CypherTAG®

SITE MANUAL

IDENTEC READER TYPE REV1

Issue 1b June 2016

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Patents:

Patents in the UK and other countries protect *Cyphertag*® systems.

Registered Designs

Various aspects of the reader design are registered.

WARNING NOTICE

This product uses radio frequency signals, and is therefore subject to possible interference. Any application should bear this in mind, and in particular it should not be possible for personal safety to be jeopardised by a failure to read.

This reader neither uses nor generates hazardous voltages. You should not connect any such voltage to it.

$$CE$$

This product is in conformity with the requirements of 2004/108/EC covering EMC.

Low Voltage Directive
Cyphertag® Loop Controllers and accessories have been designed and manufactured in accordance with EN60950, following the provisions of the Low Voltage Directive.

Waste from Electrical and Electronic Equipment (WEEE) Directive
We encourage the recycling of Identec products at the end of their life. Equipment can be returned to Identec Ltd for safe disposal. However we recommend any metal cases be recycled locally. For further information contact Identec Ltd.

United States of America
FCC Approval pending

Operation is subject to the following two conditions:
(1) this device must not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

ISO 9001
Identec's Quality System conforms to ISO 9001:2008. (Certificate Number - FM36029)

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1.   CYPHERTAG MULLION READER

1.1   Introduction

Cypher*tag*® is a high performance tag identification system, offering fast long range multiple reading with the RVx readers. Complementing the top end RVx readers are the short range REV1 readers. The REV1 is easy to install, and its small size means it can be mounted unobtrusively, for instance on doors. All **Cypher*tag*®** tags work on all **Cypher*tag*®** readers, but the reading range can vary.

For most applications the instruction sheet provided with each reader should suffice. Installers should rarely (if ever) need to refer to this manual, which should be treated as a reference document. This manual complements the Identec website (www.identec.com) which contains more detailed technical information. The RVx **Cypher*tag*®** site manual also contains data on the **Cypher*tag*®** tags.

1.2.   The REV1 reader

A **Cypher*tag*®** reader identifies tags (sometimes referred to as tokens or cards) using low frequency radio signals. REV1 transmits to the tag at 125 kHz and the tags respond at 4MHz.

The REV1 reader is configurable, and this is normally done in the factory. Configuration controls the output format, timings etc.

1.3   Unpacking

Check that the package contains
- •   Reader
- •   Installation Sheet
- •   Cover piece
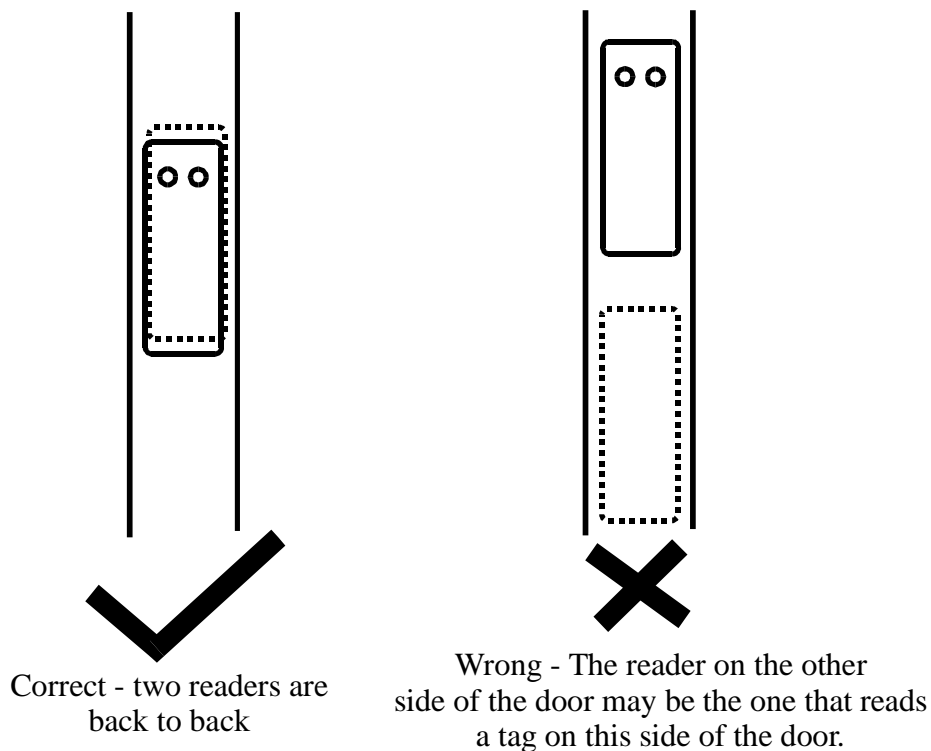
1.4 Getting started

