

ELECTRICAL SYSTEMS

Electrical System type MIC..

Electrical System type POT..

Instruction manual

DRT6364

G - 2022/12

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Maintenance program

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1. Health and safety instructions



Refer to standards EN 60079-14 and EN 60079-25 for the installation and implementation of electric intrinsic safety systems.



Before using any equipment, make sure that all the operators:



- have received preliminary training from Sames, or from the distributors they have certified for this purpose.

- have read and understood the User Manual as well as all the rules for installation and use listed below.



It is the workshop manager's responsibility to ensure and check that all operators have read and understood the user manuals for peripheral electrical devices present within the spraying perimeter.



If the electrical system fails, the defective element must be replaced by equipment which is strictly identical to the equipment installed.



The systems must be assembled, connected and commissioned by personnel trained and qualified by Sames.



The electrical systems are under the responsibility of their user.

1.1. Marking

In compliance with §14 in standard EN 600079-25, all the elements which make up the type electrical system must be easily identifiable.

As each electrical system has been evaluated overall in compliance with standard EN 60079-11, each element must be marked in compliance with this standard.

1.1.1. POT11 system


The Z778 zener barrier manufactured by PEPPERL+FUCHS GmbH is identified by its own marking, i.e.:

PEPPERL & FUCHS
Z778
BAS01ATEX7005
CML 21UKEX2898
II (1) GD [Ex ia Ga] IIC
 [Ex ia Da] IIIC
-20°C ≤ Ta ≤ +60°C

As simple equipment the potentiometer is not subject to marking and is identified by its manufacturer reference placed on the equipment: 1575Z61-01.




The electrical system composed of the potentiometer and the Z778 zener barrier is identified by a label showing its type and placed near the electrical system's IS/NIS interface:

Sames
POT11
INERIS17ATEX0031X
CML 21UKEX2794X

 II (1)/2 G D
[Ex ia Ga] IIC
[Ex ia Da] IIIC

If there are several POT11 systems in the same installation, each loop will be preceded by the reference of the installation or robotic line accompanied by an index.

Example:

<p>ROBOT 1 Sames POT11 INERIS17ATEX0031X CML 21UKEX2794X</p> <p> II (1)/2 G D [Ex ia Ga] IIC [Ex ia Da] IIIC</p>	<p>ROBOT 2 Sames POT11 INERIS17ATEX0031X CML 21UKEX2794X</p> <p> II (1)/2 G D [Ex ia Ga] IIC [Ex ia Da] IIIC</p>	<p>ROBOT 3 Sames POT11 INERIS17ATEX0031X CML 21UKEX2794X</p> <p> II (1)/2 G D [Ex ia Ga] IIC [Ex ia Da] IIIC</p>
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1.1.2. MIC01 system


The Z715 zener barrier manufactured by PEPPERL+FUCHS GmbH is identified by its own marking, i.e.:

PEPPERL & FUCHS
Z715
BAS01ATEX7005
CML 21UKEX2898
II (1) GD [Ex ia Ga] IIC
 [Ex ia Da] IIIC
-20°C ≤ Ta ≤ +60°C

As simple equipment the microphone is not subject to marking and is identified by its manufacturer reference placed on the equipment: 851488.




The electrical system composed of the microphone and the Z715 zener barrier is identified by a label showing its type and placed near the electrical system's IS/NIS interface:

Sames
MIC01
INERIS17ATEX0031X
CML 21UKEX2794X

 II (1)/2 G D
[Ex ia Ga] IIC
[Ex ia Da] IIIC

If there are several MIC01 systems in the same installation, each loop will be preceded by the reference of the installation or robotic line accompanied by an index.


Example:


<p>ROBOT 1 Sames MIC01 INERIS17ATEX0031X CML 21UKEX2794X</p> <p> II (1)/2 G D [Ex ia Ga] IIC [Ex ia Da] IIIC</p>	<p>ROBOT 2 Sames MIC01 INERIS17ATEX0031X CML 21UKEX2794X</p> <p> II (1)/2 G D [Ex ia Ga] IIC [Ex ia Da] IIIC</p>	<p>ROBOT 3 Sames MIC01 INERIS17ATEX0031X CML 21UKEX2794X</p> <p> II (1)/2 G D [Ex ia Ga] IIC [Ex ia Da] IIIC</p>
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1.1.3. MIC31 system

The BSC 300 module-interface with built-in voltage limiter is identified by its marking on a plastic or metal adhesive label placed on its casing.
It contains the following information:

Sames, Meylan France
BSC 300
910024029
Serial no.
INERIS17ATEX0031X
CML 21UKEX2794X


 0080  2503

 II (2) GD [Ex ia Ga] IIC
[Ex ia Da] IIIC

As simple equipment the microphone is not subject to marking and is identified by its manufacturer reference placed on the equipment: 851488.




The electrical system, composed of a microphone and the BSC 300 module-interface with built-in voltage limiter is identified by a label showing its type and placed near the electrical system's IS/NIS interface:

Sames
MIC31
INERIS17ATEX0031X
CML 21UKEX2794X

 II (2)/2 G D
[Ex ia Ga] IIC
[Ex ia Da] IIIC

If there are several MIC31 systems in the same installation, each loop will be preceded by the reference of the installation or robotic line accompanied by an index.

Example:

<p>ROBOT 1 Sames MIC31 INERIS17ATEX0031X CML 21UKEX2794X</p> <p> II (2)/2 G D [Ex ia Ga] IIC [Ex ia Da] IIIC</p>	<p>ROBOT 2 Sames MIC31 INERIS17ATEX0031X CML 21UKEX2794X</p> <p> II (2)/2 G D [Ex ia Ga] IIC [Ex ia Da] IIIC</p>	<p>ROBOT 3 Sames MIC31 INERIS17ATEX0031X CML 21UKEX2794X</p> <p> II (2)/2 G D [Ex ia Ga] IIC [Ex ia Da] IIIC</p>
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1.1.4. MIC02 system


The Z715 zener barrier manufactured by PEPPERL+FUCHS GmbH is identified by its own marking, i.e.:

PEPPERL & FUCHS
Z715
BAS01ATEX7005
CML 21UKEX2898
II (1) GD [Ex ia Ga] IIC
 [Ex ia Da] IIIC
-20°C ≤ Ta ≤ +60°C

As simple equipment the microphone is not subject to marking and is identified by its manufacturer reference placed on the equipment: 910028565.




