



PRODUCT DATASHEET

Confidex Pino™

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1. PRODUCT DESCRIPTION

Confidex Pino™ is designed to enable cost-efficient and reliable tracking of wooden pallets, one of the main transit item platforms in use globally. This patent pending tag is also suitable for identifying similar wooden items from timber to finished structures.

Confidex Pino™ is supplied with the new NXP XM chip, which has together with the up to 240-bit EPC-memory additional memory for user specific information. Typically returnable transit items like wooden pallets require additional data storage to be included with the EPC number. The new chip also provides reliable performance in harsh conditions.

1.1 SPECIFICATION DATA

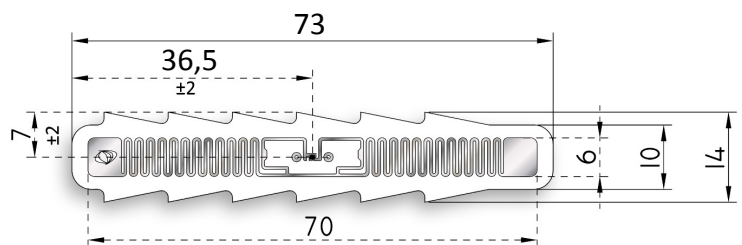
Device type	Class 1 Generation 2 passive UHF RFID transponder
Air interface protocol	EPCGlobal Class1 Gen2 ISO 18000-6C
Operational frequency	860-960 MHz
IC	NXP UCODE G2XM
EPC memory	240 bit
Extended memory	512 bit
Read range^{*)}	up to 3-4m / 10-13ft, reader power 2W ERP
Material	PET
Weight	0,6 g
Delivery format	Singulated
Tag amount in a box	500pcs (default)
Protection class	IP67
Product is RoHS compliant	

*) Totally wet wood will typically cause a performance decrease of 40-50%

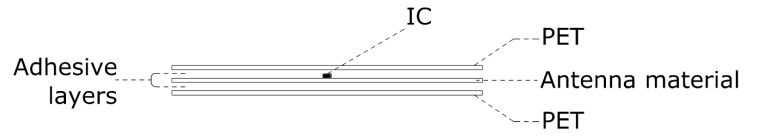
1.2 DIMENSIONS

**General dimensions
(Width x Height x
Thickness)**

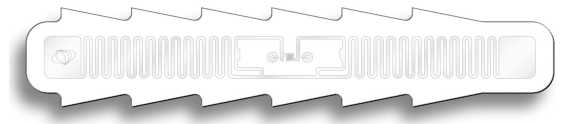
73 mm x 14 mm x 0.3 mm / 2.87" x 0.55" x 0.012"



Cross section

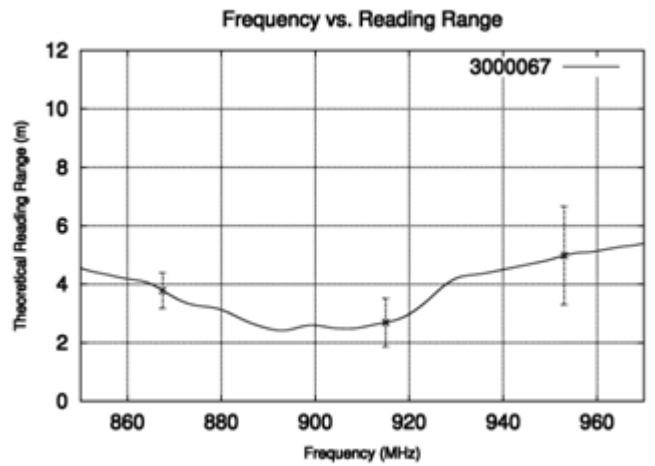


Delivery in single format



1.3 ELECTRICAL PERFORMANCE

Pino G2XM when assembled inside wood

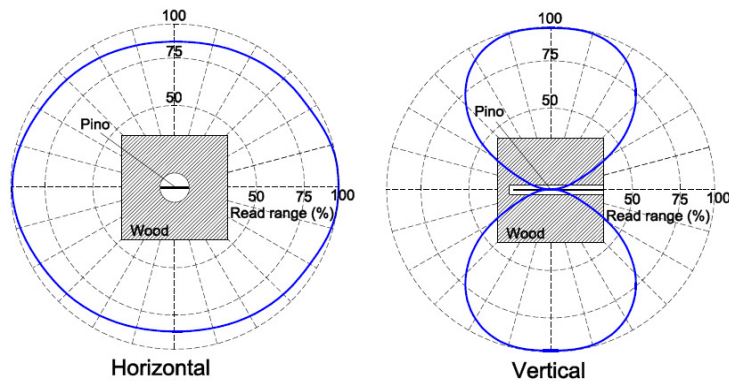


Presented reading ranges are calculated values in non-reflective environment, in where antennas with optimum directivity are used with maximum allowed operating power: EU 865-868 MHz (2W ERP), US 902-928 MHz (4W EIRP), and JPN 952-954MHz (4W EIRP). Variation of 3σ from test batch marked in the picture.

