

Proof of intrinsic safety

For intrinsically safe circuits with a supply.

device:

Jellox Pro Analog
Jellox Elite Analog

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	U _o [V]=	25,6	50% rule is to be applied, as C _i > 1% of C _o and/or L _i > 1% of L _o	red. capacity red. inductance	Co [nF]=	155
max. output current	Io [A]=	0,082			Lo [μH]=	500
max. output power	Po [W]=	0,523				
max. external capacity	Co [nF]=	310				
max. external inductance	Lo [μH]=	1000				

intrinsically safe equipment:

Manufacturer	Type	Device	EU type examination certificate	ATEX marking
Krohne Messtechnik	SMARTSENS PH 8xxx SMARTPAT PH 8xxx	digitaler pH-Sensor	PTB 13 ATEX 2011 X PTB 13 ATEX 2011 X Issue 1	<Ex> II 1G Ex ia IIC T6

max. input voltage	Ui [V]=	30
max. input current	Ii [A]=	0,12
max. input power	Pi [W]=	1
max. internal capacity	Ci [nF]=	5
max. internal inductance	Li [μH]=	10

cable + pressure compensation element:

Manufacturer	Type	length [m]
Lapp	Ölflex EB CY 7x0,75	
		40

cable capacitance [nF/m]	0,98
cable inductance [μH/m]:	3,64

resulting cable capacitance	Cc [nF]=	39,2
resulting cable inductance	Lc [μH]=	145,6

safety-related values of the interconnection:

D012-x1***2***05	NS PH 8xxxSMARTPA	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 W	YES
155	C _o ≥ C _i + C _c	44,2 nF / IIB	YES
500	L _o ≥ L _i + L _c	155,6 μH / IIB	YES

For use in EPL
"Gb" (category
2C) 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
01v001	20.06.2024	AZ	all	update EU-Type examination certificate
01v002	09.10.2024	AZ	all	update configuration recommendation

Release

number	date	name	activity	signature
1	09.10.2024	AZ	created	AZ
2			approved	