

**FXT1.2-MF1-X**

Code: 4330 034 10131

## 13.56 MHz FERROXTAG ON METAL SCREW BOX FOR SECURE TRANSACTIONS

**FEATURES**

- ISO/IEC 14443A compliant up to layer 3.
- 13.56 MHz Operating Frequency.
- 1024 Bytes User Memory in 64 blocks x 16 bytes.
- Unique Identifier 8 bytes.
- Fast Simultaneous Identification (Anti-collision).
- Data transfer up to 106kbits/sec.
- Mutual three pass authentication (ISO/IEC DIS 9798-2).
- Data encryption of RF channel.
- Support multi-application with key hierarchy.

**APPLICATIONS**

- Metal items identification.
- Industrial applications.
- **Access control.**
- **Ticketing.**
- **Electronic wallet.**
- Due to the hard epoxy sealant, it is specially recommended for applications where the tag is glued to the identified object.

**DESCRIPTION**

FerroxTag 13.56MHz encapsulated on metal screw box for secure transactions is compliant with the ISO/IES 14443A standard (up to layer 3). This product offers a user accessible memory of 1024 bytes, organized in 64 blocks of 16 bytes and an optimized command set.

Specially tuned at such a frequency that they need to be mounted on a metal item in order to achieve the right 13.56 MHz operating frequency and best performance.

***For non metallic items use FerroxTag screw box FXT1.1-MF1-X, or ask your local distributor. [www.ferroxtag.com](http://www.ferroxtag.com).***

Designed for harsh environments, the encapsulation protects the device against impacts, making it ideal for industrial applications. Each transponder has a factory programmed 8 bytes unique identifier. Prior to delivery, FerroxTag undergo complete and parametric testing, in order to provide the highest quality.

**SPECIFICATIONS**

PART NUMBER	FXT1.2-MF1-X
Supported Standard	ISO/IEC 14443A (up to layer 3).
Passive Resonance Frequency (at the air)	13 MHz $\pm$ 300 KHz, shifts to 13.56 MHz when mounted on a metal surface.
Unique identifier	8 bytes.
EEPROM memory	1024 bytes, 16 sectors x 4 blocks x 16 bytes.
User programmable memory	47 blocks x 16 bytes.
Typical programming cycles	100,000
Data retention time	10 years.
Data transfer	Up to 106 Kbits/sec.
Typical Reading range	10 cm with 4 watts reader power and 30x30 cm antenna on a metallic item
Simultaneous Identification of Tags	Up to 50 tags per second (reader/antenna dependent).
Operating temperature	-25°C to +130°C
IC	NXP Mifare S50

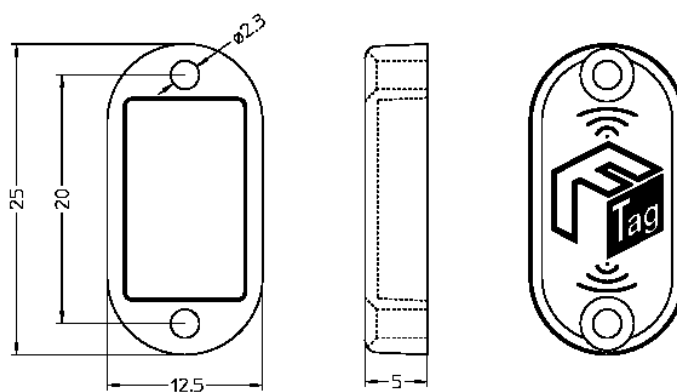


## FXT1.2-MF1-X

Code: 4330 034 10131

### MECHANICAL PROPERTIES

Dimensions	25 x 12.5 x 5 mm
Weight	2.5 grams
Case material	POLYAMIDE 66 UL94-V0
Degree of protection	IP68
Colour	Black, sealed with black epoxy
Storage temperature	-40°C to +150°C
Sealing material	Black epoxy



### TAG INSTALLATION

It is recommended to install the tag on a corner of the metallic item to be identified, or in the closest position to the reader antenna. Optimal performance is achieved by



orientating the device towards the reader as shown in the figure.

The right way of installing the tag (screwed or glued) is to put the black epoxy side of the piece against the metallic item to be identified. Nevertheless, the tag does not need to be in direct contact with the metal, the distance can vary from 0 to 3 mm.

### MEMORY ORGANIZATION

The 1024 bytes EEPROM memory is divided in 16 sectors with 4 Blocks of 16 bytes each.

Sector	Block	Byte Number within a Block														Description		
		0	1	2	3	4	5	6	7	8	9	10	11	12	13		14	15
15	3	Key A			Access Bits				Key B								Sector 15	
	2																	Data
	1																	Data
	0																	Data
14	3	Key A			Access Bits				Key B								Sector 14	
	2																	Data
	1																	Data
	0																	Data
:	:																	
:	:																	
:	:																	
1	3	Key A			Access Bits				Key B								Sector 1	
	2																	Data
	1																	Data
	0																	Data
0	3	Key A			Access Bits				Key B								Sector 0	
	2																	Data
	1																	Data
	0																	Manufacturer Block

All sectors contain 3 blocks of 16 bytes for storing data; sector 0 contains only two data blocks and the read-only manufacturer block.



## **FXT1.2-MF1-X**

Code: 4330 034 10131

---

### **DISCLAIMER**

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Ferroxcube customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Ferroxcube for any damages resulting from such application.