

Proof of intrinsic safety

For intrinsically safe circuits with a supply.

device:

Jellox Pro Analog Jellox Elite Analog
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associated equipment:

Manufacturer	Type	Device	EU type examination certificate	ATEX marking
Microtronics	D012-x1***2***05	Rugged GW Analog	SIQ 24 ATEX 212 X	<Ex> II 2G Ex ib IIB T3 Gb

max. output voltage
max. output current
max. output power
max. external capacity
max. external inductance

U _o [V]=	25,6
I _o [A]=	0,082
P _o [W]=	0,523
C _o [nF]=	310
L _o [µH]=	1000

50% rule is to be applied,
as C_i > 1% of C_o and/or L_i > 1% of L_o

red. Kapazität	C _o [nF]=	155
red. Induktivität	L _o [µH]=	500

intrinsically safe equipment:

Manufacturer	Type	Device	EU type examination certificate	ATEX marking
Krohne Messtechnik	SMARTPAT COND 5200	conductivity sensor	KIWA 14 ATEX 0002 X Issue 3	<Ex> II 1G Ex ia IIC T6 ... T4

max. input voltage
max. input current
max. input power
max. internal capacity
max. internal inductance

U _i [V]=	30
I _i [A]=	0,12
P _i [W]=	1
C _i [nF]=	5
L _i [µH]=	10

cable + pressure compensation element:

Hersteller	Type	Länge [m]
Lapp	Ölflex EB CY 7x0,75	
		100

cable capacitance [nF/m]
cable inductance [µH/m]:

0,98
3,64

resulting cable capacitance
resulting cable inductance

C _c [nF]=	98
L _c [µH]=	364

safety-related values of the interconnection:

D012-x1***2***05	SMARTPAT COND 520	Intrinsic safety fulfilled
25,6	U _o ≤ U _i 30	V YES
0,082	I _o ≤ I _i 0,12	A YES
0,523	P _o ≤ P _i 1	P YES
155	C _o ≥ C _i + C _c 103	nF / IIB YES
500	L _o ≥ L _i + L _c 374	µH / IIB YES

For use in EPL
Gb (category
2G) and group
IIB

Special conditions in the type examination certificate or in the manual of the associated / intrinsically safe equipment must be observed.

The proof of intrinsic safety is based on the safety-related maximum values. These were taken from the manual or the EC type examination certificates for the equipment.

Configuration recommendation:

Please refer to the table at <https://support.microtronics.com/jellox-analog/compatible-sensors> for the configuration recommendation.



The recommendation refers to the configuration of your Jellox product. You can make the settings in the platform.

Document revision

version	date	name	change	reason
01v000	28.08.2024	AZ	all	building document
01v001	09.10.2024	AZ	all	update configuration recommendation

Release

number	date	name	activity	signature
1	09.10.2024	AZ	created	
2			approved	