

MQ03-LTE-M-FIRE

Cellular Communicator
with Dial Capture Interface

Installation and Operation Manual

Doc. No. 03002 V 1.1 08/2020

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About this document

This document was developed and wholly owned by M2M Services. It is intended to facilitate trained personal with the installation of MQ03-LTE-M-FIRE. M2M Services reserve the right to modify and revise this manual without notice.

Agency Listings and Approvals

These listings and approvals apply only to the module specified in this document. In some cases, listing may be in process.

- **FCC Statement**
This equipment complies with FCC rules Part 15, FCC registration No. RI7LE910NAV2 and operation is subject to the following conditions:
 - (1) This device may not cause harmful interference, and
 - (2) This device must accept any interference received.
- **UL No. S36114, conforms to following UL standards:**
 - UL864 – Control Units and Accessories for Fire Alarm Systems
 - UL1610 – Central-Station Burglar Alarm Units

Limited Liability

The user agrees that despite the Device could reduce the risk of fire, theft, burglary or other dangers, it does not guarantee against such events. M2M Services will not take any responsibility regarding personal, property or revenue loss while using the Device. M2M Services responsibility according to local laws does not exceed the value of the purchased system. M2M Services is not affiliated with GSM operators providing cellular services, therefore is not responsible for network services, coverage or its operation.

Manufacturer Warranty

The Device carries a non-transferable hardware limited warranty by the manufacturer M2M Services. This warranty does not cover any postal or labor costs for the removal and reinstallation of the Device. This warranty does not cover any subscriber agreements or failure of services provided under the terms of such subscriber agreements, or failure of cellular, GPRS, LAN or other related networks functions and services. The warranty does not apply to any Device that has been modified or used in a manner contrary to its intended purpose and does not cover damage to the Device caused by installation or removal of the Device or any of its components. This warranty is voided if the Device has been damaged by improper maintenance, SIM card removal, accident or unreasonable use, negligence, acts of God, neglect, improper service or other causes not arising out of defect in materials or construction. This warranty does not cover the elimination of externally generated static or noise, or the correction of antenna problems or weak signal reception, damage to software, accessories or alarm system external components, cosmetic damage or damage due to negligence, misuse, abuse, failure to follow operating instructions, accidental spills or customer applied cleaners, damage due to environmental causes such as floods, airborne fallout, chemicals, salt, hail, windstorms, moisture, lightning or extreme temperatures, damage due to fire, theft, loss or vandalism, damage due to improper storage and connection to equipment of another manufacturer, modification of existing equipment, faulty installation or short circuit.

In no event will M2M Services be liable for any incidental, special or consequential damages (including loss of profits), and the Client shall have no claim against M2M Services for termination of contracts, indemnification, compensation for loss of customers, loss of profits, prospective profits, distribution rights, market share, goodwill, investments made or any similar losses that may result from any faults in the operation of the Device and the services provided by M2M Services.

Safety Instructions

- ✓ This unit must be checked by a qualified technician once a year.
- ✓ The MQ03-LTE-M-FIRE device contains a radio transceiver operating in LTE CAT-M1 band.
- ✓ Do not use the Device with medical devices, or where it can interfere with other devices and cause any potential danger.
- ✓ Do not expose the Device to high humidity, chemical environment or mechanical impacts.
- ✓ Do not use the Device in hazardous environment. Don't store or install the Device in overheated, dusty, wet or overcooled places.
- ✓ The Device is mounted in limited access areas. Any system repairs must be done only by qualified, safety aware personnel. Don't disassemble or refit the Device. Do not attempt to personally repair it.
- ✓ Mains power must be disconnected before any installation or tuning work starts. The device installation or maintenance must not be done during stormy conditions.
- ✓ The device must be powered by DC 12-29V, 200mA power supply.
- ✓ Blown fuses or any other components of the Device must not be replaced by the user.
- ✓ Keep the Device dry. Any liquid, i.e. rain, moisture, may destroy or damage the inside circuitry.
- ✓ Handle carefully. Don't vibrate or shake it violently.
- ✓ Don't clean it with chemicals, detergent.
- ✓ Please read the user manual carefully before installation and operation of the Device. Otherwise, it may not work properly or be destroyed.

