



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 02 ATEX 2010

- (4) Equipment: Equipment series OS-Ex-... or OBS-Ex-... respectively, each consisting of: Supply unit, two types of measuring transducers and two types of limit monitoring instruments according to schedule
- (5) Manufacturer: Osna Electronics Private Limited
- (6) Address: Factory No. 5, Pase IV, Okhla Industrial Estate, New Delhi 110020, India
- (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 02-21010.
- (9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
- EN 50014:1997 +A1 +A2** **EN 50020:1994**
- (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:



II (1) G [EEx ia] IIC/IIB resp. [EEx ib] IIC/IIB

Zertifizierungsstelle Explosionsschutz

Braunschweig, April 16, 2002

By order

Dr.-Ing. U. Klausmeyer
Regierungsdirektor



sheet 1/4

(13)

SCHEDULE

(14)

EC-TYPE-EXAMINATION CERTIFICATE PTB 02 ATEX 2010

(15) Description of equipment

The equipment series OS-Ex-... or OBS-Ex-... are used for the electrical isolation between intrinsically safe signal circuit, non-intrinsically safe supply circuit and non- intrinsically safe output circuit. The equipment series OS-Ex-... or OBS-Ex-... differ from each other by the enclosure used. The electrical circuitry of the respective single units is identical. The equipment series consist of the following single units:

Supply unit	Type OS-Ex-CR-1-ST	resp. OBS-Ex-CR-1-ST
Measuring transducer	Type OS-Ex-TC-CC	resp. OBS-Ex-TC-CC
Measuring transducer	Type OS-Ex-RTD-CC-1	resp. OBS-Ex-RTD-CC-1
Limit value indicator	Type OS-Ex-GR-02	resp. OBS-Ex-GR-02
Limit value indicator	Type OS-Ex-GS-02	resp. OBS-Ex-GS-02

The maximum permissible ambient temperature is 60 °C.

Electrical data:

Type OS (OBS) -Ex-CR-1-ST:

Supply circuit
(terminal: 9, 12 /OS)
(terminal: c14, a20 /OBS)

$$U_N = 24 \text{ V DC}$$

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

Output circuit
(terminal: 7, 8 /OS)
(terminal: a26, a28 /OBS)

$$I_N = 4 \text{ to } 20 \text{ mA}$$

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

Signal circuit
(terminal: 1, 3 /OS)
(terminal: a3, a5 /OBS)

type of protection Intrinsic Safety EEx ia IIC/IIB
resp. EEx ib IIC/IIB

Maximum values:

$$U_o = 29.4 \text{ V}$$

$$I_o = 90 \text{ mA}$$

$$P_o = 663 \text{ mW}$$

linear characteristic

	IIC	IIB
L_o [mH]	0.2	0.5
C_o [nF]	70	400

Type OS (OBS) -Ex-TC-CC and Type OS (OBS) -Ex-RTD-CC-1

Supply circuit
(terminal: 9, 12 /OS)
(terminal: c14, a20 /OBS)

$$U_N = 24 \text{ V DC}$$
$$U_m = 253 \text{ V}$$

Output circuit
(terminal: 7, 8 /OS)
(terminal: a26, a28 /OBS)

$$I_N = 4 \text{ to } 20 \text{ mA}$$
$$U_m = 253 \text{ V}$$

Signal circuit
(terminal: 1, 2, 3 /OS)
(terminal: a1, a3, a5 /OBS)

type of protection Intrinsic Safety EEx ia IIC/IIB
resp. EEx ib IIC/IIB

Maximum values:

$$U_o = 8.6 \text{ V}$$

$$I_o = 26.5 \text{ mA}$$

$$P_o = 52.2 \text{ mW}$$

linear characteristic

	IIC	IIB
L_o [mH]	2	10
C_o [μF]	1.2	4.5

Type OS (OBS) -Ex-GR-02

Supply circuit
(terminal: 9, 12 /OS)
(terminal: c14, a20 /OBS)

$$U_N = 24 \text{ V DC}$$
$$U_m = 253 \text{ V}$$

Contact circuit
(terminal: 7, 8 /OS)
(terminal: a26, a28 /OBS)

$$U_N = 250 \text{ V AC resp. } 40 \text{ V DC}$$
$$U_m = 253 \text{ V} \quad 2 \text{ A}$$
$$I_N = 2 \text{ A} \quad 80 \text{ W}$$
$$P_N = 500 \text{ VA}$$
$$\cos \varphi \geq 0.7$$

Signal circuit
(terminal: 1, 2, 3 /OS)
(terminal: a1, a3, a5 /OBS)

type of protection Intrinsic Safety EEx ia IIC/IIB
resp. EEx ib IIC/IIB

Maximum values:

$$U_o = 8.6 \text{ V}$$

$$I_o = 26.5 \text{ mA}$$

$$P_o = 52.2 \text{ mW}$$

linear characteristic

	IIC	IIB
L_o [mH]	2	10
C_o [μF]	1.2	4.5

Type OS (OBS) -Ex-GS-02

Supply circuit
(terminal: 9, 12 /OS)
(terminal: c14, a20 /OBS)

$U_N = 24 \text{ V DC}$

$U_m = 253 \text{ V}$

Contact circuit
(terminal: 7, 8 /OS)
(terminal: c27, c29, c31 /OBS)

$U_N = 250 \text{ V AC resp. } 40 \text{ V DC}$

$U_m = 253 \text{ V}$ 2 A

$I_N = 2 \text{ A}$ 80 W

$P_N = 500 \text{ VA}$

$\cos \varphi \geq 0.7$

Signal circuit
(terminal: 1, 2, 3 /OS)
(terminal: a1, a3, a5 /OBS)

type of protection Intrinsic Safety EEx ia IIC/IIB
resp. EEx ib IIC/IIB

Maximum values:

$U_o = 12.6 \text{ V}$

$I_o = 42.4 \text{ mA}$

$P_o = 133.6 \text{ mW}$

linear characteristic

	IIC	IIB
$L_o [\text{mH}]$	0.5	1
$C_o [\mu\text{F}]$	0.75	3.5

For all types the signal circuit is safely electrically isolated from all other circuits up to a peak value of the nominal voltage of 375 V.

(16) Test report PTB Ex 02-21010

(17) Special conditions for safe use

none

Notes for manufacture and operation

When connecting the signal circuits to active intrinsically safe circuits the rules for the interconnection of intrinsically safe circuits shall be taken into consideration.

(18) Essential health and safety requirements

met by compliance with the standards mentioned above

Zertifizierungsstelle Explosionsschutz

By order:

Dr.-Ing. U. Klausmeyer
Regierungsdirektor



Braunschweig, April 16, 2002