

# Cellular Network Module Installation Guide

This document is intended for installation of a Brivo Cellular Network Module with a Brivo ACS6000 or ACS300 control panel. The Brivo Cellular Network Module allows Brivo control panels to communicate without the requirement of an Ethernet or Wi-Fi connection. The Cellular Network Module connects to the ACS6000 or ACS300 control panel via the USB port and can be configured to provide primary or back-up failover connectivity for the control panel.

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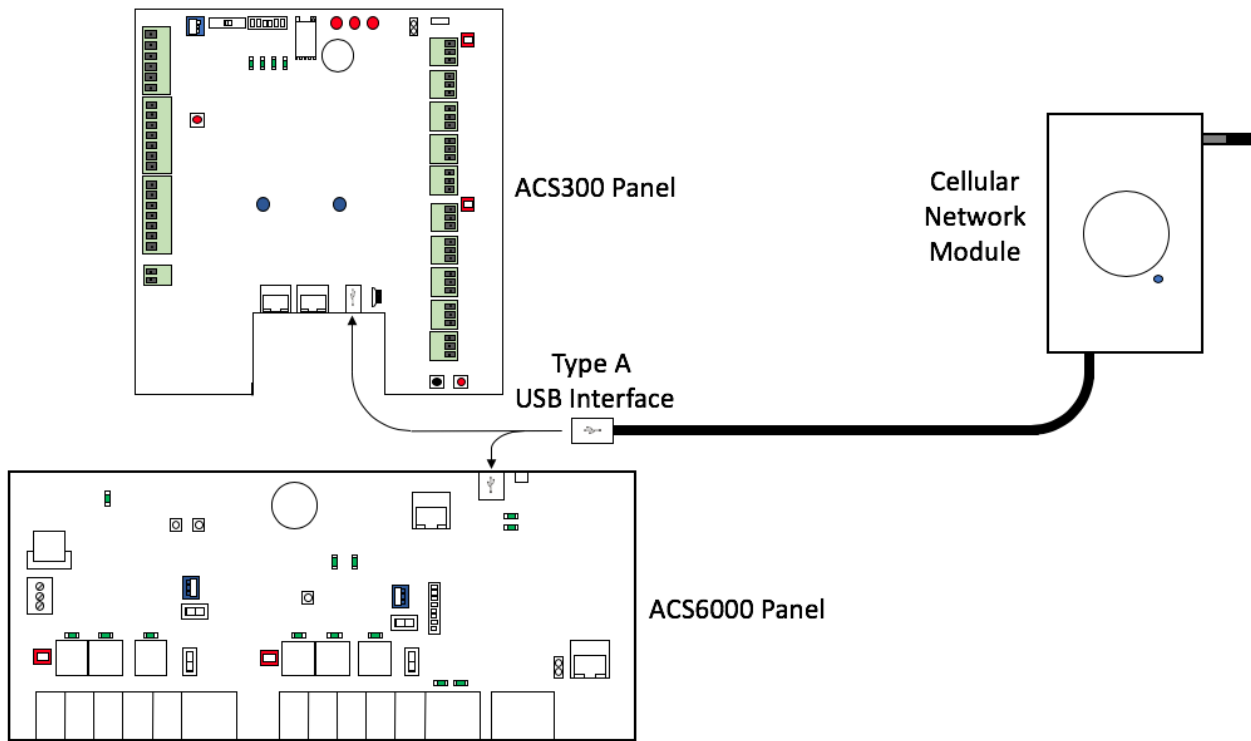
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# Introduction

The following figure illustrates the Brivo Cellular Network Module topology:



## Required Components

Brivo Cellular Network Module Box containing:

- a) Cellular Network Module with attached mounting backplate
- b) Antenna
- c) Bag with 2 screws and 2 screw anchors
- d) USB cable (Micro USB to Type A USB)
  - i) Optional: A Type A USB extender cable
- e) Quick Start Guide

Brivo ACS6000-E or ACS300-E controller with firmware 6.0.0 or higher

# Preparation

## Mandatory Step Before You Begin Installation

Before you begin installation of the Cellular Network Module, you must complete the following pre-planning steps:

