Product User Guide

RFC1000

RFC1000
Wireless receiver for the RFOT, Therm•A•lert
and RF2000A data loggers

MADGETECH
WE BUILD DATA LOGGERS

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

Product Notes

MadgeTech has designed the RFC1000, a high powered transceiver, a substantially long transmit range, providing better performance in occluded environments (ovens, refrigerators, etc.). The RFC1000 has an external antenna, allowing more flexibility with mounting positions in both orientation and proximity to metal walls. This may be used as a repeater, or directly plugged into the PC.

Transmission Distance

The RFC1000 transmits to other RFC1000s up to 4000 feet maximum typical outdoors/line of sight, 1000 feet maximum typical indoors/urban. The RFC1000 transmits to data loggers up to 2000 feet maximum typical outdoors/line of sight, 500 feet maximum typical indoors/urban. The RFC1000 can connect to a maximum of 64 data loggers. The RFC1000 transmits on a frequency of 2.405 GHz - 2.475 GHz.

Operating Environment

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

LEDs

The red LED indicates that the device has power. The green LED will blink when communicating with other MadgeTech devices.

Installation Guide

Installing the Software

The MadgeTech 4 Software makes the process of downloading and reviewing data quick and easy, and is free to download from the MadgeTech website.

1. Download the MadgeTech 4 Software on a Windows PC by going to: www.madgetech.com/software-download.
2. Locate and unzip the downloaded file (typically you can do this by right clicking on the file
and selecting Extract).
3. Open the MTInstaller.exe file.
4. You will be prompted to select a language, then follow the instructions provided in the MadgeTech 4 Setup Wizard to finish the MadgeTech 4 Software installation.

Installing the USB Interface Driver

USB Interface Drivers can easily be installed on a Windows PC, if they are not already available and running.

1. Download the USB Interface Driver on a Windows PC by going to: www.madgetech.com/software-download.
2. Locate and unzip the downloaded file (typically you can do this by right clicking on the file
and selecting Extract).
3. Open the PreInstaller.exe file.
4. Select Install on the dialog box.

Deploying and Activating Devices

Step 1: Plug the RFC1000 into the USB port on the base station computer. *(Additional RFC1000s can be used as repeaters to transmit over greater distances)*

Step 2: If using multiple RFC1000s plug each one into a wall outlet in the desired locations. *(If transmitting over a distance greater than 1000 feet indoors or 4000 feet outdoors or there are walls/obstacles/corners that need to be maneuvered around, set up additional RFC1000s as needed.)*

Step 3: Verify that the data loggers are in wireless transmission mode by confirming the wireless ON / OFF switch is in the '1' position on each data logger. *(See Channel Programming steps above)*

Step 4: On your PC, launch the MadgeNet software program. All active data loggers will be listed in the software showing that the device(s) are recognized.

Step 5: To activate your data loggers, click on one to highlight, then click the *Claim* icon, and then click the *Start* button. Do this for each logger in your list that you wish to activate.

Note:Choose real- timw start to view the data on the screen in real-time.

