USER GUIDE

RFC1000 Cloud Relay

MadgeTech

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RFC1000 Cloud Relay

MadgeTech Cloud Services Data Logger Hub

Product User Guide

To view the full MadgeTech product line, visit our website at **madgetech.com**.

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WE BUILD DATA LOGGERS

Product Overview

The RFC1000 Cloud Relay is a data logging hub that connects via Ethernet to your Internet service and transmits data directly to the MadgeTech Cloud Services platform. This allows users to remotely monitor and manage groups of data loggers throughout a large facility or multiple locations without the need of a central PC.

System Requirements

- Internet Access (Ethernet connection)
- MadgeTech Cloud Services account
- Access to an electrical outlet
- MadgeTech wireless data loggers (sold separately)

Operating Environment

The RFC1000 Cloud Relay is rated for use in an environment with temperatures from -20 °C to +85 °C (-4 °F to +185 °F) and a humidity range of 0 %RH to 95 %RH non-condensing. The RFC1000 Cloud Relay is rated IP40 and is protected against solids that are greater than 1 mm in size. This device is not water resistant.

LED Indicators

- Cloud: Indicates connection with the MadgeTech Cloud Server
- Com: Troubleshooting indicator
- Power: Indicates that the device has power
- Data: Blinks when communicating with other MadgeTech devices

Wireless Transmission

The RFC1000 Cloud Relay can connect to a maximum of 64 data loggers. The RFC1000 Cloud Relay transmits on a frequency of 2.405 GHz - 2.475 GHz.

Transmission distance to data logger:

- Unobstructed line-of-sight (outdoors): Up to 2,000 feet maximum
- Typical urban environment (indoors): Up to 500 feet maximum

Transmission distance to other RFC1000 wireless transceiver:

- Unobstructed line-of-sight (outdoors): Up to 4,000 feet maximum
- Typical urban environment (indoors): Up to 1,000 feet maximum

Extending Wireless Transmission Distance

Additional RFC1000 wireless transceivers (sold separately) can be used as repeaters to transmit over greater distances. If transmitting over a distance greater than 500 feet indoors, 2,000 feet outdoors or there are walls, obstacles or corners that need to be maneuvered around, set up additional RFC1000's as needed. Plug each one into an electrical outlet in the desired locations.

Getting Started

Connecting the RFC1000 Cloud Relay

1. To power the device, connect the RFC1000 Cloud Relay to an electrical outlet using the provided USB power adapter.
2. Connect the RFC1000 Cloud Relay to an Ethernet jack using the provided 6 foot Ethernet cable, or any other standard Ethernet networking cable.

Setting Up the RFC1000 Cloud Relay within MadgeTech Cloud Services

A MadgeTech Cloud Services account must be active to use the RFC1000 Cloud Relay. Go to madgetech.com to create an account.

Claiming an RFC1000 Cloud Relay

1. Log into the MadgeTech Cloud Services account by going to madgetech.com.
2. Go to the menu and select **Manage Relays**.
3. Click the **Claim a Relay** button.
4. Insert the RFC1000 Cloud Relay Serial Number and Claim Key, located on the side label on the device enclosure.
5. It may take 1-2 minutes for the RFC1000 Cloud Relay to sync to the MadgeTech Cloud Services account. Once synced, the device will be shown in the **My Relays** list.

Claiming a Data Logger

1. Verify that the data loggers are in wireless transmission mode.
2. Within MadgeTech Cloud Services account, go to the menu and select **Manage Relays**.
3. Select an RFC1000 Cloud Relay listed under **My Relays**.
4. Any MadgeTech wireless data loggers on the same network and within range will be listed under Unclaimed Loggers.
5. Click the **Claim** button next to the data loggers you would like to claim.
6. It may take 1-2 minutes for the wireless data logger to sync. Once synced, the data logger will appear under **Loggers Claimed by this Relay**.

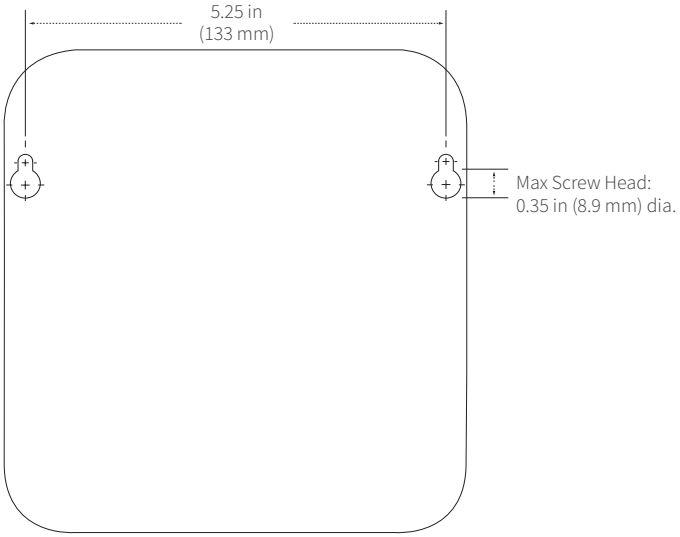
For more detailed information, refer to the MadgeTech Cloud Services Software Manual at **madgetech.com**.