The electrical system composed of the microphone and the Z715 zener barrier is identified by a label showing its type and placed near the electrical system's IS/NIS interface:

Sames
MIC02
INERIS17ATEX0031X
CML 21UKEX2794X

 II (1)/2 G D
[Ex ia Ga] IIC
[Ex ia Da] IIIC

If there are several MIC02 systems in the same installation, each loop will be preceded by the reference of the installation or robotic line accompanied by an index.

Example:


<p>ROBOT 1 Sames MIC02 INERIS17ATEX0031X CML 21UKEX2794X</p> <p> II (1)/2 G D [Ex ia Ga] IIC [Ex ia Da] IIIC</p>	<p>ROBOT 2 Sames MIC02 INERIS17ATEX0031X CML 21UKEX2794X</p> <p> II (1)/2 G D [Ex ia Ga] IIC [Ex ia Da] IIIC</p>	<p>ROBOT 3 Sames MIC02 INERIS17ATEX0031X CML 21UKEX2794X</p> <p> II (1)/2 G D [Ex ia Ga] IIC [Ex ia Da] IIIC</p>
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1.1.5. MIC32 system

The BSC 300 module-interface with built-in voltage limiter is identified by its marking on a plastic or metal adhesive label placed on its casing.
It contains the following information:

Sames, Meylan France
BSC 300
910024029
Serial no.
INERIS17ATEX0031X
CML 21UKEX2794X


 0080  2503

 II (2) GD [Ex ia Ga] IIC
[Ex ia Da] IIIC

As simple equipment the microphone is not subject to marking and is identified by its manufacturer reference placed on the equipment: 910028565.




The electrical system, composed of a microphone and the BSC 300 module-interface with built-in voltage limiter is identified by a label showing its type and placed near the electrical system's IS/NIS interface:

Sames
MIC32
INERIS17ATEX0031X
CML 21UKEX2794X

 II (2)/2 G D
[Ex ia Ga] IIC
[Ex ia Da] IIIC

If there are several MIC32 systems in the same installation, each loop will be preceded by the reference of the installation or robotic line accompanied by an index.

Example:

<p>ROBOT 1 Sames MIC32 INERIS17ATEX0031X CML 21UKEX2794X</p> <p> II (2)/2 G D [Ex ia Ga] IIC [Ex ia Da] IIIC</p>	<p>ROBOT 2 Sames MIC32 INERIS17ATEX0031X CML 21UKEX2794X</p> <p> II (2)/2 G D [Ex ia Ga] IIC [Ex ia Da] IIIC</p>	<p>ROBOT 3 Sames MIC32 INERIS17ATEX0031X CML 21UKEX2794X</p> <p> II (2)/2 G D [Ex ia Ga] IIC [Ex ia Da] IIIC</p>
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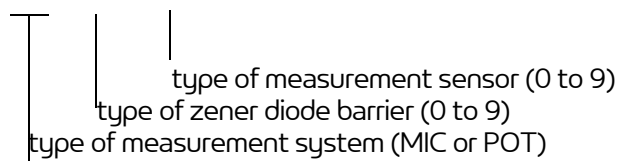
2. Type description

The electric intrinsic safety systems described in this document are intended to interface intrinsic safety elements located in an explosive atmosphere with mechanisms which control the process located in a non-dangerous zone.

The type electrical system is composed of the following two variants:

- The POT.. type electrical system is used to measure resistance variations via a potentiometer located in a potentially explosive atmosphere.
- The MIC.. type electrical system is used to measure the rotation speed of a turbine via a microphone located in a potentially explosive atmosphere.

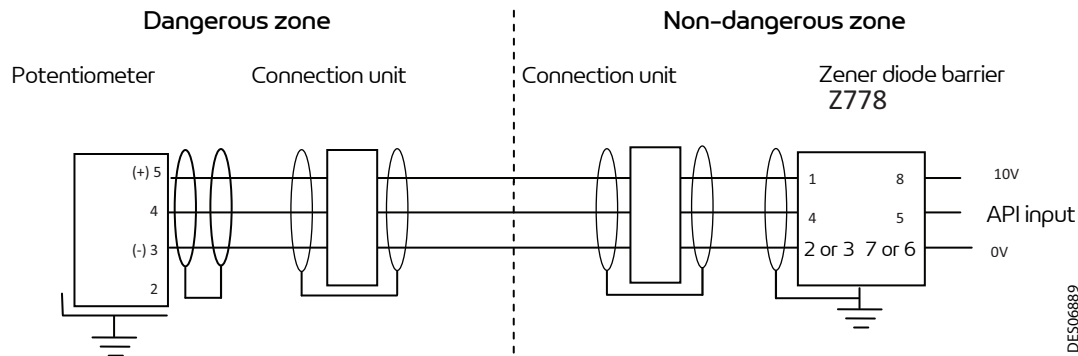
Type electrical system



3. System characteristics

3.1. POT11 TYPE electrical system.

The POT11 type electrical system is composed of the electrical circuit from a zener diode barrier which supplies the potentiometer.



All shielding is connected to the earth outside the area. The metal support of the potentiometer is grounded in the area and isolated at 500V from the active parts of the electrical circuit.