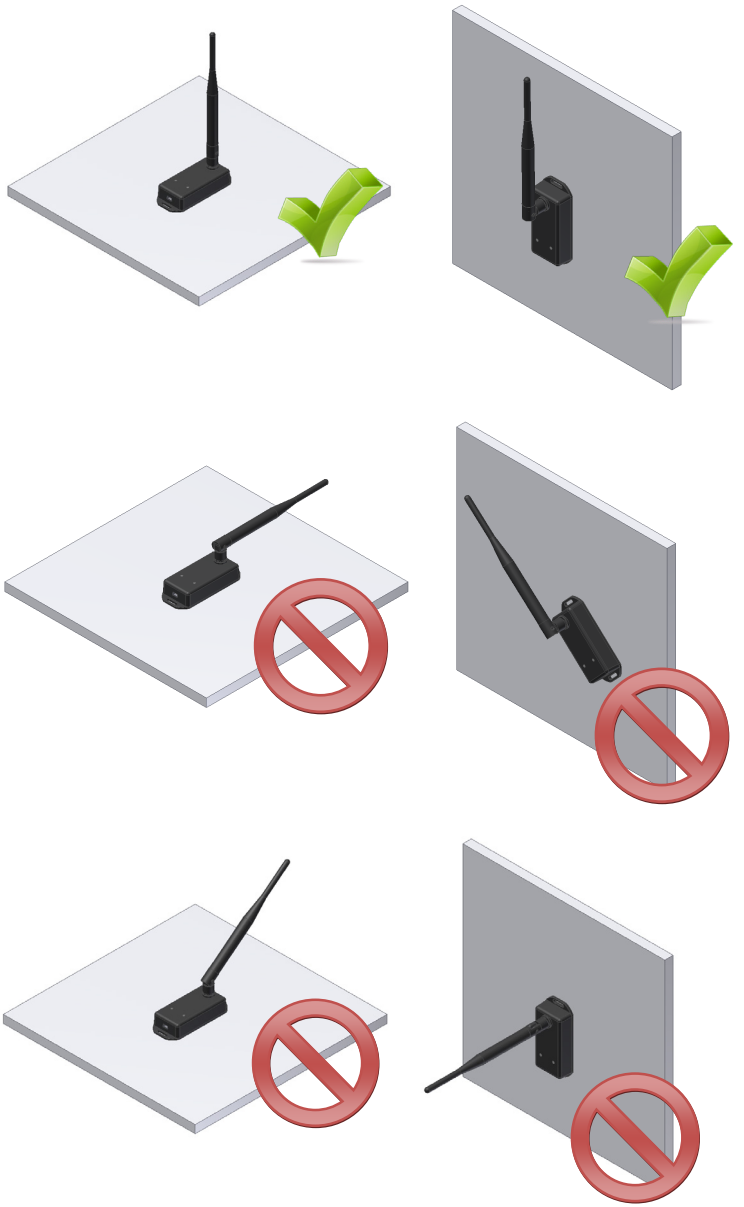
Channel Programming

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

CHANNEL NOTE: MadgeTech wireless data loggers and RFC1000 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.

Mounting Instructions

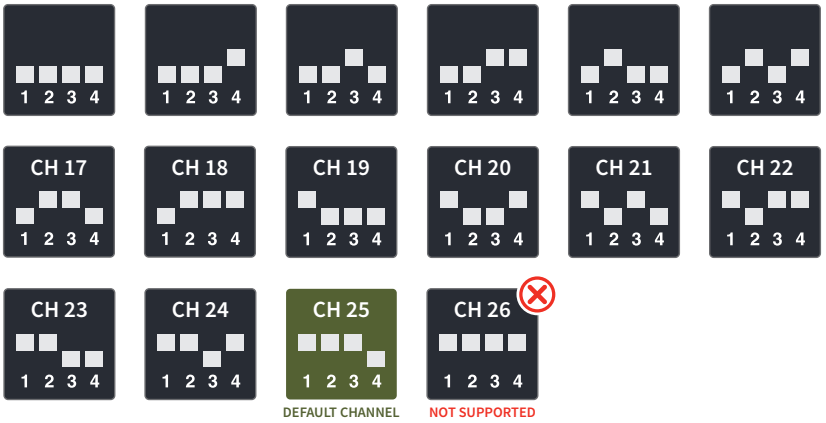
For best wireless performance, both the RFC1000 and the MadgeTech data loggers should be mounted in the same orientation. This usually means that the external antenna should be pointing straight up. The antenna can pivot to accommodate either a wall mount or a desk mount.



Configuring the Channel Settings of the RFC1000 wireless transceiver

- Unplug the RFC1000.
- Use a Phillips head screwdriver to unscrew the enclosure.
- Find the dip switches located on the front of the PCB circuit board.
- Change the dip switches to match the desired channel using the diagram above.
- Screw the enclosure back together and reconnect the RFC1000.

The default wireless channel for MadgeTech wireless devices is channel 25. Different wireless channels may be used to create multiple networks in one area, or to avoid wireless interference from other devices. The images below show the orientations avaliable of the switches for each channel. Channel 26 (all switches in the up position) is not supported.



Compliance Information

o "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."

o "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."

o "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.

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."

o "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.

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."

MADGETECH
WE BUILD DATA LOGGERS

Description	RFC1000
Interface Type	USB (to PC) Wireless (to Data Logger)
Operating Environment	–20 °C to +85 °C, 0 %RH to 95 %RH non-condensed
LED Indicators	Red & Green
Enclosure Materials	ABS Plastic (body), PVC Plastic (antenna)
RFC1000 Sensitivity	-95 dBm Typical
Transmission Distance (To data loggers)	**RFC1000, RFC1000-CE & RFC1000-IP69K** 2,000 ft max. outdoors - line of sight unobstructed 500 ft max. indoors - typical urban environment
Transmission Distance (To other RFC1000s)	**RFC1000** 4,000 ft max. outdoors - line of sight unobstructed 1,000 ft max. indoors - typical urban environment **RFC1000-CE** 2,500 ft max. outdoors - line of sight unobstructed 700 ft max. indoors - typical urban environment **RFC1000-IP69K** 4,000 ft max. outdoors - line of sight unobstructed 1,000 ft max. indoors - typical urban environment
Maximum number of connected data loggers	64
Frequency	2.405GHz - 2.475GHz
Ingress Protection	IP40
Dimensions	Enclosure: 3.8 in x 1.6 in x 0.8 in Antenna: 7.2 in
Weight	5.5 oz (156 g)
Approvals	FCC ID:OA3MRF24J40MC, IC#: 7693A-24J40MC

Specifications subject to change.
See MadgeTech's terms and conditions at www.madgetech.com

Countries approved for use, purchase and distribution of the RFC1000:

Canada, Chile, Columbia, Ecuador, Honduras, Malaysia, Mexico, Peru, South Africa, Thailand, United States, Venezuela, Vietnam

MadgeTech, Inc.
6 Warner Road • Warner, NH 03278
Phone 603.456.2011 • Fax 603.456.2012
www.madgetech.com • info@madgetech.com

DOC 1276035-00 REV 5 2014.08.21