EXTRONICS

Powered by AeroScout

Operating Manual

CE

iCITE100/EX2000/EX2000X

Ex II 2 G Ex emb II T4

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Document Number **318847** (See Last Page for Revision Details)

Contents

1 Introduction

The Extronics iCITE100/EX2000 is a Zone 1 approved version of the Aeroscout EX2000 which is a hardware component of AeroScout's industry-leading visibility system for active RFID and location applications. The iCITE100/EX2000 adds value by extending the system to provide robust and sophisticated RFID detection and identification capabilities, using the same Wi-Fi-based Active RFID tags that can also be accurately located in real time by the AeroScout system.

The iCITE100/EX2000 uses a 125KHz ASK modulated field to trigger Extronics iTAG100 devices as they come within range of the iCITE100/EX2000 field. This causes the tags to transmit a 2.4GHz WIFI message that is received by a Location Receiver or compatible access point. This provides instant knowledge that a tagged asset or person passed through a gate, doorway or some other tightly defined area.

There are two variants of the iCITE100/EX2000; master and slave. The master unit may be operated in stand-alone mode, supplied either by IEEE802.3af compliant power-over-Ethernet (POE) or from a 24VAC/DC supply. The master unit communicates with the Aeroscout software via 10/100BASET Ethernet.

The slave unit must be connected to a master unit, as it is powered from the master and also receives synchronisation data via RS485. Up to three slave units may ‘chained’ in series from one master unit. The slave units are used to extend the range of a master unit, for example to reach both sides of a large doorway.

The iCITE100/EX2000 is marked as **EEx II 2 G Ex emb II T4 $-20^{o}C \leq Tamb \leq 60^{o}C$**

2 Safety Information and Notes

2.1 Storage of this Manual

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

2.2 ATEX Special Conditions for Safe Use

A slave unit may be connector to a master unit, another slave unit and/or a power supply of up to 24V a.c./d.c. A master unit may be connected to a slave unit and/or a power supply of up to 48V a.c./d.c.

2.3 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	**Please read EC type certificate Baseefa07ATEX0181X and this manual before installing the iCITE100/EX2000**

Warning	**Installation and maintenance of the iCITE100/EX2000 must only be carried out by suitably qualified personnel. The equipment must be installed in accordance with EN60079-0, EN60079-14 and the Accident Prevention Regulations.**

Warning	**Never connect a supply of more than 24VDC/24VAC to the Auxiliary supply inputs of the master unit.**

Warning	**Never connect a slave unit to a master unit which is powered via PoE or a 48V supply.**

Warning	**Never connect a slave unit to anything except a master unit or another slave unit.**

Warning	**Always follow the connection diagrams in the manual.**

Warning	**All cables connected to the iCITE100/EX2000 to be installed using the correct Ex e cable glands, to be fitted by a competent person.**

Warning	**The user MUST ensure that any cables connected to the iCITE100/EX2000 have adequate mechanical protection to avoid damage to the wires. Failure to do so could cause shorts or exposure of non-insulated wires to potentially explosive environments.**

Warning	**Any cable glands which are not in use MUST be replaced by a suitable EX e certified stopping plug.**

Important	**Ensure the lid is secure, correct cable glands are fitted and the unit is correctly wired and earthed before applying power to the iCITE100/EX2000.**

Important	**Slave units cannot be powered via PoE. Slave units can be connected to a master unit (providing the master unit is powered via 24V ac/dc), or to another slave unit.**

Important	**The master and slave iCITE100/EX2000s have different terminal connections. Follow the correct pin connections for the unit being installed.**

3 Structure and Function

3.1 Applications

Theft Prevention and Security
Facilities and general enterprises can tag valuable assets that are intended to stay within a certain area. The system can track the location of those assets, and if they leave through an exit or enter a restricted area, the iCITE100/EX2000 will trigger an alert.

Process Control
Manufacturing and supply chain facilities can track the location and presence of equipment and in process inventory as it moves through the production process. This gives an enterprise a real-time view of which (and how many) assets have passed each step in the process, enabling better supply chain management.

Reduced Searching Time
The iCITE100/EX2000 can identify an individual asset among many similar assets, such as WIP items on a shelf in manufacturing, or hospital infusion pumps in a storage room. The person initiating the search will not only know the location of the asset, but can also make the tag physically identify itself by triggering the LED on the desired tag.

Inventory Management
Logistics and manufacturing enterprises can automatically up-date inventory records based on assets currently within defined areas, ensuring real-time knowledge of levels without manual checks or physical scanning.

Business Event Automation
Any type of enterprise can use the iCITE100/EX2000 to trigger automated events and alerts that occur based on the location of an asset. For example, when a set number of pieces of inventory pass by an iCITE100/EX2000 to enter a processing area, the floor supervisor can receive a pager alert to redistribute staff to that area.

3.2 Features and Benefits

Long Range RFID Detection of Extronics iTAG100 Tags
The iCITE100/EX2000 triggers the iTAG100 causing them to transmit as they pass through a defined area. ICITE100/EX2000 have up to a 6m (20 ft) range, enough to cover wide gate areas, and can also be adjusted to cover areas as small as 50cm (20 inches)

Highly Accurate location Detection
The iCITE100/EX2000 enables enterprises to locate assets precisely to a specific shelf, rack, workstation (in manufacturing) or bed (in healthcare). In addition the iCITE100/EX2000 can assist in difficult searches by distinguishing between similar nearby assets, and making the right tag identify itself by blinking.

Tag Behaviour Modification
The iCITE100/EX2000 can activate and deactivate iTAG100s, extending a tags battery life further by switching them off when they leave a defined tracking area. It can change of tag transmission rate and other tag programming for a temporary or indefinite time to accommodate different usage patterns.

Telemetry and Data Functions
These functions provide the ability to use an iCITE100/EX2000 to store messages on the tag for later transmission. Message transmission can later be triggered by another iCITE100/EX2000, enabling sophisticated process control functions. The iCITE100/EX2000 can trigger a tag to store and transmit up to ten bytes of data.

Rugged IP66-Eated Enclosure
This allows the iCITE100/EX2000 to be used in any hostile indoor or outdoor environment and in a wide temperature range.

iCITE100/EX2000 Chaining
Chaining enables multiple iCITE100/EX2000 units to be connected together for full, precise coverage of areas such as large doorways. Up to three slave units may be daisy-chained from one master unit using 4-pair CAT5 cable.

