



[1] **SUPPLEMENT No 2**
to EC-TYPE EXAMINATION CERTIFICATE
KDB 04ATEX061

[2] Equipment, protective systems and components intended for use in potentially explosive atmospheres.
Directive 94/9/EC
(Regulation of the MG from 22.12.2005. Official Journal (Dz.U.) No.263, Item 2203).

[3] Equipment or protective system:
Binary separator type SBEx

[4] Manufacturer:
Labor-Aster
H.Gasztold, P.Ludwiczak

[5] Address:
ul. Czechowicka 19, 04-218 Warsaw, Poland

[6] Changes introduced to design or construction of component in accordance with the specification set out in the Schedule attached to this certificate and the document therein referred to.

This document shall be held with the original Certificate.


The examination and test results are recorded in confidential report KDB No. 14.010 [T-5127]

[7] Marking: according to supplement no 1

[8] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

PN-EN 60079-0:2009	(EN 60079-0:2009)
PN-EN 60079-11:2012	(EN 60079-11:2012)
PN-EN 50303:2004	(EN 50303:2000)

[9] The marking will change to:

	I (M1) [Ex ia] I
	II (1) G [Ex ia] IIC
	II (1) D [Ex ia] IIIC

Date of issue: 17.10.2012

Page 1 of 15

Compliance with the original



[10]

SCHEDULE

[11] **Supplement No 2 to EC-Type Examination Certificate KDB 04ATEX061**

[12] **Description:**

Variations of the separator type S2Ex-... have been expanded to the following versions:
SBEx-2/5,3mA, SBEx-2/14mA, SBEx-2/21mA, SBEx-2/30mA, SBEx-2/47mA, SBEx-2S, SBEx-4S,
SBEx-4S/G42, SBEx-4S/G500, SBEx-B.

The device was analyzed for compliance with norms:

PN-EN 60079-0:2009 (EN 60079-0:2009)

PN-EN 60079-11:2012 (EN 60079-11:2012)

PN-EN 50303:2004 (EN 50303:2000).

Parameters of the intrinsically safe circuits were updated.

The following certificate covers versions of the separator listed below:

- SBEx-1/5,3mA, SBEx-1/14mA, SBEx-1/21mA, SBEx-1/30mA, SBEx-1/47mA, SBEx-1S
- SBEx-2/5,3mA, SBEx-2/14mA, SBEx-2/21mA, SBEx-2/30mA, SBEx-2/47mA, SBEx-2S
- SBEx-4-PK-OPTO where PK: 1 ÷ 4, OPTO: 1 ÷ 4
- SBEx-4S-PK-OPTO where PK: 1 ÷ 2, OPTO: 1 ÷ 2
- SBEx-4S/G42-PK-OPTO where PK: 1 ÷ 2, OPTO: 1 ÷ 2
- SBEx-4S/G500-PK-OPTO where PK: 1 ÷ 2, OPTO: 1 ÷ 2

Separators are designed to be used outside of the potentially explosive zones or to be installed in flameproof enclosure. Using transducers in flameproof enclosure in I explosive group does not require putting additional warning on the enclosure in accordance with PN-EN 60079-0 p. 29.11.

In case of using transducer in flameproof enclosure in II and III explosive group, on the outer part of the enclosure must be additional warning: “Do not open the enclosure within 10 minutes after turning off the power.”.

Technical parameters:

Input signal: voltage, current, resistance, short-open circuit state (contacts).

Output signal: bistate (relays contacts, semiconductor junctions).

Supply: 20 ÷ 28 V

Working temperature: -25 ÷ +70 °C

All intrinsically safe circuits provide “ia” protection level.

Intrinsically safe circuits can be connected by using:

- multicore cable type A or B in accordance with PN-EN 60079-14, or
- separate cables for each intrinsically safe circuit.

Compliance with the original



[10]

SCHEDULE

[11]

Supplement No 2 to EC-Type Examination Certificate KDB 04ATEX061

[12] **Description continued:**

I. SBEx-2...

1. Safety parameters listed separately for terminals “1-2; 1-4; 5-6; 5-8” and separately for terminals “2-4; 3-4; 6-8; 7-8”.

