



Confidex Steelwave™

Technical Product Specification
Version 1.1
September 2008

Contents

1.	PRODUCT DESCRIPTION	2
1.1	SPECIFICATION DATA.....	2
1.2	DIMENSIONS	2
1.3	PERFORMANCE DATA	3
1.4	SUPPORTED COMPONENTS	4
1.5	SUPPORTED SERVICES.....	4
1.6	POSSIBLE APPLICATIONS	4
2	INSTALLATION INSTRUCTIONS	5
2.1	TAG PLACEMENT	5
2.2	TAG FIXING METHODS	5
3	ORDER INFORMATION	6

1. Product description

Confidex Steelwave is designed for indoor tracking and asset management solutions where small size but best achievable performance of passive UHF RFID technology can be utilized.

Typical applications include:

Asset tracking - Steelwave enables valuable properties to be tracked with economical and reliable installation. Tested applications have included arts and other portable objects in public places, medical devices in healthcare and others which need to be secured by automatic surveillance.

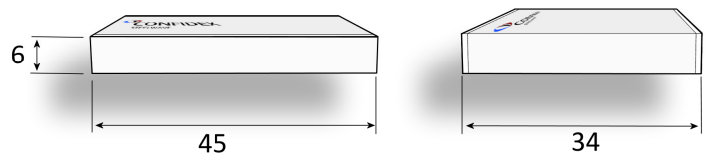
WIP - Work in progress which can include e.g. assembling parts in manufacturing lines, locating components in manufacturing or warehouses.

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)
IC options	Impinj Monza
EPC memory	96 bit
Extended memory	-
Read range	up to 4-6 m / 13-20 ft, reader power 2W ERP (dependent on application)
Applicable surface materials	Metal surfaces
Face material	White synthetic material
Background adhesive	High performance acrylic adhesive
Weight	6.5 g
Delivery format	Single
Amount in box	500pcs
Product is RoHS compliant	

1.2 Dimensions

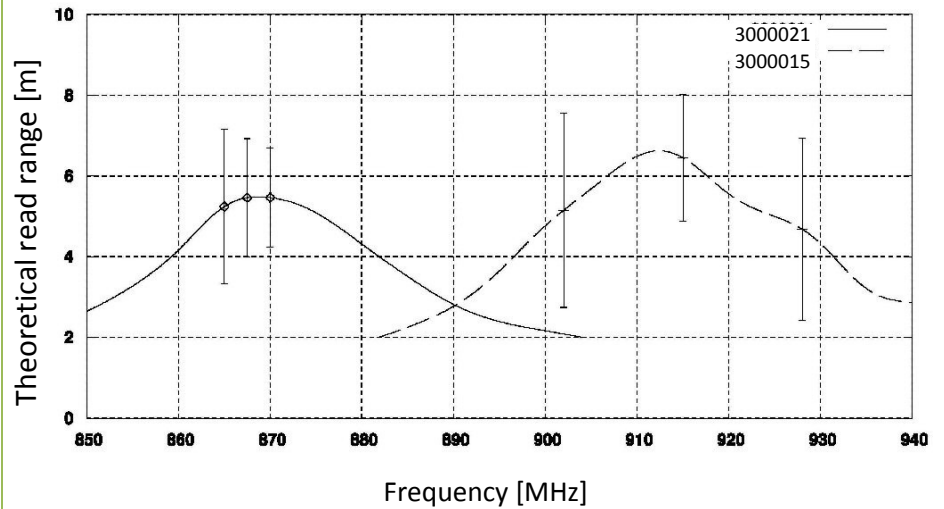
General dimensions 45 x 34 x 6 mm / 1.8 x 1.3 x 0.24 in
(Width x Height x Thickness)



1.3 Performance data

Electrical performance

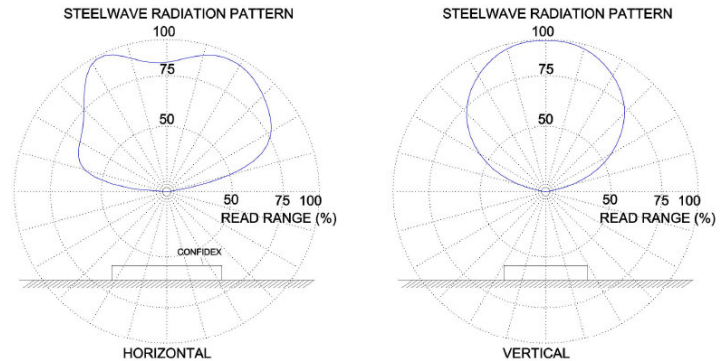
Steelwave
Impinj Monza



* 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.

Radiation patterns

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



Resistance against environmental conditions*

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

Operating temperature -20°C to +65°C / -4°F to +149°F

Ambient temperature -20°C to +85°C / -4°F to +185°F

IP classification IP54:
 - Protection against dust
 - Protection against splashing water

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.

1.4 Supported components

3M background adhesive

Purpose	High performance adhesive for attaching Steelwave on metal surfaces.
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
Delivered as default on the Steelwave background	

1.5 Supported services

Standard customer personalization

Either one or several personalization options can be selected.