Technical Support

For support in the USA and Canada, contact M2M Services Technical Support at:

- Telephone: 1-800-403-7029
- Email: support@m2mservices.com
- Website: support.m2mservices.com

Product Description

The MQ03-LTE-M-FIRE is a digital cellular communicator with dial capture interface. It represents the latest communication technology for the security industry. The new LTE-M connectivity brings faster speeds and greater stability. The communicator is equipped with dual-SIM. In US one of the SIM cards supports AT&T and the other support Verizon.

This communication solution is a complete communication platform for data transfer from alarm systems at remote sites to Central Monitoring Stations (CMS). The platform allows bi-directional data transmission by using LTE CAT-M1 network and LAN.



Main Features

- ✓ Universal Panel Compatibility – Dial capture interface supporting Contact ID and SIA;
- ✓ Exceptional Redundancy – Dual-SIM device;
- ✓ Connection monitoring – adjustable fault reporting time as low as 20 seconds;
- ✓ High reliability due to multiple transmission channels (LTE CAT-M1/LAN) and redundant servers;
- ✓ Web-based software and smartphone app for devices configuration and administration;
- ✓ End-user smartphone app – supports push notifications.

Specifications

Characteristics	Technical Specifications
Supply Voltage	+12 to +29 VDC
Consumption	Standby 50 mA Peak 200mA
Frequency	LTE CAT-M1 700/850/1700/1900/2100 MHz
GSM Providers	AT&T, Verizon, or other available in the area networks
Dimensions	2.48"x3.54"x1.26"
Weight	2.56 oz without antenna
Environmental	Operating temperature: 0°C to 49°C (32°F to 120°F) Humidity: 0 to 85% relative humidity, non-condensing

Mounting and Wiring

- ✓ Recommended location and wiring methods must be in accordance with the National Electrical code, ANSI/NFPA 70.
- ✓ Installation must be in accordance with the National Fire Alarm and Signaling Code, NFPA 72.
- ✓ The communicator must be connected to a UL Listed compatible panel with power limited circuits.
- ✓ The communicator must be powered by a regulated UL Listed UOJZ, UTOU, NBSX control panel or power supply.
- ✓ The wiring should be done only when the panel is power down.
- ✓ For Dry/Indoor use only.

Wiring the Communicator

The terminal strips can accommodate solid or stranded wire sizes from 14 to 22 AWG.

