

Proof of intrinsic safety

For intrinsically safe circuits with a supply.

device:

myDatalogEASY IoT ATEX

associated equipment:

Manufacturer	Type	Device	EU type examination certificate	ATEX marking
Microtronics	Zenerbarriere 167	myDatalogEasyIoT ATEX	SIQ 22 ATEX 184 X SIQ 22 ATEX 185 U	<Ex> II 3(1)G Ex ec nC [ia Ga] IIC T4 Gc <Ex> II 3(1)G Ex ec [ia Ga] IIC Gc

max. output voltage

U_o [V]= 26,25

max. output current

I_o [A]= 0,084

max. output power

P_o [W]= 0,549

max. external capacity

C_o [nF]= 48,5

max. external inductance

L_o [μH]= 2530

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

C_o [nF]= 24,25
L_o [μH]= 1265

intrinsically safe equipment:

Manufacturer	Type	Device	EU type examination certificate	ATEX marking
Krohne Messtechnik	SMARTPAT ORP 8150	ORP sensor	PTB 13 ATEX 2018 X Issue 1	<Ex> II 1G Ex ia IIC T6

max. input voltage

U_i [V]= 30

max. input current

I_i [A]= 0,12

max. input power

P_i [W]= 1

max. internal capacity

C_i [nF]= 5

max. internal inductance

L_i [μH]= 10

cable + pressure compensation element:

Manufacturer	Type	length [m]
Lapp	Ölflex EB CY 7x0,75	19

cable capacitance [nF/m]

0,98

cable inductance [μH/m]:

3,64

resulting cable capacitance

C_c [nF]= 18,62

resulting cable inductance

L_c [μH]= 69,16

safety-related values of the interconnection:

Zenerbarriere 167		SMARTPAT ORP 8150		Intrinsic safety fulfilled
26,25	U _o ≤ U _i	30	V	YES
0,084	I _o ≤ I _i	0,12	A	YES
0,549	P _o ≤ P _i	1	P	YES
24,25	C _o ≥ C _i + C _c	23,62	nF / IIC	YES
1265	L _o ≥ L _i + L _c	79,16	μH / IIC	YES

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/mydatalogeasy-iot-atex/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	29.08.2024	AZ	all	building document
01v001	14.11.2024	AZ	all	update configuration recommendation

Release

number	date	name	activity	signature
1	14.11.2024	AZ	created	
2			approved	