



FM Safety Manual

Omni-ID UHF Tags



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1 Safety Information and Notes

1.1 Storage of this Manual

Keep this user manual safe and in the vicinity of the device. All persons required to work with the device should be advised on where this manual is stored.

1.2 List of Notes

The notes supplied in this chapter provide information on the following.

- **Danger! / Warning!**
 - Possible hazard to life or health.
- **Caution**
 - Possible damage to property.
- **Important**
 - Possible damage to enclosure, device or associated equipment.
- **Information**
 - Notes on the optimum use of the device

Warning! The RFID tags have been certified as a product range, as such different tag variants will have a different Hazardous (Classified) Location Groups as defined in the NEC and CEC. Additional to this the ambient temperature is dependent upon the tag variant and the RF power it is subjected to from a RFID reader base station. It is impractical to include all this information on the RFID tag label.

Therefore the FM certificate and this manual **SHALL** be used to ascertain the permissible ambient temperatures and T-classes permissible and under which operating conditions the RFID tags can be safely installed and operated.

Warning! The user **SHALL** ensure that if the tags are read in a hazardous area the conducted power into the base station reader antenna, that is the power delivered from the base station transmitter via wires (conducted) to the antenna, is less than that in Table 1 and Table 2 for the relevant product code part (-Z). Any reader antenna gain may be used to provide the maximum EIRP allowed by the country of operation

Warning! Only passive antennas may be used to assess the conducted RF power.

Warning! When the tags are installed and read by a RFID reader (base station) inside a Hazardous (Classified) Location as defined in the NEC and CEC, the base station used inside the hazardous area must also be certified. Additional to this the base station must be assessed to ensure its RF output power is limited as per Table 1 and Table 2 of this manual

Warning! If the tags are damaged in any way they must be removed from the hazardous area.

Warning! The user **MUST** ensure that if the tags are read in a hazardous area the conducted power into the base station reader antenna is less than that in Table 1 and Table 2 for the relevant product code. Conducted power is the RF power delivered from the base station transmitter via wires (conducted) to the antenna. The antenna gain can be ignored for FM compliance provided that the antenna

gain is passive only, i.e. no electrical amplification between the transmitted output and antenna input or inside the antenna itself.

Warning! The lower ambient temperature for all tag variations is -40°C.

Warning! The RFID tags are made from an electrically insulating material and as such are a potential electrostatic hazard if they are installed in an area other than that specified by the FM group on the marking of the tag.

Tags marked with X=5 or 6 are permitted ONLY in fixed installations. Under these conditions there may be a potential electrostatic charging hazard. The equipment is not to be mounted in a high airflow dust laden atmosphere and should only be cleaned with a damp cloth.

Warning! For (-E, encased), (-M, metal) and (-P, painted) tag variants ONLY, additional to the marked FM code it is permissible for a tag variant to be given the following effective FM marking (note this code will not be marked on the tag for tags with X=1, 2, 3 or 4 but will be marked on tags with X = 5 or 6) :

Class I Division 1 Groups A,B,C,D

This marking code is FOR FIXED INSTALLATIONS ONLY

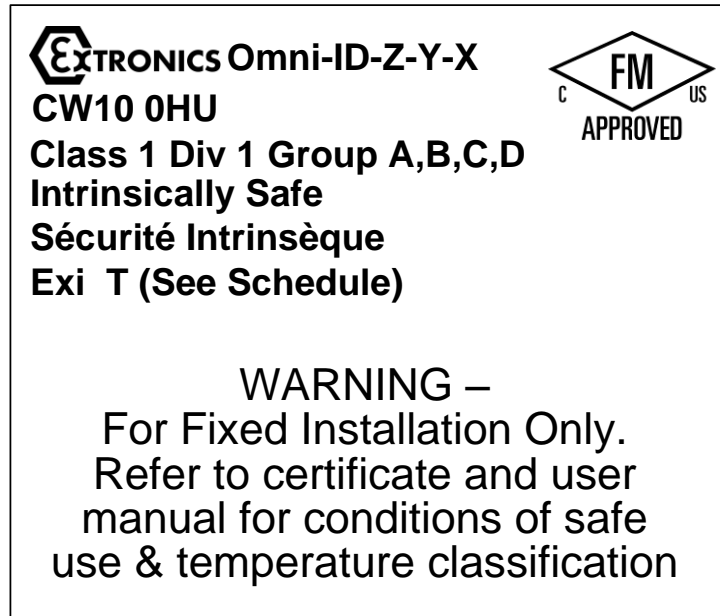
Under these conditions, there may be a potential electrostatic charging hazard. The equipment is not to be mounted in a high airflow dust laden atmosphere and should only be cleaned with a damp cloth.

