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Description

IPICO's Dual Frequency RFID Technology uses the same IP-X multi-read protocol as its UHF products, but the low frequencies used, (125kHz power-up and 6.8MHz return signal), can penetrate through "lossy" media without the problems of tag antenna detuning, and the high attenuation encountered with UHF systems. Because of the high tag transmit carrier frequency, high data rates are achievable (up to 256kbit/sec), resulting in fast reading of multiple tags in the beam. Dual Frequency technology allows for longer ranges to be achieved than single frequency low frequency technologies, e.g. 125 kHz or 13.56 MHz. This is mainly because the tag data carrier frequency (6.8 MHz) is much higher than the power-up frequency (125 kHz).

Applications

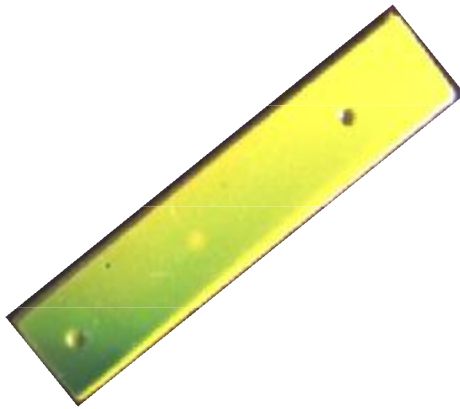
- § Supply Chain Management (wooden pallets, containers, crates)
- § Access control and asset control
- § Tracking of instruments
- § Tracking of mine cap lamps (possible to mount within battery enclosures)
- § Tracking of foodstuffs, in bins or bags
- § Mining tracers (ore, diamonds)
- § Electronic labelling of RF-unfriendly materials (rock samples, trees, etc)
- § Any situation where the tag needs to be embedded in, or affixed to a lossy material, even marine applications

Chipset

- § IP-X3 / EM4322

Tag Construction

- § Consists of a chip module attached to 125kHz and 6.8MHz coil antennas, moulded into a 4 mm thick PVC strip.



DF Linear tag - 100 x 21 x 4.0 mm

Key Features

- § Low cost single chip solution
- § Compliant with USA, European, Australian, and RSA spectrum allocations
- § Dual frequency (Transmit 125kHz / Receive 6.8MHz)
- § Long read range in electrically noisy environments - 0.7 m with "Medium Range" Reader or anywhere within a 1.4 m wide portal made up of two such Readers
- § Robust Anti-collision protocol (up to 120 tags read simultaneously)
- § Fast moving tags (8 m/sec) can reliably be read
- § Factory programmed 64 bit ID number
- § High tag transmission rate (128 kbits/sec)
- § High tag read rate - up to 155 tags/sec
- § On-chip oscillator and 6.8 MHz antenna driver
- § Low chip power consumption
- § Passive - no battery
- § -30 to +70 °C operating temperature range
- § Can be repackaged in custom enclosures

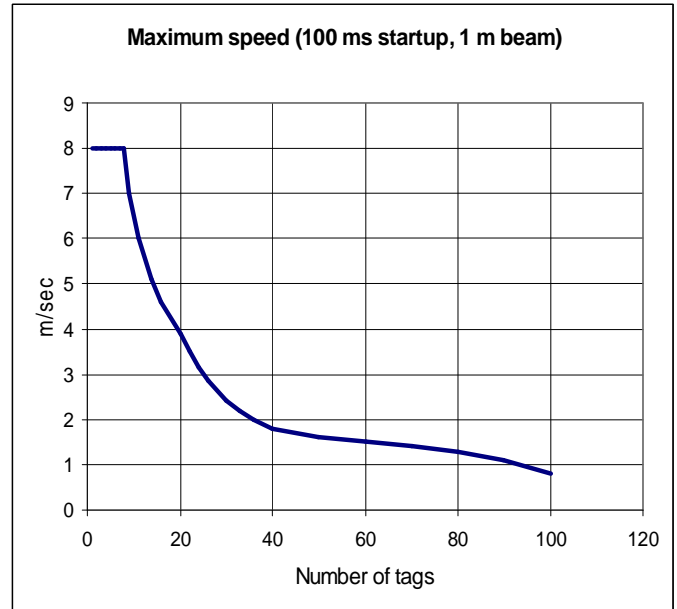
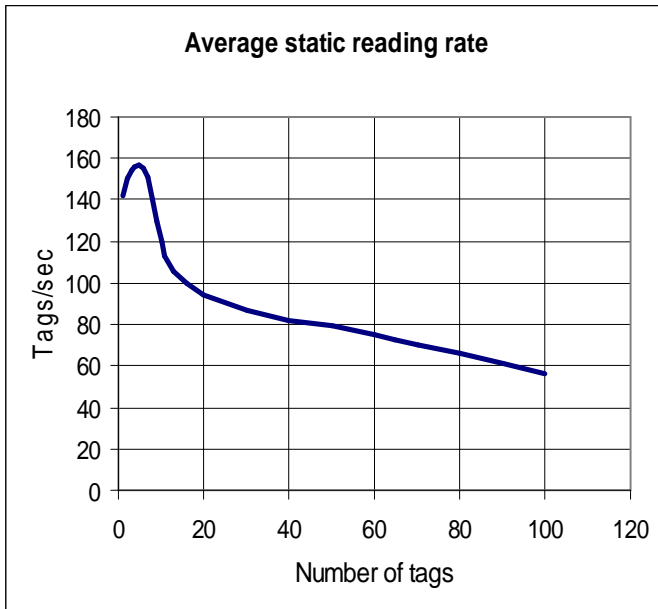
Multi-Read Performance (Tag numbers & Tag Speed)

Speed version	Data Rate	Maximum Interval	Speed	No of tags readable
V39	128 kbit/sec	64 kbit	8 m/sec	8
			2 m/sec	35

Maximum speed is not limited by the protocol, but by the start-up time (30 – 100 msec) typical of low carrier frequency tags

Specifications

Device Name	Dual Frequency Tags: LinearType	
Part Numbers	IP-X X3-V39-L100 x21x4	
Power requirements	Passive No batteries (inductive coupling at 125 kHz, which is received and rectified to generate a supply voltage for the chip)	
Read Range ("Medium Range" Reader)	0.7 m (tag parallel to reader antenna). Can be read anywhere within a 1.4 m portal bounded by two readers	
Data rate	128 kbit/s	
Moving Tags, readability	10 tags @ 8m/sec; 20 tags @ 4 m/sec	Simulated
Multi-Read rate	20 tags in beam: 90 tags/sec; 100 tags in beam, 55 tags/sec	
Protocol Saturation	Time to read 20 tags = 0.2 sec; time to read 100 tags = 1.8 sec	
ID Length	64 bits (16 bit CRC)	
Antenna	Printed or air wound (125kHz and 6.8MHz coil / printed antenna)	
Programmability	Read-only, factory programmed ID, 64 bits	
Enclosure	Moulded 200 x 21 x 4 mm	
Environmental	Operating temperature range: -30 to +70C Storage temperature range: -40 to +85C Waterproof IP rating: IP 68 UV resistant: Yes	
Physical	Over-moulded PVC	



Ordering Information

Product Name	Product Code	Description
X3 DF tag, Linear 100x21x4 moulded	IP3027	IP-X X3-V39-L100x21x4