	Zener diode barrier	Potentiometer	System
Manufacturer	Pepperl+Fuchs GmbH	FSG	
Manufacturer ref.	Z778	1575Z61-011.003	
Sames ref.	110002447AT	743678	
Type	POT1.	POT1.	POT11
EU/UK type Examination Certificate	BAS01ATEX7005 CML 21UKEX2898	Simple equipment	INERIS 17ATEX0031X CML 21UKEX2794X
Marking	II (1) GD	see § 1.1.1 page 6	Ex II (1) / 2 GD
Additional marking	[Ex ia Ga] IIC [Ex ia Da] IIIC		
Equipment group	IIC – IIIC	IIC – IIIC	IIC – IIIC
Protection level	[ia]	ia	[ia] ia
Temperature classification	None	T4 / T135°C	T4 / T135°C
Ambient temperature	-20°C to +60°C	-20°C to +40°C	-20°C to +40°C
Parameter comparison			
Voltage	Uo = 28 V	Ui = 30 V	Ui > Uo: √
Current	Io = 93mA	Ii = 188 mA	Ii > Io: √
Power	Po = 0.65 W	Pi = 1.36 W	Pi > Po: √
Cable parameters *			
Capacity	Co = 0.083 µF	Ci = 0 nF	Cc = Co - Ci Cc = 0,083 µF
Inductance	Lo = 4.11 mH	Li ≤ 1 mH	Lc = Lo - Li Lc = 3.11 mH
Combined risk	1%Co = 0.83 nF 1%Lo = 41 µH		Ci < 1%Co
Earthing	Connected	Insulated	
Max cable length			415 m

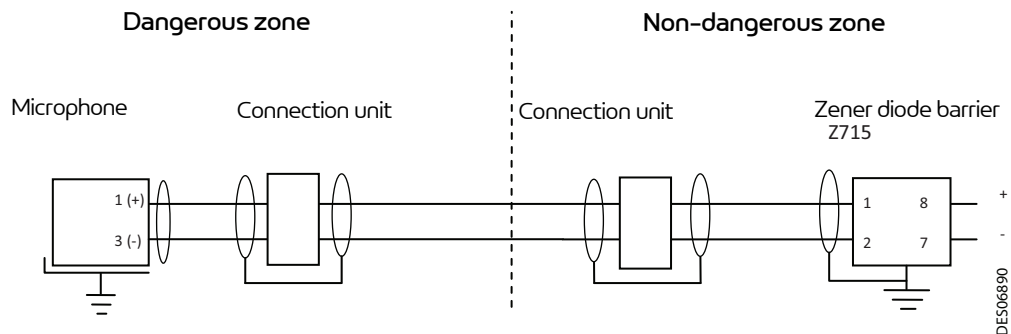
(*) Standard cable: linear capacity 200 pF/m - Linear inductance 1 µH/m

3.2. MIC TYPE electrical system.

3.2.1. MIC01 electrical system

The MIC01 type electrical system is composed of the electrical circuit from a zener diode barrier which supplies the microphone.

It must be connected according to the following diagram:



All shielding is connected to the earth outside the area. The metal support of the microphone is grounded in the area and isolated at 500V from the active parts of the electrical circuit.

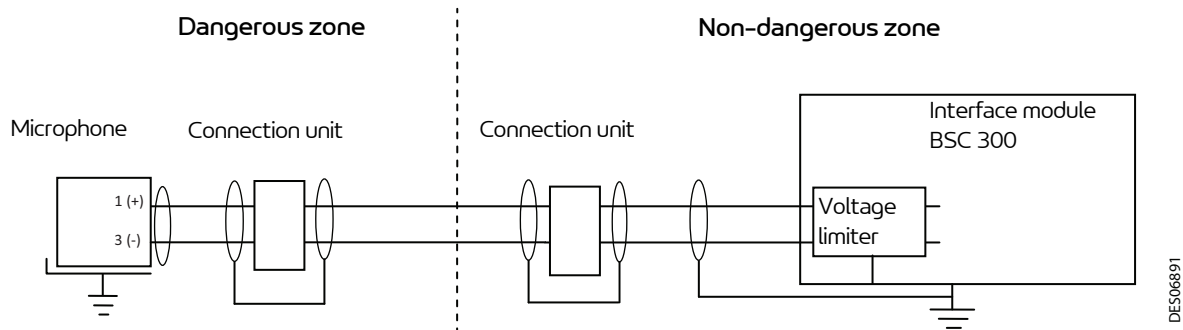
	Zener diode barrier (MIC0.)	Microphone (MIC.1)	System (MIC01)
Manufacturer	Pepperl+Fuchs GmbH	Sames	
Manufacturer ref.	Z715		
Sames ref.	E6GPSR067AT	851488	
Type	MIC0.	MIC.1	MIC01
EU/UK type Examination Certificate	BAS01ATEX7005 CML 21UKEX2898	Simple equipment	INERIS 17ATEX0031X CML 21UKEX2794X
Marking	II (1) GD	see § 1.1.2 page 7	Ex II (1) / 2 GD
Additional marking	[Ex ia Ga] IIC [Ex ia Da] IIIC		
Equipment group	IIC – IIIC	IIC – IIIC	IIC – IIIC
Protection level	[ia]	ia	[ia] ia
Temperature classification	None	T4 / T135°C	T4 / T135°C
Ambient temperature	-20°C to +60°C	-20°C to +40°C	-20°C to +40°C
Parameter comparison			
Voltage	Uo = 14.7 V	Ui = 15 V	Ui > Uo: √
Current	Io = 150 mA	Ii = 0.3 A	Ii > Io: √
Power	Po = 0.55 W	Pi = 0.55 W	Pi > Po: √
Cable parameters *			
Capacity	Co = 0.62 µF	Ci » 0 nF	Cc max = Co - Ci Cc max = 0,62 µF
Inductance	Lo = 1.58 mH	Li = 0 mH	Lc max = Lo - Li Lc max = 1,58 mH
Combined risk	1%Co = 6.2 nF 1%Lo = 15.8 µH		Ci < 1%Co Li < 1%Lo
Earthing	Connected	Insulated	
Max cable length			1580 m

(*) Standard cable: linear capacity 200 pF/m - Linear inductance 1 µH/m

3.2.2. MIC31 electrical system

The MIC31 type electrical system associated a microphone with built-in voltage limiter with a BSC 300 interface module.