Terminals “1-2, 1-4” (channel 1) (respectively “5-6, 5-8” in channel 2) and terminals “2-4, 3-4” (channel 1) (respectively “6-8, 7-8” channel 2) are intrinsically safe circuits connected together. For simultaneous connection of both circuits can be used one multicore cable type A or B in accordance with PN-EN 60079-14 or separate cables.

a) Intrinsically safe input circuit (supplying):

“channel 1” – terminals “1-2”, “1-3”, “1-4” and

“channel 2” – terminals “5-6”, “5-7”, “5-8”:

In channel 1 are used terminals 1-2 or 1-4 (respectively 5-6 or 5-8 in channel 2).

Lo, Co clustered parameters

Clustered values of Lo, Co and L/R connection cable parameters should be adopted according to the table shown below. Date relates to clustered values of Lo and Co and can be also adopted to cables.

Realization	U ₀ [V]	I ₀ [mA]	P ₀ [mW]	L/R [mH/Ω]			Lo [mH]			Co [μF]		
				I and IIA	IIB	IIC	I and IIA	IIB	IIC	I and IIA	IIB	IIC
SBEx-2/5,3mA	0÷10,5	5,3	15,8	218	9	2,2	50	20	5	3,8	2,7	0,65
SBEx-2/14mA		13,9	41,6	6,5	3,2	0,81				3,3	2,5	0,61
SBEx-2/21mA		20,4	61,1	4,5	2,2	0,56				3,1	2,5	0,58
SBEx-2/30mA		29,4	88,1	3,1	1,5	0,39				2,9	2,3	0,55
SBEx-2/47mA		46,8	140,4	2,0	1,0	0,25	20	10	2	3,2	2,1	0,5
SBEx-2S	0÷17,4	32,7	142,3							1,3	1	0,25

Characteristic of the circuit is trapezoidal.

Compliance with the original



[10]

SCHEDULE

[11] **Supplement No 2 to EC-Type Examination Certificate KDB 04ATEX061**

[12] **Description continued:**

Lo, Co distributed parameters.

Distributed values of Co, Lo for connection cable should be adopted according to the table to the right. L/R connection cable parameters should be taken from the table above.

Realization	Lo [mH]			Co [μF]		
	I and IIA	IIB	IIC	I and IIA	IIB	IIC
SBEx-2/5,3mA	100	100	100	75	16,8	2,41
SBEx-2/14mA			52			
SBEx-2/21mA			20			
SBEx-2/30mA		87				
SBEx-2/47mA		100	38			
SBEx-2S						

Characteristic of the circuit is trapezoidal.

b) intrinsically safe measuring inputs:

- “channel 1” - terminals “2-4”, “3-4” and
- “channel 2” – terminals “6-8”, “7-8”

In channel 1 are used terminals 2-4 or 3-4 (respectively 6-8 or 7-8 in channel 2).

Values of Lo, Co for parameters clustered and distributed at the same.

Clustered values of Lo, Co and L/R connection cable parameters should be adopted according to the table shown below. Date relates to clustered values of Lo and Co and can be also adopted to cables.

Realization	Uo [V]	Io [mA]	Po [mW]	L/R [mH/Ω]			Lo [mH]			Co [μF]		
				I and IIA	IIB	IIC	I and IIA	IIB	IIC	I and IIA	IIB	IIC
SBEx-2/5,3mA	6,51	0,32	0,97	292	146	36	100	50	20	9,1	6,2	1,5
SBEx-2/14mA												
SBEx-2/21mA												
SBEx-2/30mA												
SBEx-2/47mA												
SBEx-2S	0,46	2	138	69	17,3							

Characteristic of the circuit is linear.

Compliance with the original



[10]

SCHEDULE

[11]

Supplement No 2 to EC-Type Examination Certificate KDB 04ATEX061

[12] **Description continued:**

- Intrinsically safe input circuits parameters:
 “channel 1” - terminals “2-4”, “3-4” and
 “channel 2” - terminals “6-8”, “7-8”
 $U_i=30V$, $I_i=any$, $P_i=any$, $L_i \cong 0$, $C_i \cong 0$.

