FERROXTAG – Capability guide

1. HF Proximity tags

Consisting of a ferrite core wound with copper wire and **NXP Mifare S50 integrated circuit (IC)**. Air protocol according to **ISO 14443A up to layer 3**.

MECHANICAL PROPERTIES

- 25 x 12.5 x 5 mm -- 2.5 grams.
- **BLACK** POLYAMIDE 66 UL94-V0 (IP68 degree of protection).
- Storage temperature: -40ºC to +150ºC

FEATURES

- 1024 bytes Re-writable memory.
- Simultaneous identification (Anti-collision), up to 50 tags/sec.
- Data transfer up to 106Kbits/sec.
- Operating temperature: -25ºC to +130º.

SECURITY

- Unique serial number for each device (32 bits).
- Mutual three pass authentication (ISO/IEC DIS 9798-2).
- Data encryption of RF channel with replay attack protection.
- Transport key protects access to EEPROM.

FXT1.2-MF1-X (4330 034 10131)	**Metallic items identification**	**Epoxy sealed**	**HF (13.56MHz)** Passive technology
	Specially designed for secure contactless data transactions applications in harsh environments. • Access control. • Ticketing. • Electronic wallet. Thanks to the hard epoxy sealant, it is specially recommended for applications where the tag is glued to the identified object. *Also available with self-adhesive tape (FXT1.2-MF1-X**T**).*		

2. HF Vicinity tags

Consisting of a ferrite core wound with copper wire and **NXP ICODE-SLI integrated circuit (IC)**. Fully compliant with ISO/IEC 15693 and ISO/IEC 18000-3.

FEATURES

- 1024 bytes Re-writable memory.
- Simultaneous identification (Anti-collision), up to 50 tags/sec.
- Data transfer up to 53Kbits/sec.
- Operating temperature: -25ºC to +130ºC

SECURITY

- Unique serial number for each device (64 bits).
- Lock mechanism for each memory block (write protection).
- Lock mechanism for DSFI, AFI, EAS.

2.1 Basic Range

FXT0.1-SLI (4330 034 10111)	**Non metal items identification**	**Bare tag**	**HF (13.56MHz)** Passive technology
	**MECHANICAL PROPERTIES** • 15.5 x 8 x 2.5 mm -- 2 grams. • Storage temperature: -40ºC to +150ºC Due to its reduced dimensions is perfect to be fixed in small places safe from dirt and hits or to be inserted in a moulded case.		

FXT0.2-SLI (4330 034 10111)	**On metal tuning**	**Bare tag**	**HF (13.56MHz)** Passive technology
	**MECHANICAL PROPERTIES** • 15.5 x 8 x 2.5 mm -- 2 grams. • Storage temperature: -40ºC to +150ºC. • Identified with paint to be differentiate from FXT0.1-SLI Due to its reduced dimensions is perfect to be fixed in small places safe from dirt and hits or to be inserted in a moulded case. It is recommended to protect the bare tag with some kind of isolation before placing it on metal or use our *FXT0.2-SLI-**R**.*		

FXT0.2-SLI-R (4330 034 10231)	**On metal tuning**	**Bare tag + thermo-shrink rubber**	**HF (13.56MHz)** Passive technology

FEATURES

- 16.5 x 9 x 3.5 mm – 3 grams.
- Storage & Operating temperature: -25ºC to +105ºC.
- Protected with thermo-shrink rubber

Thanks to its thermo-shrink rubber coating, it can be placed directly over the metallic surface avoiding the possibility of short circuit in its antenna.

FXT1.1-SLI-S (4330 034 10021)	**Non metal items identification**	**Silicone sealed**	**HF (13.56MHz)** Passive technology

MECHANICAL PROPERTIES

- 25 x 12.5 x 5 mm -- 2.5 grams.
- **BLACK** POLYAMIDE 66 UL94-V0 (IP68 degree of protection).
- Storage temperature: -40ºC to +180ºC

Designed for non metal items identification in harsh environments. It is specially recommended for applications where extreme humidity is present; the silicone sealant guaranties its best performance even inside liquids.

- Wood pallets.
- Food supply chain.

To be attached to the identified item preferably by screwing it.