It must be connected according to the following diagram:



All shielding is connected to the earth outside the area. The metal support of the microphone is grounded in the area and isolated at 500V from the active parts of the electrical circuit.

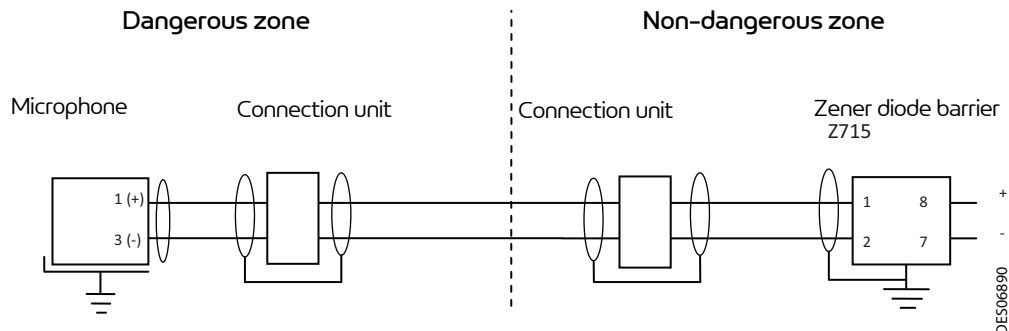
	BSC 300 Interface Module (MIC3.)	Microphone (MIC.1)	System (MIC31)
Manufacturer	Sames	Sames	
Manufacturer ref.	910024029	851488	
Type	MIC3.	MIC.1	MIC31
EU/UK type Examination Certificate	INERIS 17ATEX0031X CML 21UKEX2794X	Simple equipment	INERIS 17ATEX0031X CML 21UKEX2794X
Marking	II (2) GD see § 1.1.3 page 8	see § 1.1.3 page 8	Ex II (2) / 2 GD
Additional marking	[Ex ia Ga] IIC [Ex ia Da] IIIC		
Equipment group	IIC – IIIC	IIC – IIIC	IIC – IIIC
Protection level	[ia]	ia	[ia] ia
Temperature classification	None	T4 / T135°C	T4 / T135°C
Ambient temperature	0°C to +50°C	-20°C to +40°C	0°C to +40°C
Parameter comparison			
Voltage	Uo = 9,4 V	Ui = 15 V	Ui > Uo
Current	Io = 30 mA	Ii = 0.3 A	Ii > Io
Power	Po = 70,5 mW	Pi = 0.55 W	Pi > Po
Cable parameters *			
Capacity	Co = 3,9 µF	Ci = 0 nF	Cc max = Co - Ci Cc max = 3,9 µF
Inductance	Lo = 35 mH	Li = 0 mH	Lc max = Lo - Li Lc max = 35 mH
Combined risk	1%Co = 39 nF 1%Lo = 350 µH		Ci < 1%Co Li < 1%Lo
Earthing	Connected	Insulated	
Max cable length			19500 m

(*) Standard cable: linear capacity 200 pF/m - Linear inductance 1 µH/m

3.2.3. MIC02 electrical system

The MIC02 type electrical system is composed of the electrical circuit from a zener diode barrier which supplies the microphone.

It must be connected according to the following diagram:



All shielding is connected to the earth outside the area. The metal support of the microphone is grounded in the area and isolated at 500V from the active parts of the electrical circuit.

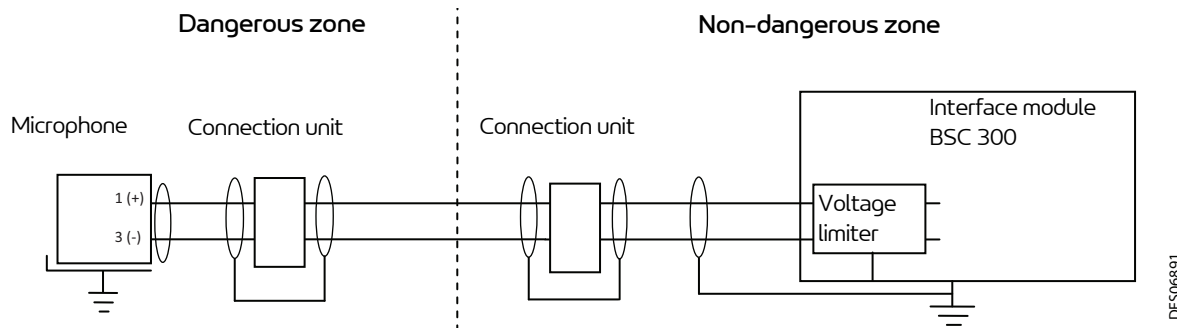
	Zener diode barrier (MIC0.)	Microphone (MIC.2)	System (MIC02)
Manufacturer	Pepperl+Fuchs GmbH	Sames	
Manufacturer ref.	Z715		
Sames ref.	E6GPSR067AT	910028565	
Type	MIC0.	MIC.2	MIC02
EU/UK type Examination Certificate	BAS01ATEX7005 CML 21UKEX2898	Simple equipment	INERIS 17ATEX0031X CML 21UKEX2794X
Marking	II (1) GD	see § 1.1.4 page 9	Ex II (1) / 2 GD
Additional marking	[Ex ia Ga] IIC [Ex ia Da] IIIC		
Equipment group	IIC – IIIC	IIC – IIIC	IIC – IIIC
Protection level	[ia]	ia	[ia] ia
Temperature classification	None	T4 / T135°C	T4 / T135°C
Ambient temperature	-20°C to +60°C	-20°C to +40°C	-20°C to +40°C
Parameter comparison			
Voltage	Uo = 14.7 V	Ui = 15 V	Ui > Uo: √
Current	Io = 150 mA	Ii = 0.3 A	Ii > Io: √
Power	Po = 0.55 W	Pi = 0.55 W	Pi > Po: √
Cable parameters *			
Capacity	Co = 0.62 µF	Ci » 0 nF	Cc max = Co - Ci Cc max = 0,62 µF
Inductance	Lo = 1.58 mH	Li = 0 mH	Lc max = Lo - Li Lc max = 1,58 mH
Combined risk	1%Co = 6.2 nF 1%Lo = 15.8 µH		Ci < 1%Co Li < 1%Lo
Earthing	Connected	Insulated	
Max cable length			1580 m

