

PRODUCT DATASHEET

Confidex Ironside™



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1. PRODUCT DESCRIPTION

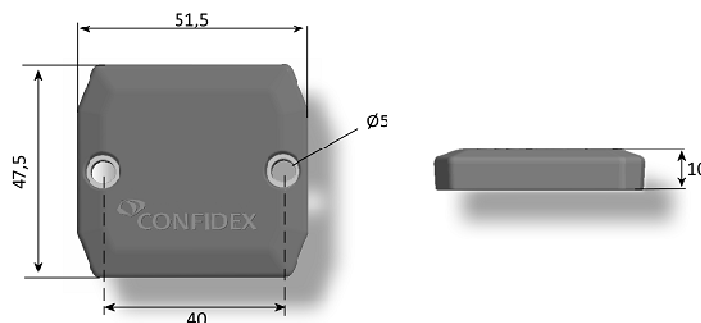
The patent pending solution of Confidex Ironside™ tag provides totally new benchmark for low-cost passive RFID in its size and durability (IP68) to various customer requirements. The tag can be mounted easily on any metallic surfaces either with industrial adhesive or mechanically e.g. with pop rivets. Ironside's performance enables several on-metal identification challenges to be solved which earlier where impossible with passive RFID. Ironside has passed the rigorous testing requirements for the Aerospace Standard AS5678 specification. It has been successfully used in tracking assets from steel pallets to train wagons.

1.1 SPECIFICATION DATA

Device type	Class 1 Generation 2 passive UHF RFID transponder
Air interface protocol	EPCGlobal Class1 Gen2 ISO 18000-6C
Operational frequency	865-869 MHz (EU), 902-928MHz (US), 952-955 MHz (JPN)
IC options	NXP UCODE G2XM
EPC memory	up to 240 bit
EPC memory content	Unique number encoded as a default
Extended memory	512 bit
Read range	up to 6-7 m / 20-23 ft, reader power 2W ERP (dependent on application)
Applicable surface materials	Metal surfaces
Encapsulation material	Dark grey thermoplastic elastomer
Weight	22 g
Delivery format	Single
Amount in box	500 pcs (default)
Standard compliancy	SAE AS5678
Product is RoHS compliant	

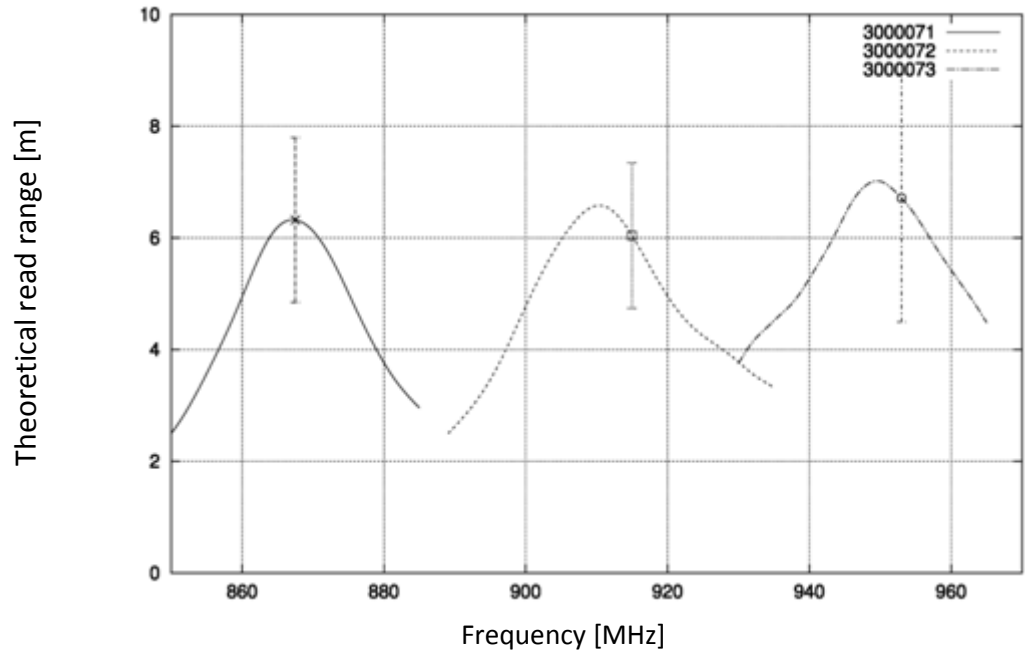
1.2 DIMENSIONS

General dimensions 51.5 x 47.5 x 10.0 mm / 2.03 x 1.87 x 0.39 in
(Width x Height x Thickness)