FXT1.1-SLI-X (4330 034 10021)	**Non metal items identification**	**Epoxy sealed**	**HF (13.56MHz)** Passive technology

MECHANICAL PROPERTIES

- 25 x 12.5 x 5 mm -- 2.5 grams.
- **BLUE** POLYAMIDE 66 UL94-V0 (IP68 degree of protection).
- Storage temperature: -40ºC to +150ºC

Designed for non metal items identification in harsh environments. Thanks to the hard epoxy sealant, it is specially recommended for applications where the tag is glued to the identified object.

- Assets tracking.
- Wood pallets.
- Plastic boxes.

*Also available with self-adhesive tape (FXT1.1-SLI-X**T**).*

FXT1.2-SLI-S (4330 034 10011)	**On metal tuning**	**Silicone sealed**	**HF (13.56MHz)** Passive technology

MECHANICAL PROPERTIES

- 25 x 12.5 x 5 mm -- 2.5 grams.
- **BROWN** POLYAMIDE 66 UL94-V0 (IP68 degree of protection).
- Storage temperature: -40ºC to +180ºC

Designed for metal items identification in harsh environments. It is specially recommended for applications where extreme humidity is present; silicone s guaranties its best performance even inside liquids.

- Metallic pallets.
- Beer kegs.

To be attached to the identified item preferably by screwing it.

FXT1.2-SLI-X (4330 034 10031)	**On metal tuning**	**Epoxy sealed**	**HF (13.56MHz)** Passive technology

MECHANICAL PROPERTIES

- 25 x 12.5 x 5 mm -- 2.5 grams.
- **WHITE** POLYAMIDE 66 UL94-V0 (IP68 degree of protection).
- Storage temperature: -40ºC to +150ºC

Designed for metal items identification in harsh environments. Thanks to the hard epoxy sealant, it is specially recommended for applications where the tag is glued to the identified object.

- Metallic pallets.
- Industrial containers.
- Beer kegs.

*Also available with self-adhesive tape (FXT1.2-SLI-X**T**).*

FXT2.1-SLI-BARCODE (4330 034 10061)	**Non metal items identification**		**HF (13.56MHz)** Passive technology

MECHANICAL PROPERTIES

- 42 x 20 x 12 mm -- 3.5 grams.
- **BLACK** ABS (IP68 degree of protection).
- Storage temperature: -25ºC to +60ºC

Tag´s unique identifier has been captured in a bar code label and attached to the tag´s case. This allows fast automatic reading through RFID technology, keeping the possibility to read it also with a standard bar code reader. RFID and optical identification complement each other in this Ferroxtag with Bar Code.

- Plastic containers
- Medicine boxes

2.2 ATEX certified tags

FXT1.2-SLI-X-ATEX (4330 034 10121)		**On metal tuning**	**Epoxy sealed**	**HF (13.56MHz)** Passive technology

MECHANICAL PROPERTIES

- 25 x 12.5 x 5 mm -- 2.5 grams.
- **WHITE** POLYAMIDE 66 UL94-V0 (IP68 degree of protection).
- Storage temperature: -40ºC to +150ºC
- Operating temperature: -25ºC to +130ºC
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ATEX CERTIFIED
Designed for metal items identification in potentially explosive atmospheres.

II 1GD
EX ia IIC T6
EX iaD 20 T85 ºC

APPLICATIONS
Fixation method: screws, rivets, glue.

- Cylinders tracking.
- Filling stations.
- Chemical industry.

FXTH.2-SLI-X-ATEX (4330 034 10181)		**On metal tuning**	**Epoxy sealed**	**HF (13.56MHz)** Passive technology

MECHANICAL PROPERTIES

- 26.3 x 23 x 5 mm -- 3 grams.
- **WHITE** POLYAMIDE 66 UL94-V0 (IP68 degree of protection).
- Storage temperature: -40ºC to +150ºC
- Operating temperature: -25ºC to +130ºC

ATEX CERTIFIED
Designed for metal items identification in potentially explosive atmospheres.

II 1GD
EX ia IIC T6
EX iaD 20 T85 ºC

APPLICATIONS
Fixation method: glue.

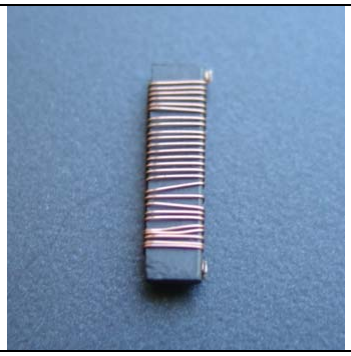
- Cylinders tracking.
- Filling stations.
- Chemical industry.