(*) Standard cable: linear capacity 200 pF/m - Linear inductance 1 µH/m

3.2.4. MIC32 electrical system

The MIC32 type electrical system associated a microphone with built-in voltage limiter with a BSC 300 interface module.

It must be connected according to the following diagram:



All shielding is connected to the earth outside the area. The metal support of the microphone is grounded in the area and isolated at 500V from the active parts of the electrical circuit.

	BSC 300 Interface Module (MIC3.)	Microphone (MIC.2)	System (MIC32)
Manufacturer	Sames	Sames	
Manufacturer ref.	910024029	910028565	
Type	MIC3.	MIC.2	MIC32
EU/UK type Examination Certificate	INERIS 17ATEX0031X CML 21UKEX2898	Simple equipment	INERIS 17ATEX0031X CML 21UKEX2794X
Marking	II (2) GD see § 1.1.3 page 8	see § 1.1.5 page 10	Ex II (2) / 2 GD
Additional marking	[Ex ia Ga] IIC [Ex ia Da] IIIC		
Equipment group	IIC – IIIC	IIC – IIIC	IIC – IIIC
Protection level	[ia]	ia	[ia] ia
Temperature classification	None	T4 / T135°C	T4 / T135°C
Ambient temperature	0°C to +50°C	-20°C to +40°C	0°C to +40°C
Parameter comparison			
Voltage	Uo = 9,4 V	Ui = 15 V	Ui > Uo
Current	Io = 30 mA	Ii = 0.3 A	Ii > Io
Power	Po = 70,5 mW	Pi = 0.55 W	Pi > Po
Cable parameters *			
Capacity	Co = 3,9 µF	Ci = 0 nF	Cc max = Co - Ci Cc max = 3,9 µF
Inductance	Lo = 35 mH	Li = 0 mH	Lc max = Lo - Li Lc max = 35 mH
Combined risk	1%Co = 39 nF 1%Lo = 350 µH		Ci < 1%Co Li < 1%Lo
Earthing	Connected	Insulated	
Max cable length			19500 m

(*) Standard cable: linear capacity 200 pF/m - Linear inductance 1 µH/m

3.3. Layout of the elements located in potentially explosive atmosphere

3.3.1. Connection units located in potentially explosive atmosphere

Connection units	
Manufacturer	Stahl or equivalent
Type	8118 series or equivalent
Junction terminals	
Manufacturer	WAGO or equivalent
Type	2002-1201 series or equivalent suitable for Ex e II applications

Each connection unit in the electrical system:

- Is of a type certificated for use in the potentially explosive atmospheres of the surface of the IIC/IIIC group.
- Has an element to connect the equipotential link conductor to the metal earths.
- Has a protection degree at least equal to IP20.
- Is produced from an alloy with less than 6% of its weight in magnesium.
- Has a cable gland on its wall to enable the link cable to run through, which provides a degree of protection equal to at least IP20 and is certified for use in potentially explosive atmospheres.
- Has clearly marked and easily identifiable junction terminals. When a colour is used for this purpose, the terminals are light blue.
- The nominal wire section acceptable per terminal is 2.5 mm² maximum, minimum value 0.25 mm².

Each electrical system connection unit and the junction terminals comply with the requirements relative to the external circuit connection mechanism described below:

- In each connection unit, the distances between the bare parts under voltage of the intrinsic safety (IS) circuit, in relation to the metal parts which may be earthed, are higher than or equal to 3 mm.
- The distance between each junction terminal of one intrinsic safety circuit in relation to another intrinsic safety circuit is higher than or equal to 6 mm.
- The intrinsic safety circuit junction terminals are at least 50 mm away from the junction terminals or bare conductors of all the non intrinsic safety circuits.

When the cable cores are connected to the junction terminals, the distances between the intrinsic safety circuit insulated conductor cores in relation to those of the non intrinsic safety (NIS) circuits are higher than or equal to those indicated in the table below:

Sum of the IS and NIS circuit voltages	Distance in the air	Leak line in the air
375 V	6 mm	10 mm
550 V	7 mm	15 mm
750 V	8 mm	18 mm
1000 V	10 mm	25 mm
1300 V	14 mm	36 mm
1575 V	16 mm	49 mm

3.3.2. Layout of the sensors located in potentially explosive atmosphere (POT.. system)

The distances between the bare parts under voltage (connection terminals and layout of the potentiometer in its environment according to the plan Ref.: 910025156) of the sensor's intrinsic safety circuit in relation to the metal parts connected to the earth are higher than or equal to 3 mm.

3.4. Layout of the elements located outside potentially explosive atmosphere

Each connection unit or box in the electrical system:

- Has an element to connect the equipotential link conductor to the metal earths.
- Has a protection degree at least equal to IP20.
- In the case of a terminal box has a cable gland on its wall to enable the link cable to run through, which provides a degree of protection equal to at least IP20.
- Has clearly marked and easily identifiable junction terminals. When a colour is used for this purpose, the intrinsic safety terminals are light blue.
- The nominal wire section acceptable per terminal is 2.5 mm² maximum, minimum value 0.25 mm².
- Usable junction terminal: WAGO or equivalent. Type: 2002-1201 series or equivalent suitable for Ex e II applications.