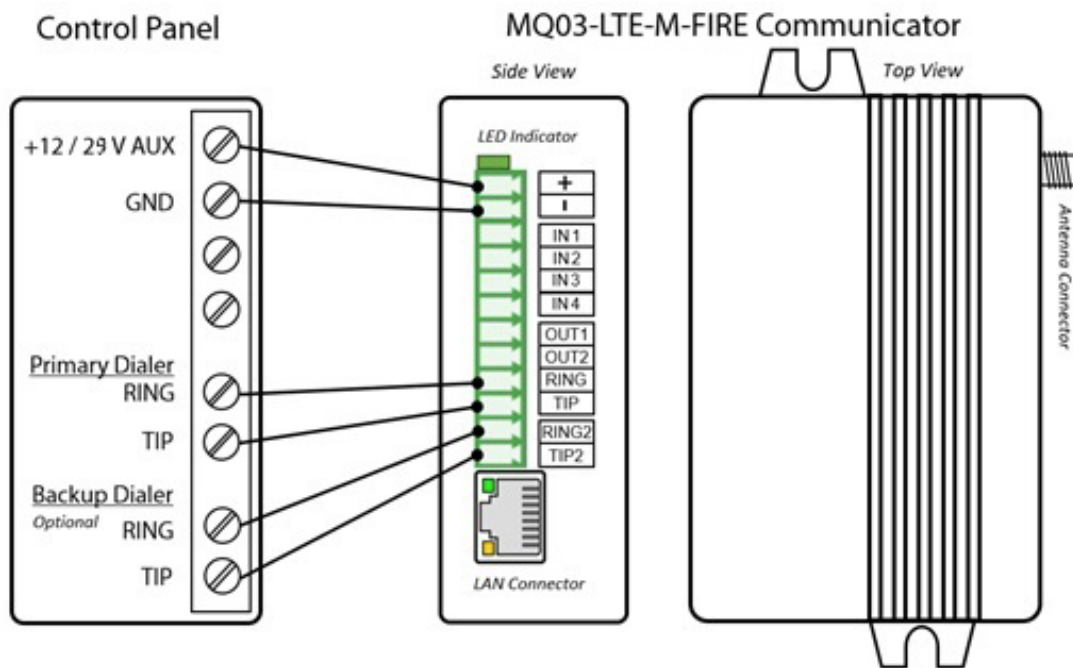


Figure 1: Installation Wiring Diagram

(+)	Connect this terminal to AUX + of the panel.
(-)	Connect this terminal to the AUX – (GND) of the panel.
Primary Dialer	
RING	Connect this terminal to the RING of the panel.
TIP	Connect this terminal to the TIP of the panel.
Backup Dialer	
RING	Connect this terminal to the RING2 of the panel.
TIP	Connect this terminal to the TIP2 of the panel.

Note: IN1, IN2, IN3, IN4, OUT1, OUT2, LAN – Not connected.

Mounting the Communicator

This communicator comes fully assembled with all the components mounted except the external antenna. The device comes with standard 3 ft external antenna.

The communicator must be installed within Altronix BC300R metal enclosure or as an option any other UL Listed (UOXX, NITW or CYIV) metal enclosure. All the wiring must be routed through a conduit.

This enclosure shall have ample knockouts accommodating either $\frac{3}{4}$ " or 1" conduits for convenient access. The MQ03-LTE-M-FIRE must be attached securely to the metal plank provided with the device, which in turn installed inside of the enclosure. The antenna must be installed on top of the enclosure, removing one of the knockouts, as per the installation instructions listed below in this chapter.

