

### **1.1.1 Environmental Specifications**

The M3 is designed to operate in environments typically encountered by fleet vehicles, including wide temperature extremes, voltage transients, and potential interference from other vehicle equipment.

To ensure proper operation in such an environment, the M3 was subjected to standard tests defined by the Society of Automotive Engineers (SAE). The specific tests included temperature, shock, vibration, and EMI/EMC. These tests were performed by independent labs and documented in a detailed test report. In accordance with Appendix A of SAE J1113 Part 1, the Unit is considered a “Functional Status Class B, Performance Region II” system that requires Threat Level 3 Testing.

The following shows the environmental conditions the LMU is designed to operate in and the relevant SAE tests that were performed. No formal altitude tests were conducted.

#### **Size**

3.125" long x 2.5" wide x 0.875" high  
8.0 cm long x 6.35cm wide x 2.3 cm high

#### **Weight**

3.0 ounces  
85g

#### **Operating Temperature**

-30° C to 70° C

#### **Storage Temperature**

-40° C to 85° C

#### **Humidity**

0% to 90% relative humidity, non-condensing

#### **Shock and Vibration**

SAE Test: SAE J1455 Compliant

Mil Standard 202G and 810F Compliant

Ground vehicle environment with associated shock and vibration

#### **Electromagnetic Compatibility (EMC/EMI)**

SAE Test: SAE J1113 Parts 2, 12, 21 and 41 Compliant

FCC Part 15B Compliant

Industry Canada Compliant

EMC compliant for a ground vehicle environment

#### **Operating Voltage Range**

9 – 30VDC

**Back-up Battery**

700 mAh (up to 14 days)

3 hour charge time

**Power Consumption**

Active Standby < 70mA at 12VDC

Sleep on Network < 10mA at 12VDC

Deep Sleep < 1mA at 12VDC

**GPS**

50 channel WAAS capable GPS Receiver

3m CEP (with SA off)

-160 dBm tracking sensitivity

**Communications (Comm)**

Quad Band Class 12 GPRS Modem

850 MHz (Class 4) – 2W

900 MHz (Class 4) – 2W

1800 MHz (Class 1) – 1W

1900 MHz (Class 1) -1 W

GPRS Packet Data (UDP)

SMS

**Water Resistant Enclosure****RoHS Compliant**

## 1.2 Primary Connector

The M3 uses a 4 lead (24 AWG), 115cm cable for power, ignition, ground and a single external input.

Each lead is colored coded to indicate its function as follows:

Color	Signal Name	Description	Input/Output
Red	Power	Primary power to the LMU 12V Nominal	
White	Ignition	Ignition/Input 0	Input
Blue	IN-1	Input 1 – Biased High	Input
Black	Ground	Vehicle or Chassis Ground	--

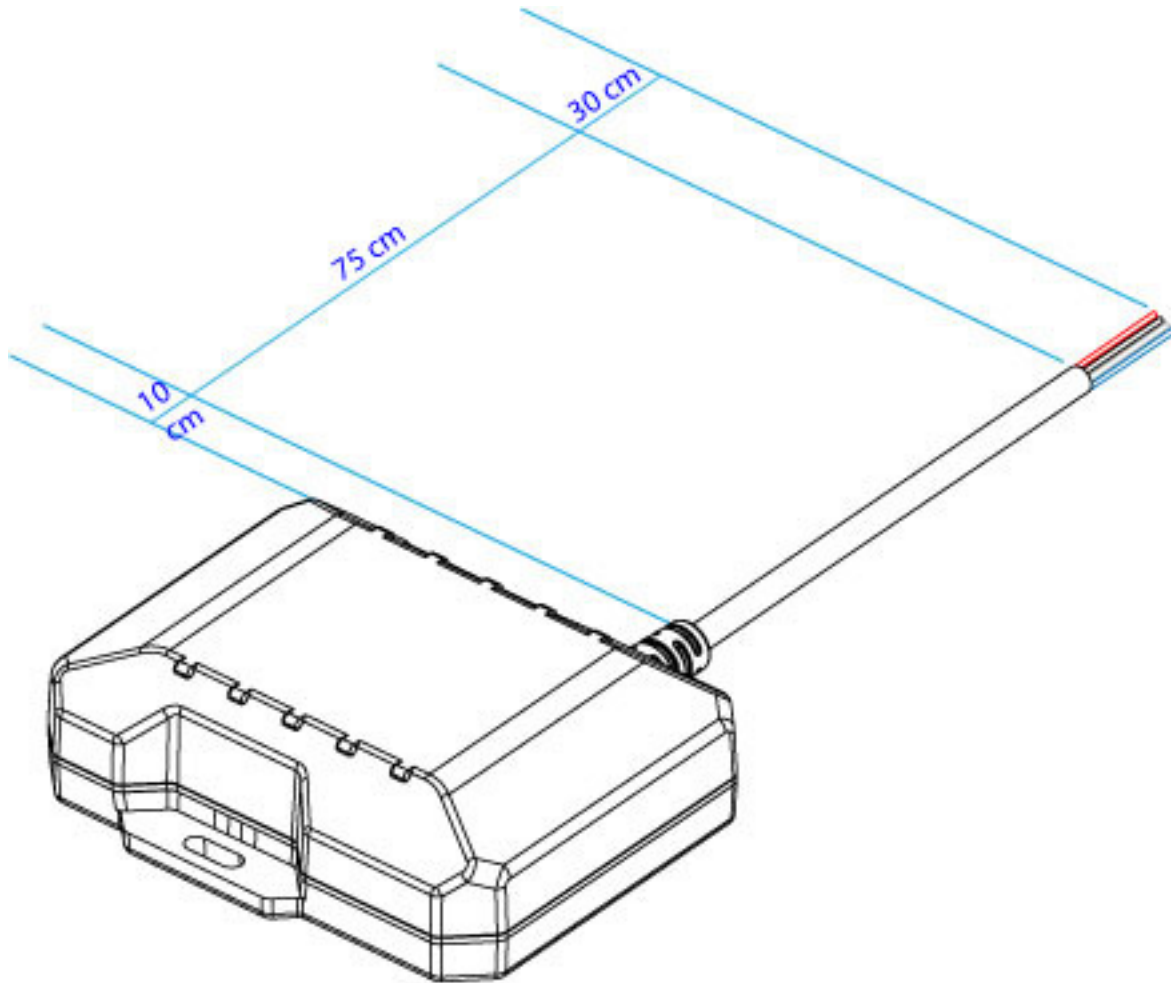


Figure 1 - M3 Cable

### **1.3 GPS Receiver**

The M3's GPS receiver has the following specifications:

- 50 channel GPS receiver
- Accuracy: 3 meter CEP (with SA off)
- -160dBm Tracking Sensitivity

The M3™ uses an internal antenna for GPS. There is no external antenna option.

### **1.4 Available Radio Interface**

The M3 uses a GSM/GPRS modem with the following specifications:

- SMS
- GPRS- Class 12
- Quad Band (850/900/1800/1900 MHz)
- Output Power:
  - 850 (Class 4): 2W
  - 900 (Class 4) 2W
  - 1800 (Class 1) 1W
  - 1900 (Class 1) 1W

As with the GPS, the M3 has an internal antenna for its GPRS modem. There is no external antenna option.