



M2M 4G MODEM

Installation Guide



Pedestrian Safety Since 1987

STEP 1 - DISCONNECT POWER FROM TIME SWITCH

When installing a modem to an existing time switch, disconnect power from the time switch by removing the wiring harness that is attached to the bottom of the time switch.

When installing a time switch and a modem together, use the time switch installation guide to install the time switch first. Then, disconnect power by removing the wiring harness to begin installing the modem.

STEP 2 - ATTACH ANTENNA TO MODEM

Connect the 50-OHM “paddle” antenna to the female SMA antenna connector (labeled “CELL” on the modem).

NOTE: RTC provides two alternate antennas with all orders to be used in areas with weak signal strength. Always install the “paddle” antenna first. Signal strength testing and alternate antenna installation is covered later in this guide.

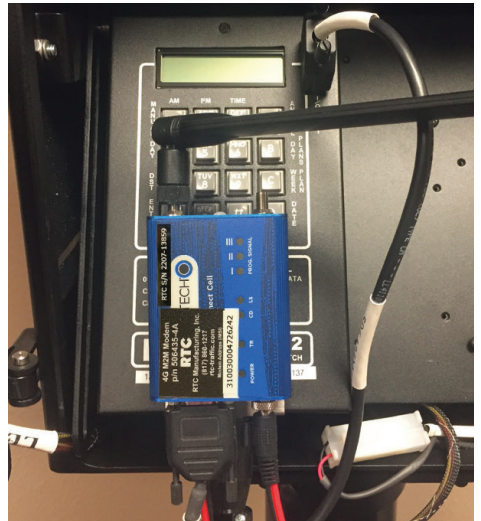
STEP 3 - CONNECT MODEM TO TIME SWITCH

Verify there is a SIM Chip in the slot labeled “SIM” on the front of the modem.

Using the supplied connection cable, connect the time switch to the modem:

- 1) Connect the round Power Plug to the round power input on the modem.
- 2) Connect the side of the connection cable labeled “M2M” to the port labeled “RS232” on the modem.
- 3) Connect the side of the connection cable labeled “AP22” to the I/O port on the top right of the time switch.

Next, unscrew the bottom screw on the faceplate of the time switch and install the metal modem holder tab to the time switch. Slide the back of the modem onto the tab to hold the modem in place in front of the time switch.



NOTE: SIM chips should not be transferred to a different modem or location without changing the location address in RTC Connect™ software.

STEP 4 – RECONNECT POWER TO TIME SWITCH & MODEM

Reconnect the wiring harness to the bottom of the time switch, which will provide power to the time switch and the modem. Under typical operating conditions, the “POWER” LED on the modem will be solid. The “LS” LED will be steady ON as the modem searches for a connection and flash slowly when a connection is made.

TIP: Avoid direct sunlight on the modem in order to see LED clearly.

The LED abbreviations on the front of the modem have the following meanings:

Power

If ON, the modem has power. If not, the modem does not have power.

TR – Terminal Ready

Flashes when device transmits data, and is OFF when not transmitting.

CD – Carrier Detect

ON when there is a data connection and OFF when there is no connection.

LS – Link Status

Slow blink indicates the device has power and is registered on the cell network.

Slow-Flashing LED (every 5 seconds)

Indicates device has power and is connected to the network.

Fast-Flashing LED (every 0.3 seconds)

Indicates device is transmitting or receiving.

STEP 5 - VERIFY SIGNAL STRENGTH

A three-LED, signal-strength meter on the front of the modem displays the strength of the signal in the modem’s current location.

The signal strength should be read as follows:

No Bars – The unit is not registered on a network or has an EXTREMELY WEAK signal.

One Bar – POSSIBLE WEAK SIGNAL 7 < RSSI < 14 (-101 < dB < -85)

Two Bars – GOOD SIGNAL 15 < RSSI < 23 (-84 < dB < -67)

Three Bars – EXCELLENT SIGNAL 24 < RSSI < 31 (-66 < dB < -51)

If possible, the signal strength should be measured with the cabinet door closed.

NOTE: If signal strength is only reading One Bar, use Command 38 (38*) on the AP22 to verify signal strength. The AP22 screen will show initialization, then report the modem cell strength (i.e. “-073”, representing -73dB). We recommend closing the cabinet door for ~15 seconds while the modem initializes the reading to provide a more accurate depiction of the cell strength in “normal” working conditions.

If the cell strength is -95 dB or better (i.e. -90 dB), the signal strength using the standard paddle antenna will work. If it is worse than -95dB (i.e. -100dB), follow the instructions to install an alternate antenna on the following page of this guide.

EXTERNAL ANTENNA MOUNTING INSTRUCTIONS *(if required)*

NOTE: Limited quantities of the following alternate external antennas are provided with orders of cell modems from RTC. Additional antennas can be provided, if necessary. Please call RTC to request (800) 782-8721.

OMNIDIRECTIONAL, TURRET-STYLE ANTENNA

Install and test the signal strength of this antenna just like the “paddle” antenna. If it returns signal strength -95dB or better (i.e. -90dB), a .75” hole will need to be drilled in the top of the cabinet to mount the antenna. Select a location on the cabinet that can be accessed both from the top of the cabinet and from inside the cabinet, preferably to the left or right (not centered). The top part of the antenna will be mounted on the outside of the cabinet and held in place by the screw-on nut attached from inside the cabinet. There is a rubber gasket surrounding the antenna outside the cabinet that will compress and seal the opening from moisture. Make sure to have a tight seal when installation is complete. A fine bead of silicon can be used as well, if desired.

YAGI WIDE-BAND DIRECTIONAL ANTENNA

If neither the “paddle” antenna nor the “turret” antenna can gain proper signal strength, the Yagi antenna is a more powerful alternate antenna. Before mounting, determine the direction to point the antenna. Point the directional antenna in several directions and measure the signal using RTC Connect, as described previously. Be aware that metal, poles, solar panels, and power lines will all negatively affect signal strength. Generally, a location that is high and away from other solid masses and electrical currents is best. Knowing the direction of the closest cell tower will also help. There are several third-party smart-phone apps that can help find this information. After testing, if a signal strength -95dB or better (i.e. -90dB) is received, a .375” hole will need to be drilled in the cabinet for the 506473WL15 cable. Use silicon to seal around the cable. The cable should be installed in a manner that limits cable exposure and exposure of the cabinet to water intrusion. The Yagi antenna will have an installation guide provided. It will include basic hardware and instruction for adjusting the antenna for maximum performance.



For more information, contact our team at:

Info@RTC-Traffic.com or call toll free **800.782.8721**

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