

## 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<br>SIQ 22 ATEX 185 U | <Ex> II 3(1)G Ex ec nC [ia Ga] IIC T4 Gc<br><Ex> II 3(1)G Ex ec [ia Ga] IIC Gc |

max. output voltage

U<sub>o</sub> [V]= 26,25

max. output current

I<sub>o</sub> [A]= 0,084

max. output power

P<sub>o</sub> [W]= 0,549

max. external capacity

C<sub>o</sub> [nF]= 48,5

max. external inductance

L<sub>o</sub> [μH]= 2530

50% rule is to be applied,  
as C<sub>i</sub> > 1% of C<sub>o</sub> and/or L<sub>i</sub> > 1% of L<sub>o</sub>

red. capacity

C<sub>o</sub> [nF]= 24,25

red. inductance

L<sub>o</sub> [μH]= 1265

intrinsically safe equipment:

| Manufacturer     | Type                                   | Device      | EU type examination certificate | ATEX marking                    |
|------------------|----------------------------------------|-------------|---------------------------------|---------------------------------|
| Endress & Hauser | Microwave unit<br>Micropilot FMR6x-BBA | Level radar | IBExU 16 ATEX1194 X Issue 4     | <Ex> II 1/2G Ex ia IIC T6 Ga/Gb |

max. input voltage

U<sub>i</sub> [V]= 30

max. input current

I<sub>i</sub> [A]= 0,3

max. input power

P<sub>i</sub> [W]= 1

max. internal capacity

C<sub>i</sub> [nF]= 12

max. internal inductance

L<sub>i</sub> [μH]= 0

cable + pressure compensation element:

| Manufacturer | Type                | length [m] |
|--------------|---------------------|------------|
| Lapp         | Ölflex EB CY 7x0,75 |            |
|              |                     | 12         |

cable capacitance [nF/m]

0,98

cable inductance [μH/m]:

3,64

resulting cable capacitance

C<sub>c</sub> [nF]= 11,76

resulting cable inductance

L<sub>c</sub> [μH]= 43,68

safety-related values of the interconnection:

| Zenerbarriere 167 |                                                  | owave unitMicropilot FMR6x-B |          | Intrinsic safety fulfilled |
|-------------------|--------------------------------------------------|------------------------------|----------|----------------------------|
| 26,25             | U <sub>o</sub> ≤ U <sub>i</sub>                  | 30                           | V        | YES                        |
| 0,084             | I <sub>o</sub> ≤ I <sub>i</sub>                  | 0,3                          | A        | YES                        |
| 0,549             | P <sub>o</sub> ≤ P <sub>i</sub>                  | 1                            | P        | YES                        |
| 24,25             | C <sub>o</sub> ≥ C <sub>i</sub> + C <sub>c</sub> | 23,76                        | nF / IIC | YES                        |
| 1265              | L <sub>o</sub> ≥ L <sub>i</sub> + L <sub>c</sub> | 43,68                        | 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  | 12.11.2024 | 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 |           |