Warning! -F-L-X tags consist of a label covering a metallic foil which contains Aluminium and is considered to constitute a potential risk of ignition by impact or friction. Care must be taken during installation and use to prevent impact or friction

2 Safety Related Installation Information

2.1 Product Marking

The equipment will be marked with the information shown below. Actual layout may vary on each variant: -



Note: Actual FM Group marking on the tag will vary dependant upon the tag variant. The group marked on the tag must be observed except as specified in section 2.3. The warning label may not be present on the tag.

- Z Is used to obtain the ambient temperature and T-class for the tag variant
- Y denotes the type of enclosure used (-E for encased plastic, -L for a label tag, -P for a painted tag and -M for a metal tag)
- X denotes the size of the electrostatic charging hazard.

2.2 Temperature Ratings

The T-class and temperature ratings of the tags will depend on 2 factors.

1. The amount of power conducted in to a reader antenna. That is the power delivered to a radiating antenna from a transmitter. This is NOT the EIRP which also takes into account the antenna gain.
2. The distance between the reader and the tag

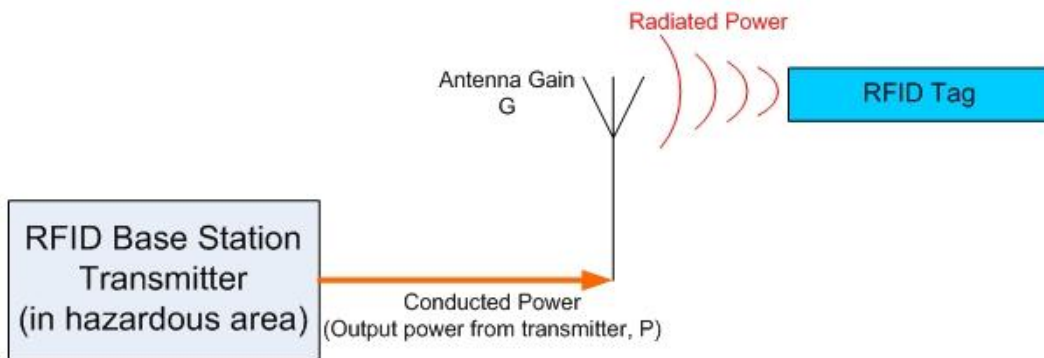
The RFID tags contain no internal sources of heating; the only thermal rise will be when the tag is under the radiation of an external RFID reader (base station).

2.2.1 Base Station Reader Power Limitation for Temperature Classification

Warning! The user **MUST** ensure that if the tags are read in a hazardous area the conducted power into the base station reader antenna is less than that in Table 1 for Z=R, Table 2 Z=F and Table 3 Z=C. Conducted power is the RF power delivered from the base station transmitter via wires (conducted) to the antenna. The antenna gain can be ignored for FM compliance provided that the antenna gain is passive only, i.e. no electrical amplification between the transmitted output and antenna input or inside the antenna itself.

Information The antenna gain must be taken in to account when assessing compliance with international radio frequency regulations.

Warning! Only passive antennas may be used to assess the conducted RF power.



Actual radiated power = Conducted power in to the antenna, which is radiated in to free space

EIRP = Effective Isotropic Radiated Power and takes the antenna gain in to account. It is the product of the conducted RF power and antenna gain.

EIRP is the amount of power a theoretical isotropic antenna would emit to produce the same power density that the antenna with gain can produce in the direction of its main beam width.

