

HARTING Mitronics

RFID tags for industrial and logistic applications



Passive and robust UHF RFID transponders for industrial and logistic applications



Key Advantages of RFID Systems – Focus UHF

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- Definitive identification of individual objects
- Automatic identification without "Line-of-Sight"
- "Read & Write" of individual information about an object
- Bulk recognition

RFID tags for industrial and logistic applications

Advantages of UHF 868 MHz:

- High read & write ranges
- Recognition of up to 200 tags per second
- Identification at speeds up to 100km/h
- EPC C1 Gen2 Standard
- Worldwide Coordination



Fields of Applications

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- Production Process
 - Product Tracking
 - Stock Management
- Automated Assembly Lines
 - Process Control
 - Quality Management
- Intercompany Logistics
 - Container Tracking
 - Waggon Tracking
- Worldwide Logistics
 - Supply Chain Tracking
 - B2B Communication
- Product Life Cycle
 - Maintenance Records
 - Anti Fraud













Main Functions of RFID Tags in Industrial Applications

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- Interface with logistic control and guidance systems
- Communication with ERP systems like SAP
- Automated management of loading equipment
- Record quality data
- Save process information
- Store product information
- Support stock management
- Automated goods receipt
- Real time accounting







Benefits of HARTING RFID Transponders in Industry and Transport Logistics



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- Reading range of 2 5m on metals and liquids
- Robust and water-tight housing
- Form factors designed for the applications
- Standardized fitting on loading equipment and objects
- IP 64, IP 67 and IP69K protection classes
- Shock resistant materials that can be used at temperatures up to +85° C (+180°C under development)











We are focussing on passive UHF transponder at 868 MHz

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RFID tags for industrial and logistic applications

| Frequency | Range | |
|---------------|--------|--|
| 125 kHz | 0,5 m | |
| 1,81 MHz | 0,15 m | |
| 13,56 MHz | 0,8 m | |
| 433 MHz | 1 m | |
| 860 – 956 MHz | 10 m | |
| 2,45 GHz | 300 m | |

UHF frequencies offer:

- Long distance reading and writing
- Use of passive transponders
- Use of EPC Gen2 standard
- Global coordination







HARfid reading ranges in different applications with different transponder form factors

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Excamples

LT Tag on skeleton container



Reading range

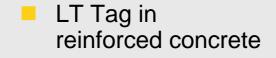
> 3.0 m *

RFID tags for industrial and logistic applications

RS Tag in metall flange



 $> 2,5 \text{ m}^*$





> 2 m *

TP Tag on pump motor



> 0,5 m *



Specification of HARfid LT 86 (NT)

On any object including metallic surfaces like skeleton

- more products under development

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Specifications

Applications

RFID tags for industrial and logistic applications

Frequency
Chip (e.g. Impinj)
User memory size
868 MHz
Monza2
96 bit

boxes or on containers for fluids

Read range (free space, 2W ERP)

– ProtocolEPC C1 Gen2

Temperature range

Operational (w/o progr.)
 Operational (with progr.
 Storage
 -40/+85°C
 -40/+45°C
 -50/+85°C



Housing

- Size 123x30x8 mm

Env. protection class
 IP64, IP67, IP69K

ColourMaterialPBT

MountingM4 screws or

rivets with washers

min. 3m

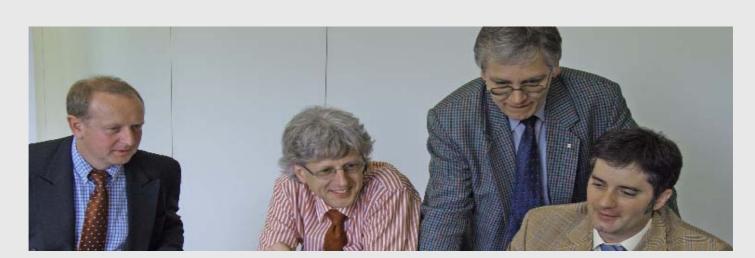
2007-08-30



Business Model HARfid

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- HARTING Mitronics is focussed on design and production of passive UHF transponders
- Customers are system integrators and distributors
- RFID tags for industrial and logistic applications
- Close cooperation with partners for integration, implementation and readers for RFID projects
- Offering customized transponder on exclusive contract basis





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