3.3 iCITE100/EX2000 Configurations

The iCITE100/EX2000 can be set up in the following ways:

Connection Method	Description
Single iCITE100/EX2000 – not connected to network	The iCITE100/EX2000 can be used as standalone device which functions independently without any network connection. In this case you need to connect the iCITE100/EX2000 to the power supply only.
Single iCITE100/EX2000 – connected to network	The iCITE100/EX2000 can be remotely controller (for configuration and monitoring purposes) through the local area network. In this case you need to connect it to both a power source and the network. The iCITE100/EX2000 also supports power-over-Ethernet (PoE), which supplies both power and network services via a single connection.
Chained iCITE100/EX2000s – not connected to network	iCITE100/EX2000s may be connected to each other in a chain and receive the power/data from one Master iCITE100/EX2000 in the chain. This configuration does not require any network connectivity. Up to 3 Slave iCITE100/EX2000s can use the same power source (24V AC/DC only)
Chained iCITE100/EX2000s – connected to network.	As per chained iCITE100/EX2000s but master is connected to Ethernet (data only, POE not supported).

Table 3.1 – iCITE100/EX2000 Configuration Methods

Warning	**NEVER connect a supply of more than 24VDC/24VAC to the Auxiliary supply inputs of the master unit.**

Important	**Slave units cannot be powered via PoE. Slave units can be connected to a master unit (providing the master unit is powered via 24V ac/dc), or to another slave unit.**

The iCITE100/EX2000 is configured using the AeroScout® System Manager, once configured the iCITE100/EX2000 no longer needs to be connected to a LAN. If however, you wish to monitor or configure the iCITE100/EX2000 while it is in the field then it will need to be connected a LAN. The slave units are automatically updated by the master unit.

Information	**Consult with the AeroScout® System Manager documentation for information on configuring the iCITE100/EX2000's software features. This manual only concerns the mechanical and wiring setup of the iCITE100/EX2000's.**

When operating as a single iCITE100/EX2000 the following configuration methods are possible; if updating and monitoring of the units is required, the master can be connected to a LAN, and powered via either a PoE connection or an external 24V ac/dc power supply as shown in Figure 3.1.

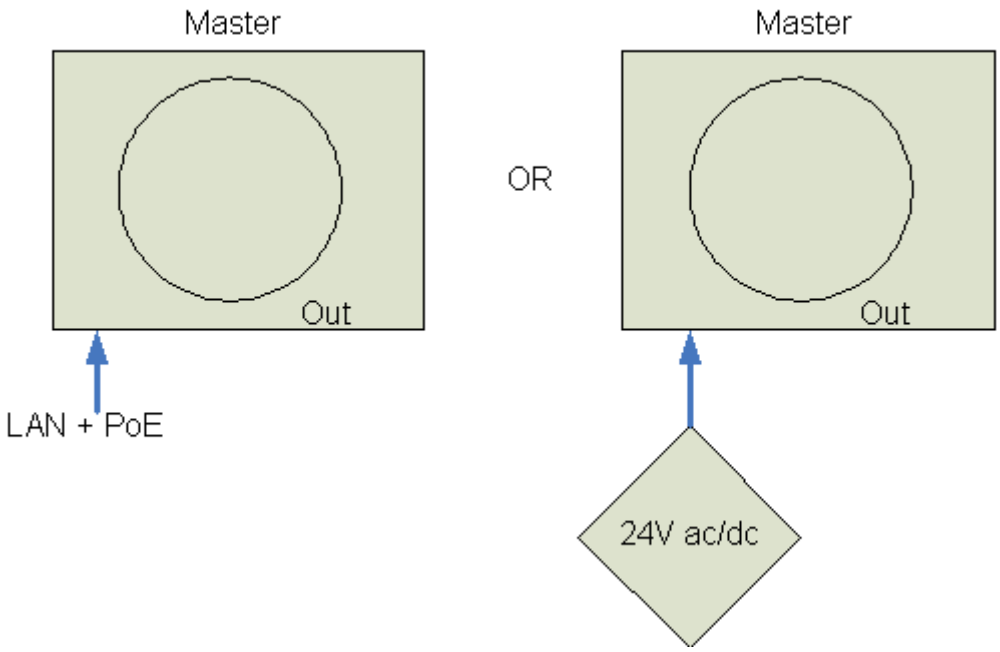


Figure 3.1 – Master iCITE100/EX2000 Configurations

A master unit can support up to three slave units from a single 24V ac/dc power supply. The slaves are powered using a RS485 connection. In this configuration the last slave in the chain needs to be terminated, as described in section 4.1.3.

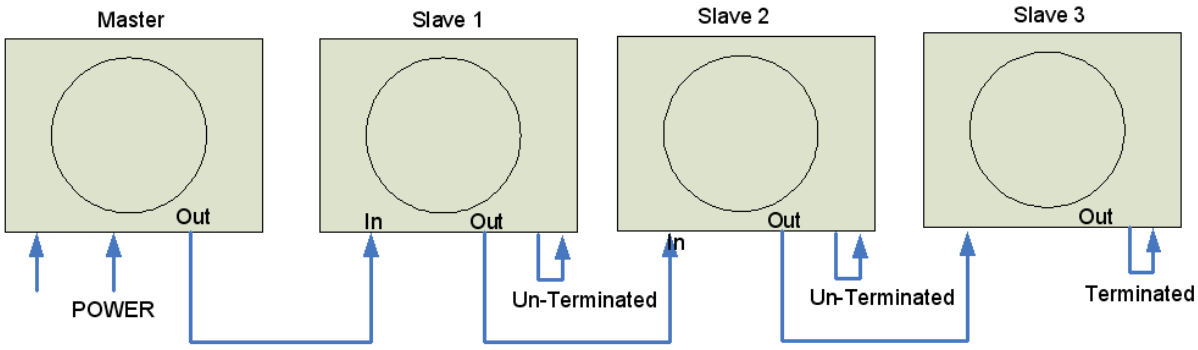


Figure 3.2 – Master-Slave-Slave iCITE100/EX2000 Configuration

4 Installation and Setting-to-Work

4.1 Installation

The iCITE100/EX2000 is simple to install and can be secured directly to a suitable surface using the mounting holes on the enclosure

Important	**All cables connected to the iCITE100/EX2000 to be installed using the correct Ex e cable glands, to be fitted by a competent person.**

4.1.1 Removing the cover

Using a 5mm Allen key unscrew all four screws located in the corners of the box as indicated below in Figure 4.1. (Note that these are captive screws that are retained in the lid).

