HIGH PERFORMANCE PIT TAGS

APT12™

FDX-B HIGH-PERFORMANCE PIT TAG

Biomark®

The Biomark **APT12** FDX-B Passive Integrated Transponder (PIT) Tag is a radio frequency identification (RFID) device that complies with the specifications of ISO Standards 11784 and 11785, and is compatible with reading systems designed in compliance with these standards. This PIT Tag is packaged in a laser-annealed glass ampoule that measures 12.5 mm in length and 2.03 mm in diameter. The Biomark APT12 PIT Tag is designed specifically for subcutaneous or intramuscular implantation in animals, including fish and wildlife species.

APT12 COMPATIBLE IMPLANTERS

- MK10 syringe style implanter + N125 needle
- MK7 syringe style implanter with needle (single use)
- The APT 12 is also available in the Biomark Pre-load and Pre-load Sterile systems, for use with MK25

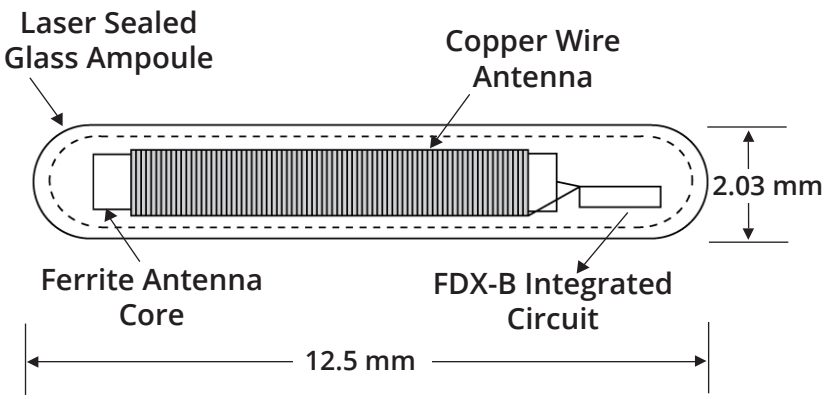
FEATURES

- Enhanced read range performance
- Low-frequency 134.2 kHz operation
- 64-bit identification code
- ISO 11784/11785 FDX-B compliant
- Biocompatible glass encapsulation

APT12 PIT TAG & DIAGRAM

APPLICATIONS

- In-vivo Animal Identification
  - Fisheries (marine & fresh water)
  - Small & Large Mammal
  - Reptiles & Amphibians
  - Birds & Bats
- Generic Object Identification
  - Rocks, Trees, and Plants



Specifications	Description
ELECTRICAL	
ID Code Compatibility	Code Structure per ISO 11784
Total Number of Bits	128 bits (assigned per ISO 11785)
Code Structure	64 bits (ISO 11784)
Synchronization/Control	11 bits / 13 bits (24 total bits)
Error Detection	16 bits
Trailer Bits	24 bits
Error Detection	CRC-CCITT (Standard G.706 computed on 64 bit Code Structure)
Manufacturer Code	989 per ICAR assignment
Communications Protocol	ISO 11785
Duplex Mode	FDX-B
Excitation Frequency	134.2 kHz ±1.5 kHz
Transponder Frequency Bands	129.0-133.2 kHz and 135.2-139.4 kHz
Modulation Type	AM/PSK
Bit Rate	4194 bits/second
Encoding Format	Differential Biphase
Data Frame Period	30.52 mSec.(@ 134.2 kHz Excitation Frequency)
Integrated Circuit Chip	Proprietary Biomark IC (Increased performance at higher noise or EMI levels)
PHYSICAL & ENVIRONMENTAL	
Dimensions	12.5 mm L X 2.03 mm diameter
Weight	106 mg
Encapsulation Material	Bioglass
Hermeticity	IP68 to 50 meters aqueous immersion
Operating Temperature	-25ºC to +85ºC
Storage Temperature	-40ºC to +90ºC
Humidity	0 to 100% (condensing)
Altitude	-100 to + 3,000 meters
Mechanical Shock	IEC 68-2-29
Mechanical Vibration	IEC 68-2-6
Chemical Resistance	Inert to all petroleum based solvents, aqueous solutions, organic substances, acid/alkaline substances, and corrosive salts
Biological Compatibility	Biologically inert glass
Electrostatic Immunity	5 KV discharge / 2 cycles
Electromagnetic Compatibility	FCC Part 15, IC RSS-210, EN55022
Reliability	MTBF = 100,000 hours, minimum (non-physical)
Expected Life	>10 years (intact encapsulation)
Construction	Direct antenna wire bonding to integrated circuit / Adhesive potting within glass ampoule / Computer controlled laser annealing of glass ampoule / Fully automated assembly and statistical process control
PERFORMANCE	
Read Distance	Antenna, reading system and tag orientation dependent. See Reader-Antenna Spec Sheet.
Read Speed	18 reads/second (ISO rate) / 32 reads/second (continuous)
Read Orientation	0 ± 60º in both axes from optimal alignment with antenna
Read Velocity	Antenna, reading system and tag orientation dependent
Powering	Inductively powered from transceiver reading equipment
Error Rate	Less than 1 in 106 reads (within valid reading zone)

Biomark®

Scan the code to access this and other resources in the Biomark Digital Library, or visit: ***biomark.com/library***

MERCK Animal Health