Each electrical system connection unit or box and the junction terminals must comply with the requirements relative to the external circuit connection mechanism described (refer to §6.2.1 in standard EN 60079-11:2012).

In each connection unit or box, the distances between the bare parts under voltage of the intrinsic safety (IS) circuit, in relation to the metal parts which may be earthed, are higher than or equal to 3 mm.

The distance between each junction terminal of one intrinsic safety circuit in relation to another intrinsic safety circuit is higher than or equal to 6 mm.

The intrinsic safety circuit junction terminals are at least 50 mm away from the junction terminals or bare conductors of all the non intrinsic safety circuits.

When the cable cores are connected to the junction terminals, the distances between the intrinsic safety circuit insulated conductor cores in relation to those of the non intrinsic safety (NIS) circuits are higher than or equal to those indicated in the table below:

Sum of the IS and NIS circuit voltages	Distance in the air	Leak line in the air
375 V	6 mm	10 mm
550 V	7 mm	15 mm
750 V	8 mm	18 mm
1000 V	10 mm	25 mm
1300 V	14 mm	36 mm
1550 V	16 mm	40 mm

3.5. Dielectric rigidity

The insulation between the POT.. or MIC.. intrinsic safety circuit and the metal earths must withstand a dielectric rigidity test under 500Veff.

The insulation between each intrinsic safety circuit and the circuits which are not intrinsic safety must withstand a minimum dielectric rigidity test of 1500Veff.

3.6. Equipotential connection conductor for metal masses

The equipotential connection conductor of the metal masses between the elements must have a cross-section of at least 4 mm².

The resistance of the equipotential connection conductor between the equipment located outside the ATEX zone, connected to earth, and the earth of the equipment in the ATEX zone of the installation, must comply with the installation standards in force or a value less than or equal to 1 Ohm.

3.7. Electrical system connections

3.7.1. Distance and leak line

The requirements below must be respected when these systems' NIS/IS interfaces are positioned:

- The distance in the air between the bare parts under voltage of the intrinsic safety connection elements in relation to the connection elements of a circuit which is not intrinsic safety is higher than or equal to 50 mm.
- The distances and leak lines in the air between the bare parts under voltage of the intrinsic safety (IS) circuit, in relation to the metal parts which may be earthed, are higher than or equal to 3 mm.
- The distances and leak lines in the air between terminals are higher than or equal to 2 mm for 30V (value T in Fig. 1b §6.2.1 in standard EN60079-11:2012) and are higher than or equal to 6 mm (value d2 in Fig. 1b §6.2.1 in standard EN60079-11:2012) between terminals on the connection side.

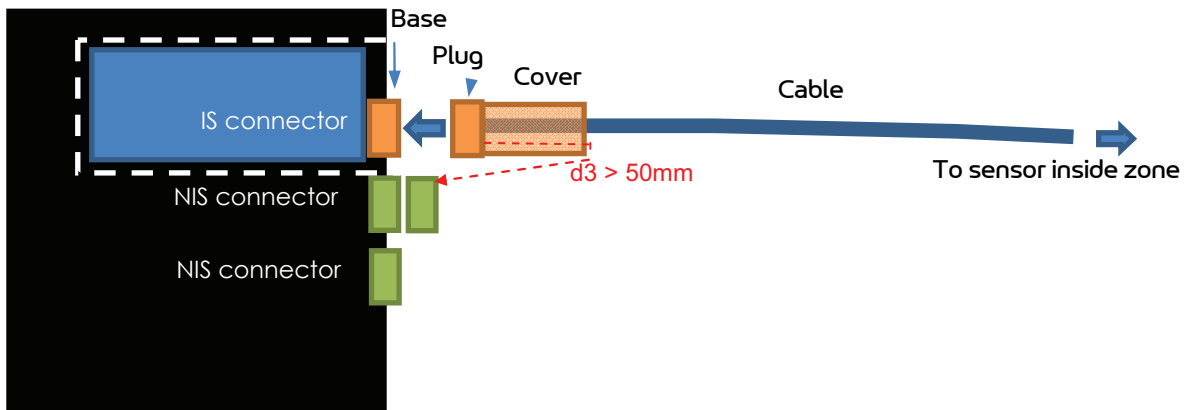
3.7.2. Specific connections between the microphone and the voltage limiter

The requirements in paragraphs 6.2 and 7.2 in standard EN60079-11:2012 are respected through the use of a WAGO 734-205_037-000 or equivalent connector that may be plugged into the WAGO type 734 265 or equivalent base located on output from the voltage limiter built into the BSC300 module-interface.

The connector has guide pins and an anti-extraction system.

The three earth terminals and the two protected line terminals (+/- signals) are identified (marking or labelling). The distances and leak lines in the air between the terminals of this connector are higher than or equal to 1.5 mm for 10V (for the limiter, $U_0 = 9.31V$) and are higher than or equal to 6 mm between terminals on the connection side. The distances and leak lines of this connector in the air between the bare parts under voltage of the intrinsic safety (IS) circuit, in relation to the metal parts which may be earthed, are higher than or equal to 3 mm. The compulsory use of a WAGO 734-635 or equivalent plastic cover on this plug-in connector guarantees a distance equal to or higher than 50 mm between the terminals of this IS connector and the other non-IS connectors and the maintenance of the cable towards the microphone sensor in the zone.

Block diagram explaining the connection to the voltage limiter built into the BSC300 module-interface:



3.8. Conductors and shielded multi-conductor cables

The barriers and junction terminals, located in the connection units, are inter-connected with the sensors via a shielded multi-conductor cable which only transports an intrinsic safety circuit.