Figure 4.1 – iCITE100/EX2000 Enclosure access screw locations

After removing the cover the iCITE100/EX2000 antenna and screw terminals will be exposed. You will need to remove the antenna to gain access to the Ex e screw

terminals. To do this remove the 4 bolts as indicated in Figure 4.2 and carefully lift the antenna off the screw pillars. The antenna will come pre installed, when removing the antenna, be careful not to put a strain on the wires connected to the antenna. It is not necessary to remove the wires connecting the antenna to the PCB from the screw terminals to complete installation.

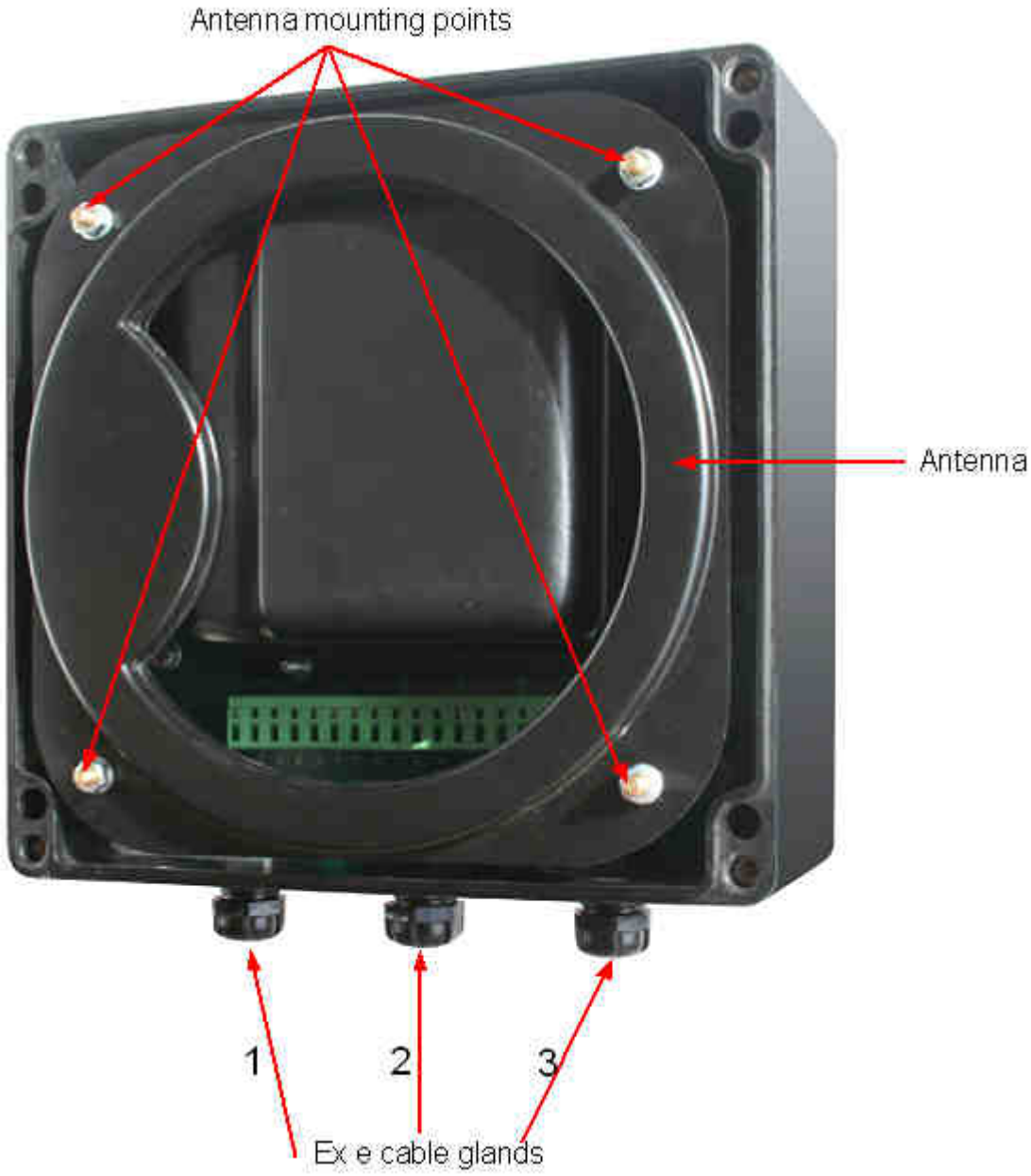


Figure 4.2 – View of iCITE100/EX2000 with Enclosure Lid Removed

Table 4.1 below describes which wire each cable gland should be used for. If one of the cables is not required due to the configuration required the cable gland(s) not in use must be replaced with a suitably certified stopping plug.

Gland	Master Purpose	Slave Purpose
1	Ethernet	Not used stopping plug fitted
2	External Power In	RS485 Out
3	RS485 Out	RS485 In

Table 4.1 – Cable to Gland Descriptions

Important	**The master and slave iCITE100/EX2000s have different terminal connections. Follow the correct pin connections for the unit being installed.**

To identify the master and slave versions, look at the screw terminals. There is a row of 21 terminals on the master version, whilst the slave has a row of 25.

4.1.2 Installing Cables For Master iCITE100/EX2000

Warning	**The user MUST ensure that any cables connected to the iCITE100/EX2000 have adequate mechanical protection to avoid damage to the wires. Failure to do so could cause shorts or exposure of non-insulated wires to potentially explosive environments.**