2. Safety parameters listed together for terminals “1+2+3 - 4” and “5+6+7 - 8”.

- a) **Intrinsically safe input circuits:**
 “channel 1” - terminals “1, 2, 3, 4” and
 “channel 2” - terminals “5, 6, 7, 8”.

Lo, Co clustered parameters

Clustered values of Lo, Co and L/R connection cable parameters should be adopted according to the table shown below. Date relates to clustered values of Lo and Co and can be also adopted to cables.

Realization	Uo [V]	Io [mA]	Po [mW]	L/R [mH/Ω]			Lo [mH]			Co [μF]		
				I and II A	II B	II C	I and II A	II B	II C	I and II A	II B	II C
SBEx-2/5,3mA	6,5÷10,5	5,91	17,74	16	8	2	50	20	5	3,7	2,8	0,64
SBEx-2/14mA		14,5	43,6	6,5	3,2	0,81				3,3	2,5	0,61
SBEx-2/21mA		21,0	63,1	4,5	2,2	0,56				3,1		0,58
SBEx-2/30mA		30,4	90,1	3,1	1,5	0,39				2,9	2,3	0,55
SBEx-2/47mA		47,4	142,3	2,0	1,0	0,25	3,2	2,1	0,5			
SBEx-2S	6,5÷17,4	33,6	146	2,0	1,0	0,25	20	10	2	1,3	1	0,25

Characteristic of the circuit is trapezoidal.

Compliance with the original



[10]

SCHEDULE

[11]

Supplement No 2 to EC-Type Examination Certificate KDB 04ATEX061

[12] **Description continued:**

Lo, Co distributed parameters.

Distributed values of Co, Lo for connection cable should be adopted according to the table to the right. L/R connection cable parameters should be taken from the table above.

Realization	Lo [mH]			Co [μF]			
	I and IIA	IIB	IIC	I and IIA	IIB	IIC	
SBEx-2/5,3mA	100	100	100	75	16,8	2,41	
SBEx-2/14mA							
SBEx-2/21mA							
SBEx-2/30mA			49				
SBEx-2/47mA			85				20
SBEx-2S			100				37
Characteristic of the circuit is trapezoidal.							

b) Intrinsically safe input circuits parameters:

“channel 1” - terminals “2-4”, “3-4” and

“channel 2” – terminals “6-8”, “7-8”

$U_i=30V$, $I_i=any$, $P_i=any$, $L_i \cong 0$, $C_i \cong 0$.

3. Safety parameters with serial galvanic connection of both intrinsically safe circuits listed together for terminals “1+2+3+4+5+6+7+8”.

a) Intrinsically safe serially connected with each other both input circuits:

“channel 1” - terminals “1, 2, 3 - 4” and

“channel 2” – terminals “5, 6, 7 - 8”.

Lo, Co clustered parameters

Clustered values of Lo, Co and L/R connection cable parameters should be adopted according to the table shown below. Date relates to clustered values of Lo and Co and can be also adopted to cables.

Compliance with the original



[10]

SCHEDULE

[11]

Supplement No 2 to EC-Type Examination Certificate KDB 04ATEX061

[12] **Description continued:**

Realization	U ₀ [V]	I ₀ [mA]	P ₀ [mW]	L/R [mH/Ω]			L ₀ [mH]			C ₀ [μF]		
				I and IIA	IIB	IIC	I and IIA	IIB	IIC	I and IIA	IIB	IIC
SBEx-2/5,3mA	13÷21	5,91	35,5	8	4	1	10	10	2	1,1	0,74	0,14
SBEx-2/14mA		14,5	87,2	3,2	1,6	0,4				1,0	0,91	0,13
SBEx-2/21mA		21,0	126,2	2,2	1,1	0,28		5	10	0,97	0,77	0,12
SBEx-2/30mA		30,4	180,2	1,5	0,79	0,19				0,92	0,74	0,11
SBEx-2/47mA		47,4	284,6	0,97	0,48	0,12				5	0,92	0,74
SBEx-2S	13÷34,8	33,6	292				2	0,5	0,26	0,23	0,46	

Characteristic of the circuit is trapezoidal.