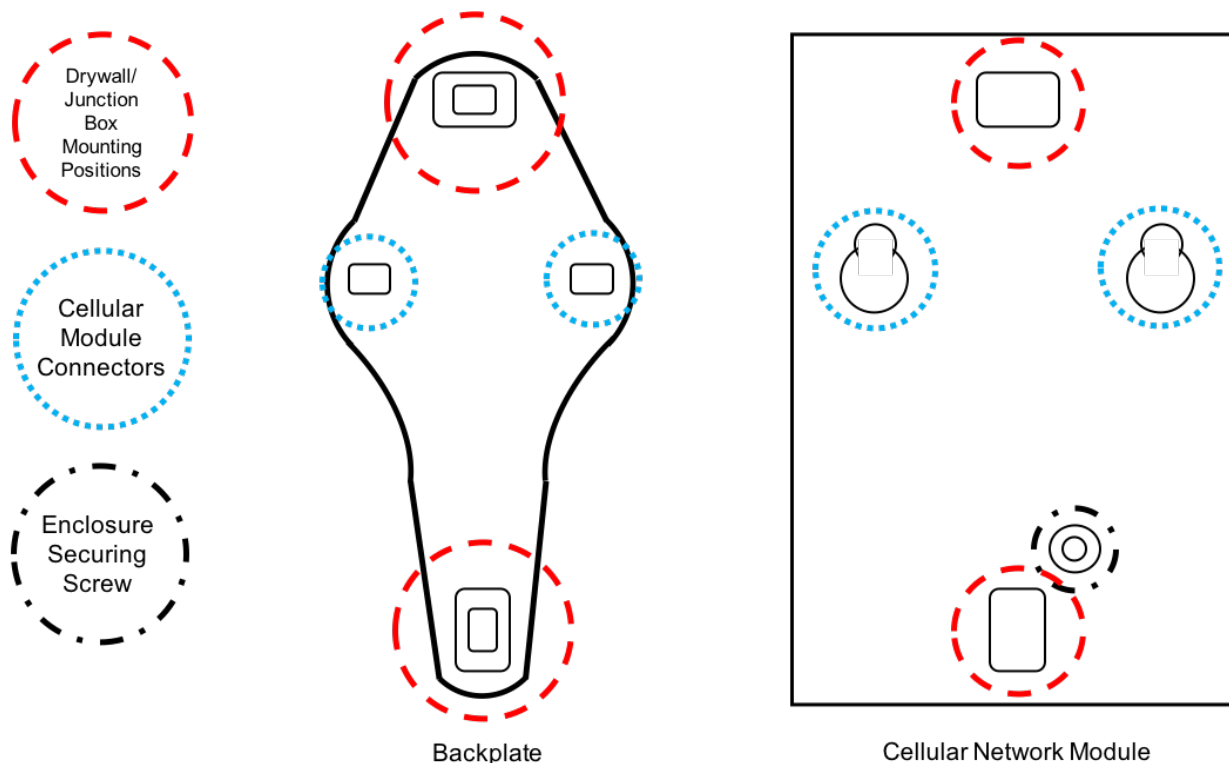
1. Activate the SIM card in the Cellular Network Module.
  - a. Contact Brivo Technical Support at 866-692-7486.
  - b. Contained in the Cellular Network Module box is a SIM number. You will need to provide that SIM number to Technical Support. Alternately, you may log into the control panel admin interface (webcli) and under the Cellular Module tab, navigate to the Status tab. The Subscriber number is the Cellular Network Module's SIM card number.
  - c. Once the SIM card is activated, you may begin installation of the Cellular Network Module.
  - d. While you have Technical Support on the phone, ask about upgrading panel firmware.

## Mounting the Cellular Network Module

The Cellular Network Module comes with a plastic backplate attached to the back of the module. The module itself or the plastic backplate may be attached to drywall (or a standard US single gang junction box) using the mounting holes detailed below.

The plastic backplate is attached to the Cellular Network Module by two plastic standoffs which slide into place. To remove the plastic backplate from the Cellular Network Module, slide the plastic backplate down until the backplate comes free.

To gain access to the inside of the Cellular Network Module, remove the enclosure securing screw located on the back of the Cellular Network Module. You must remove the plastic backplate to gain access to the enclosure securing screw.



# Configuration

## Overview of Configuration Process

1. Download the latest firmware from Brivo to the ACS6000 or ACS300 control panel.
2. Connect the Type A USB end of the cable from the Cellular Network Module to the USB port found on the ACS6000 or ACS300 control panel.
3. Set the failover priority in the control panel admin interface (webCLI).
4. Log into Brivo Onair.
4. Swipe a card at a reader while the Cellular Network Module is activated and review the Activity Log in Brivo Onair to verify the card swipe.

## Download Latest Brivo Control Panel Firmware

1. If a firmware upgrade was not already completed, contact Brivo Technical Support at 866-692-7486 and follow instructions provided by Technical Support to upgrade the control panel firmware to the latest version.

## Connect the Cellular Network Module to the Brivo Control Panel

The Cellular Network Module has a USB cable attached to the unit with a Type A USB interface to connect to an ACS6000 or ACS300 control panel.