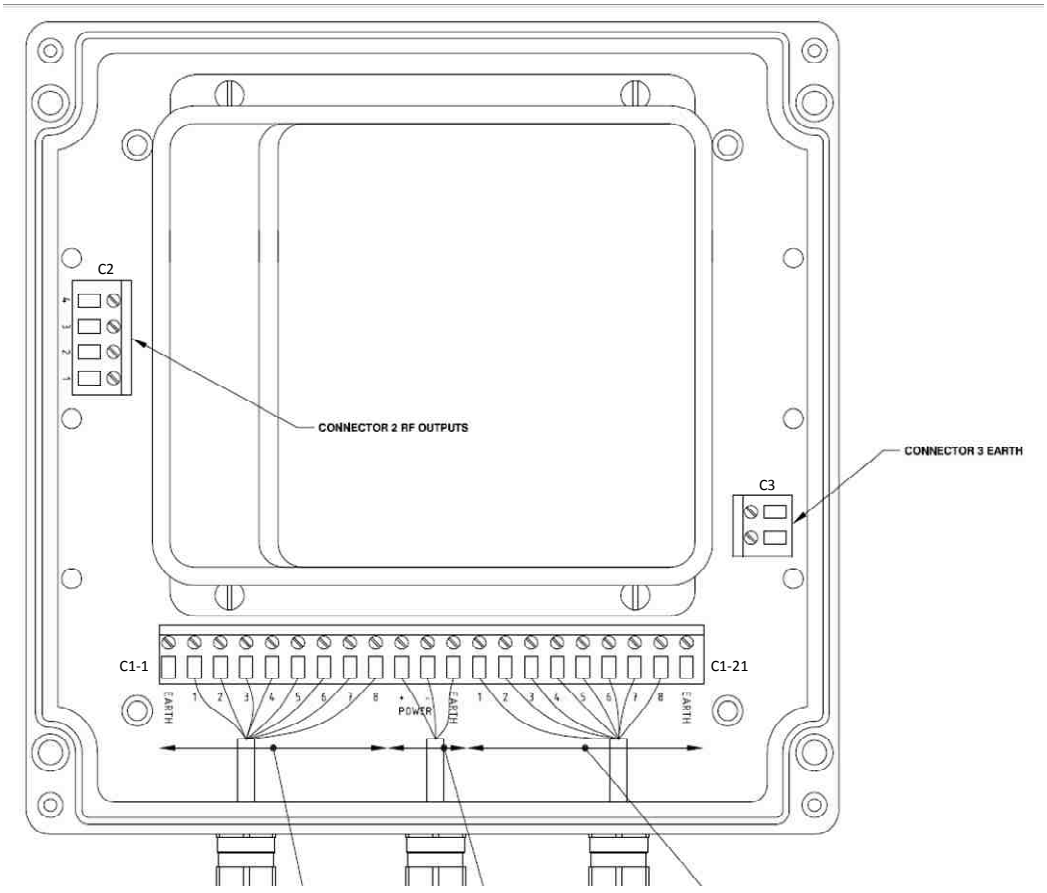


Figure 4.3 – View of iCITE100/EX2000 Master Unit Screw Terminals

Depending on the configuration required there may be stopping plugs instead of cable glands in the enclosure. For example if the unit is to be used as a single iCITE100/EX2000 with no Ethernet connection, only a power supply will be needed. Therefore only the middle cable gland will be needed and the other 2 glands will be replaced with stopping plugs.

Warning	**Any cable glands which are not in use MUST be replaced by a suitable EX e certified stopping plug.**

Ethernet and RS485 connections should be made using Cat-5 cables, the diagram below shows the pin/wire connections of a typical Cat-5 cable once stripped.

Cat-5 Wire	Colour
1	 White/Orange
2	 Orange
3	 White/green
4	 Blue
5	 White/blue
6	 Green
7	 White/brown
8	 Brown

Table 4.2 - Cat-5 Cable Wiring Descriptions

Ethernet Connection

To connect a Cat-5 cable to the Ethernet screw terminals, feed the cable through the left-most cable gland and strip the wire to expose the 8 individual wire cores as describes above in table 4.2 and also the outer sheath. Terminate the wires and outer sheath in bootlace ferrules. The earth wire should be sleeved. Place the correct wires into the corresponding screw terminal, i.e. cat-5 wire 1 into Ethernet – 1 and cat-5 wire 8 into Ethernet – 8. Place the terminated outer sheath into the earth terminal C1-21. Ensure the wires are securely screwed into place.

Power Connection

If the iCITE100/EX2000 is to be powered via an external power source, ensure the power supply is 24V ac/dc only. Feed the cable through the middle cable gland and strip the wire to expose the two power lines and the outer sheath, then strip and terminate the exposed wires with bootlace ferrules. The earth wire should be sleeved. Place the wires into the corresponding screw terminal as indicated in below in table 4.3. The earth wire should be placed into screw terminal C1 – 10. Ensure the wires are securely screwed in place.

RS485 Connection

If the iCITE100/EX2000s are to be used in chained mode the RS485 Out pins on the master unit (connector 1) will be used to connect the first slave unit. The RS485 connection should also be made using a Cat-5 cable. Feed the cable through the right hand cable gland, then strip and terminate the wires with bootlace ferrules. The earth wire should be sleeved. Place the outer sheath into the earth terminal C1-1 and the corresponding cat-5 wires into the RS485 screw terminal as described below in table 4.3, i.e. Cat-5 wire 1 into RS485 – 1. Ensure the wires are securely screwed in place.

Earthing

Connector 3 contains two earth screw terminals which are to be used to earth the iCITE100/EX2000. Connect one of the earth terminals to the earthing lug connected to the iCITE100/EX2000's enclosure. The second screw terminal for earth is a spare; you can use this should you have any extra wires which need earthing from the power supply for example.

Master Connector/Pin No.	Pin Description
C1 - 1	Earth (Ethernet outer sheath)
C1 - 2	Ethernet – 1
C1 - 3	Ethernet – 2
C1 - 4	Ethernet – 3
C1 - 5	Ethernet – 4
C1 - 6	Ethernet – 5
C1 - 7	Ethernet – 6
C1 - 8	Ethernet – 7
C1 - 9	Ethernet – 8
C1 - 10	External Power +
C1 - 11	External Power -
C1 - 12	Earth (Power cable outer sheath)
C1 - 13	RS485 Out – 1
C1 - 14	RS485 Out – 2
C1 - 15	RS485 Out – 3
C1 - 16	RS485 Out – 4
C1 - 17	RS485 Out – 5
C1 - 18	RS485 Out – 6
C1 - 19	RS485 Out – 7
C1 - 20	RS485 Out – 8
C1 - 21	Earth (Chain Out)
C2 - 1	Long Range Antenna + (Blue)
C2 - 2	Long Range Antenna – (Green)
C2 - 3	Short Range Antenna + (Red)
C2 - 4	Short Range Antenna – (Black)
C3 - 1	Earth
C3 - 2	Earth