2.3 Tags for in metal notch applications

FXT0.3-SLI-R (4330 034 10191)	**Tuned to be partially surrounded by metal**	**Bare tag + thermo-shrink rubber**	**HF (13.56MHz)** Passive technology
	**FEATURES** • 16.5 x 9 x 3.5 mm – 3 grams. • Storage & Operating temperature: -25ºC to +105ºC. • Protected with thermo-shrink rubber • Passive resonance frequency at the air 11.7MHz ± 300 KHz. Due to its reduced dimensions and its special tuning, this tag is perfect to be fixed inside small holes or grooves made on metal y finally sealed with Epoxy based adhesives or silicone. In this way the tag will be safe from dirt and hits, besides thanks to its thermo-shrink rubber coating, it can be placed directly over the metallic surface avoiding the possibility of short circuit in its antenna.		

FXT0.4-SLI-R (4330 034 10171)	**Tuned to be densely surrounded by metal**	**Bare tag + thermo-shrink rubber**	**HF (13.56MHz)** Passive technology
	**FEATURES** • 16.5 x 9 x 3.5 mm – 3 grams. • Storage & Operating temperature: -25ºC to +105ºC. • Protected with thermo-shrink rubber • Passive resonance frequency at the air 12.3MHz ± 300 KHz. Due to its reduced dimensions and its special tuning, this tag is perfect to be fixed inside small holes or grooves made on metal y finally sealed with Epoxy based adhesives or silicone. In this way the tag will be safe from dirt and hits, besides thanks to its thermo-shrink rubber coating, it can be placed directly over the metallic surface avoiding the possibility of short circuit in its antenna.		

2.4 Reduced format tags

FXT0.1.3-SLI (4330 034 10261)	**Non metal items identification**	**Bare tag**	**HF (13.56MHz)** Passive technology
	**FEATURES** • 15.25 x 3.4 x 2.45 mm – 0.4 grams. • Storage temperature: -25ºC to +150ºC. • Passive resonance frequency at the air 14MHz ± 300 KHz. Due to its reduced dimensions is perfect to be fixed in small places (safe from dirt and hits) or inserted in a moulded case, plastic box, wood pallet, etc.		

FXT0.2.3-SLI (4330 034 10271)	**On metal tuning**	**Bare tag**	**HF (13.56MHz)** Passive technology
	**FEATURES** • 15.25 x 3.4 x 2.45 mm – 0.4 grams. • Storage temperature: -25ºC to +150ºC. • Passive resonance frequency at the air 13MHz ± 300 KHz. Due to its reduced dimensions is perfect to be fixed in small places (safe from dirt and hits) or inserted in a moulded case to be placed on metal. To avoid antenna short circuit, it is recommended to protect the bare tag with any kind of isolation before placing it on metal or use our *FXT0.2.3-SLI-**R**.*		

FXT0.2.3-SLI-R (4330 034 10281)	**On metal tuning**	**Bare tag + thermo-shrink rubber**	**HF (13.56MHz)** Passive technology
	**FEATURES** • Protected with thermo-shrink rubber (Thickness 0.5mm aprox.) • 15.25 x 3.4 x 2.45 mm (Bare tag). Mechanical dimensions will be increased by coating. • Storage & Operating temperature: -25ºC to +105ºC. • Passive resonance frequency at the air 13MHz ± 300 KHz. Due to its reduced dimensions, this tag is perfect to be fixed in small places (safe from dirt and hits) or even inside a metal notch to be finally sealed with Epoxy or silicone. Thanks to its thermo-shrink rubber coating, it can be placed directly over the metal surface avoiding the possibility of short circuit in its antenna. ***SPECIAL TUNE AVAILABLE FOR IN METAL NOTCH APPLICATIONS.***		

FXT1.1.3-SLI-X (4330 034 10241)	**Non metal items identification**	**Epoxy sealed**	**HF (13.56MHz)** Passive technology
	**FEATURES** • 20 x 5.6 x 6.1 mm – 1 grams. • Storage & Operating temperature: -25ºC to +60ºC. • Passive resonance frequency at the air 14MHz ± 300 KHz. Designed for non metal items identification in harsh environments, its plastic case protects all tag´s internal circuitry from dust, liquids and mechanical impacts. Thanks to the hard epoxy sealant, it is specially recommended for applications where the tag is glued to the identified object. Also available with high performance ***ADHESIVE TAPE,*** for a fastest and reliable fixation (FXT1.1.3-SLI-X**T**).		