Performance in wet wood Approx. 50% of the maximum performance

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	-35°C to +60°C (-31°F to +140°F)
Ambient temperature	-35°C to +60°C (-31°F to +140°F)
Storage condition	+20°C / 50% RH
Water resistance	Good, tested for 5 hours in 1 meter deep water
Chemical resistance	No physical or performance changes in: - Salt water (salinity 10%), tested in 196h exposure - NaOH (10%, pH 13), tested in 24h exposure - Sulfuric acid (10%, pH 2), tested in 168h exposure - Acetone, tested in 30min exposure - Motor oil, tested in 168h 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.*

1.6 SUPPORTED SERVICES

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

- Pre-encoding
- Ink-jet printing

For exact specifications, please refer “Personalization Datasheet”.

1.7 INFORMATION OF USED MATERIALS

White PET	Surface is printable with inkjet printing.
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1.8 POSSIBLE APPLICATIONS

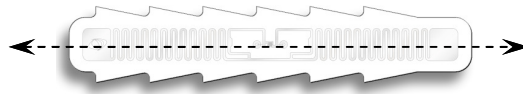
Wood	Tracking of all kinds of wooden products: e.g. pallets, logs, Living trees tagging
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2. INSTALLATION INSTRUCTIONS

2.1 LABEL ORIENTATION AND APPLICATION

Following guidelines are valid when installing and using the Pino tag. There are several options how to install the tag on the pallet depending on the reader antenna location and tag inserting technique. Usually, pallet is equipped either with one or two Pino tags.

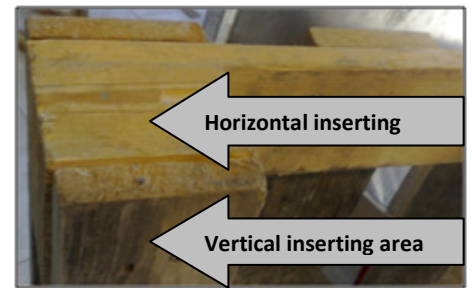
Label polarization is along the tag's longest dimension



Tag should be installed into the corner blocks according to instructions. The centre block is not recommended since truck's metal forks will block the signal from the tag.

ORIENTATION OPTIONS FOR APPLICATION

- **VERTICALLY** in the corner block: Vertical positioning offers best orientation towards RFID antennas in various configurations.
- **HORIZONTALLY** in the corner block: If fixed reader antenna is placed above the pallet, horizontal placement of the tag will give the best orientation and performance for the tag.



TAG FIXING METHODS

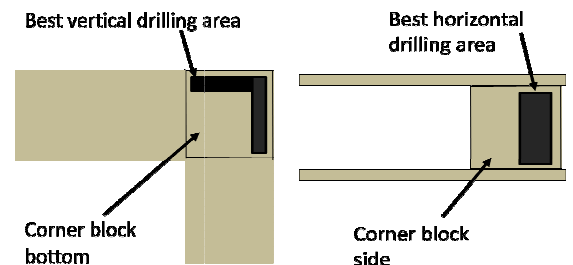
Both new and old pallets can be tagged with Pino by inserting the tag inside corner block. Nails should be avoided during the installation. Attachment inside the pallet will give outstanding resistance against mechanical impacts and different weather conditions.

Tools needed to assemble into the corner block:

- Drill bit, size 13mm
- Special Pino installation tool

Procedure:

- 1) After choosing the best tag orientation, drill a hole of 13mm diameter and 100mm depth. Drill the hole close to block edge avoiding nails. Best drilling areas are in the pictures, depending on if the tag is placed vertically (from block bottom) or horizontally (from block side)



- 2) A special Pino installation tool can be used for tag insertion.

3) Push the tag into the block so that it is totally inside the block

4) Hole can be covered with sealant if use environment includes high moisture.



2.2 RECOMMENDED OPERATION CONDITIONS

Confidex PinoTM is tested to be resistant in certain environmental conditions. If Pino cannot be placed according to instructions above, it is recommended installing the tag into the place, which is protecting it against contaminations and mechanical shocks. Reliability of the Confidex Pino is defined to be its maximum if tag is positioned in such safe place