The diameter of the individual conductors or conductor strands located in dangerous zone must not be less than 0.1 mm according to §9.1 in standard EN 60079-25: 2010.

All A, B, C type cables according to standard EN 60079-25: 2010 may be used for these circuits.

Given the maximum current of 0.188A, the cable conductors have a minimum section of 0.000962 mm² according to table 2 in EN 60079-11.

The minimum radial thickness of the each conductor's insulator is 0.2 mm.

The shielded multi-conductor cables must be capable of withstanding a dielectric test of at least:

- 500V_{eff} AC or 750 VDC applied between all the screens together and all the conductors together,
- 1000V_{eff} AC or 1500 VDC applied between a bundle containing half of the cable conductors together and the bundle containing the other half of the conductors together.

And must be determined with the maximum parameters of 200 pF/m and 1 µH/m according to §9.3 in standard EN 60079-25: 2010.

Example of a LUTZE cable, SUPERFLEX-TRONIC or equivalent category,
Type: 117108, 117109, 117110 or equivalent.



For the conductors located in boxes, the distances between the intrinsic safety circuit insulated conductor cores in relation to those of circuits which are non intrinsic safety are higher than or equal to those indicated in the table below:

Sum of the IS and NIS circuit voltages	Distance through the insulator
375 V	1 mm
550 V	1.2 mm
750 V	1.4 mm
1000 V	1.7 mm
1300 V	2.3 mm
1575 V	2.7 mm



UE DECLARATION OF CONFORMITY

(1) The manufacturer herewith declares that the equipment is in conformity with the relevant Union harmonization legislation.

(2) Equipment type	SYSTÈMES ELECTRIQUES / ELECTRICAL SYSTEMS			
	TYPE POT, MIC			
(3) Applicable Directives	(4) Marking	Systèmes / systems POT11, MIC01, MIC02 :  II (1) / 2 GD		
		Systèmes / systems MIC31, MIC32 :  II (2) / 2 GD		
	(5) Harmonised standards	EN 60079-0 : 2018 EN 60079-11 : 2012 EN60079-25 : 2010		
	(6) Conformity assessment procedures	UE type examination certificate : INERIS 17ATEX0031X Production Quality Assurance Notification : INERIS 07ATEXQ401	Notified Body : INERIS 0080 60550 Verneuil-en-Halatte France	
	2014/34/UE ATEX Directive	<p>Le signe X placé derrière le numéro d'attestation d'examen UE de type indique que :</p> <ul style="list-style-type: none"> - la classe de température est définie selon la température ambiante d'utilisation maximale du matériel (voir tableaux dans la notice 6364) - la longueur de l'ensemble des câbles multiconducteurs ne doit pas dépasser les valeurs maximales indiquées dans les tableaux de la notice 6364. <p>X" placed after the number of the EU-type examination certificate indicates that:</p> <ul style="list-style-type: none"> - the temperature class is defined in accordance with maximum using ambient temperature of the device (according to the tables of manual 6364) - the whole of multiwire cables length must not be greater than the maximum values defined in tables of manual 6364. 		
	2014/30/UE Electromagnetic Compatibility Directive	(5) Harmonised standards	EN 61000-6-4 : 2007 /A1 : 2011 EN 61000-6-2 : 2005	
(7) This declaration of conformity is issued under the sole responsibility of the manufacturer.				

Director of the MEYLAN site - Executive Management (EM)

Richard WLODARCZYK

DocuSigned by:

Richard Wlodarczyk

9900D9C0034B4A2

Established in Meylan, on 01-déc.-22 | 17:49 CET

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UE DECLARATION OF CONFORMITY

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(3)	<p>Directives applicables/Anwendbare Richtlinien/Directivas aplicables/Direttive applicabili/Directivas aplicáveis/Obowiązujące dyrektywy/Toepasselijke richtlijnen/Platné smernice/ Tillämpiga direktiv/ Gældende direktiver/ Sovellettavat direktiivit/ Kohaldatavad direktiivid/ Piemērojams direktīvas/ Taikomas direktyvos/ Приложими директиви/ Alkalmazandó irányelvek/ Directive aplicabile/ Ισχύουσες οδηγίες/ Primenjive smjernice/ Uplatnitelne smernice/ Veļjavne directive/ Применимые директивы/ 適用される指令/ 适用的指令</p>
(4)	<p>Marquage/Markierung/Marcado/Marcatura/Marcação/ Znakovanie/ Markering/ Označení/ Märkning/ Märkning/ Merkintä/ Märgistus/ Marķējums/ Ženklinimas/ Маркировка/ Jelölés/ Marcare/ Ίζημανση/ Obilježava/ Označovanie / Označevanje/ Маркировка/ マーキング/ 标识</p>
(5)	<p>Normes harmonisées/Harmonisierte Normen / Normas armonizadas/ Norme armonizate/Normas harmonizadas / Normy zharmonizowane/ Geharmoniseerde normen / Harmonizované normy/ Harmoniserade standarder / Harmoniserede standarder / Yhdenmukaistetut standardit / Harmoniseritud standardid / Saskaņotie standarti / Suderinti standartai / Хармонизирани стандарти / Harmonizált szabványok / Standarde armonizate/ Еварамонизэра протэпта / Harmonizirani standardi / Harmonizované normy / Usklajeni standardi / Гармонизированные стандарты / 整合規格 / 协调标准</p>
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(2) Equipment type	SYSTÈMES ELECTRIQUES / ELECTRICAL SYSTEMS						
	TYPE POT, MIC						
(3) Applicable Directives	2016 No. 1107	(4) Marking	Systèmes / systems POT11, MIC01, MIC02: II (1) / 2 GD Systèmes / systems MIC31, MIC32 : II (2) / 2 GD				
		(5) Designated standards	EN 60079-0 : 2018 EN 60079-11 : 2012 EN60079-25 : 2010				
		(6) Conformity assessment procedures	<table border="1"> <tr> <td>UK type examination certificate : CML 21UKEX2794X</td> <td>Approved Body 2503: Eurofins E&E CML Limited</td> </tr> <tr> <td>Production Quality Assurance Notification : CML 21UKQAN14372</td> <td>Newport Business Park, New Port Road Ellesmere Port CH65 4LZ UK</td> </tr> </table>	UK type examination certificate : CML 21UKEX2794X	Approved Body 2503: Eurofins E&E CML Limited	Production Quality Assurance Notification : CML 21UKQAN14372	Newport Business Park, New Port Road Ellesmere Port CH65 4LZ UK
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<p>Le signe X placé derrière le numéro d'attestation d'examen UK de type indique que :</p> <ul style="list-style-type: none"> - la classe de température est définie selon la température ambiante d'utilisation maximale du matériel (voir tableaux dans la notice 6364) - la longueur de l'ensemble des câbles multiconducteurs ne doit pas dépasser les valeurs maximales indiquées dans les tableaux de la notice 6364. <p>X" placed after the number of the UK-type examination certificate indicates that:</p> <ul style="list-style-type: none"> - the temperature class is defined in accordance with maximum using ambient temperature of the device (according to the tables of manual 6364) - the whole of multiwire cables length must not be greater than the maximum values defined in tables of manual 6364. 							
2016 No. 1091	(5) Designated standards	EN 61000-6-4 : 2007 /A1 : 2011 EN 61000-6-2 : 2005					
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Director of the MEYLAN site - Executive Management (EM)