1.   Connect a power supply to the REV1. (See figure 2 page 6 for connections)
The supply should be at least 5V, and should not exceed 26V.
LED 1 will come on (figure 3 page 7).

2.   The reading range should be about 15cm (6 inches) for a TV1 tag.
LED 1 will flash when the tag is within range.

3.   The REV1 sends the identity of the tag once when the tag is first identified. To get another report, take the tag away from the REV1 for a few seconds and then bring it back in towards the reader.

2. READER LOCATION

The REV1 reader has a relatively short range, so location is not really an issue. This is especially true since most users will treat it in the same way as a proximity reader. It should be noted the reading range will be reduced if the REV1 is mounted on metal.

If two REV1 readers are to be located on either side of a door, this is possible. The Link (LNK) connection of the two readers should be connected together, and the two readers should be placed "back to back". This will ensure that a tag on the Entry side of the door is always closer to the reader on the Entry side than to the reader on the Exit side. Connecting two readers in this way will give some reduction in range, depending on how far apart the two readers are. Both readers must have the range set at the same level.

Figure 1

Correct - two readers are back to back

Wrong - The reader on the other side of the door may be the one that reads a tag on this side of the door.

When tags are being carried by people, the best height should be selected with regard to the way in which tags will be read. The best height is generally where tags will naturally be presented face on to the REV1 (except TV3).

REV1 readers have LEDs which show when a tag has been read. There is a buzzer, but it may be disabled at factory configuration.

3. INSTALLATION AND COMMISSIONING

3.1 Installation

Use screened cable, with the cable screen earthed at the other end from the reader (the controller end). The cable should not be more than 100 metres (330 ft.) long for Wiegand interface, or 10 metres (33 ft.) for the RS232 interface.

Connections should be made before the reader is finally fixed using the two screw holes. Then attach the top cover, making sure that it cannot easily be removed or levered off.

Although the reader is potted and should be water proof, for outdoor installations where the reader may be exposed to water it is, once the reader has been correctly wired, advisable to run a bead of silicone sealant around the outside edge of the back face of the reader and a small bead of silicone sealant over the terminal block to seal the wire entry points. This will ensure that no water can ingress at this point.

Figure 2
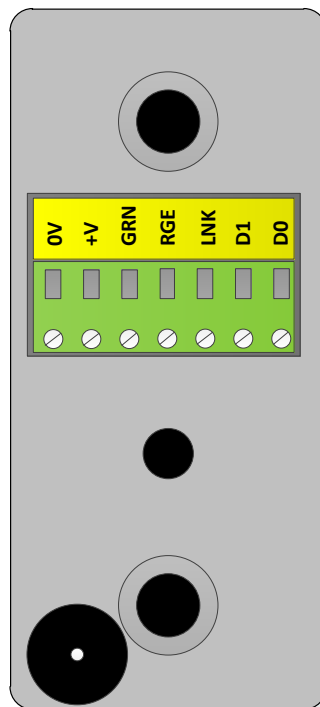
Connections

|	
0V	To power and signal reference
V+	5V to 26V D.C. Typically 30mA
Green (GRN)	Normally connect to 0V to light green LED2 (This pin may be configured for different uses.)
Range (RGE)	Open circuit for full range (15cm with TV1) Connect to 0V for approx. 33% reduced range Connect to +V for approx. 50% reduced range
Link (LNK)	For use with back to back readers. The Link terminals of the two readers should be connected together. Maximum cable length is 30cm.
D1	Wiegand output
D0	Wiegand output

Where the reader has Serial output, the data will be on D0. Note that the serial data voltages will be 0V and 5V, so do not comply with RS232 (although over short distances it will work with RS232 inputs). If the reader has Clock/Data outputs, Clock will be on D1 and Data on D0.