Lo, Co distributed parameters.

Distributed values of Co, Lo for connection cable should be adopted according to the table to the right. L/R connection cable parameters should be taken from the table above.

Realization	L ₀ [mH]			C ₀ [μF]		
	I i IIA	IIB	IIC	I i IIA	IIB	IIC
SBEx-2/5,3mA	100	100	100	4,78	1,27	0,188
SBEx-2/14mA			89			
SBEx-2/21mA						
SBEx-2/30mA						
SBEx-2/47mA			72			
SBEx-2S	100	22	1,3	0,39	0,046	

Characteristic of the circuit is trapezoidal.

b) Intrinsically safe input circuits parameters:

“channel 1” - terminals “2-4”, “3-4” and

“channel 2” – terminals “6-8”, “7-8”

U_i=30V, I_i=any, P_i=any, L_i ≅ 0, C_i ≅ 0.

Compliance with the original



[10]

SCHEDULE

[11] **Supplement No 2 to EC-Type Examination Certificate KDB 04ATEX061**

[12] **Description continued:**

4. Safety parameters with parallel galvanic connection of both intrinsically safe circuits listed together for terminals “1+2+3+4+5+6+7+8”.

Terminals „1, 2, 3, 4, 5, 6, 7, 8” can be connected with one multicore cable.

a) **Intrinsically safe connected in parallel both input circuits:**

“channel 1” - terminals “1, 2, 3 - 4” and

“channel 2” – terminals “5, 6, 7 - 8”.

Lo, Co clustered parameters

Clustered values of Lo, Co and L/R connection cable parameters should be adopted according to the table shown below. Date relates to clustered values of Lo and Co and can be also adopted to cables.

Realization	Uo [V]	Io [mA]	Po [mW]	L/R [mH/Ω]			Lo [mH]			Co [μF]		
				I and IIA	IIB	IIC	I and IIA	IIB	IIC	I and IIA	IIB	IIC
SBEx-2/5,3mA	6,5÷10,5	11,82	35,5	8	4	1	20	20	5	3,8	2,6	0,62
SBEx-2/14mA		29	87,2	3,2	1,6	0,4				3,5	2,4	0,56
SBEx-2/21mA		42	126,2	2,2	1,1	0,28				3,3	2,2	0,52
SBEx-2/30mA		60,8	180,2	1,5	0,79	0,19				2,9	1,9	0,45
SBEx-2/47mA		94,8	284,6	0,97	0,48	0,12				4,8	2,4	1,4
SBEx-2S	6,5÷17,4	67,2	292				10	10	2	1,3	0,9	0,23

Characteristic of the circuit is trapezoidal.

Compliance with the original



[10]

SCHEDULE

[11] **Supplement No 2 to EC-Type Examination Certificate KDB 04ATEX061**

[12] **Description continued:**

Lo, Co distributed parameters.

Distributed values of Co, Lo for connection cable should be adopted according to the table to the right. L/R connection cable parameters should be taken from the table above.

Realization	Lo [mH]			Co [μF]		
	I and IIA	IIB	IIC	I and IIA	IIB	IIC
SBEx-2/5,3mA	100	100	100	75	16,8	2,41
SBEx-2/14mA			54			
SBEx-2/21mA			25			
SBEx-2/30mA			12			
SBEx-2/47mA	32	21	4,8			
SBEx-2S	59	38	2	8,4	2,02	0,346

Characteristic of the circuit is trapezoidal.

b) Intrinsically safe input circuits parameters:

“channel 1” - terminals “2-4”, “3-4” and

“channel 2” – terminals “6-8”, “7-8”

$U_i=30V$, $I_i=any$, $P_i=any$, $L_i \cong 0$, $C_i \cong 0$.