For ATEX/IECEx compliance only the conducted power in to a passive antenna needs to be assessed

Tamb (°C)	T6 (W)	T5 & Group I (W)	T4 (W)
40	0.25	0.66	1.5
50	0.18	0.59	1.5
60	0.12	0.53	1.5
70	0.06	0.47	1.5
80	N/A	0.40	1.5

Table 1 – -R variant maximum conducted RF power from RFID base station transmitter output to the reader antenna vs. upper ambient temperature

Tamb (°C)	T6 (W)	T5 & Group I (W)	T4 (W)
40	0.13	0.36	0.79
50	0.10	0.32	0.75
60	0.06	0.29	0.72
70	0.03	0.25	0.68
80	N/A	0.22	0.65

Table 2 – -F variant maximum conducted RF power from RFID base station transmitter output to the reader antenna vs. upper ambient temperature

Tamb (°C)	T6 (W)	T5 & Group I (W)	T4 (W)
40	0.19	0.50	1.10
50	0.14	0.45	1.05
60	0.09	0.40	1.00
70	0.04	0.35	0.95
80	N/A	0.31	0.90

Table 3 – -C variant maximum conducted RF power from RFID base station transmitter output to the reader antenna vs. upper ambient temperature

Warning! The lower ambient temperature for all tag variations is -40°C.

2.3 Tag Marking and Groups

All Tags will be marked with -Z-Y-X marking which corresponds to the FM code marking shown in Table 4 and Table 5.

Warning! Only install the tags in the area permitted by the FM code marked on the tag. It is only permissible to install the tags in an area permitted by Note 1 if the product code is such that it allows the application of Note 1 AND the tag is installed in a fixed location.

Information In this case a fixed installation is defined as an installation where the tag, or the asset the tag is attached to, does not move in normal operation. E.g. if the tag is installed on a hand held tool the tag is not a fixed installation.

Z=	Y=	X=	Group (Non Fixed Use)	Group (Fixed Use Only)
R or F	E or M	1	A,B,C,D	-
R or F	E or M	2	C,D	A,B,C,D (Note 1)
R or F	E or M	3	C,D	A,B,C,D (Note 1)
R or F	E or M	4	D	A,B,C,D (Note 1)
R or F	E or M	5	-	A,B,C,D (Note 1)
R or F	E or M	6	-	A,B,C,D (Note 1)
Fixed Use Only				
F	L	1	A,B,C,D	-
F	L	2	C,D	A,B,C,D (Note 2)
F	L	3	C,D	A,B,C,D (Note 2)
F	L	4	D	A,B,C,D (Note 2)
F	L	5	-	A,B,C,D (Note 2)
Non Fixed Use				
R	L	1	A,B,C,D	-
R	L	2	C,D	A,B,C,D (Note 1)
R	L	3	C,D	A,B,C,D (Note 1)
R	L	4	D	A,B,C,D (Note 1)
R	L	5	-	A,B,C,D (Note 1)

Table 4 – Tag Group markings (1)

Z=	Y=	X=	Group (Non Fixed Use)	Group (Fixed Use Only)
C	E, M or P	1	A,B,C,D	-
C	E, M or P	2	C,D	A,B,C,D (Note 1)
C	E, M or P	3	C,D	A,B,C,D (Note 1)
C	E, M or P	4	D	A,B,C,D (Note 1)
C	E, M or P	5	-	A,B,C,D (Note 1)
C	E, M or P	6	-	A,B,C,D (Note 1)
R	P	1	A,B,C,D	-
R	P	2	C,D	A,B,C,D (Note 1)
R	P	3	C,D	A,B,C,D (Note 1)
R	P	4	D	A,B,C,D (Note 1)
R	P	5	-	A,B,C,D (Note 1)
R	P	6	-	A,B,C,D (Note 1)

Table 5 – Tag Group markings (2)

Note 1! For (-E, encased), (-M, metal) and (-P, painted) tag variants **ONLY**, additional to the marked FM code it is permissible for a tag variant to be given the following effective FM marking (note this code will not be marked on the tag for tags with X=1, 2, 3 or 4 but will be marked on tags with X = 5 or 6) :

Class I Division 1 Groups A,B,C,D

This marking code is **FOR FIXED INSTALLATIONS ONLY.**

Under these conditions there may be a potential electrostatic charging hazard. The equipment is not to be mounted in a high airflow dust laden atmosphere and should only be cleaned with a damp cloth.

Note 2! -F-L-X tags consist of a label covering a metallic foil which contains Aluminium and is considered to constitute a potential risk of ignition by impact or friction. Care must be taken during installation and use to prevent impact or friction

3 Structure and Function

3.1 Intended Purpose Usage

Important	Before setting the unit to work, read the technical documentation carefully.
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Important	The latest version of the technical documentation or the corresponding technical supplements is valid in each case.
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Omni-ID UHF tags are built using modern components and is extremely reliable in operation; however it must only be used for its intended purpose. Please note that the intended purpose also includes compliance with the instructions issued by the manufacturer for installation, setting up and service.