Table 4.3 – Master iCITE100/EX2000 Screw Terminals Description

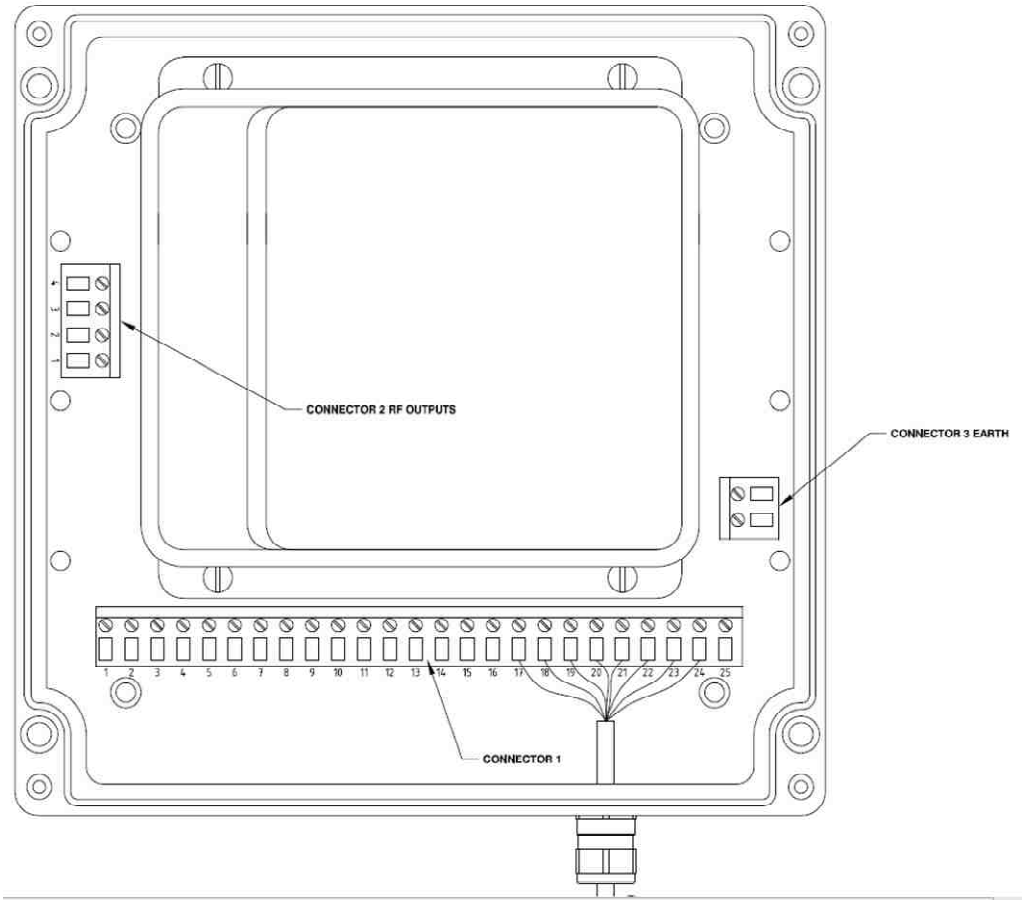


Figure 4.4 – View of iCITE100/EX2000 Slave Unit Screw Terminals

4.1.3 Installing Cables For Slave iCITE100/EX2000

The slave iCITE100/EX2000's are powered and controlled via a master unit. RS485 is fed into a slave unit from a master unit. It is possible to have 2 slave units attached to a master unit in a chain. The first slave will accept an RS485 input from the master, this unit will then send an RS485 output to the input of the second slave unit. The last slave in the chain will then need to be terminated for the chain to work correctly.

RS485 In Connection

RS485 in pins on connector 1 will be used to connect the unit to either a master or another slave unit's RS485 out terminals. The RS485 connection should be made using a cat-5 cable. Feed the cable through the left hand cable gland, then strip and terminate the wires with bootlace ferrules. The earth wire should be sleeved. Place the outer sheath into the earth terminal C1-1 and the corresponding cat-5 wires into the RS485 screw terminal as described below in table 4.5, i.e. cat-5 wire 1 into RS485 In – 1. Ensure the wires are securely screwed in place.

RS485 Out Connection

If another slave is to be connected to the RS485 Out pins on connector 1 will be used to connect the second slave unit. The RS485 connection should also be made using a cat-5 cable. Feed the cable through the right hand cable gland, then strip and terminate the wires with bootlace ferrules. The earth wire should be sleeved. Place the outer sheath into the earth terminal C1-18 and the corresponding cat-5 wires into the RS485 Out screw terminal as described below in table 4.5, i.e. cat-5 wire 1 into RS485 out – 1. Ensure the wires are securely screwed in place.

Termination Jumper Setup

The last slave in a chain needs to be terminated. Therefore if only one slave is used this slave automatically needs to be terminated. If two slaves are used the second slave needs to be terminated and the first slave needs to remain un-terminated. Termination is applied to a slave unit by setting jumpers between the termination terminals on connector 1 accordingly. The table below describes if the termination methods required for various configurations.

Using table 4.4, setup the slave units as required, using suitable wire crimped and securely screwed in place.

Configuration	**Termination Required?**	**Term1-Term2 Configuration**	**Term3 configuration**
Master-Slave1	Yes slave1	Linked	A + B
Master-Slave1-Slave2	No-Slave1 Yes-Slave2	Slave1 – Not Linked Slave2 – Linked	Slave1 - B+C Slave2 – A+B
Master-Slave1-Slave2-Slave 3	No-Slave1, Slave 2 Yes-Slave3	Slave1 – Not Linked Slave2 – Not Linked Slave 3 – Linked	Slave1 - B+C Slave 2 – B+C Slave 3 – A+B

Table 4.4 – Termination Jumper Setting Configuration.

Term 1 linked = wire link C1-1 and C1-2
Term 2 linked = wire link C1-3 and C1-4
Term 3 A+B = wire link C1-5 and C1-6
Term 3 B+C = wire link C1-6 and C1-7

Earthing

Connector 3 contains two earth screw terminals which are to be used to earth the iCITE100/EX2000. Connect one of the earth terminals to the earthing lug connected to the iCITE100/EX2000's enclosure. The second screw terminal for earth is a spare; you can use this should you have any extra wires which need earthing from the power supply for example.

The following table provides slave screw terminal descriptions.