5) Nonintrinsically safe circuits parameters:

“channel 1 output” - terminals “9-10”;

“ channel 2 output” – terminals “11-12”;

“alarm” – terminals “13-14”;

“supply 24V” - terminals “15-16”: $U_m=253V$

II. SBEx-4, SBEx-4S

Terminals „WE1”, „WE2”, „WE3”, „WE4” (SBEx-4 and SBEx-4S) are intrinsically safe, galvanically separated circuits. . For simultaneous connection of these circuits can be used one multicore cable type A or B in accordance with PN-EN 60079-14 or separate cables.

a) Intrinsically safe input circuits:

“WE1”- terminals 9-10, “WE2”- terminals 11-12, “WE3”- terminals 13-14

and “WE4”- terminals 15-16 for SBEx-4 and

“WE1”- terminals 13-14, “WE2”- terminals 15-16 for SBEx-4S.

Compliance with the original



[10]

SCHEDULE

[11]

Supplement No 2 to EC-Type Examination Certificate KDB 04ATEX061

[12] **Description continued:**

Lo, Co clustered parameters

Clustered values of Lo, Co and L/R connection cable parameters should be adopted according to the table shown below. Date relates to clustered values of Lo and Co and can be also adopted to cables.

Realization	Uo [V]	Io [mA]	Po [mW]	L/R [mH/Ω]			Lo [H]			Co [μF]		
				I and IIA	IIB	IIC	I and IIA	IIB	IIC	I and IIA	IIB	IIC
SBEx-4	0÷9,6	10	24	12,3	6,1	1,5	0,1	0,1	0,1	4	2,7	0,5
							0,05	0,05	0,02	4,3	3	0,66
							0,02	0,02	0,005	4,9	3,4	0,83
SBEx-4S	0÷16,4	67	273	1,04	0,52	0,13	0,06	0,039	0,0086	0,8	0,61	0,15
							0,02	0,02	0,005	1,4	0,92	0,22
							0,01	0,01	0,002	1,8	1,2	0,33

Characteristic of the circuit is linear.

Lo, Co distributed parameters.

Distributed values of Co, Lo for connection cable should be adopted according to the table to the right. L/R connection cable parameters should be taken from the table above.

Realization	Lo [mH]			Co [μF]		
	I and IIA	IIB	IIC	I and IIA	IIB	IIC
SBEx-4	100	100	100	210	26	3,6
SBEx-4S	60	39	8,6	10	2,5	0,413

Characteristic of the circuit is linear.

Safety parameters with serial galvanic connection of any two out of four intrinsically safe separated input circuits for SBEx-4 and of two intrinsically safe separated input circuits for SBEx-4S.

For simultaneous connection of these circuits can be used one multicore cable type A or B in accordance with PN-EN 60079-14 or separate cables.

In SBEx-4S serially connected terminals “WE1” “WE2” can be connected by using one multicore cable.

Lo, Co clustered parameters

Clustered values of Lo, Co and L/R connection cable parameters should be adopted according to the table shown below. Date relates to clustered values of Lo and Co and can be also adopted to cables.



[10]

SCHEDULE

[11] **Supplement No 2 to EC-Type Examination Certificate KDB 04ATEX061**

[12] **Description continued:**

Realization	U _o [V]	I _o [mA]	P _o [mW]	L/R [mH/Ω]			L _o [mH]			C _o [μF]		
				I and IIA	IIB	IIC	I and IIA	IIB	IIC	I and IIA	IIB	IIC
SBEx-4	0÷19,2	10	48	6	3	0,76	20	20	20	1,1	0,78	0,15
							5	5	5	1,4	0,96	0,18
							1	1	1	1,8	1,1	0,18
SBEx-4S	0÷32,8	67	546	0,5	0,26	0,06	20	10	1,8	0,27	0,15	0,025
							2	2	1	0,32	0,22	0,035
							0,5	0,5	0,2	0,47	0,34	0,041

Characteristic of the circuit is linear.

Lo, Co distributed parameters.

Distributed values of Co, Lo for connection cable should be adopted according to the table to the right. L/R connection cable parameters should be taken from the table above.

