PRODUCT DATASHEET

Confidex Carrier Tough

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1. PRODUCT DESCRIPTION

Confidex Carrier Tough is an encapsulated, thin tag solution for tracking various plastic containers and plastic returnable transit items. The tag's structure gives protection against impacts, but it also covers the barcode or other visual information making the printing tolerant against scratches or other wearing and tearing.

In the cases where plastic container structure does not have slot that would protect a label type of RFID tag, or when the container will face sharp mechanical impacts during its circulation, Carrier Tough will be the right tag choice. Additionally, due to its antenna design, Carrier Tough will perform well close to content with high dielectric constant, meaning fruits, fish or anything that has high water content.

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	860-960MHz
IC options	NXP UCODE G2XM
EPC memory	up to 240 bit
EPC memory content	Unique number encoded by default
Extended memory	512 bit
Read range	Approx. 4-6 m / 13-20 ft, reader power 2W ERP (dependent on application)
Applicable surface materials	Plastic materials
Encapsulation material	Transparent, scratch resistant plastics
Delivery format	Single
Product is RoHS compliant	

1.2 DIMENSIONS

General dimensions (Width x Height x Thickness)	120 mm x 30 mm x 2 mm / 4.72 in x 1.18 in x 0.08 in

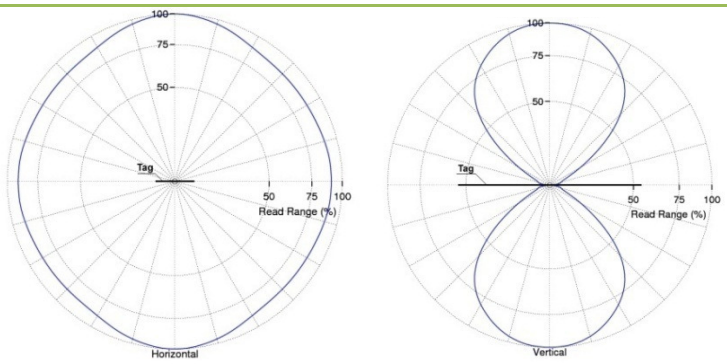
1.3 ELECTRICAL PERFORMANCE*

Carrier Tough	Read range on plastic	4-6 meters / 13-20 ft
	Read range on plastic close to liquid content	2-4 meters / 6.5-13 ft
	Read range free air	4-6 meters / 13-20 ft

* Read ranges may vary depending on the used frequency and reader power. Presented reading ranges are calculated values in non-reflective environment, in where antennas with optimum directivity are used with maximum allowed operating power: EU 865-868 MHz (2W ERP), US 902-928 MHz (4W EIRP), and JPN 952-954MHz (4W EIRP).

1.4 RADIATION PATTERNS

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



1.6 RESISTANCE AGAINST ENVIRONMENTAL CONDITIONS*

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

Operating temperature	-20°C to +70°C (-4°F to +158°F)
Ambient temperature	-20°C to +70°C (-4°F to +158°F)
Storage condition	2 years in +20°C / 50% RH (shelf life for adhesive)
Water resistance	IP68: - Complete protection against dust - Protection against continuous immersion in water (tested for 5 hours in 1 m [3.3 ft] depth)
Washing resistance	Very good, tested in: 1000 cycles with water at 175bar with temperature of +80°C/+176°F
Chemical resistance	No physical or performance changes in: - Salt water (salinity 10%), tested in 168h exposure - NaOH (10%, pH 13), tested in 168h exposure - Sulfuric acid (10%, pH 2), tested in 70h exposure - Acetone, tested in 4h exposure - Motor oil, tested in 70h exposure
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.*

1.7 SUPPORTED SERVICES

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

- Pre-encoding
- Customer specific black and white printing

For personalization specifications, please refer the “Personalization Datasheet”.

1.8 POSSIBLE APPLICATIONS

Plastic	Tag for tracking returnable transit items of many kind; wither returnable plastic containers or other RTI’s with plastic structures

2. INSTALLATION INSTRUCTIONS

2.1 TAG PLACEMENT

Carrier Tough tag polarization is along the longest dimension of the tag.

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

- Select a smooth plastic surface without uneven areas below tag
- Avoid toughing the background adhesive
- Select as clean area as possible and attach the tags onto the plastic containers preferably after cleaning process

2.2 TAG FIXING METHODS

Adhesive fixing

- Acrylic adhesive (delivered by default)

When mounting the tag with its adhesive background, clean and dry the surface for obtaining the maximum bond strength. Remove the liner and place the tag on the correct location. 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. Due to adhesive properties, the tag should be placed on even surface.

Mechanical fixing

The tag can also be attached mechanically through the holes in the tag’s structure with:

- Screws (size M3)
- Pop rivets (size 3 mm)

3. ORDER INFORMATION

Product number	Product name
3000260	Carrier Tough G2XM

For additional information and technical support contact Confidex Ltd.

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