Slave Connector/Pin No.	Pin Name
C1 - 1	Term1A
C1 - 2	Term1B
C1 - 3	Term2A
C1 - 4	Term2B
C1 - 5	Term3A
C1 - 6	Term3B
C1 - 7	Term3C
C1 - 8	Earth
C1 - 9	Chain Output – 8
C1 - 10	Chain Output – 7
C1 - 11	Chain Output – 6
C1 - 12	Chain Output – 5
C1 - 13	Chain Output – 4
C1 - 14	Chain Output – 3
C1 - 15	Chain Output – 2
C1 - 16	Chain Output – 1
C1 - 17	RS485 Input – 8
C1 - 18	RS485 Input – 7
C1 - 19	RS485 Input – 6
C1 - 20	RS485 Input – 5
C1 - 21	RS485 Input – 4
C1 - 22	RS485 Input – 3
C1 - 23	RS485 Input – 2
C1 - 24	RS485 Input – 1
C1 - 25	Earth
C2 - 1	Short Range Antenna + (Red)
C2 - 2	Short Range Antenna – (Black)
C2 - 3	Long Range Antenna + (Blue)
C2 - 4	Long Range Antenna – (Green)
C3 - 1	Earth
C3 - 2	Earth

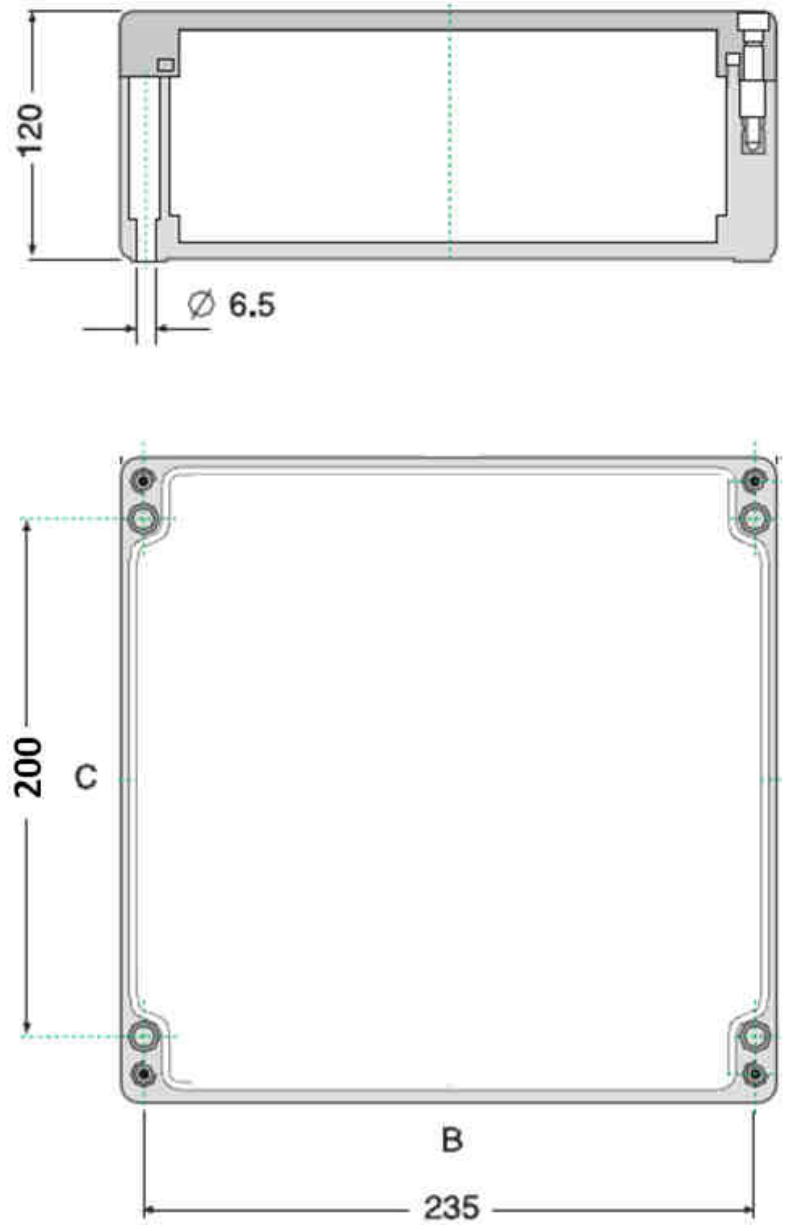
Table 4.5 – Slave iCITE100/EX2000 Screw Terminal Descriptions

4.2 Setting to Work

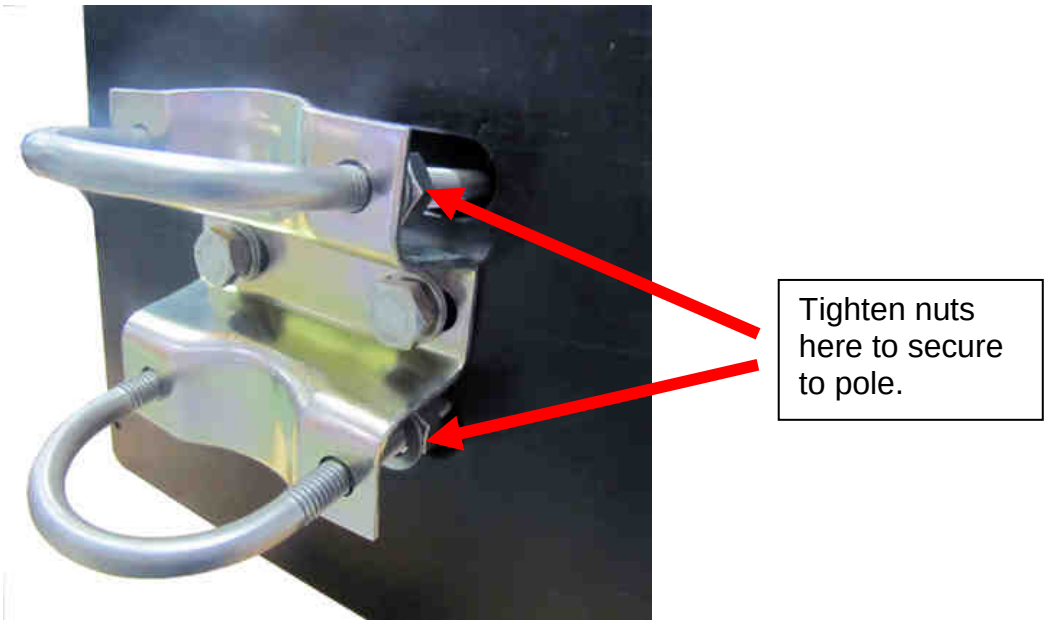
4.2.1 Mounting Information

Once all cables have been connected, place the antenna back over the pillars in the same orientation as in figure 4.2. Securely fasten the antenna using the washers and bolts.

