

# M400 User Manual

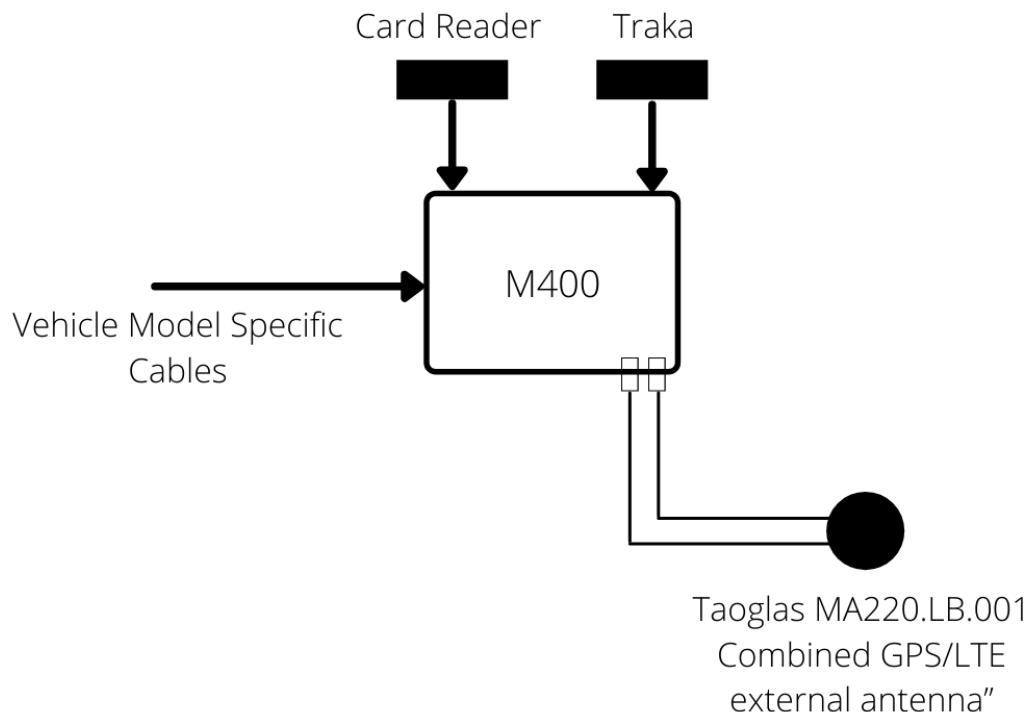
## Revision 2

The user manual describes the basic operation of M400. The M400 device allows members to have on-demand access to Zipcars. The M400 device complies with all regulatory and FCC/IC guidelines. Please find the details on the last page of this document.

### **Major Components**

- M400
- Vehicle specific harness
- Traka
- Card Reader
- Antenna

### **M400 Overview**



## **Radios**

The M400 has Bluetooth and 4G cellular radio capabilities.

1. Bluetooth
  - a. Bluetooth radio allows Zipcar to let members access Zipcars using their mobile devices.
2. 4G Cellular
  - a. Allows Zipcar to access vehicle specific and reservation specific data along with device health information. This helps Zipcar allow cars to be used as self-service vehicle rentals.

## **GPS**

GPS data is used by Zipcar to find missing cars. GPS data is always used with full compliance with State regulations for GPS use.

## **Vehicle Specific Data**

Zipcar uses proprietary vehicle harnesses that connect to cars in different ways depending on the vehicle Make and Model Year.

Data Collected from vehicles can include

- Fuel
- Odometer
- Vehicle OBDII information
- Vehicle VIN
- Ignition Status
- Door Status
- Electric Vehicle Charge Status
- Other proprietary vehicle CAN data

Remote Car Control

- Lock
- Unlock
- Immobilizer
- Horn

## **Product Specifications**

- 4G LTE
  - 4G Bands (MHz) B2, B4, B12
  - 3G Bands (MHz) B1, B2, B4, B5, B8
  - 2G Bands (MHz) B2,B3,B5,B8
- Bluetooth
  - Low Energy v4.2
- GPS
  - GNSS
- General Purpose I/Os

- Expandable Ports
  - Card Reader
  - Traka
  - Serial Port
  - SPI Port
- OTA (Over the Air) firmware update capabilities
- 3 Tri-state LED's to indicate different status of the device
- Integrated GPS/GSM external under-dash mount antenna
- 1 OBDII Port
- 1 CAN Port

## **Installation**

1. Connect Antenna
  - a. Antenna placement must provide a minimum separation distance of at least 20 cm from all persons.
2. Connect card reader
  - a. The card reader when used must be placed to provide a separation distance of at least 20cm from all persons
3. Connect Traka (where required)
4. Connect vehicle specific harness using the harness installation guide
5. Cell connection is confirmed with two horn honks (usually within 1 minute of connecting the vehicle harness)

## **Antenna**

M400 uses Taoglas antenna MA220.LB.079

Peak Cellular Antenna Gain is 2.21 dBi

*The M400, it's antenna and the card reader when used must be installed and placed to provide a separation distance of at least 20 cm from all persons. Antenna placement must provide a minimum separation distance of at least 20 cm from all persons.*

- Adhesive Glass Mount 2in1 GPS/GLONASS/GALILEO & 4G/3G/2G LTE
- GPS-GLONASS-GALILEO 1575-1610MHz 3M RG-174 SMA(M)
- Gain 3dBic Typ. @ Zenith
- 4G/3G/2G LTE 698MHz-960MHz/1710MHz-2690MHz 3M RG-174 SMA(M)
- Efficiency 26%(avg)
- High Grade 3M Double Sided Tape
- Dims: 68\*63\*12mm

## Legal Notices

### **NOTICE:**

*This device complies with Part 15 of the FCC Rules [and with Industry Canada licence-exempt RSS standard(s)].*

*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.*

*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'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.*

### **NOTICE:**

*Changes or modifications made to this equipment not expressly approved by (manufacturer name) may void the FCC authorization to operate this equipment.*

***Antenna must provide a minimum separation distance of at least 20 cm from all persons***

*This device complies with Part 15 of the FCC Rules [and Industry Canada licence-exempt RSSs.\*]. Operation is subject to the following two conditions: a.) this device may not cause harmful interference, and b.) this device must accept any interference received, including interference that may cause undesired operation.*

*Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.*

*This radio transmitter IC ID: 21268-M400 has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.*

**Antenna:** Taoglas MA220.LB.001 Peak Gain 2.21 dBi across the LTE Bands (Combined GPS/LTE external antenna

### FCC and IC IDs

FCC ID: 2AYUAM400

IC ID: 21268-M400

Revision	Notes
1	Initial Release
2	<ol style="list-style-type: none"><li>1. Added antenna name on block diagram.</li><li>2. Peak Cellular Antenna Gain is 2.21 dBi added to antenna section</li><li>3. Added statements about antenna and card reader separation of at least 20cm</li><li>4. Corrected ISED statement to include ID number and antenna information</li></ol>