

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin



(1) **EC-TYPE-EXAMINATION CERTIFICATE** (Translation)

(2) Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 94/9/EC**



(3) EC-type-examination Certificate Number:

PTB 00 ATEX 2201

(4) Equipment: Communication Interface Module Type CIPB-Ex

(5) Manufacturer: ABB Automation Products GmbH

(6) Address: D-63457 Alzenau, Germany

(7) This equipment and any acceptable variation thereto are 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 9 of the Council Directive 94/9/EC of 23 March 1994, 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 to the Directive.

The examination and test results are recorded in the confidential report PTB Ex 01-20147.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 50014:1997 + A1 + A2 EN 50020:1994 EN 50039:1980

(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 schedule to this certificate.

(11) This EC-type-examination Certificate relates only to the design and construction of the specified equipment in accordance with Directive 94/9/EC. Further requirements of this Directive apply to the manufacture and supply of this equipment.

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



II 2 G SYST EEx ib IIC T4

Zertifizierungsstelle Explosionsschutz
By order:

Braunschweig,

Dr.-Ing. U. Johannsmeyer
Regierungsdirektor

sheet 1/4

(13) **S C H E D U L E**

(14) **EC-TYPE-EXAMINATION CERTIFICATE PTB 00 ATEX 2201**

(15) Description of equipment

The Communication Interface Module Type CIPB-Ex is used to connect the S900 Remote I/O Fieldbus System to a Profibus network via an RS485 interface. The Communication Interface Module Type CIPB-Ex is part of the S900 Fieldbus System in accordance with the separate EC Type Acceptance Certificate PTB 00 ATEX 2156 U. The Communication Interface Module Type CIPB-Ex can be plugged and operated in the termination unit with backplane of the S900 Remote I/O Fieldbus System. When using the module with the appropriate housing, protection IP 20 is achieved.

Max. permissible ambient temperature range: -20°C to +60°C.

Electrical specifications

I.) AC power supply circuit

Type of protection "Intrinsic safety" EEx ib IIC / IIB only for connection to approved intrinsically safe current circuits in accordance with PTB 00 ATEX 2156 U.

Maximum values:

V = 20 V AC (amplitude)

f = 300 kHz ... 314 kHz

P = 2.8 W (power consumption)

C_i negligible

L_i negligible

The intrinsically safe AC power supply circuit has a safe electrical isolation from earth, and from all other intrinsically safe current circuits up to a peak value of 60 V of the rated voltage.

II.) Signal current circuit (CAN-BUS)

(current circuit to be used within the system, exclusively; no external connections provided)

III.) Address encoding circuit, internal communication, power supply monitoring

(current circuit to be used within the system, exclusively; no external connections provided)

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

SCHEDULE TO EC-TYPE-EXAMINATION CERTIFICATE PTB 00 ATEX 2201

IV.) RS 485 fieldbus connection

(via D-Sub connector socket
on system termination unit

Type of protection "Intrinsic safety" EEx ib IIC/IIB

Max. values :

$$V_o = 3.72 \text{ V}$$

$$I_o = 157 \text{ mA}$$

$$P_o = 146 \text{ mW}$$

Characteristic curve: linear

$$V_i = 3.75 \text{ V}$$

External RS 485 fieldbus system

Type of protection "Intrinsic safety" SYST EEx ib
IIC/IIB

Max. value per terminal pair:

$$V_i = 3.75 \text{ V}$$

Max. value for all terminal pairs (sum)

$$I_i = 2.66 \text{ A}$$

Cables

Cable type A or B to EN 50039 with the following
cables lengths:

$$L'/R' \leq 28.5 \mu\text{H} / \Omega \text{ (loop resistance)}$$

$$C' \leq 250 \text{ nF} / \text{km}$$

Diameter of stranded wire $\geq 0.2 \text{ mm}$

Concentrated inductances and capacitances in the
external RS 485 fieldbus system are inadmissible.

The intrinsically safe fieldbus connection has a safe electrical isolation from earth and from
all other current circuits of the S900 Fieldbus System.

Additional information

The specifications of the maximum permissible external inductances and capacitances on
the fieldbus connectors of the bus stations in the external RS 485 fieldbus network are not
applicable in the context of this system description.

(16) Test report PTB Ex 01-20147

(17) Special conditions for safe use

See operating manual

(18) Essential health and safety requirements

Covered by the standards and regulations stated above.

sheet 3/4

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

SCHEDULE TO EC-TYPE-EXAMINATION CERTIFICATE PTB 00 ATEX 2201

Zertifizierungsstelle Explosionsschutz
By order:

Braunschweig,

Dr.-Ing. U. Johannsmeyer
Regierungsdirektor

1. SUPPLEMENT

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

to EC-TYPE-EXAMINATION CERTIFICATE PTB 00 ATEX 2201

(Translation)

Equipment: Communication Interface, type CIPB-Ex

Marking:  II 2 G SYST EEx ib IIC T4

Manufacturer: ABB Automation Products GmbH

Address: 63754 Alzenau, Deutschland

Description of supplements and modifications

The communication interface, type CIPB-Ex may also be operated with the "Electrical data" listed below. All further specifications remain without changes.

Electrical data

VI.) RS 485 field bus terminals type of protection Intrinsic Safety EEx ib IIC/IIB
terminal posts: J3: 5 and 6 to
D-SUB terminal socket on maximum values:
system mounting rack
 $U_o = \pm 3.72 \text{ V}$
 $I_o = \pm 157 \text{ mA}$
 $P_o = 146 \text{ mW}$
linear characteristic
 $U_i = \pm 4.2 \text{ V}$

The RS 485 field bus terminal is safely electrically isolated from ground and from all other intrinsically safe circuits up to a peak value of the nominal voltage of 60 V.

VII.) External RS 485 field bus system type of protection Intrinsic Safety SYST EEx ib IIC/IIB
D-SUB terminal socket on maximum value for each terminal pair:
system mounting rack

$U_i = \pm 4.2 \text{ V}$
maximum value of total terminal pairs:

$I_i = \pm 2.66 \text{ A}$

Cables

cable type A resp. B according to EN 50039 with the following line reactances per unit length:

Sheet 1/2

1. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 00 ATEX 2201

$L'/R' \leq 15 \mu\text{H} / \Omega$ (loop resistance)

$C' \leq 250 \text{ nF} / \text{km}$

strand diameter $\geq 0.2 \text{ mm}$

lumped inductances and capacitances are not permissible along the cable run of the external RS 485 field bus system.

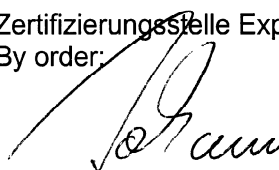
Additional note

The values of the maximum permissible external inductance and capacitance at the field bus terminals of stations of the external RS 485 field bus system are not applicable within the scope of this system certificate.

Test report: PTB Ex 01-21393

Zertifizierungsstelle Explosionsschutz

By order:


Dr.-Ing. U. Johannsmeyer
Regierungsdirektor



Braunschweig, October 29, 2001