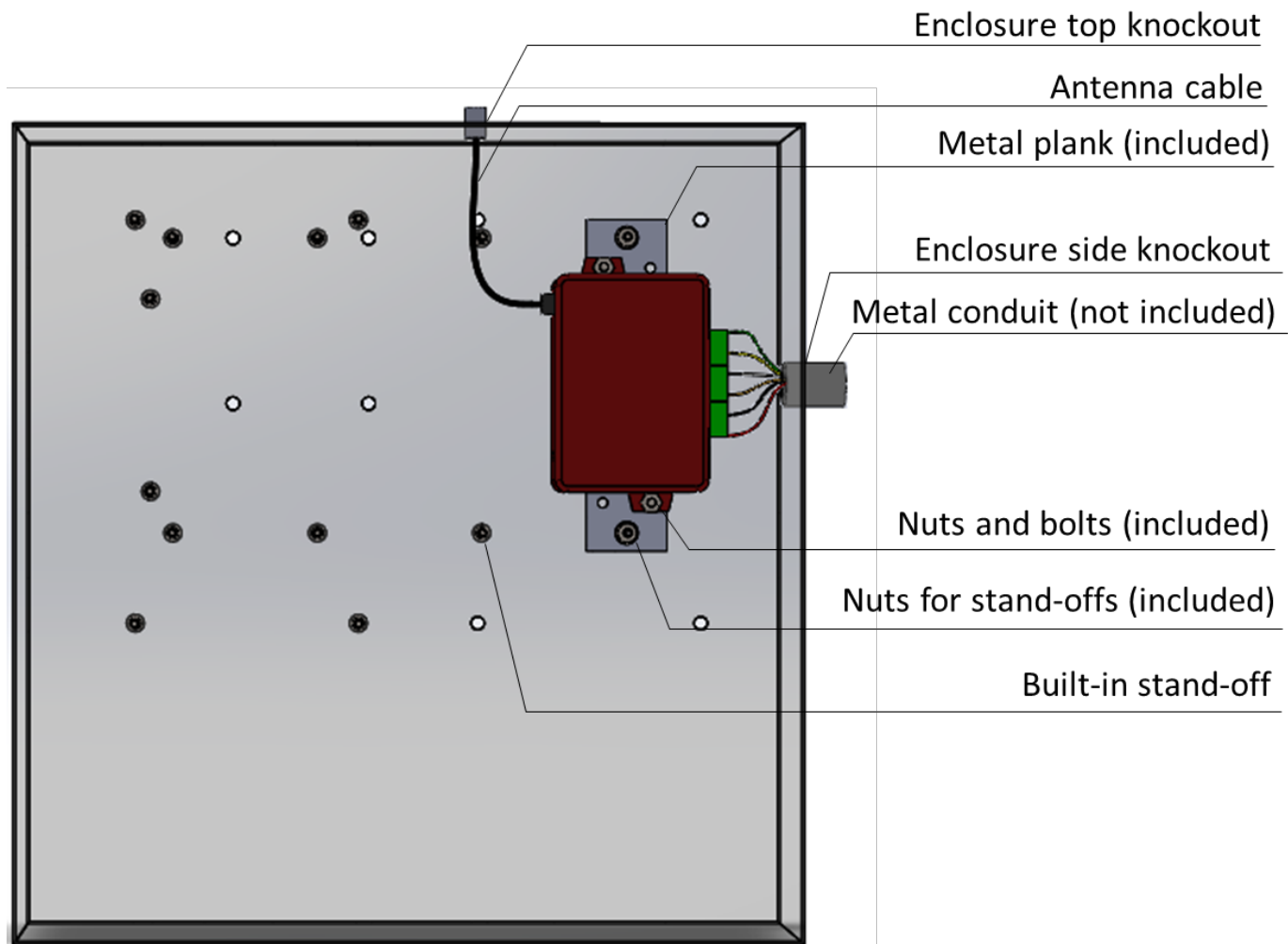
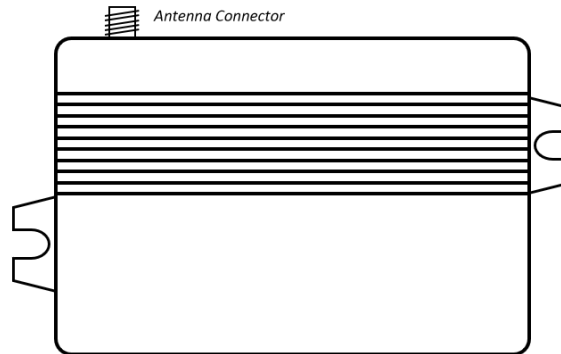


Figure 2: Mounting within Enclosure

There are nine steps in installing MQ03-LTE-M-FIRE properly. In the following steps you will use the communicator and the RControl Admin application to determine the signal strength to find a suitable mounting location.

1. For UL installations, the communicator must be mechanically secured to a UL Listed enclosure such as a UL Listed junction box. Use the communicator box as a template and mark the holes on the mounting surface. Pre-start the mounting screws (not supplied) for these two holes. Slide the box onto these screws and tighten the screws.



2. Connect the antenna to the communicator.
The antenna is supplied with SMA connector, that allows easy connection to the communicator. The body of the antenna has a magnet in the bottom and can be attached to the wall of the metal alarm panel box or use double sided adhesive type to securely attach the antenna to the box. The antenna should be position perpendicular to the ground, either right side up or upside down. Try to keep the antenna away from sources of RF interference or where metal objects can shield it or otherwise block the cellular radio RF signal.