Realization	L _o [mH]			C _o [μF]		
	I and IIA	IIB	IIC	I and IIA	IIB	IIC
SBEx-4	100	100	100	6,11	1,54	0,24
SBEx-4S	47	26	1,8	1,47	0,433	0,041

Characteristic of the circuit is linear.

Safety parameters with galvanic connection in parallel of any two out of four intrinsically safe separated input circuits for SBEx-4 and of two intrinsically safe separated input circuits for SBEx-4S.

For simultaneous connection of these circuits can be used one multicore cable type A or B in accordance with PN-EN 60079-14 or separate cables.

In SBEx-4S terminals “WE1” “WE2” connected in parallel can be connected by using one multicore cable.

Lo, Co clustered parameters

Clustered values of Lo, Co and L/R connection cable parameters should be adopted according to the table shown below. Date relates to clustered values of Lo and Co and can be also adopted to cables.

Compliance with the original



[10]

SCHEDULE

[11] **Supplement No 2 to EC-Type Examination Certificate KDB 04ATEX061**

[12] **Description continued:**

Realization	Uo [V]	Io [mA]	Po [mW]	L/R [mH/Ω]			Lo [H]			Co [μF]		
				I and IIA	IIB	IIC	I and IIA	IIB	IIC	I and IIA	IIB	IIC
SBEx-4	0÷9,6	20	48	6	3	0,76	50	50	20	3,9	2,6	0,55
							20	20	5	4,4	3,0	0,71
							5	5	1	5,5	3,8	0,97
SBEx-4S	0÷16,4	134	546	0,5	0,26	0,06	15	9,5	2	1	0,77	0,2
							5	5	1	1,5	1	0,26
							1	1	0,1	2,4	1,7	0,33

Characteristic of the circuit is linear.

Lo, Co distributed parameters.

Distributed values of Co, Lo for connection cable should be adopted according to the table to the right.
L/R connection cable parameters should be taken from the table above.

Realization	Lo [mH]			Co [μF]		
	I and IIA	IIB	IIC	I and IIA	IIB	IIC
SBEx-4	100	100	100	210	26	3,6
SBEx-4S	15	9,5	2	10	2,5	0,413

Characteristic of the circuit is linear.

b) Nonintrinsically safe circuits parameters:

Realization	terminals	Um
SBEx-4	“PK-PK” – terminals “5-1”, “Pk2-PK” – terminals “6-1”, “Pk3-Pk” – terminals “7-1”, “Pk4-Pk” – terminals “8-1”, “PkA-Pk” – terminals “2-1” and “Supply 24V” - terminals “3-4”	253 V
SBEx-4S	“Pk1” – terminals “5-6”, “Pk2” – terminals “7-8”, “PkA” – terminals “1-2” and “Supply 24V” - terminals “3-4”	

III. SBEx-4S/G42

Terminals „WE1” „WE2” are terminals of intrinsically safe galvanically separated circuits. For simultaneous connection of these circuits can be used one multicore cable type A or B in accordance with PN-EN 60079-14 or separate cables.

Compliance with the original



[10]

SCHEDULE

[11]

Supplement No 2 to EC-Type Examination Certificate KDB 04ATEX061

[12] **Description continued:**

a) **Intrinsically safe input circuits:**

“WE1”- terminals 13-14, “WE2”- terminals 15-16

for SBEx-4S:

Distributed values of L_o , C_o and L/R connection cable parameters should be adopted according to the table shown below.

Realization	U_o [V]	I_o [mA]	P_o [mW]	L/R [mH/Ω]			L_o [H]			C_o [μF]		
				I and IIA	IIB	IIC	I and IIA	IIB	IIC	I and IIA	IIB	IIC
SBEx-4S/G42	0÷16,4	3,2	13	21	10,5	2,6	1	0,5	0,12	10	2,5	0,413

Characteristic of the circuit is linear.

Safety parameters with serial galvanic connection of two intrinsically safe circuits for SBEx-4S/G42.

Serially connected terminals “WE1” “WE2” can be connected by using one multicore cable.

Distributed values of L_o , C_o and L/R connection cable parameters should be adopted according to the table shown below.