Any other use is regarded as conflicting with the intended purpose. The manufacturer is not liable for any subsequent damage resulting from such inadmissible use. The user bears the sole risk in such cases.

3.2 Transportation and Storage

All Omni-ID UHF tag devices must be so transported and stored so that they are not subjected to any excessive mechanical or environmental stresses.

3.3 Authorized Persons

Only persons trained for the purpose are authorized to handle the Omni-ID UHF tags; they must be familiar with the units and must be aware of the regulation and provisions required for explosion protection as well as the relevant accident prevention regulations.

3.4 Cleaning and Maintenance

The Omni-ID UHF tags and all its components require no maintenance. The tags are potential electrostatic charging hazards and as such should only be wiped with a damp cloth.

3.5 Safety Precautions

Important	For the installation, maintenance and cleaning of the units, it is absolutely necessary to observe the applicable regulations and provisions concerned with explosion protection as well as the Accident Prevention Regulations.
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3.6 Cleaning and Maintenance Intervals

The cleaning intervals depend on the environment where the system is installed.

3.7 Aggressive substances and environments

The Omni-ID UHF tags are not designed to come into contact with aggressive substances or environments, please be aware that additional protection may be required.

3.8 Exposure to external stresses

The Omni-ID UHF tags are not designed to be subjected to excessive stresses e.g. vibration, heat, impact. Additional protection is required to protect against these external stresses.

The Omni-ID UHF tags will require additional protection if it is used in a location where it may be subjected to damage.

4 FM Certificate - US



FM Approvals
 1151 Boston Providence Turnpike
 P.O. Box 9102 Norwood, MA 02062 USA
 T: 781 762 4300 F: 781-762-9375 www.fmapprovals.com

CERTIFICATE OF COMPLIANCE

HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT

This certificate is issued for the following equipment:

OMNI-ID UHF tag a-b-c-d

IS / I / I / ABCD* / T*

*see Special conditions of use

a = Marketing or production name or blank. Not relevant to safety

b = Internal coupling structure

- R = Rigid coupling structure
- F = Flexible coupling structure
- C = Ceramic coupling structure

c = case type:

- E = Encased Tag
- M = Metal Tag
- L = Label Tag
- P = Painted Tag

d = fixed or handheld use:

- 1, = for non-fixed applications
- 2, 3, 4 = for non-fixed and fixed applications*
- 5 or 6 = fixed applications only*

*see Special conditions of use

Special conditions of use

1. The OMNI-ID tags shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application.
2. The Material Group shall be in accordance with the following table;

b =	c =	d =	Group (non-fixed applications)	Group (fixed applications) (see Note 3)
R or F	E or M	1	ABCD	-
		2	CD	ABCD
		3	CD	ABCD
		4	D	ABCD
		5	-	ABCD
		6	-	ABCD



- Although not specifically marked the OMNI-ID tags are suitable for use in Class I Division 1 Groups A, B, C, and D but FOR FIXED INSTALLATIONS ONLY. For fixed installations as OMNI-ID tags are made from an electrically insulating material there may be a potential electrostatic charging hazard and the OMNI-ID tags shall not be mounted in a high airflow dust laden atmosphere and should only be cleaned with a damp cloth.
- For Rigid (b = -R) variants the maximum RF power from the tag reader to its antenna shall not exceed the following;

Tamb	T6	T5	T4
40 °C	0.25 W	0.66 W	1.5 W
50 °C	0.18 W	0.59 W	1.5 W
60 °C	0.12 W	0.53 W	1.5 W
70 °C	0.06 W	0.47 W	1.5 W
80 °C	N/A	0.40 W	1.5 W

- For Flexible (b = -F) variants the maximum RF power from the tag reader to its antenna shall not exceed the following;

Tamb	T6	T5	T4
40 °C	0.13 W	0.36 W	0.79 W
50 °C	0.10 W	0.32 W	0.75 W
60 °C	0.06 W	0.29 W	0.72 W
70 °C	0.03 W	0.25 W	0.68 W
80 °C	N/A	0.22 W	0.65 W

OMNI-ID UHF tag a-F-L-d

IS / / / / ABCD* / T*

*see Special conditions of use

a = Marketing or production name or blank. Not relevant to safety

d = fixed or handheld use:

