RFID Solutions For Field Workers

Benefits | Terminology | Readers

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DATA CAPTURE

Benefits of RFID for Field Service

Precise Inventory/Parts Tracking

RFID tags have long or short range signals that alert an RFID handheld reader to their presence. This allows field workers to accurately track and identify specific assets without the need for a direct line of sight, which traditional barcodes require in order to be read accurately. This allows workers to increase productivity out in the field.

Source of Data

RFID tags have the ability to hold data on the tag itself or transfer the information to a software app which stores the data including: item location, the user, size, manufacturer, serial number and maintenance schedule. By recording this information, field businesses can ensure equipment availability and enhance operational efficiencies.

GPS Locating

An RFID and GPS tracking system provides businesses with visibility throughout the supply chain. A long-range active RFID tag allows field workers to locate a large piece of equipment out in the field with the use of a computer or handheld reader, optimising field technician performance in maintenance and repair applications.

Automated Maintenance

RFID technology can provide businesses with real-time information on the condition of high valued assets, including equipment and vehicles. This visibility on an asset's condition allows businesses to resolve issues before they become critical, reducing equipment failure and long periods of downtime.

Explaining RFID

Types of RFID Tag

Active RFID tag

Active RFID tags have a transmitter and their own power source, usually a battery. The battery is used to run the microchip's circuitry and broadcasts a signal to an RFID reader the same way a mobile phone transmits signals to a base station. Active tags are used on large assets, such as cargo containers, rail cars and large reusable containers, which need to be tracked over long distances.

Passive RFID tag

Passive tags draw power from the RFID reader, which sends out electromagnetic waves that provides a current in the tag's antenna. Passive tags are usually read only, meaning their data cannot be altered or written over. Retailers and manufacturers are using passive tags in their supply chains to provide real-time visibility of materials and assets.

RFID Frequency

Frequency	Description	Typical Use
LF RFID	LF RFID has slow read speeds, can only do single reads at a time and their reading distance tends not to exceed 10cm. An advantage of LF RFID, is the tag or label (the transponder) is not affected by water and at short read ranges it is ideal for animal identification.	Animal tracking
HF RFID	HF RFID has a faster read speed than LF, and is also capable of multiple reads at a time, however the read distances are still relatively short. HF transponders also tend to work well on liquids and metals and have a larger memory capacity than LF transponders (516 Kbit).	NFC, smart cards, tickets, data transfer applications
UHF RFID	UHF provides very high read rates (300 tag reads/second) and is capable of multiple reads. UHF works well on metal applications, however the read range can be reduced when combined with water unless the transponder is engineered for that environment. Memory capacity varies depending on the tag.	Supply chain tracking, Container tracking

RFID Frequency Matrix

	Low Frequency (LF)	High Frequency (HF)	Ultra High Frequency (UHF)
Frequency Range	125kHz, 134.2kHz	13.56 MHz (Global)	865 – 928 MHz (Regionally dependent)
Read Range	Short	Short	Medium
Data transmission rate	Slow	Slow	High
Multiple reads	Single reads	Good	Multiple reads
Tag Cost	Relatively expensive	Varies depending on type of tag	UHF tags can be very low cost (at high volumes)
Reader Antenna size	Short range mobile LF readers require only a small antenna	Short range mobile HF readers require only a small antenna	Mobile UHF reader antennas are relatively large
Read field	Small Read Field, but easier to define – ideal for reading unique items at close range	Small Read Field, but easier to define – ideal for reading unique items at close range	Larger Read Field. The radio waves can bounce off objects farther away. Excellent performance in environments with high tag density
Tag memory capacity	Smaller memory sizes in comparison to passive HF RFID tags	Capable of relatively high memory capacity, typically 256 bits to 8 Kbytes	Smaller memory sizes in comparison to passive HF RFID tags, typically 96 bits to 1 Kbits
Performance in close proximity to liquids and metals	Unaffected performance	Accurate performance	Can be affected
Security	Low encryption capabilities	Multiple encryption/ security features	Read/write protection and anti-cloning, low encryption capabilities