Richard WLODARCZYK

DocuSigned by:

Richard Wlodarczyk

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Established in Meylan, on 27-mars-23 | 18:27 CEST

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(4)	<p>Marquage/Markierung/Marcação/Marcatura/Marcação/Znakowanie/Marketing/Označení/Märkning/Mærkning/Merkintä/Märkistus/Marķējums/Ženklinimas/Маркировка/Jelölés/Marcare/Ἱζηλωση/Obilježava/Označovanie /Označevanje/Маркировка/マーキング/ 标识</p>
(5)	<p>Normes désignées/Bezeichnete Normen /Normas designadas /Norme designate /Normas designadas /Normy wyznaczone / Aangewezen normen/Určené normy /Uitgekade standarder /Udpegede standarder /Nimetyl standardit /Määratud standardid /Izraudzītie standarti /Paskirtieji standarti /Определени стандарти /Kijelölt szabványok /Standarde desemnate /Καθορισμένα πρότυπα /Određeni standardi /Určené normy / Določeni standardi /Назначенные стандарты /指定された規格 /指定的标准</p>
(6)	<p>Procédure d'évaluation de la conformité/Verfahren der Konformitätsbewertung/Procedimiento de evaluación de la conformidad/Procedura di valutazione della conformità/Procedimento de avaliação da conformidade/Procedura oceny zgodności/Conformiteitsbeoordelingsprocedure/Postup posuzování shody / Förfarande för bedömning av överensstämmelse/Procedure for överensstemmelsesvurdering /Vaatimustenmukaisuuden arviointimenettely /Vastavushindamismenetlus/Atbilstības novērtēšanas procedūra /Atitikties vertinimo procedūra /Процедура за оценка на съответствието /Megfelelőségértékelési eljárás / Procedura de evaluare a conformității/Διαδικασία αξιολόγησης της συμμόρφωσης /Postupak ocjene usklađenosti /Postup posuzovania zhody /Postopek ugotavljanja skladnosti /Процедура оценки соответствия / 適合性評価手順 / 適合性評估程序</p>
(7)	<p>Cette déclaration de conformité est délivrée sous la seule responsabilité du fabricant. / Diese Konformitätserklärung wird unter der alleinigen Verantwortung des Herstellers ausgestellt./ Esta declaración de conformidad se emite bajo la única responsabilidad del fabricante./ Questa dichiarazione di conformità è rilasciata sotto la sola responsabilità del produttore./ Esta declaração de conformidade é emitida sob a exclusiva responsabilidade do fabricante./ Niniejsza deklaracja zgodności została wydana na wyłączną odpowiedzialność producenta./ Deze verklaring van overeenstemming wordt afgegeven onder de uitsluitende verantwoordelijkheid van de fabrikant./ Toto prohlášení o shodě je vydané na výhradní odpovědnost výrobce./ Denna försäkran om överensstämmelse utfärdas på tillverkarens eget ansvar. / Denne overensstemmelseserklæring er udstedt på producentens eget ansvar./ Tämä vaatimustenmukaisuusvakuutus annetaan valmistajan yksinomaisella vastuulla./ Käesolev vastavusdeklaratsioon on välja antud tootja ainuvastutusel./ Šī atbilstības deklarācija ir izdota uz ražotāja atbildību./ Už šīs atitikties deklarācijai atsako tik gamintojas./ Настоящата декларация за съответствие се издава на пълната отговорност на производителя./ Ezt a megfelelőségi nyilatkozatot a gyártó kizárólagos felelőssége mellett adjuk ki./ Prezenta declarație de conformitate este emisă pe răspunderea exclusivă a producătorului./ Η παρούσα δήλωση συμμόρφωσης εκδίδεται με αποκλειστική ευθύνη του κατασκευαστή./ Ova izjava o skladnosti izdaje se isključivo pod odgovornošću proizvođača./ Tohto vyhlásenie o zhode sa vydáva na výhradnú zodpovednosť výrobcu./ Za to izjavo o skladnosti je odgovoren izključno proizvajalec./ Din iddikjarazzjoni ta' konformità għandha tinhaieg taht ir-responsabbiltà unika tal-manifattur./ Данная декларация соответствия выдана под исключительную ответственность производителя./ この適合宣言は、製造者の単独責任のもとで発行されています。/本符合性声明由制造商全权负责发布。</p>

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