in the circuit

Type / Channel	U_o [V]	I_o [mA]	P_o [W]	IIC						IIB	
9002/00-260-138-001 + 9002/11-260-138-001											
I	26	87	0.54	Lo / mH	2	1	0.1	10	1	0.1	
				Co / μ F	0.047	0.061	0.099	0.34	0.41	0.77	
II	20	51	0.245	Lo / mH	10	1	0.1	10	1	0.1	
				Co / μ F	0.11	0.15	0.188	0.72	0.93	1.2	
I + II	26	138	0.785	Lo / mH	-	-	-	5	1	0.1	
				Co / μ F	-	-	-	0.32	0.37	0.77	
9002/00-120-024-001 + 9002/11-120-024-001											
I	12	12	0.04	Lo / mH	50	1	0.1	50	1	0.1	
				Co / μ F	0.34	0.63	1.1	1.8	3.5	6.6	
II	12	12	0.04	Lo / mH	50	1	0.1	50	1	0.1	
				Co / μ F	0.34	0.63	1.1	1.8	3.5	6.6	
I + II	12	24	0.07	Lo / mH	50	1	0.1	50	1	0.1	
				Co / μ F	0.26	0.62	1.1	1.6	3.4	6.6	
9002/10-187-020-001											
I	9.33	20	0.05	Lo / mH	50	1	0.1	50	1	0.1	
				Co / μ F	0.48	1	1.8	2.8	5.7	11	
II	9.33	20	0.05	Lo / mH	50	1	0.1	50	1	0.1	
				Co / μ F	0.48	1	1.8	2.8	5.7	11	
I + II	18.7	20	0.09	Lo / mH	50	1	0.1	50	1	0.1	
				Co / μ F	0.48	0.21	0.25	0.69	1.3	1.5	
9002/10-187-270-001											
I	9.33	270	0.63	Lo / mH	-	0.5	0.1	2	1	0.1	
				Co / μ F	-	0.88	1.7	3.6	4.8	11	
II	9.33	270	0.63	Lo / mH	-	0.5	0.1	2	1	0.1	
				Co / μ F	-	0.88	1.7	3.6	4.8	11	
I + II	18.7	270	1.26	Lo / mH	-	0.2	0.1	-	1	0.1	
				Co / μ F	-	0.15	0.19	-	1	1.3	
9002/10-210-030-001											
I	10.5	30	0.08	Lo / mH	50	1	0.1	50	1	0.1	
				Co / μ F	0.27	0.8	1.4	2	4.5	8.7	
II	10.5	30	0.08	Lo / mH	50	1	0.1	50	1	0.1	
				Co / μ F	0.27	0.8	1.4	2	4.5	8.7	
I + II	21	30	0.16	Lo / mH	20	1	0.1	50	1	0.1	
				Co / μ F	0.13	0.13	0.188	0.51	0.79	1.1	
9002/00-280-186-001 + 9002/11-280-186-001											
I	28	93	0.65	Lo / mH	-	1	0.1	10	1	0.1	
				Co / μ F	-	0.052	0.083	0.25	0.35	0.65	
II	28	93	0.65	Lo / mH	-	1	0.1	10	1	0.1	
				Co / μ F	-	0.052	0.083	0.25	0.35	0.65	
I + II	28	186	1.3	Lo / mH	-	-	-	-	1	0.1	
				Co / μ F	-	-	-	-	0.34	0.551	

6. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 2053 X

Type / Channel	U _o [V]	I _o [mA]	P _o [W]	IIC				IIB		
9002/11-130-360-001										
I	13	321	1.04	Lo / mH	-	0.2	0.1	-	1	0.1
				Co / μF	-	0.64	0.83	-	2.3	5.4
II	1.6	39	0.016	Lo / mH	20	1	0.1	50	1	0.1
				Co / μF	15	36	75	78	210	640
I + II	13	360	1.17	Lo / mH	-	0.2	0.1	-	1	0.1
				Co / μF	-	0.62	0.82	-	2.2	5.3
9002/11-137-029-001										
I	13.7	14.5	0.05	Lo / mH	50	1	0.1	50	1	0.1
				Co / μF	0.25	0.48	0.79	1.3	2.6	5
II	13.7	14.5	0.05	Lo / mH	50	1	0.1	50	1	0.1
				Co / μF	0.25	0.48	0.79	1.3	2.6	5
I + II	13.7	29	0.1	Lo / mH	50	1	0.1	50	1	0.1
				Co / μF	0.17	0.47	0.79	1.2	2.6	5
9002/11-280-112-001										
I	28	109	0.76	Lo / mH	-	-	0.05	5	1	0.1
				Co / μF	-	-	0.083	0.23	0.34	0.65
II	28	3	0.02	Lo / mH	50	1	0.1	50	1	-
				Co / μF	0.062	0.075	0.083	0.34	0.41	-
I + II	28	112	0.78	Lo / mH	-	-	-	5	1	0.1
				Co / μF	-	-	-	0.28	0.36	0.551
9002/11-280-244-001										
I	28	184	1.29	Lo / mH	-	-	-	-	1	0.1
				Co / μF	-	-	-	-	0.3	0.65
II	28	60	0.42	Lo / mH	-	1	0.1	10	1	0.1
				Co / μF	-	0.059	0.083	0.28	0.37	0.65
I + II	28	244	1.71	Lo / mH	-	-	-	-	1	0.05
				Co / μF	-	-	-	-	0.28	0.551
9002/11-280-293-001 + 9002/11-280-293										
I	28	89	0.63	Lo / mH	-	1	1	10	1	0.1
				Co / μF	-	0.053	0.083	0.25	0.35	0.65
II	9.56	180	0.43	Lo / mH	-	1	0.1	5	1	0.1
				Co / μF	-	0.72	1.6	2.7	4.9	10
I + II	28	269	1.05	Lo / mH	-	-	-	10	1	-
				Co / μF	-	-	-	0.24	0.36	-
9002/11-199-030-001										
I	19.9	15	0.075	Lo / mH	10	1	0.1	10	1	0.1
				Co / μF	0.15	0.17	0.22	0.8	0.98	1.3
II	19.9	15	0.075	Lo / mH	10	1	0.1	10	1	0.1
				Co / μF	0.15	0.17	0.22	0.8	0.98	1.3
I + II	19.9	30	0.15	Lo / mH	10	1	0.1	10	1	0.1
				Co / μF	0.14	0.16	0.22	0.77	0.97	1.3

6. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 2053 X

Type / Channel	U _o [V]	I _o [mA]	P _o [W]	IIC			IIB			
9002/13-199-225-001										
I	19.9	222	1.1	Lo / mH	-	0.2	0.1	-	1	0.1
				Co / μF	-	0.14	0.18	-	0.79	1.2
II	19.9	3	0.015	Lo / mH	10	1	0.1	10	1	0.1
				Co / μF	0.17	0.17	0.22	0.83	0.99	1.3
I + II	19.9	225	1.12	Lo / mH	-	0.2	0.1	2	1	0.1
				Co / μF	-	0.14	0.18	0.79	0.79	1.2
9002/13-252-121-041										
I	25.2	118	0.74	Lo / mH	-	0.5	0.1	5	1	0.1
				Co / μF	-	0.074	0.107	0.35	0.41	0.81
II	25.2	0	0.02	Lo / mH	10	1	0.1	50	1	0.1
				Co / μF	0.083	0.09	0.107	0.43	0.5	0.82
I + II	25.2	121	0.76	Lo / mH	-	0.5	0.1	5	1	0.1
				Co / μF	-	0.088	0.088	0.36	0.43	0.683
9002/13-280-093-001										
I	28	90	0.63	Lo / mH	-	1	0.1	10	1	0.1
				Co / μF	-	0.052	0.083	0.25	0.35	0.65
II	28	3	0.021	Lo / mH	50	1	0.1	50	1	0.1
				Co / μF	0.062	0.075	0.083	0.34	0.41	0.65
I + II	28	93	0.651	Lo / mH	-	-	-	5	1	0.1
				Co / μF	-	-	-	0.25	0.36	0.551
9002/13-280-100-041										
I	28	97	0.679	Lo / mH	-	0.5	0.1	10	1	0.1
				Co / μF	-	0.067	0.083	0.24	0.35	0.65
II	28	0	0.021	Lo / mH	50	1	0.1	50	1	0.1
				Co / μF	0.062	0.075	0.083	0.34	0.41	0.65
I + II	28	100	0.7	Lo / mH	-	-	-	5	1	0.1
				Co / μF	-	-	-	0.28	0.36	0.551
9002/13-280-110-001										
I	28	107	0.749	Lo / mH	-	-	0.1	5	1	0.1
				Co / μF	-	-	0.083	0.23	0.34	0.65
II	28	3	0.021	Lo / mH	50	1	0.1	50	1	0.1
				Co / μF	0.062	0.075	0.083	0.34	0.41	0.65
I + II	28	110	0.77	Lo / mH				5	1	0.1
				Co / μF				0.28	0.36	0.551
9002/13-280-188-001										
I	28	185	1.295	Lo / mH	-	-	-	-	1	0.1
				Co / μF	-	-	-	-	0.3	0.65
II	28	3	0.021	Lo / mH	50	1	0.1	50	1	0.1
				Co / μF	0.062	0.075	0.083	0.34	0.41	0.65
I + II	28	188	1.316	Lo / mH	-	-	-	5	1	0.1
				Co / μF	-	-	-	0.28	0.36	0.551

6. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 2053 X

Type / Channel	U _o [V]	I _o [mA]	P _o [W]	IIC				IIB		
9002/22-016-383-111										
I	0.8	191.5	0.038	Lo / mH	-	1	0.1	5	1	0.1
				Co / μF	-	100	100	400	900	1000
II	0.8	191.5	0.038	Lo / mH	-	1	0.1	5	1	0.1
				Co / μF	-	100	100	400	900	1000
I + II	1.6	383	0.077	Lo / mH	-	0.5	0.1	2	1	0.1
				Co / μF	-	26	67	100	170	620
9002/22-032-300-111										
I	1.6	150	0.06	Lo / mH	2	1	0.1	10	1	0.1
				Co / μF	20	29	73	72	200	640
II	1.6	150	0.06	Lo / mH	2	1	0.1	10	1	0.1
				Co / μF	20	29	73	72	200	640
I + II	3.2	300	0.12	Lo / mH		0.5	0.1	2	1	0.1
				Co / μF		7.3	15	30	41	110
9002/22-048-442-111										
I	2.4	221	0.133	Lo / mH		1	0.1	5	1	0.1
				Co / μF		10	29	36	80	220
II	2.4	221	0.133	Lo / mH		1	0.1	5	1	0.1
				Co / μF		10	29	36	80	220
I + II	4.8	442	0.266	Lo / mH		0.2	0.1		1	0.1
				Co / μF		4.4	6.1		16	43
9002/22-158-200-001										
I	7.9	100	0.198	Lo / mH	2	1	0.1	10	1	0.1
				Co / μF	1	1.3	2.5	3.9	7.6	16
II	7.9	100	0.198	Lo / mH	2	1	0.1	10	1	0.1
				Co / μF	1	1.3	2.5	3.9	7.6	16
I + II	15.8	200	0.395	Lo / mH		0.5	0.1	2	1	0.1
				Co / μF		0.34	0.38	1.4	1.7	2.6
9002/22-240-024-001										
I	12	12	0.04	Lo / mH	50	1	0.1	50	1	0.1
				Co / μF	0.34	0.63	1.1	1.8	3.5	6.6
II	12	12	0.04	Lo / mH	50	1	0.1	50	1	0.1
				Co / μF	0.34	0.63	1.1	1.8	3.5	6.6
I + II	24	24	0.08	Lo / mH	50	1	0.1	50	1	0.1
				Co / μF	0.26	0.62	1.1	1.6	3.4	6.6
9002/22-240-160-001										
I	12	80	0.24	Lo / mH	5	1	0.1	10	1	0.1
				Co / μF	0.33	0.57	1.1	1.8	3.3	6.6
II	12	80	0.24	Lo / mH	5	1	0.1	10	1	0.1
				Co / μF	0.33	0.57	1.1	1.8	3.3	6.6
I + II	24	160	0.48	Lo / mH			0.02	2	1	0.1
				Co / μF			0.125	0.37	0.85	0.93

6. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 2053 X

Type / Channel	U ₀ [V]	I ₀ [mA]	P ₀ [W]	IIC			IIB			
9002/33-280-000-001										
I	28	„0“		Lo / mH	50-5	1	0.1	50-5	1	0.1
				Co / µF	0.062	0.075	0.083	0.33	0.41	0.65
II	28	„0“		Lo / mH	50-5	1	1	50-5	1	0.1
				Co / µF	0.062	0.075	0.083	0.33	0.41	0.65
I + II	28	„0“		Lo / mH	50-5	1	1	50-5	1	0.1
				Co / µF	0.062	0.075	0.083	0.33	0.41	0.65
9002/34-280-000-001										
I	20	„0“		Lo / mH	10	1	0.1	10	1	0.1
				Co / µF	0.82	0.98	1.3	0.82	0.98	1.3
II	8	„0“		Lo / mH	50	1	0.1	10	1	0.1
				Co / µF	43	7.9	16	5.1	7.9	16
I + II	28	„0“		Lo / mH	50-5	1	0.1	50-5	1	0.1
				Co / µF	0.062	0.075	0.083	0.33	0.41	0.65
9002/77-093-040-001 (auch als 9002/22...)										
I	9.3	20	0.05	Lo / mH	10	1	0.1	10	1	0.1
				Co / µF	0.68	1	1.8	3.6	5.7	11
II	9.3	20	0.05	Lo / mH	10	1	0.1	10	1	0.1
				Co / µF	0.68	1	1.8	3.6	5.7	11
I + II	9.3	40	0.09	Lo / mH	10	1	0.1	10	1	0.1
				Co / µF	0.59	1	1.8	3.4	5.7	11
9002/77-093-300-001 (auch als 9002/22...)										
I	9.3	150	0.35	Lo / mH	2	1	0.1	5	1	0.1
				Co / µF	0.58	0.82	1.8	3.1	5.3	11
II	9.3	150	0.35	Lo / mH	2	1	0.1	5	1	0.1
				Co / µF	0.58	0.82	1.8	3.1	5.3	11
I + II	9.3	300	0.7	Lo / mH		0.5	0.1	2	1	0.1
				Co / µF		0.83	1.7	3.4	4.7	11
9002/77-100-400-001										
I	10	200	0.5	Lo / mH		1	0.1	5	1	0.1
				Co / µF		0.62	1.5	2.3	4.4	9.4
II	10	200	0.5	Lo / mH		1	0.1	5	1	0.1
				Co / µF		0.62	1.5	2.3	4.4	9.4
I + II	10	400	1	Lo / mH		0.2	0.1		1	0.1
				Co / µF		1	1.4		3.7	9.2
9002/77-150-300-001										
I	15	150	0.56	Lo / mH		1	0.1	5	1	0.1
				Co / µF		0.31	0.54	1.2	2	3.55
II	15	150	0.56	Lo / mH		1	0.1	5	1	0.1
				Co / µF		0.31	0.54	1.2	2	3.55
I + II	15	300	1.13	Lo / mH		0.2	0.1		1	0.1
				Co / µF		0.48	0.48		1.8	3.5

6. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 2053 X

Type / Channel	U _o [V]	I _o [mA]	P _o [W]	IIC						IIB	
9002/77-220-146-001											
I	22	73	0.4	Lo / mH	5	1	0.1	10	1	0.1	
				Co / μF	0.09	0.096	0.165	0.55	0.63	1	
II	22	73	0.4	Lo / mH	5	1	0.1	10	1	0.1	
				Co / μF	0.09	0.096	0.165	0.55	0.63	1	
I + II	22	146	0.8	Lo / mH		0.5	0.1	5	1	0.1	
				Co / μF		0.091	0.16	0.56	0.57	0.99	
9002/77-220-296-001											
I	22	148	0.81	Lo / mH		0.5	0.1	5	1	0.1	
				Co / μF		0.09	0.16	0.55	0.56	0.99	
II	22	148	0.81	Lo / mH		0.5	0.1	5	1	0.1	
				Co / μF		0.09	0.16	0.55	0.56	0.99	
I + II	22	296	1.63	Lo / mH					1	0.1	
				Co / μF					0.45	0.93	
9002/77-280-094-001											
I	28	47	0.33	Lo / mH	10	1	0.1	10	1	0.1	
				Co / μF	0.042	0.063	0.083	0.29	0.38	0.65	
II	28	47	0.33	Lo / mH	10	1	0.1	10	1	0.1	
				Co / μF	0.042	0.063	0.083	0.29	0.38	0.65	
I + II	28	94	0.66	Lo / mH		0.5	0.1	10	1	0.1	
				Co / μF		0.067	0.083	0.25	0.35	0.65	

6. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 2053 X

The electrical data of type 9002/22-032-300-111 are supplemented – without modification of the design – by those applicable for connection of an active intrinsically safe source (e.g. an RS-485 interface) to the terminals 3 and 4.

Electrical data

Non-intrinsically safe circuits
(terminals 1 and 2)

type of protection Non-Sparking Ex nA Gc
safety-related maximum voltage for application as
an associated apparatus:

$$U_m = 253 \text{ V}$$

Intrinsically safe circuit
(terminals 3 and 4)

type of protection Intrinsic Safety Ex ia IIB/IIC Ga

Maximum values:

$$U_o = \pm 3.2 \text{ V}$$

$$I_o = \pm 300 \text{ mA}$$

$$P_o = 120 \text{ mW}$$

$$U_i = \pm 4.2 \text{ V}$$

$$I_i = \pm 150 \text{ mA}$$

$$P_i = 160 \text{ mW}$$

the effective internal inductance L_i and capacitance C_i are negligibly low

All circuits are interconnected by the reference conductor and they are electrically connected to ground.

Additional note:

The following values of the permissible inductance L_o and capacitance C_o in the (field) circuit apply to the interconnection of the safety barrier and an interface with the active input values given above:

	IIC		IIB		
L_o [mH]	0.37	0.1	1.5	0.5	0.1
C_o [μ F]	1.8	3	7.2	11	19

Possibly existing internal inductances L_i and capacitances C_i of the interface shall be subtracted.

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

6. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 2053 X

Applied standards

EN 60079-0:2012

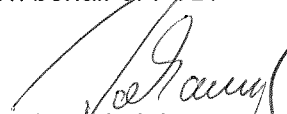
EN 60079-11:2012

EN 60079-15:2010

Test report: PTB Ex 13-23074

Zertifizierungssektor Explosionsschutz
On behalf of PTB:

Braunschweig, August 19, 2013


Dr.-Ing. U. Johannsmeyer
Direktor und Professor