Mounting Instructions

The RFC1000 Cloud Relay has a pivoting external antenna to accommodate either tabletop or wall mounted orientation. For best wireless performance, the RFC1000 Cloud Relay, RFC1000 wireless transceivers and the MadgeTech data loggers should be mounted in the same orientation. This usually means that the external antenna will be pointing straight up.

Mounting Diagram

There are two holes in the back of the device to allow screws to be used to wall mount.



Channel Programming

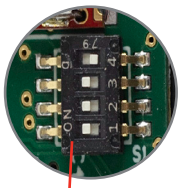
Different wireless channels may be used to create multiple networks in one area, or to avoid wireless interference from other devices. Any RFC1000 Cloud Relay, RFC1000 wireless transceiver or MadgeTech data logger on the same network is required to use the same channel. If all of the devices are not on the same channel, the devices will not communicate with one another. **The RFC1000 Cloud Relay is programmed by default on channel 25.**

CHANNEL NOTE: MadgeTech wireless data loggers and wireless transceivers purchased prior to **April 15, 2016** are programmed by default to channel 11. Please refer to the Product User Guide provided with these devices for instructions to change the channel selection if needed

Configuring the Channel Settings of the RFC1000 Cloud Relay

1. Unplug the RFC1000 Cloud Relay from the electrical outlet and Ethernet cable.
2. Use a Phillips head screwdriver to unscrew the back of the RFC1000 Cloud Relay enclosure.
3. With the inside of the RFC1000 Cloud Relay exposed, locate the back of the wireless transceiver (*diagram 1a*).
4. Use a Phillips head screwdriver to unscrew the back of the wireless transceiver.
5. Find the DIP switches located on the front of the PCB circuit board (*diagram 1b*).
6. Change the DIP switches to match the desired channel (*diagram 1c*). ***WARNING: Do not touch other sensitive electronics.***
7. Screw the wireless transceiver enclosure back together.
8. Screw the RFC1000 Cloud Relay enclosure back together.
9. Reconnect the RFC1000 Cloud Relay to the electrical outlet and Ethernet cable.

1a. Wireless Transceiver



1b. DIP Switches

Channel DIP Switch Orientation

The images below show the orientations available of the switches for each channel.

1c.

Troubleshooting

Diagnose issues using the LED indicators

The LED's on the front of the device can help to diagnose any issues you may be experiencing while trying to connect to the MadgeTech Cloud server.

Cloud LED

- Green (Solid): The RFC1000 Cloud Relay is communicating to the MadgeTech Cloud server and is claimed by an account. Fully functional.
- Green (Blinking): The RFC1000 Cloud Relay is communicating to the MadgeTech Cloud server, but the RFC1000 Cloud Relay is unclaimed by an account.
- Red: See Com LED for status.

Com LED

- Green (Blinking): Attempting to contact the MadgeTech Cloud server.
- Green (Solid): Successful connection to the MadgeTech Cloud server.
- Amber (Solid): Failure to connect because the MadgeTech Cloud server has rejected the request.
- Red (Solid): Contact could not be made with the MadgeTech Cloud server.
    - No internet access.
    - Internet access to the server is blocked.

Power LED

- Red: The RFC1000 Cloud Relay has power (plugged in to electrical outlet).

Data LED

- Green: RFC1000 Cloud Relay is communicating with MadgeTech data loggers.

Compliance Information

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

To satisfy FCC RF Exposure requirements for mobile and base station transmission devices, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during operation. To ensure compliance, operation at closer than this distance is not recommended. The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante

Need Help?

Product Support & Troubleshooting:

- Refer to the Troubleshooting section of this document.
- Visit our Knowledge Base online at **madgetech.com/resources**.
- Contact our friendly Customer Support Team at **(603) 456-2011 or support@madgetech.com**.

MadgeTech 4 Software Support:

- Refer to the built-in help section of the MadgeTech 4 Software.
- Download the MadgeTech 4 Software Manual at **madgetech.com**.
- Contact our friendly Customer Support Team at **(603) 456-2011 or support@madgetech.com**.

MadgeTech Cloud Services Support:

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