1. Connect the Type A USB interface with the ACS6000 or ACS300 control panel. The Cellular Network Module is powered via USB, so when the USB cable is connected, the green light on the front of the Cellular Network Module will illuminate.

## Set the failover priority of the Brivo Control Panel

The ACS6000 and ACS300 control panels allow for multiple connection methods to the Brivo Onair Cloud Server. The panel can connect via Ethernet, WiFi, or Cellular (and are set in that priority by default).

1. Attach a network cable to the Admin port of the ACS300 or ACS6000 control panel.
2. Log into the control panel admin interface (webCLI).
3. From the Main tab, click on the Networking tab to access the Networking menu bar.
4. Click Connection Priority to access the Connection Priority page.
5. To set the First Priority, you may select Ethernet, WiFi, or Cellular from the dropdown list. If the Cellular Network Module is being used as the primary method of connectivity, set Cellular as the First Priority.
6. Repeat this step for Second Priority and Third Priority. Do not choose the same connection type for more than one priority.
7. Click Save.

## If the installer has access to the Brivo Onair account:

### Log into Brivo Onair

1. Log into Brivo Onair.
2. From the Home screen, click on the Activity tab along the top of the page which sends you to the Activity Log page.

### Swipe a Card at a Reader

1. At any connected reader, swipe a card.
2. The swipe will appear on the Activity Log page.
3. The Cellular Network Module is now confirmed to be working.

## If the installer does not has access to the Brivo Onair account:

### For ACS300 control panels, verify the communication light is active

1. When both the ACS300 control panel and the Cellular Network Module are powered and the communication light (the one on the right side of the Brivo logo) on the ACS300 control panel is illuminated blue, the control panel is connected and communicating.

### For both ACS300 and ACS6000 control panels, verify connection via the webCLI

1. Log into the Admin port of the ACS300 or ACS6000 control panel.
2. On the Main tab, the Last contact with Central field shows the last time the control panel connected with Brivo servers.

# Troubleshooting

The troubleshooting section provides some basic answers to common issues that may affect the functionality of the Cellular Network Module. If these troubleshooting answers do not address the issue you are experiencing, contact Brivo Technical Support at 866-692-7486 for further assistance.

## Did you remember to activate the SIM card?

If you did not, please refer to the Preparation section of the Installation Guide to activate the SIM card.

## Verify the firmware of the Brivo Control Panel

The Cellular Network Module requires firmware version 6.0.0 or later.

1. Log into the Admin port of the control panel.
2. The main info page automatically displays when the administrator successfully logs in.
3. The second line shows the current firmware version of the control panel. Verify that it is 6.0.0 or later.
4. If the firmware is not 6.0.0 or later, please contact Brivo Technical Support at the number listed at the top of the page.

## Verify the signal strength of the Cellular Network Module

1. Log into the Admin port of the control panel.
2. Click on the Cellular Module tab. Click on the Status sub tab. The Modem Status page appears.
3. The column on the left shows a variety of details about the manufacturer and version of the modem.
4. Next to the RSSI (signal strength) field is a number. Compare the number to the chart below to determine the signal strength using the LTE and 3G column. If the number falls into the Excellent or Good signal quality rows, the cellular network module should connect. If the number falls into the Fair or Good signal quality rows, we suggest moving the Cellular Network Module to a better location.

		RSSI (dB)	SINR (dB)	RSRQ (dBm)	RSRP (dBm)	EC/IO
	Technology	LTE and 3G	LTE only	LTE only	LTE only	HSPA+ and EVDO
Signal Quality	Excellent	>-65	> 12.5	>-5	> -84	> -2
	Good	-65 to -75	10 to 12.5	-6 to -8	-84 to -102	-2 to -5
	Fair	-75 to -85	7 to 10	-9 to -11	-103 to -112	-5 to -10
	Poor	<-85	< 10	<-11	<-112	< -10

## Verify the Bit Error Rate (BER) is not too high

1. Log into the Admin port of the control panel.
2. Click on the Cellular Module tab. Click on the Status sub tab. The Modem Status page appears.
3. The column on the left shows a variety of details about the manufacture and version of the modem.

4. Next to the BER (Bit Error Rate) field is percentage range. Match that percentage range to the chart below to determine what bit error rate your cellular network module is generating.
5. A bit error rate greater than 1.6% - 3.2% (greater than Signal Quality level 4) indicates that the cellular network module should be moved to a better location where a lower bit error rate can be achieved.

Bit Error Rate	Signal Quality
< 0.2%	0
0.2% - 0.4%	1
0.4% - 0.8%	2
0.8% - 1.6%	3
1.6% - 3.2%	4
3.2% - 6.4%	5
6.4% - 12.8%	6
> 12.8%	7
Undetectable	-