1.3 ELECTRICAL PERFORMANCE

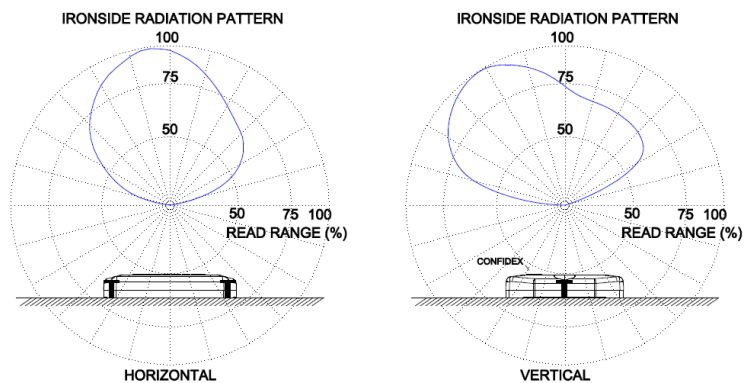
**Ironside
NXP G2XM**



* Read ranges are theoretical values that are calculated for non-reflective environment, in where antennas with optimum directivity are used with maximum allowed operating power according to ETSI EN 302 208 (2W ERP). Variation of 3σ from test batch marked in the picture. Note, tag performance in other frequency bands is not marked in the picture; tag will remain functional but the performance is low.

1.4 RADIATION PATTERNS

Estimated radiation pattern when tag orientation towards reader antenna is optimized.



1.5 RESISTANCE AGAINST ENVIRONMENTAL CONDITIONS*

Typically values are valid for all tag versions. If not, applicable IC versions are marked

Operating temperature	-40°C to +85°C / -40°F to +185°F
Ambient temperature	-55°C to +105°C / -67°F to +221°F @ -55°C / -67°F for 3h
Peak temperature	+125°C / +257°F 1h duration
IP classification	IP68: - Complete protection against dust - Protection against continuous immersion in water (tested for 5 hours in 1 m [3.3 in] depth)
Weather ability	Good, incl. UV-resistance and sea water
Pressure resistance	170kPa for 10 min
Vibration resistance	Good: - JESD22-B103B, service condition 2; vibration that is aligned with tag thickness (z-axis). - RTCA DO-160 Rev E 8.5
Operational shock	RTCA DO-160 Rev E 7.2
Chemical resistance	No physical or performance changes in: - Salt water (salinity 10%, tested in 168h exposure) - NaOH (10%, pH 13, tested in 24h exposure) - Sulfuric acid (10%, pH 2, tested in 168h exposure) - Motor oil (tested in 168h exposure) Generally good against: Methanol (moderate concentrations), ethanol (moderate concentrations), glycerine, ethylene glycol, consistent grease, most acids, bases and tensides such as sulfuric acid 96%, nitric acid 10%, NaOH 50%, soap solution 30%. Testing recommended for hydrocarbons and some of the carboxylic acids. Acetone should be avoided.
Expected lifetime	Years in normal operating conditions

* Values in the table are the best recommendations; resistance against environmental conditions depends on the combination of all influencing factors, exposure duration and chemical concentrations. Thus, product's final suitability for certain environmental conditions is recommended to be tested. Contact Confidex for more specific information.

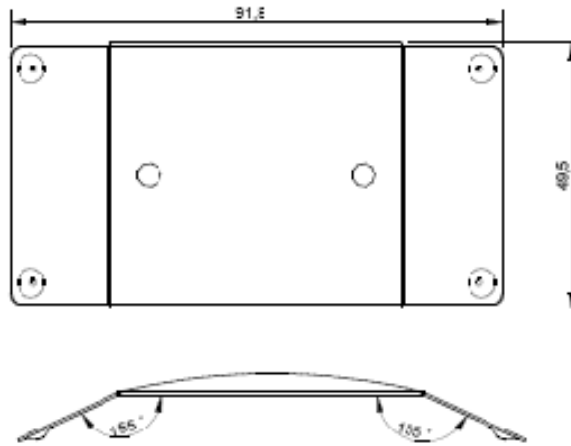
1.6 SUPPORTING COMPONENTS

3M background adhesive

Purpose	High performance adhesive for attaching Ironside on metal surfaces. Suitable for applications without shear forces pointing towards the tag and when tag application is done indoors.
Advantages	Quick and simple attachment method without additional tools
Size	Die-cut according to the tag shape
Type	3M 300LSE High performance acrylic adhesive
Delivery format	Attached to the tag

Ironside welding bracket

Purpose	Welding bracket for fixing Ironside on metal surfaces with spot welding.
Advantages	No need to make holes to the surface like with other mechanical attachment methods
Dimensions	91.8 x 49.5 mm / 3.61 x 1.95 in



Thickness when tag attached 18.5 mm / 0.73 in

Mechanical picture



Material Stainless steel
Weight 39g (when attached to the tag)
Delivery format Attached to the tag with two pop rivets

1.7 SUPPORTED SERVICES

There are several personalization options available for Confidex Ironside™ in order to “fine tune” the tag to match with the application requirements:

- Pre-encoding
- Laser engraving
- Tamper (color) printing

For exact specifications, please refer “Personalization Datasheet”.

1.8 POSSIBLE APPLICATIONS

Metal surfaces Metal returnable transit items, metal containers, metal pallets, high value items, aerospace applications, train wagons, etc.