RFID Handheld Readers

	GEN2WAVE RP1500	GEN2WAVE RP1600	Janam XM5	Trimble Juno T41R	Zebra Omnii XT15	Zebra WAP4
						
Operating System	Android 4.4	Android 4.4	Android 4.2 or WEH 6.5	WEH 6.5 or Android 4.1	Windows CE 6.0 or WEH 6.5	Windows Embedded CE 6.0 or WEH 6.5
IP Rating	IP64	IP64	IP65	IP68	IP67, IP65	IP65
Drop Spec	1.5m	1.5m	1.5m	1.2m	2m	1.8m
Imager	Optional	Optional	Optional	Optional	Optional	Optional
Laser Scanner	Optional	Optional	Optional	-	Optional	Optional
WLAN	Yes	Yes	Yes	Yes	Yes	Yes
WWAN	Yes	Yes	Yes	Optional	Yes	Optional
GPS	Yes	Yes	Yes	Yes	Optional	Optional
Bluetooth	Yes	Yes	Yes	Yes	Yes	Yes
NFC	Yes	Yes	Optional	-	-	-
Display	3.5" VGA	4.3" WVGA	3.5" TFT VGA	4.3" WVGA	3.7" VGA	3.7" VGA/ QVGA
Camera	13MP	13MP	5MP	8MP	Optional 3MP	Optional 8MP
Memory	3GB RAM 16GB ROM	3GB RAM 16GB ROM	512MB RAM 1GB ROM	512MB RAM 32GB Flash	512MB RAM 1GB Flash	512MB RAM 4GB Flash
RFID	HF	HF	Optional HF	UHF	Optional HF	Optional LF, HF or UFH
Weight	Up to 300g	Up to 300g	305g	382.7g	610g	Up to 526g

If you're interested in a quote or just want to talk through our range of RFID readers our Sales Team are always on hand, call 0333 005 0345

RFID Tablet and Laptop Readers

	Janam XT1	Janam XT2	Linx Tough Tab 8	MioWORK A330 Series	Panasonic FZ-G1	Panasonic FZ-M1	Panasonic CF-20	Panasonic CF-53
								
Operating System	Android 4.2.2	Android 5.0	Windows 10 Pro	Android 4.2	Windows 10 Pro	Windows 10 Pro	WEH 6.5.3	Windows 8.1 Pro
IP Rating	IP54	IP67	IP67	IP54	IP65	IP65	IP65	IP5X
Drop Spec	1m	1.5m	1.2m	1m	1.8m	1.8m	1.2m	0.76m
Imager	Optional	Yes	Optional	Optional	-	Yes	Optional	-
Laser Scanner	-	-	Optional	Optional	-	Yes	-	-
WLAN	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WWAN	Yes	Yes	Yes	Yes	Optional	Yes	Optional	Optional
GPS	Yes	Yes	Yes	-	Optional	Yes	Yes	Optional
Bluetooth	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NFC	Yes	Optional	-	Yes	-	Optional	Optional	-
Display	5.9" TFT WVGA	5" High Definition WXGA	8" Display	5.88" WVGA	10.1" WXGA TFT	7" WXGA TFT	10.1" WXGA TFT	14" TFT
Camera	5MP Rear 1.2MP Front	8MP Rear 2MP Front	5MP	5MP Rear 1.2MP Front	8MP Rear 720p Front	8MP Rear 2MP Front	8MP Rear 2MP Front	Optional 720p
Memory	1GB RAM 16GB ROM	2GB RAM 16GB ROM	2GB RAM 16GB Flash	1GHz RAM	4GB RAM	1GB RAM 8GB Flash	256MB RAM 512MB Flash	4GB RAM 500GB HHD
RFID	HF	Optional HF	Optional UHF	HF	Optional UHF	Optional UHF	Optional HF	Optional HF
Weight	370g	Up to 293g	916g	370g	1.1kg	540g	340g	2.95kg

Visit www.mjm-data.co.uk for further information on any of the products featured in these matrices

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