Encoding	- Unique number	Unique number is programmed to IC EPC memory bank
	- EPC encoding	Customer specific EPC code can be programmed to IC EPC memory bank
Visual marking	- Data label	White adhesive data label with black printing can be added on top of the tag: Information can include printed EPC code, UID code, barcode or customer logo etc. Size: 35 x 11 mm.
	- Tampo printing	Same customer specific image or data is printed on top of the all tags.
	- Pair packing	Tags delivered in pairs
Minimum order quantity		10 000 pcs for standard customer specific personalization

1.6 Possible applications

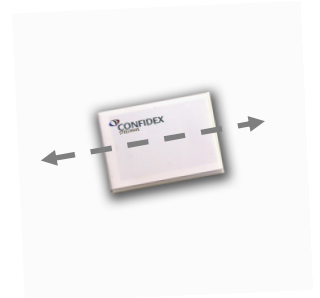
Metal surfaces	Indoor applications; fixed and mobile high value assets, IT asset tracking
-----------------------	--

2 Installation instructions

2.1 Tag placement

Steelwave tag polarization is aligned with the “Confidex” text.

Tag design is optimized for on-metal use: In order to achieve the optimum performance Steelwave must be placed on metal surface without covering its front side.



When selecting the location on metal surface, ensure the following:

- Select an even surface so that there is direct metal contact underneath the whole tag.
- The metal background should be preferably as large as possible and tag should be placed in the middle of the surface.
- If surface is small, install the tag in such way that **most free metal area is left on the tag's right side.**

Example:

In the two pictures below a tagged metal item is shown. Left picture shows better and recommended placement for Steelwave; free metal area is left on the right side of the tag which will enhance tag's RF performance. Other shown placement is not recommended if maximum tag performance should be reached.

Recommended:



Not recommended:



2.2 Tag fixing methods

Adhesive fixing

- 3M 300LSE acrylic adhesive

Procedure: When mounting the tag with its adhesive background, clean and dry the surface for obtaining the maximum bond strength. Ideal application temperature is from +21°C to +38°C (+70°F to +100°F), bond strength can be improved with firm application pressure and moderate heating from +38°C to +54°C (+100°F to +130°F). Application at temperatures below 10°C (50°F) is not recommended. Please refer silicone sealant supplier for exact product specifications.

3 Order information

Product number	Product name
3000015	Steelwave FCC Monza
3000021	Steelwave ETSI Monza

For additional information and technical support contact Confidex Ltd.

FINLAND

Confidex Oy Ltd.
Haarlankatu 1, 33230 Tampere, Finland
Tel. +358 10 4244 100 Fax. +358 10 4244 110
contact@confidex.fi www.confidex.fi

USA

Confidex Inc.
1502 Fair Weather Ct., Apex, NC 27523, USA
Tel. +1 919 349 5607 fax +1 810 958 0515
www.confidex.net

CHINA

Confidex China
Guangzhou XinTag Electronics Science and Technology Co. Ltd
3 F Section E Guangzhou Technology Innovation Base
No. 80 Lan Yue Road, Science City, PRC 510663 Guangzhou,
People's Republic of China
Tel. +86 20 3205 7361 fax +86 20 3205 1429
www.confidex.net.cn

DISCLAIMER

THE MATERIALS, PRODUCTS AND SERVICES ARE SOLD SUBJECT TO ITS STANDARD CONDITIONS OF SALE, WHICH ARE INCLUDED IN THE APPLICABLE DISTRIBUTOR OR OTHER SALES AGREEMENT. ALTHOUGH ANY INFORMATION, RECOMMENDATIONS, OR ADVICE CONTAINED HEREIN IS GIVEN IN GOOD FAITH, CONFIDEX MAKES NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, (i) THAT THE RESULTS DESCRIBED HEREIN WILL BE OBTAINED UNDER END-USE CONDITIONS, OR (ii) AS TO THE EFFECTIVENESS OR SAFETY OF ANY DESIGN INCORPORATING ITS PRODUCTS, MATERIALS, SERVICES, RECOMMENDATIONS OR ADVICE. EXCEPT AS PROVIDED IN CONFIDEX STANDARD CONDITIONS OF SALE, CONFIDEX AND ITS REPRESENTATIVES SHALL IN NO EVENT BE RESPONSIBLE FOR ANY LOSS RESULTING FROM ANY USE OF ITS MATERIALS, PRODUCTS OR SERVICES DESCRIBED HEREIN.

Each user bears full responsibility for making its own determination as to the suitability of Confidex products, materials, services, recommendations, or advice for its own particular use. Each user must identify and perform all tests and analyses necessary to assure that its finished systems incorporating Confidex products, materials, or services will be safe and suitable for use under end-use conditions.

Nothing in this or any other document, nor any oral recommendation or advice, shall be deemed to alter, vary, supersede, or waive any provision of this Disclaimer, unless any such modification is specifically agreed to in a writing signed by Confidex.