

## Passive Low Frequency Read-Write RFID Tags

These passive read-write RFID tags are designed for a broad range of applications. They include a transponder and antenna circuit in an application specific enclosure. They provide a permanent serial number for tracking, routing, and identifying vehicles, objects, animals, or people. They also have up to 928 bits of user programmable data. Because they do not require a battery, they have an unlimited lifetime and can be completely embedded in any non-metallic material. Most can be affixed with adhesives or standard fasteners. Our tags can be used anywhere a 'hands-free', no line of sight, automated identification is required.

### General Specifications

Function	Passive read-write radio frequency identification tag
Operating frequency	125 kHz $\pm$ 6
Modulation / Encoding	Amplitude Shift Keying (AM) / Manchester
Read speed	1,953 bits / second. (35 ms read time typical)
Memory size	1088 bits
Serialization	32 bit serial number + 32 bit device ID

### Memory Organization

Word address	byte address	Description	
00	00 – 03	<b>Password</b>	RW
01	04 – 07	<b>Protection</b>	RW
02	08 – 11	<b>Control</b>	RW
03	12 - 15	<b>User Data</b>	RW
...	...	...	...
31	124 - 127	<b>User Data</b>	RW
32	128 – 131	<b>Serial Number</b>	RO
33	132 - 135	<b>Device Number</b>	RO

*Addresses are show in decimal*

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## Password Word

You will need to 'Login' to modify this word. You must then do a 'Reset' for the changes to take effect. The password is used for allowing modification and reading of some or all of memory in the tag.

### Caution:

*The password is write-only and cannot be retrieved if lost.*

*Without the correct password some or all of the tag cannot be written to or read !*

Word address	Byte address	Description
00	00	Low byte of password
	01	Middle byte of password
	02	Middle byte of password
	03	High byte of password

The factory default password is 00000000.

## Protection Word

You will need to 'Login' to modify this word. You must then do a 'Reset' for the changes to take effect.

Word address	Byte address	Description
01	04	First word address that is read protected
	05	Last word address that is read protected
	06	First word address that is write protected
	07	Last word address that is write protected

Read Protected means that reading the words specified requires 'login'

Write Protected means that writing to the words specified requires 'login' and changing the Protection word.

Example: 20222831

stored in the protection word would mean that from word at address 20 to address 22 is read protected and that from word at address 28 to word at address 31 is write protected .

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## Control Word

You will need to 'Login' to modify this word. You must then do a 'Reset' for the changes to take effect.

Word address	Byte address	Description
02	08	First word address to be automatically transmitted
	09	Last word address to be automatically transmitted
	10	If the low bit (bit 0) of this byte is set 1, then any writes to the non 'word protected' area requires 'login'. If bit 1 of this byte is set to 1 then after a write the tag will transmit the word written (this is not implemented with the RWBD01-oem). The remaining 6 bits of this byte are unused and are available for user data
	11	Unused and available for user data

Upon entering a read field (generated by a reader such as the RWBD01-oem) the tag will automatically continuously transmit the data stored at the 'first word' address to the 'last word' address specified in the **Control** word.

Example: 32330000

The Serial number and device Id will be continuously transmitted when the tag is in the read field and not awaiting a command.

## Tag Command/Action

### Login

The password is needed to 'Login' to the tag to perform certain protected operations such as writing to the Password Word, Protection Word, Control Word, protected user area and reading from these. The password word can never be read.

### Reset

The tag must receive a 'Reset' command for certain changes to take effect (such as Password, Control word modification, etc.)

### Reading from the tag

Using our RWBD01-OEM you may read from 1 to 10 words at a time. Depending on the protection set (see Protection word and Control word) you may need to 'login'. Login is only required once between reset (i.e. login, read many words, reset).

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*Specifications and functionality are subject to change without notice*

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## Writing to the tag

Using our RWBD01-OEM only one word is written to the tag at a time. Depending on the protection set (see Protection word and Control word) you may need to 'login'. Login is only required once between reset (i.e. login, write many words, reset).

## Tag response

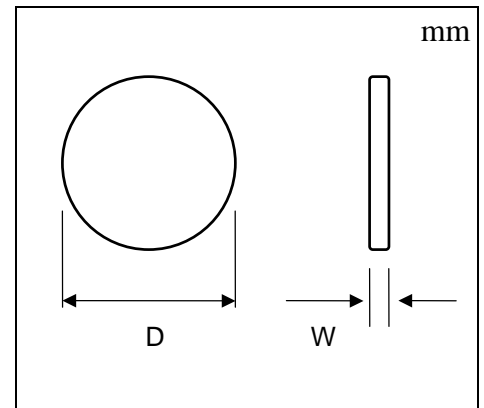
After receiving a command and data the tag will respond with an ACK (if ok) or a NACK (if it found a problem). If no error conditions are found then the command will be executed. Some action require a reset to take effect.

*NOTE: These tags are NOT compatible with the 'RO' type readers. They can be used with our 'RW' readers.*

## Physical Tag Description

### EPD30RW150

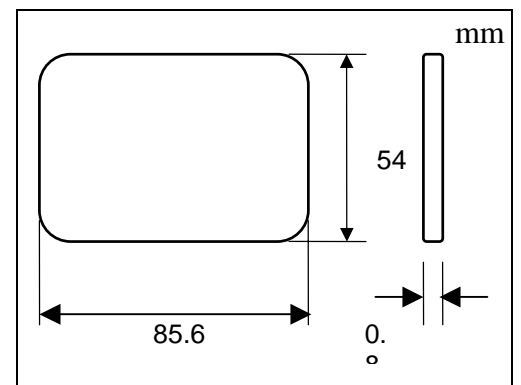
Dim, mm	30 x 1 disk
Operating temp °C	-20 to +85
Storage temp °C	-20 to +130
Material	Epoxy, glass fiber reinforced
Color	Black
Protection	IP66



### ISORW150CARD

The ISORW150CARD is an ISO format ID card without a magnetic strip. It can be printed, punched and it offers two different identification methods: visual (if printed), and RFID.

Dimensions, mm	85.6 x 54 x 0.8, 'credit card'
Operating temp °C	-20 to +85
Storage temp °C	-35 to +75
Material	PVC
Color	White
Protection	ISO 7810.5.1.5 and ISO 7816-1



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