If you are mounting the enclosure directly to a wall / mounting plate, please see below for mounting hole locations and sizes (all dimensions in mm). You should mount the enclosure to the wall with the lid removed to allow access to the mounting holes, then refit the enclosure lid and securely tighten the screws making sure not to over tighten them.



If you are mounting the enclosure to a pipe using the Extronics pipe mounting bracket (Extronics Part number A070031), please see below for mounting details. Your enclosure should be supplied with the pipe mount bracket fitted. The bracket is designed for mounting to a 2” diameter pipe:



Important	**Ensure the lid is secure, correct cable glands are fitted and the unit is correctly wired and earthed before applying power to the iCITE100/EX2000**

4.3 Intended Purpose Usage

Important	**Before setting the units to work, read the technical documentation carefully.**

Important	**The latest version of the technical documentation or the corresponding technical supplements is valid in each case.**

The iCITE100/EX2000 is 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.

4.4 Transportation and Storage

All iCITE100/EX2000 devices must be so transported and stored that they are not subjected to any excessive mechanical stresses.

4.5 Authorized Persons

Only persons trained for the purpose are authorized to handle the iCITE100/EX2000; they must be familiar with the unit and must be aware of the regulation and provisions required for explosion protection as well as the relevant accident prevention regulations.

4.6 Cleaning and Maintenance

The iCITE100/EX2000 and all its components require no maintenance. All work on the iCITE100/EX2000 by personnel who are not expressly qualified for such activities will cause the Ex approval and the guarantee to become void.

4.7 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 (EN 60079-0, EN 60079-14) as well as the Accident Prevention Regulations.**

4.8 Cleaning and Maintenance Intervals

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

4.9 Aggressive substances and environments

The iCITE100/EX2000 is not designed to come into contact with aggressive substances or environments, please be aware that additional protection may be required.

4.10 Exposure to external stresses

The iCITE100/EX2000 is not designed to be subjected to excessive stresses e.g. vibration, heat, impact. Additional protection is required to protect against these external stresses.

The iCITE100/EX2000 will require additional protection if it is installed in a location where it may be subjected to damage.

5 Warranty Information

The Customer shall carry out a thorough inspection of the delivered project or equipment with 21 days of delivery and shall give immediate written notification to the Company of any omissions, defects or faults.

The Company warrants that the project or equipment delivered shall accord with the Quotation or Pricing Schedule and related Company specifications, but it does not warrant its fitness for any other purpose.

Extronics will make good, by repair or at Extronics option by the supply of a replacement, defects which, under proper use in accordance with specifications and manufacturer's instructions, appear in the goods within a period of twelve calendar months after the goods have been delivered and arise solely from faulty design, materials or workmanship, provided always that defective parts have been returned to Extronics if Extronics shall have so required.

The warranty of any goods is based upon a return to Extronics factory (Return to Base Warranty) which will be at the Customers cost. The repaired or new parts will be delivered by Extronics carriage paid. If you allege that goods are totally unfit for their purpose they must be returned within 7 days of receipt. Site Warranty is expressly excluded from these terms and conditions unless agreement is made in writing between the parties it.

Extronics liability under this clause shall be in lieu of any warranty or condition implied by law as to the quality or fitness for any particular purpose of the goods, and save as provided in this clause Extronics shall not be under any liability, whether in contract, or otherwise, in respect of defects in goods delivered or for any injury other (than personal injury caused by Extronics negligence as defined in Section 1 of the Unfair Contract Terms Act, 1977), damage or loss resulting from such defects or from any work done in connection therewith, provided however that nothing in this clause shall operate to exclude any warranty or condition implied by law as to the quality of the goods in the event that the goods when sold by you or when sold by any person or persons to whom you may sell the goods shall become the subject of a consumer sale as defined in the Supply of Goods (Implied Terms) Act, 1973 except that any claim under such warranty or condition shall have arisen from any act or omission by you or by any person or persons selling the goods by way of a consumer sale.

6 Technical Data

6.1 Specification

Range	Adjustable from 50 centimetres to 6.5 metres (20 inches to 21 feet)
Tag Type	Extronics iTAG100 tags Aeroscout TAG2000X tags
Dimensions	250 x 250 x 120 mm (w x h x d) 9.85 x 9.85 x 4.72 inches
Weight	Approx 2.5 Kg (5.5 lbs)
Ambient Temperature	-20ºC to +60ºC (-4ºF to +140ºF)
Relative humidity	0 to 95%, non-condensing
Housing	Black antistatic GRP enclosure
Ingress Protection	IP66
Electrical Connection	Screw terminals
Cable Entry	3 x M20 Ex e compression glands
Mounting	Wall or ceiling
Management	Settings configured remotely using Aeroscout System Manager Software
LF Channel	125KHz ASK modulation
Field Intensity Limits (ETSI)	37.3 dBµA/m at 10m
Propagation Limits (FCC)	21.8 dBµV/m at 10m
Radio Certification	FCC Part 15, sub part C class B, sub part B, EN300-330, EN301-489, RSS 210 (Canada)
Safety Certification	CE, cTUVus (EN60950) ATEX II 2 G Ex emb II T4

7 ATEX Labels

AeroScout®

EX-2000-X
Date 12/05/11
Serial 104561

II 2 G Ex emb II T4
Ta –20°C to 60°C
IP66
BASEEFA 07 ATEX 0181X
Class I, Division 2
Class I, Zone 1 AEx em IIC T4
GROUPS A, B, C, D, T4

XXXX

FM C US APPROVED

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Manufactured By:
Extronics Ltd, 1 Dalton Way, Midpoint 18, Middlewich, Cheshire, CW10 0HU, UK

EXTRONICS

iCITE100
Date
Serial #

II 2 G Ex emb II T4
Ta –20°C to 60°C
IP66
BASEEFA 07 ATEX 0181X
Class I, Division 2
Class I, Zone 1 AEx em IIC T4
GROUPS A, B, C, D, T4

XXXX

FM C US APPROVED

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8 ATEX Certificate

Certificate Number
Baseefa07ATEX0181X

Baseefa

Issued 27 September 2007
Page 1 of 2

1 **EC - TYPE EXAMINATION CERTIFICATE**

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3 EC - Type Examination Certificate Number: **Baseefa07ATEX0181X**

4 Equipment or Protective System: **iCITE100**

5 Manufacturer: **Extronics Limited**

6 Address: **Meridian House, Roe Street, Congleton, Cheshire, CW12 1PG**

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Baseefa (2001) Ltd., Notified Body number 1180, in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report No. **06(C)0325**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60097-0: 2006 **EN 60079-7: 2007** **EN 60079-18: 2004**

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include the following :

Ⓔx II 2 G Ex emb II T4 -20°C ≤ Tamb ≤ 60°C

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **3700** Project File No. **06/0325**

This certificate is granted subject to the general terms and conditions of Baseefa (2001) Ltd. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

Baseefa
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Baseefa is a trading name of Baseefa (2001) Ltd
Registered in England No. 4305578 at the above address

R S SINCLAIR
DIRECTOR
On behalf of
Baseefa (2001) Ltd.