FXT1.2.3-SLI-X (4330 034 10251)	**On metal tuning**	**Epoxy sealed**	**HF (13.56MHz)** Passive technology
	**FEATURES** • 20 x 5.6 x 6.1 mm – 1 gram. • Storage & Operating temperature: -25ºC to +60ºC. • Passive resonance frequency at the air 13.25MHz ± 300 KHz. Designed for metal items identification in harsh environments, its plastic case protects all tag´s internal circuitry from dust, liquids and mechanical impacts. Thanks to the hard epoxy sealant, it is specially recommended for applications where the tag is glued to the identified object. Also available with high performance ***ADHESIVE TAPE,*** for a fastest and reliable fixation (FXT1.2.3-SLI-X**T**).		

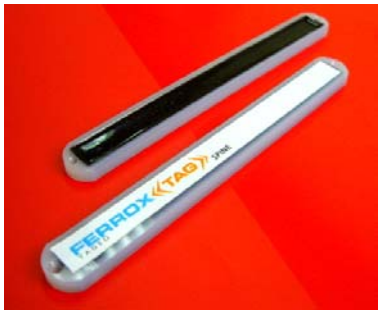
3. UHF tags

Consisting of a UHF inlay provided with a high performance plastic case and Epoxy sealed that makes this tags suitable for harsh environments.

EPC Gen2 / ISO 18000-3 compliant.

OPERATING FREQUENCY

869.4 - 869.56 MHz Europe, 0.5 W ERP 865.6 - 867.6 MHz Europe, 2 W ERP 902 - 928 MHz America, 4 W EIRP

FXT-SPINE-UHF (4330 034 10331)	**Inlay** Spine/Monza 1 (96bit)	**Epoxy sealed**	Passive technology
	**FEATURES** • 130 x 14 x 4 mm – 7.5 gram. • Storage temperature: -40ºC to +85ºC. • Operating temperature: -40ºC to +65ºC. • Typical Reading range: 3.8 m. with 27 dBm linearly polarized antenna The symbol spine antenna utilizes a single dipole design that is optimized for case, carton and pallet tracking. Its orientation sensitivity allows this tag to minimize cross-talk in dense reader environments.		

FXT-SPYDER-UHF (4330 034 10321)	**Inlay** RSI Spyder / NXP Ucode	**Epoxy sealed**	Passive technology
	**FEATURES** • 124 x 22 x 5 mm – 10 gram. • Storage temperature: -55ºC to +125ºC. • Operating temperature: -40ºC to +65ºC. • Typical Reading range: 4.5 m. with 27 dBm linearly polarized antenna The RSI Spyder is an all purpose high performance single dipole antenna designed specifically for use with NXP Ucode Gen 2 ICs. The Spyder exhibits exceptional performance on plastic, cardboard, and water based products making it ideal for warehouse, logistics and supply chain tracking.		

FXT-SATELLITE-UHF (4330 034 10341)	**Inlay** Spine/Monza 1 (96bit)	**Epoxy sealed**	Passive technology
	**FEATURES** • 66 x 29 x 5 mm – 7.5 gram. • Storage temperature: -40ºC to +85ºC. • Operating temperature: -40ºC to +65ºC. • Typical Reading range: 3.5 m. with 27 dBm linearly polarized antenna The Impinj Satellite antenna design is a high performance inlay that utilizes a loop/dipole hybrid configuration. It is designed for item-level tracking and can be read in both near and far fields.		

FXT-PROPELLER-UHF (4330 034 10351)	**Inlay** Spine/Monza 1 (96bit)	**Epoxy sealed**	Passive technology
	**FEATURES** • 124 x 22 x 5 mm – 10 gram. • Storage temperature: -40ºC to +85ºC. • Operating temperature: -40ºC to +65ºC. • Typical Reading range: 4 m. with 27 dBm linearly polarized antenna The high-performance dipole Impinj Propeller design provides exceptional placement versatility and tag readability. RF noise interference rejection and dense/multiple reader operation make this inlay ideal for warehouse and logistics applications		

3. High performance ferrite antennas.

- Own manufacturing of custom HF ferrite based antennas, engineering, design, prototyping and testing work is separately quoted.
- Own manufacturing of complete reading system, fully compliant with ISO/IES 15693 and ISO/IEC 18000-3 global open standards.

4. Complete ready to work RFID system

- Tags.
- Readers/Antennas.
- RFID server.
- Centre crew training

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