-1 to 4 = for non-fixed and fixed applications

-5 = for fixed applications only

Special conditions of use

- The OMNI-ID tags shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application.
- The Material Group shall be in accordance with the following table;

d =	Group (non-fixed applications)	Group (fixed applications) (see Note 3)
1	ABCD	-
2	CD	ABCD
3	CD	ABCD
4	D	ABCD
5	-	ABCD

- Although not specifically marked the OMNI-ID tags are suitable for use in Class I Division 1 Groups A, B, C, and D but FOR FIXED INSTALLATIONS ONLY. For fixed installations as OMNI-ID tags are made from an electrically insulating material there may be a potential electrostatic charging hazard and the OMNI-ID tags shall not be mounted in a high airflow dust laden atmosphere and should only be cleaned with a damp cloth.
- The maximum RF power from the tag reader to its antenna shall not exceed the following;

Tamb	T6	T5	T4
40 °C	0.13 W	0.36 W	0.79 W
50 °C	0.10 W	0.32 W	0.75 W
60 °C	0.06 W	0.29 W	0.72 W
70 °C	0.03 W	0.25 W	0.68 W
80 °C	N/A	0.22 W	0.65 W

- The OMNI-ID tags consist of a label covering a metallic foil which contains Aluminum and is considered to constitute a potential risk of ignition by impact or friction. Care must be taken during installation and use to



prevent impact or friction.

OMNI-ID UHF tag a-R-L-d

IS / I / 1 / ABCD* / T*

*see Special conditions of use

a = Marketing or production name or blank. Not relevant to safety

d = fixed or handheld use:

- 1, = for non-fixed applications
- 2, 3, 4 = for non-fixed and fixed applications*
- 5 = fixed applications only*

*see Special conditions of use

Special conditions of use

1. The OMNI-ID tags shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application.
2. The Material Group shall be in accordance with the following table;

d =	Group (non-fixed applications)	Group (fixed applications) (see Note 3)
1	ABCD	-
2	CD	ABCD
3	CD	ABCD
4	D	ABCD
5	-	ABCD

3. Although not specifically marked the OMNI-ID tags are suitable for use in Class I Division 1 Groups A, B, C, and D but FOR FIXED INSTALLATIONS ONLY. For fixed installations as OMNI-ID tags are made from an electrically insulating material there may be a potential electrostatic charging hazard and the OMNI-ID tags shall not to be mounted in a high airflow dust laden atmosphere and should only be cleaned with a damp cloth.
4. The maximum RF power from the tag reader to its antenna shall not exceed the following;

Tamb	T6	T5	T4
40 °C	0.25 W	0.66 W	1.5 W
50 °C	0.18 W	0.59 W	1.5 W
60 °C	0.12 W	0.53 W	1.5 W
70 °C	0.06 W	0.47 W	1.5 W
80 °C	N/A	0.40 W	1.5 W

OMNI-ID UHF tag a-C-c-d

IS / I / 1 / ABCD* / T*

*see Special conditions of use

a = Marketing or production name or blank. Not relevant to safety

c = case type:

- E = Encased Tag
- M = Metal Tag
- P = Painted Tag

d = fixed or handheld use:

- 1 = for non-fixed applications
- 2, 3, 4, 5 = for non-fixed and fixed applications*
- 6 = fixed applications only*

*see Special conditions of use



Special conditions of use

1. The OMNI-ID tags shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application.
2. The Material Group shall be in accordance with the following table;

c =	d =	Group (non-fixed applications)	Group (fixed applications) (see Note 3)
E, M or P	1	ABCD	-
	2	CD	ABCD
	3	CD	ABCD
	4	D	ABCD
	5	-	ABCD
	6	-	ABCD

3. Although not specifically marked the OMNI-ID tags are suitable for use in Class I Division 1 Groups A, B, C, and D but FOR FIXED INSTALLATIONS ONLY. For fixed installations as OMNI-ID tags are made from an electrically insulating material there may be a potential electrostatic charging hazard and the OMNI-ID tags shall not be mounted in a high airflow dust laden atmosphere and should only be cleaned with a damp cloth.
4. The maximum RF power from the tag reader to its antenna shall not exceed the following;