13 **Schedule**

14 **Certificate Number Baseefa07ATEX0181X**

15 Description of Equipment or Protective System

The iCITE100 is a low frequency exciter unit, rated at up to 48V a.c./d.c. and up to 20W. The unit comprises a plastic enclosure into which is mounted an encapsulated exciter mounted on a printed circuit board. The encapsulated exciter is connected to a long range antenna and a short range antenna. The antennas, which are encapsulated together, are mounted within the lid of the enclosure. The enclosure itself is certified under Sira 99ATEX3028U.

External connection to the printed circuit board is via board mounted terminals, which are certified under KEMA 00ATEX2053U.

The Exciter Unit may be arranged in master or slave form. A master unit may be operated in stand-alone mode. When slave units are powered via a master unit; up to three slave units may be chained in series from one master unit. Multiples of three slave units can be powered from a power supply of up 24V a.c./d.c.

Variation 0.1

The antennas may be encapsulated directly into the enclosure lid.

Variation 0.2

The unit may alternatively be designated as EX-2000-X.

16 Report Number

06(C)0325

17 Special Conditions for Safe Use

1. A slave unit may be connected to a master unit, another slave unit and/or a power supply of up to 24V a.c./d.c. A master unit may be connected to a slave unit and/or a power supply of up to 48V a.c./d.c.

18 Essential Health and Safety Requirements

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

19 Drawings and Documents

Number	Sheet	Rev	Date	Description
313993	1 & 2	REL01	19/10/06	General Arrangement
318922	1 & 2	REL01	27/07/07	Internal PCB General Arrangement
318811	1	REL01	20/07/07	Potted Antenna – Vacuum Formed
318812	1	REL01	20/07/07	Potted Antenna – enclosure lid
319048	1 - 3	REL01	08/08/07	PCB Details
318828	1	1	28/08/07	Label

Baseefa

29 July 2011

CHANGE REGISTRATION

This is to certify that the following change(s) have been accepted:

Holder of certificate:

Extronics Limited
Meridian House
Roe Street
Congleton
Cheshire
CW12 1PG

Change details:

The address of the certificate holder is now:

1 Dalton Way
Midpoint 18
Middlewich
Cheshire
CW10 0HU

Certificates affected:

Baseefa07ATEX0098X	Baseefa07ATEX0106X
Baseefa07ATEX0181X	Baseefa11ATEX0124X

The purpose of this document is to permit existing information (for example on Certificate Schedule Drawings or label marking) to be replaced by equivalent new information as described above. No other change may be made to the certified design.

pp R S SINCLAIR
DIRECTOR
On behalf of
Baseefa

Baseefa
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1Cert/changereg Issue 3 Dated February 2006

9 EC Declaration of Conformity

Hazardous Area Specialists

EC Declaration of Conformity

Extronics Ltd, 1 Dalton Way, Midpoint 18, Middlewich, Cheshire CW10 0HU, UK

Declare under sole responsibility that the products;

iCITE100-M
iCITE100-S
EX-2000-X1
EX-2000-X3

To which this declaration relates is in accordance with the provision of the following directives

94/9/EC Equipment and protective systems intended for use in potentially explosive atmospheres.

1999/5/EC Radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity

EC type examination certificate:
Baseefa07ATEX0181X dated 27/09/2007

Provisions of the directive fulfilled by the equipment:

⟨Ex⟩ II 2 G Ex emb II T4 -20°C ≤Tamb ≤ 60°C

Notified body EC type examination:
Baseefa Rockhead Business Park, Staden Lane, Buxton, Derbyshire SK17 9RZ

Extronics Notified Body for Production:
SIRA, 0518, Sira, Chester, UK

And is in conformity with the following standards or other nominative documents

EN60079-0:2006	Electrical Apparatus for potentially explosive atmospheres – General Requirements (A review against EN60079-0:2009, which is harmonised, shows no significant changes relevant to this equipment so EN 60079-0:2006 continues to represent "State of the Art")
EN60079-7:2007	Electrical Apparatus for potentially explosive atmospheres – Equipment protection by increased safety "e"
EN60079-18:2004	Electrical Apparatus for potentially explosive atmospheres – Equipment protection by encapsulation "m" (A review against EN60079-18:2009, which is harmonised, shows no significant changes relevant to this equipment so EN 60079-18:2004 continues to represent "State of the Art")
EN300.330-1	Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment in the frequency range 9 kHz to 25 MHz and inductive loop systems in the frequency range 9 kHz to 30 MHz; Part 1: Technical characteristics and test methods
EN300.330-2	Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment in the frequency range 9 kHz to 25 MHz and inductive loop systems in the frequency range 9 kHz to 30 MHz; Part 2: Harmonized EN under article 3.2 of the R&TTE Directive

Page 1 of 2 334047_02

Hazardous Area Specialists

EN301.489-1	Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements
EN301.489-3	Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 40 GHz
EN60950-1:2006	This standard defines safety regulations of information technology equipment. The relevant degree of protection for AeroScout products is class III

Signed

Date : 05/07/2013

Nick Saunders
Operations and Engineering Manager

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10 Manual Revision

Revision	Description	Date	By
01	Current revision	07/12/2007	AJR
02	Image Updated	27/03/2009	JRE
03	Added special cond. safe use and warranty info. Updated EC DoC, added ATEX certificate and ATEX label	16/07/2012	BTS/AJR
04	Updated mounting information	17/06/2013	AJP
05	Updated DoC	05/07/2013	AJR
06	Updated wiring information	10/06/2014	AJR
07	Swapped slave SR/LR terminals	11/09/2014	BTS