

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	Uo [V]=	25,6
max. output current	Io [A]=	0,082
max. output power	Po [W]=	0,523
max. external capacity	Co [nF]=	310
max. external inductance	Lo [µH]=	1000

50% rule is to be applied,
as Ci > 1% of Co and/or Li > 1% of Lo

red. capacity	Co [nF]=	155
red. inductance	Lo [µH]=	500

intrinsically safe equipment:

Manufacturer	Type	Device	EU type examination certificate	ATEX marking
Endress + Hauser	Micropilot FMR20B / FMR30B	radar level sensor	FM25ATEX0018X	<Ex> II 1G Ex ia IIC T4 Ga

max. input voltage	Ui [V]=	30
max. input current	Ii [A]=	0,1
max. input power	Pi [W]=	0,7
max. internal capacity	Ci [nF]=	18
max. internal inductance	Li [µH]=	0

cable + pressure compensation element:

Manufacturer	Type	length [m]
		500

cable capacitance [nF/m]	0,2
cable inductance [µH/m]:	1

resulting cable capacitance	Cc [nF]=	100
resulting cable inductance	Lc [µH]=	500

safety-related values of the interconnection:

D012-x1***2***05		Micropilot FMR20B / FMR30B		Intrinsic safety fulfilled
25,6	Uo ≤ Ui	30	V	YES
0,082	Io ≤ Ii	0,1	A	YES
0,523	Po ≤ Pi	0,7	P	YES
155	Co ≥ Ci + Cc	118	nF / IIC	YES
500	Lo ≥ Li + Lc	500	µH / IIC	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
01v002	09.10.2024	AZ	all	update configuration recommendation
01v003	07.08.2025	AZ	all	update cert. Sensor

Release

number	date	name	activity	signature
1	07.08.2025	AZ	created	AZ
2			approved	