The REV1 has some protection against connection faults, but they do not cover all circumstances.

3.2   Commissioning

Commissioning the REV1 is a simple process, consisting of first making sure the reader is working, and then checking that the data from the reader is reaching the controller.

Figure 3

Front View
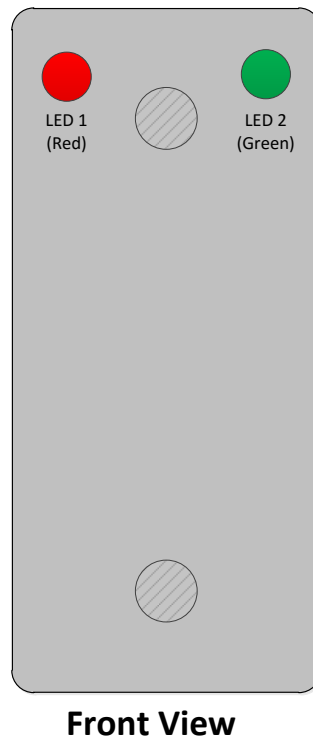
To check that the REV1 is working, apply power to the reader. The red LED 1 should come on. Bring a tag in to the field of the reader, and LED1 should start to flash. It will continue to flash for a few seconds after the tag is removed. The tag will be reported when the reader first sees it. It will not be reported again unless it has been removed from the reader long enough for LED1 to stop flashing.

The operation of the buzzer is configurable. You should be supplied with details of when it should operate.

LED1 does not flash if the tag is not one that is programmed for use on this site.

Verify that the tag data is reaching the controller and that the green LED 2 (if used) is being driven by the controller.

If there are any problems, refer to the Troubleshooting guide in the next section.

4. TROUBLESHOOTING

It is rare for the reader to fail, so check the installation before proceeding.

No LEDs come on

This will normally mean that the reader is not receiving power or the correct polarity. Check the voltage on the reader terminals using a meter.

If there is very bright light, it may not be possible to see the LEDs. If this is the case, the reader may need relocating.

The reader has gone into programme mode. Disconnect link wire and re-apply power.

If the LEDs are still off, replace the reader.

Red LED does not flash when a tag is brought in

This suggests that the tag is not being read.

Make sure that the tag you are using is a working *Cyphertag*® tag, and that it is programmed to work on this site.

Red LED flashes, but no response by controller (i.e. no output message)

Is the tag being removed from the reading zone for sufficient time? Normally a few seconds will be sufficient, but it is possible for the REV1 to be programmed to wait for longer. (In this case you should have been informed.)

Check the wiring to the controller.

Has the controller been programmed to respond to the tag being used?

NB If the power supply to the reader has had incorrect polarity, there is a small chance that the output circuit has been damaged.

Green LED does not come on

Check how the green LED should operate. (This depends on how the reader is configured.)

Disconnect any wires to the LED terminal, and connect a wire from the 0V terminal to the LED terminal. The green LED should come on. If it does, check the wiring to the LED terminal.

Does the signal to the LED terminal have the correct polarity? (0V to turn on)

Tag numbers reported incorrectly (Wiegand)

The most likely cause is the Wiegand wires are reversed.
Is the controller set up for the format used by the reader? If the system uses Site Codes, are these set up correctly?

Tag numbers reported incorrectly (RS232)

The reader is supplying data switching from 0V to +5Volts and as such is not true RS232. Tests have shown that this is compatible with most modern computer terminals.

If the data appears to be garbage, check the baud rate etc. The normal for REV1 readers is 9600 baud, 8 data bits, one stop bit and no parity.

Check that the RS232 line is not too long, and that connections are properly made. This will often give occasional errors.

