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 12 ATEX 2021

(4) Equipment: Solenoid, type 3966-110.. / -810..

(5) Manufacturer: SAMSON AG Mess- und Regeltechnik

(6) Address: Weismüllerstr. 3, 60314 Frankfurt, 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 test report PTB Ex 13-22148.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2009 **EN 60079-11:2012** **EN 60079-15:2010** **EN 60079-31:2009**

(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, examination and tests of the specified equipment in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

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

see (15) description

Zertifizierungssektor Explosionsschutz
On behalf of PTB:

Braunschweig, May 27, 2013

Dr.-Ing. U. Johannsmeyer
Direktor und Professor

ZSEx10100e.dotm

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

(14) ## EC-TYPE-EXAMINATION CERTIFICATE PTB 12 ATEX 2021

(15) Description of equipment

The solenoids of types 3966-110.., 3966-110.. ..25 and 3966-810.. are used for the conversion of binary electrical input signals into pneumatic output signals and for the control of pneumatic actuators. The solenoids are intended for the installation inside or outside of the hazardous area.

The solenoids are electrically triggered by the e/p-binary converter coil of type 1079-40.. . This is a passive two-terminal network which may be connected to certified intrinsically safe circuits provided that the permissible maximum values for U_i, I_i and P_i are not exceeded.

For the remote indication of the operating state the solenoid of type 3966-110.. ..25 is provided with an additional cubic LED-plug.

All types of solenoids are mounted into type-tested enclosures which comply with the requirements to equipment protected by enclosures according to EN 60079-31:2009.

The marking of the individual types reads as follows:

Type 3966-110..

II 2 G Ex ia IIC T6 Gb and
II 2 D Ex ia IIIC T80 °C Db IP66 and
II 2 D Ex tb IIIC T85 °C Db IP66

Type 3966-110.. ..25

II 2 G Ex ia IIC T6 Gb

Type 3966-810..

II 3 G Ex ic IIC T6 Gc and
II 3 G Ex nAc II T6 Gc and
II 3 D Ex tc IIIC T80 °C Dc IP66

For relationship between type of equipment, temperature class, permissible ranges of the ambient temperature and degree of protection, reference is made to the following table:

Type of equipment	Temperature class	Permissible ambient temperature range	IP
3966-110..	T6 T5 T4	60 °C -45 °C ≤T_a ≤ 70 °C 80 °C	66
3966-110.. ..25	T6 T5 T4	55 °C -45 °C ≤T_a ≤ 70 °C 80 °C	65
3966-810..	T6 T5 T4	70 °C -45 °C ≤T_a ≤ 80 °C 80 °C	66

Electrical data

For relationship between type of equipment, type of protection and permissible maximum values, reference is made to the following tables:

Type 3966-110.. and 3966-110.. ..25

Ex ia IIC or **Ex ia IIIC** or **Ex ic IIIC**

Maximum values for connection to a certified intrinsically safe circuit:

U_i	25 V	27 V	28 V	30 V	32 V
I_i	150 mA	125 mA	115 mA	100 mA	85 mA

C_i negligibly low
L_i negligibly low

The e/p-binary converter coil of type 1079-40.. can be operated with nominal voltages of 6 V, 12 V and 24 V using appropriate resistors connected in series.

Solenoid Binary converter coil	U_i	3966-1101 6 V DC	3966-1102 12 V DC	3966-1103 24 V DC
Rectangular characteristic	P_i	250 mW	*	
Linear characteristic	P_i	*	*	

* without restriction

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SCHEDULE TO EC-TYPE-EXAMINATION CERTIFICATE PTB 12 ATEX 2021

Type 3966-810..

Ex nA II
Input circuit.....type of protection Ex nA II

(16) Test report PTB Ex 13-22148

(17) Special conditions for safe use

none

(18) Essential health and safety requirements

met by compliance with the standards mentioned above

Zertifizierungssektor Explosionsschutz
On behalf of PTB:

Braunschweig, May 27, 2013

Dr.-Ing. U. Johannsmeyer
Direktor und Professor