Realization	U_o [V]	I_o [mA]	P_o [mW]	L/R [mH/Ω]			L_o [H]			C_o [μF]		
				I and IIA	IIB	IIC	I and IIA	IIB	IIC	I and IIA	IIB	IIC
SBEx-4S/G42	0÷32,8	3,2	26	10,5	5,2	2,6	1	0,5	0,12	1,47	0,433	0,041

Characteristic of the circuit is linear.

b) **Intrinsically safe inputs parameters:**

“WE1” - terminals “13-14” and

“WE2” - terminals “15-16”:

$U_i=60V$, $I_i=any$, $P_i=any$, $L_i \cong 0$, $C_i \cong 11nF$.

c) **In case of using input circuits “WE1” and “WE2” to cooperate with nonintrinsically safe circuits: $U_m=60V$.**

d) **Nonintrinsically safe circuits parameters:**

“Pk1” – terminals “5-6”, “Pk2” – terminals “7-8”, „PkA” – terminals “1-2” and “Supply 24V” - terminals “3-4”: $U_m=253V$.

Compliance with the original



[10]

SCHEDULE

[11]

Supplement No 2 to EC-Type Examination Certificate KDB 04ATEX061

[12] **Description continued:**

IV. SBEx-4S/G500

Terminals "WE1" "WE2" are intrinsically safe galvanically separated circuits. For simultaneous connection of these circuits can be used one multicore cable type A or B in accordance with PN-EN 60079-14 or separate cables.

a) Intrinsically safe inputs parameters:

**"WE1" - terminals 13-14, "WE2" - terminals 15-16
 for SBEx-4S**

Distributed values of L_o , C_o and L/R connection cable parameters should be adopted according to the table shown below.

Realization	U_o [V]	I_o [mA]	P_o [mW]	L/R [mH/Ω]			L_o [H]				C_o [μF]		
				I and IIA	IIB	IIC	I	IIA	IIB	IIC	I and IIA	IIB	IIC
SBEx-4S/G500	0÷16,4	0,288	1,18	240	120	30	5626	3430	1710	429	10	2,5	0,413

Characteristic of the circuit is linear.

Safety parameters with serial galvanic connection of two intrinsically safe separated input circuits for SBEx-4S/G500.

Serially connected terminals "WE1" "WE2" can be connected by using one multicore cable.

Distributed values of L_o , C_o and L/R connection cable parameters should be adopted according to the table shown below.

Realization	U_o [V]	I_o [mA]	P_o [mW]	L/R [mH/Ω]			L_o [H]				C_o [μF]		
				I and IIA	IIB	IIC	I	IIA	IIB	IIC	I and IIA	IIB	IIC
SBEx-4S/G500	0÷32,8	0,288	2,36	120	60	15	5626	3430	1710	429	1,47	0,433	0,041

Characteristic of the circuit is linear.

b) Nonintrinsically safe circuits parameters:

**"Pk1" – terminals "5-6", "Pk2" – terminals "7-8", „PkA" – terminals "1-2"
 and "Supply 24V" - terminals "3-4": $U_m=253V$.**

c) In case of using input circuits "WE1" and "WE2" to cooperate with nonintrinsically safe circuits: $U_m=238V$.

Compliance with the original



[10]

SCHEDULE

[11]

Supplement No 2 to EC-Type Examination Certificate KDB 04ATEX061

[12] Description continued:

V. SBEx-B

- a) **Intrinsically safe terminals 5-6 (relay contacts):** can cooperate with intrinsically safe circuit of a device installed in potentially explosive zone.

Parameters of the circuits are as follows:

"output" - terminals "5-6" with "ia" protection level:

$L_i \cong 0, C_i \cong 0$

Realization	U_i	I_i
SBEx-B	$\leq 200V_{DC, AC}$	$0,5 A_{DC, AC}$

- c) **Nonintrinsically safe circuits parameters:**

"input" - terminals "1-2" and "supply" - terminals "2-3": $U_m=253V$.

[13] Special conditions of use:

Lacking

Compliance with the original