Tamb	T6	T5	T4
40 °C	0.19 W	0.50 W	1.10 W
50 °C	0.14 W	0.45 W	1.05 W
60 °C	0.09 W	0.40 W	1.00 W
70 °C	0.04 W	0.35 W	0.95 W
80 °C	N/A	0.31 W	0.90 W

OMNI-ID UHF tag a-R-P-d

IS / 1 / 1 / ABCD* / T*

*see Special conditions of use

a = Marketing or production name or blank. Not relevant to safety

d = fixed or handheld use:

- 1 = for non-fixed applications
- 2, 3, 4, 5 = for non-fixed and fixed applications*
- 6 = fixed applications only*

*see Special conditions of use

Special conditions of use

1. The OMNI-ID tags shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application.
2. The Material Group shall be in accordance with the following table;

d =	Group (non-fixed applications)	Group (fixed applications) (see Note 3)
1	ABCD	-
2	CD	ABCD
3	CD	ABCD
4	D	ABCD
5	-	ABCD
6	-	ABCD



3. *Although not specifically marked the OMNI-ID tags are suitable for use in Class I Division 1 Groups A, B, C, and D but FOR FIXED INSTALLATIONS ONLY. For fixed installations as OMNI-ID tags are made from an electrically insulating material there may be a potential electrostatic charging hazard and the OMNI-ID tags shall not to be mounted in a high airflow dust laden atmosphere and should only be cleaned with a damp cloth.*
4. *The maximum RF power from the tag reader to its antenna shall not exceed the following:*

<i>Tamb</i>	<i>T6</i>	<i>T5</i>	<i>T4</i>
40 °C	0.25 W	0.66 W	1.5 W
50 °C	0.18 W	0.59 W	1.5 W
60 °C	0.12 W	0.53 W	1.5 W
70 °C	0.06 W	0.47 W	1.5 W
80 °C	N/A	0.40 W	1.5 W

Equipment Ratings:

Intrinsically safe for Class I, Division 1, Groups A, B, C and D, or Groups C and D or Group D hazardous (classified) locations for non-fixed locations.

Intrinsically safe for Class I, Division 1, Groups A, B, C and D hazardous (classified) locations when installed in fixed applications when installed in accordance with the special conditions.

Temperature classification as indicated in the above tables.

FM Approved for:

Extronics Ltd
Middlewich, Cheshire United Kingdom



This certifies that the equipment described has been found to comply with the following Approval Standards and other documents:

Class 3600	2011
Class 3610	2010
Class 3810	2005

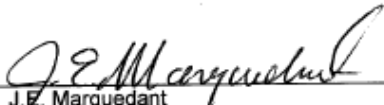
Original Project ID: 0003044096

Approval Granted: March 23, 2012

Subsequent Revision Reports / Date Approval Amended

Report Number	Date	Report Number	Date
130221	April 5, 2013		

FM Approvals LLC



J. E. Marquedant
Group Manager, Electrical

5 April 2013

Date

5 FM Certificate - Canada



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CERTIFICATE OF COMPLIANCE

HAZARDOUS LOCATION ELECTRICAL EQUIPMENT PER CANADIAN REQUIREMENTS

This certificate is issued for the following equipment:

OMNI-ID UHF tag a-b-c-d

IS / 1 / 1 / ABCD* / T*

*see Special conditions of use

a = Marketing or production name or blank. Not relevant to safety

b = Internal coupling structure

- R = Rigid coupling structure
- F = Flexible coupling structure
- C = Ceramic coupling structure

c = case type:

- E = Encased Tag
- M = Metal Tag
- L = Label Tag
- P = Painted Tag

d = fixed or handheld use:

- 1, = for non-fixed applications
- 2, 3, 4 = for non-fixed and fixed applications*
- 5 or 6 = fixed applications only*

*see Special conditions of use

Special conditions of use

1. The OMNI-ID tags shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application.
2. The Material Group shall be in accordance with the following table;

b =	c =	d =	Group (non-fixed applications)	Group (fixed applications) (see Note 3)
R or F	E or M	1	ABCD	-
		2	CD	ABCD
		3	CD	ABCD
		4	D	ABCD
		5	-	ABCD
		6	-	ABCD



- Although not specifically marked the OMNI-ID tags are suitable for use in Class I Division 1 Groups A, B, C, and D but FOR FIXED INSTALLATIONS ONLY. For fixed installations as OMNI-ID tags are made from an electrically insulating material there may be a potential electrostatic charging hazard and the OMNI-ID tags shall not to be mounted in a high airflow dust laden atmosphere and should only be cleaned with a damp cloth.
- For Rigid (b = -R) variants the maximum RF power from the tag reader to its antenna shall not exceed the following;