WARNING: The internal antenna used with this product must be installed to provide separation distance of at least 7.8 in (20cm) from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter except in accordance with FCC multi-transmitter product procedure.

Note: Antenna problems are rare unless the premises are in an area with poor network coverage, in a building below ground, or in a metal structure. If you require antenna with a longer cable, please contact your M2M Services representative.

Do not use the unit with a damaged antenna. Have your antenna replaced immediately. Use only a manufacturer approved antenna. Non-approved antennas or modifications could impair service quality, damage the device and violate FCC regulations.

3. Connect the communicator to the alarm panel. Refer to the wiring diagram provided in the previous section.
4. Power up the panel.

5. The communicator LED indicator will turn on and start blinking. The steady light will indicate a good connection. The LED has the following states:

LED Status	Indication	Action
The LED is Off	The unit is not connected to the panel	Verify the wiring, refer to the wiring diagram.
	The power from the panel is out	Measure the AUX output of the panel
	The unit is damaged	Replace the unit
Slow flashing	Trying to establish connection There is no signal available	Reposition the antenna
Constantly On, blinking every 5 secs	Connection established at low signal level	Reposition the antenna
Constantly On	Connection established at good signal	
Fast flashing	Transferring data	

6. Download the RControl Admin mobile application on your Android or IOS mobile device.
7. Login with the end user credentials from the quick installation manual provided with the device.

For more details refer to M2M Smartphone Application Overview V 2.0 at

http://support.m2mservices.com/wp-content/uploads/2017/12/Smartphone%20Application%20Overview_v.2.0.pdf

8. If the signal is low, reposition the antenna and try again to find a better signal. Antenna faults are to be conducted in the end-use application to confirm receiver programming of the periodic test reporting. To be verified by the installer.

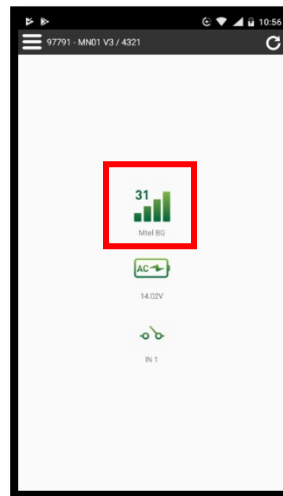


Figure 3: Screen Shot from RControl App with information about signal strength.

9. When the wiring and positioning of the unit is completed, proceed with the programming of the panel (next section).

Programming

Out of the box the communicator is ready to use and does not require additional programming. You need to program the control panel to work with MQ03-LTE-M-FIRE.

Programming the Control Panel

For programming information, please refer to the appropriate control panel guide. Ensure the following programming is done:

- ✓ Enable the PSTN dialer of the panel
- ✓ Select DTMF mode (tone dialing)
- ✓ Select Contact ID or SIA communication format
- ✓ Enter a telephone number for dialing (you can use any number, e.g. 999999)
- ✓ Enter a 4-digit account number

Programming guides for [compatible alarm panels](http://support.m2mservices.com/panel-programming/) are available at <http://support.m2mservices.com/panel-programming/>

Troubleshooting

If you have issues receiving the events:

1. Verify the RING/TIP connection
 - ✓ Make sure the green and yellow wires are connected to a TELCO ring and tip, not R-1/T-1 terminals.
 - ✓ Verify the panel error messages – “Cut Line”, Communication Failure”
2. Try the following additional settings of the panel:
 - ✓ Disable “Wait for Dial Tone” option
 - ✓ Use “A” instead of “0” in the account number
 - ✓ If there is more than one partition, enter an account number for each partition. For certain panels, you might need also to specify an account number for the main partition 0 (sometimes referred as system number)