Repair

The reader is designed to be "Installer-Friendly", and is rarely damaged, so please check the installation thoroughly. In the unlikely event that you find that the REV1 is faulty you should replace it.

Identec encourages its customers to return faulty equipment, as investigation of faults may help us improve the product.

12 month "no-quibble" guarantee
All Identec readers and tags are guaranteed for 12 months from the date of despatch from the factory.

Appendix A   TECHNICAL DATA

For more information on *Cyphertag*® in general, refer to the RVx site manual available on the Identec website (www.identec.com).

The reading range of REV1 is specified at about 15cm with a TV1 tag. This range assumes that the tag is in the optimum orientation.

Reader mechanical details
Dimensions   89mm x 39mm x 17mm
Weight   75g
Colour/Material   Grey/Polycarbonate.
LEDs   Red (internal control)
                            Green (internal/external control)

Electrical connections
      Screened cables are required to meet EMC requirements.

Power input.
      5-26V D.C.   30mA typical. (Current depends on LED status.)

      The REV1 power connection is reverse voltage protected. There is a slight danger that incorrect connections on other terminals can damage the reader.

Wiegand output
      Data on D0 and D1.
      Low going pulses 100µs long. (All timings are potentially configurable.)
      1.6ms pulse separation
      Minimum 250ms between transmissions.
      Internal 1k pull-ups.

Clock/Data output
      This uses the same circuitry as the Wiegand output.

Serial data/RS232 (NOT TRUE RS232)
      Operates -0Volts Pulsing to +5Volts
      Transmit data only. No receive function.
      Baud Rate and format configurable

      The reader reports a power up message, identifying itself.
      Each tag is reported in ASCII code, e.g.   HID=00014 PID=01234

      The numbers are reported in decimal.

Link
      Maximum cable length between readers is 30cm.

Configuration
      REV1 readers are normally configured by Identec. For advice on equipment to configure REV1 readers, contact Identec.

Operating Environment
      -20^{0}C to +60^{0}C (Standard readers)
      Readers are potted.

Appendix B   APPROVALS

REV1 generally requires some form of approval, as it is an intentional emitter of radio frequency. This section describes the status of the product in various countries at the time of writing. For more up to date information contact Identec.

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Appendix C   USER INSTRUCTIONS

C.1   After installing **Cypher*tag*®**, it is a good idea to make sure that the customer understands how the system works, and how to get the best out of it. What they are told depends on the type of application. This section provides information that will be useful to the manager responsible for the system, as well as the basis for information to give to all tag holders (if applicable).

If personnel are carrying tags, show them how to present a tag to a reader face on. Explain that tags are much less likely to be read if they are on their side (for instance lying in the bottom of a bag).

Tags do not read as well inside bags with metal frames, or surrounded by keys and coins. The identity of the tag will not be incorrectly reported, but the range may be affected.

Once a tag has been reported, most software versions will not report that tag again until it has been taken right out of the reading zone for several seconds, then brought back. If you need the door to unlock again, you must walk well away from the reader before returning to it.

C.2   Tag disposal

When a tag reaches the end of its life, it should be disposed of properly. As there may be considerable time before this happens, and environmental policy may have changed in the meantime, we recommend:

Tags contain a small lithium battery, and should be disposed of accordingly.

If you are uncertain about how to dispose of tags, they may be returned to Identec for disposal.

C.3   End User Instructions

This section can be used to generate simple instructions for end users.

You have been provided with a **Cypher*tag*®** tag.

To get the best out of your tag, would you please spare a few moments to read this.

This tag has been designed and built to work under conditions met in normal daily use, but for reliable operation the following precautions should be observed:-

1. Do not bend the tag excessively. It should not be kept in the back pocket of trousers, or other places where it may be subject to bending.
2. Do not immerse in water, or allow it to come in contact with solvents.
3. Do not leave the tag in a hot place (e.g. on a radiator).
4. This tag contains a small battery, which under normal circumstances will last 5 years. Battery life will be reduced if the tag is left for long periods within range of a **Cypher*tag*®** reader.