Tamb	T6	T5	T4
40 °C	0.25 W	0.66 W	1.5 W
50 °C	0.18 W	0.59 W	1.5 W
60 °C	0.12 W	0.53 W	1.5 W
70 °C	0.06 W	0.47 W	1.5 W
80 °C	N/A	0.40 W	1.5 W

- For Flexible (b = -F) variants the maximum RF power from the tag reader to its antenna shall not exceed the following;

Tamb	T6	T5	T4
40 °C	0.13 W	0.36 W	0.79 W
50 °C	0.10 W	0.32 W	0.75 W
60 °C	0.06 W	0.29 W	0.72 W
70 °C	0.03 W	0.25 W	0.68 W
80 °C	N/A	0.22 W	0.65 W

OMNI-ID UHF tag a-F-L-d

IS / I / 1 / ABCD* / T*

*see Special conditions of use

a = Marketing or production name or blank. Not relevant to safety

d = fixed or handheld use:

-1 to 4 = for non-fixed and fixed applications

-5 = for fixed applications only

Special conditions of use

- The OMNI-ID tags shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application.
- The Material Group shall be in accordance with the following table;

d =	Group (non-fixed applications)	Group (fixed applications) (see Note 3)
1	ABCD	-
2	CD	ABCD
3	CD	ABCD
4	D	ABCD
5	-	ABCD

- Although not specifically marked the OMNI-ID tags are suitable for use in Class I Division 1 Groups A, B, C, and D but FOR FIXED INSTALLATIONS ONLY. For fixed installations as OMNI-ID tags are made from an electrically insulating material there may be a potential electrostatic charging hazard and the OMNI-ID tags shall not to be mounted in a high airflow dust laden atmosphere and should only be cleaned with a damp cloth.
- The maximum RF power from the tag reader to its antenna shall not exceed the following;

Tamb	T6	T5	T4
40 °C	0.13 W	0.36 W	0.79 W
50 °C	0.10 W	0.32 W	0.75 W
60 °C	0.06 W	0.29 W	0.72 W
70 °C	0.03 W	0.25 W	0.68 W
80 °C	N/A	0.22 W	0.65 W

- The OMNI-ID tags consist of a label covering a metallic foil which contains Aluminum and is considered to constitute a potential risk of ignition by impact or friction. Care must be taken during installation and use to



prevent impact or friction.

OMNI-ID UHF tag a-R-L-d

IS / I / 1 / ABCD* / T*

*see Special conditions of use

a = Marketing or production name or blank. Not relevant to safety

d = fixed or handheld use:

- 1, = for non-fixed applications
- 2, 3, 4 = for non-fixed and fixed applications*
- 5 = fixed applications only*

*see Special conditions of use

Special conditions of use

1. The OMNI-ID tags shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application.
2. The Material Group shall be in accordance with the following table;

d =	Group (non-fixed applications)	Group (fixed applications) (see Note 3)
1	ABCD	-
2	CD	ABCD
3	CD	ABCD
4	D	ABCD
5	-	ABCD

3. Although not specifically marked the OMNI-ID tags are suitable for use in Class I Division 1 Groups A, B, C, and D but FOR FIXED INSTALLATIONS ONLY. For fixed installations as OMNI-ID tags are made from an electrically insulating material there may be a potential electrostatic charging hazard and the OMNI-ID tags shall not to be mounted in a high airflow dust laden atmosphere and should only be cleaned with a damp cloth.
4. The maximum RF power from the tag reader to its antenna shall not exceed the following;

Tamb	T6	T5	T4
40 °C	0.25 W	0.66 W	1.5 W
50 °C	0.18 W	0.59 W	1.5 W
60 °C	0.12 W	0.53 W	1.5 W
70 °C	0.06 W	0.47 W	1.5 W
80 °C	N/A	0.40 W	1.5 W

OMNI-ID UHF tag a-C-c-d

IS / I / 1 / ABCD* / T*

*see Special conditions of use

a = Marketing or production name or blank. Not relevant to safety

c = case type:

- E = Encased Tag
- M = Metal Tag
- P = Painted Tag

d = fixed or handheld use:

- 1 = for non-fixed applications
- 2 to 5 = for non-fixed and fixed applications
- 6 = for fixed applications only

*see Special conditions of use



Special conditions of use

- The OMNI-ID tags shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application.
- The Material Group shall be in accordance with the following table;

c =	d =	Group (non-fixed applications)	Group (fixed applications) (see Note 3)
E, M or P	1	ABCD	-
	2	CD	ABCD
	3	CD	ABCD
	4	D	ABCD
	5	-	ABCD
	6	-	ABCD

- Although not specifically marked the OMNI-ID tags are suitable for use in Class I Division 1 Groups A, B, C, and D but FOR FIXED INSTALLATIONS ONLY. For fixed installations as OMNI-ID tags are made from an electrically insulating material there may be a potential electrostatic charging hazard and the OMNI-ID tags shall not to be mounted in a high airflow dust laden atmosphere and should only be cleaned with a damp cloth.
- The maximum RF power from the tag reader to its antenna shall not exceed the following;

Tamb	T6	T5	T4
40 °C	0.19 W	0.50 W	1.10 W
50 °C	0.14 W	0.45 W	1.05 W
60 °C	0.09 W	0.40 W	1.00 W
70 °C	0.04 W	0.35 W	0.95 W
80 °C	N/A	0.31 W	0.90 W

OMNI-ID UHF tag a-R-P-d

IS / I / 1 / ABCD* / T*

*see Special conditions of use

a = Marketing or production name or blank. Not relevant to safety

d = fixed or handheld use:

- 1 = for non-fixed applications
- 2, 3, 4, 5 = for non-fixed and fixed applications*
- 6 = fixed applications only*

*see Special conditions of use

Special conditions of use

- The OMNI-ID tags shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application.
- The Material Group shall be in accordance with the following table;

d =	Group (non-fixed applications)	Group (fixed applications) (see Note 3)
1	ABCD	-
2	CD	ABCD
3	CD	ABCD
4	D	ABCD
5	-	ABCD
6	-	ABCD



3. *Although not specifically marked the OMNI-ID tags are suitable for use in Class I Division 1 Groups A, B, C, and D but FOR FIXED INSTALLATIONS ONLY. For fixed installations as OMNI-ID tags are made from an electrically insulating material there may be a potential electrostatic charging hazard and the OMNI-ID tags shall not to be mounted in a high airflow dust laden atmosphere and should only be cleaned with a damp cloth.*
4. *The maximum RF power from the tag reader to its antenna shall not exceed the following:*

<i>Tamb</i>	<i>T6</i>	<i>T5</i>	<i>T4</i>
<i>40 °C</i>	<i>0.25 W</i>	<i>0.66 W</i>	<i>1.5 W</i>
<i>50 °C</i>	<i>0.18 W</i>	<i>0.59 W</i>	<i>1.5 W</i>
<i>60 °C</i>	<i>0.12 W</i>	<i>0.53 W</i>	<i>1.5 W</i>
<i>70 °C</i>	<i>0.06 W</i>	<i>0.47 W</i>	<i>1.5 W</i>
<i>80 °C</i>	<i>N/A</i>	<i>0.40 W</i>	<i>1.5 W</i>

Equipment Ratings:

Intrinsically safe for Class I, Division 1, Groups A, B, C and D, or Groups C and D or Group D hazardous (classified) locations for non-fixed locations.

Intrinsically safe for Class I, Division 1, Groups A, B, C and D hazardous (classified) locations when installed in fixed applications when installed in accordance with the special conditions.

Temperature classification as indicated in the above tables.

FM Approved for:

Extronics Ltd
Middlewich, Cheshire United Kingdom



This certifies that the equipment described has been found to comply with the following Approval Standards and other documents:

CSA C22.2 No 157	1992
CAN/CSA-C22.2 No. 61010.1	2004

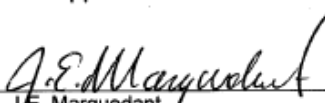
Original Project ID: 3044096C

Approval Granted: March 23, 2012

Subsequent Revision Reports / Date Approval Amended

Report Number	Date	Report Number	Date
130221	April 5, 2013		

FM Approvals LLC



J.E. Marquedant
Group Manager, Electrical

5 April 2013

Date

6 Manual Revision

Revision	Description	Date	By
01	Initial Release	10/04/13	AJR