mX | by POWERFLEET®

Version 2

# MiX Talk LTE Hands Free Cellular Telephone System

## Product Overview

# Overview

The MiX Talk unit together with its accessories is a dedicated hands free cellular telephone system which will primarily be used in Fleet Management applications.

The hands free system provides superior audio quality when operating in full duplex in GSM and LTE CAT 1 networks.

An external RF antenna mounted inside the vehicle's cabin is used to ensure extended network coverage.

The MiX Talk unit supports fixed dialling and fixed incoming call numbers for easy administrative management.

The MiX Talk unit can be directly setup and configured via a serial data cable connected to either a Laptop or PC or to a compatible MiX Telematics Fleet Management on board computer. The unit can also be configured remotely via SMS. The MiX Talk Unit does not support any continuous RF data transmission.

Once installed operators and service technicians will have limited access to its SIM card. Furthermore each individual unit will have its own encoded SIM pin number for further security against unauthorised usage.


| Features | |
|---|---|
| **Hands Free Operation** | The MiX Talk system consists of a main control unit together with a separate microphone, speaker and external RF antenna. These items are fixed installed inside the vehicle's cabin. The system provides complete hands free operation only. It does not cater for any hand held microphone and/or speaker. |
| **Separate SIM Card** | The unit will have its own SIM card. Operators and service technicians will have limited access to SIM card which is housed within the main control unit. The SIM pin number is encoded for each individual unit to further increase security against unauthorised usage. |
| **Configurable "Dialling List" and "Incoming Call List"** | The unit provides an operator or service technician with the ability to configure and change a list of allowed phone numbers. The Dialling List can take up to 4 numbers. Apart from the numbers in the Dialling List, the Incoming Call List can take an additional 4 numbers. The Incoming Call List can also be configured as an Open Line in which case an incoming call can be from any number. |
| **Auto Answer** | The unit can be configured to automatically answer an incoming call after a predefined number of rings. The number of rings is also configurable. |
| **Direct and/or Remote Configuration** | The MiX Talk unit can be directly setup and configured via a serial (RS-232) data cable connected either to a Laptop or PC or to a compatible MiX Telematics Fleet Management on board computer. Direct setup and configuration can also be done remotely via SMS. |
| **Keypad Display** | The human interface to the system is via a keypad display unit. See figure above. The keypad section has 5 buttons and the display section consists of 6 LEDs. |
| **Speaker and Microphone** | The MiX Talk system comes with a separate speaker and microphone which are fixed installed inside the vehicle's cabin. |
| **Volume Control** | The volume of the speaker is manually adjustable via a knob on the speaker unit. |

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| **Ringer / Buzzer** | The unit has a buzzer that acts as a "Ringer" to ensure that the operator is always aware of an incoming call, even when the volume of the speaker is fully turned down.<br>The buzzer also gives audio feedback to the operator when using the keypad. |
| **Radio Mute Function** | An open collector output from the MiX Talk unit gives it the ability to automatically Mute / Un-mute an in-cabin radio for incoming and outgoing calls |
| **Power Indicator** | The unit displays it's ON or OFF power status with a dedicated LED on the keypad. |

### Product Part Numbers

| Part Number | Name | Description |
|---|---|---|
| 440FT0119 | FM keypad | Keypad to answer and make calls |
| 440FT0203 | FM Voice Kit Speaker | Speaker for handsfree audio |
| 440FT0196 | MiX Talk Microphone | Microphone for handsfree speaking |
| 440FT0314 | MiX Talk Main Harness MP7 | MiX Talk Main Harness MP7 with Power (fused), Ground, Buzzer, Mute Control and FM Keypad Connector |
| 440FT0315 | MiX Talk Serial Harness SR2 | MiX Talk Serial Harness for configuration and setup (Optional, Not required for operation) |
| P0054MT | MiX Talk Electronic Unit | MiX Talk Electronic Unit: Voice Module with SIM Card |
| 440FT0932 | MiX 6000 External GSM Antenna | LTE Antenna |
| P0055MT | MiX Talk Kit | MiX Talk Bundle:<br>P0054MT-MiX Talk +<br>440FT0203-FM Voice Kit Speaker +<br>440FT0196-MiX Talk Microphone +<br>440FT0119-FM Keypad +<br>440FT0932-MiX 6000 External GSM Antenna +<br>440FT0314-MiX Talk Main Harness MP7 |

## Technical Specification

### General

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| **Communication** | LTE CAT1/2G |
| **Dimensions** | L = 100 mm<br>W = 75 mm<br>H = 33 mm<br>Mix Talk Main Harness Length = 1,500 mm |
| **Weight** | ~100 grams |
| **Enclosure Material** | Bayblend FR1514 (UL recognition 94 V-0 at 1.5 mm; flame retardant; Vicat/B 120 = 136°C; ball bend indentation temperature ≥ 125°C) (PC + ABS blend) |

### Power Supply

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| **Primary power supply** | Rated voltage ($V_{nominal}$): 10.5 to 33 VDC |
| **Current consumption at 12V (primary side)** | Normal mode: < 35 mA, consumption depends on instantaneous conditions |
| **Current consumption at 24V (primary side)** | Normal mode: < 17.5 mA, consumption depends on instantaneous conditions |
| **Power consumption** | < 500 mW |
| **Circuit protection** | ISO7637-2<br>Over voltage rating: 56 V DC for 60 s |

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| **Reverse polarity protection** | Standard: ISO7637-2<br>Reverse Polarity rating: -36 V for 60 s |

## Microphone Audio Input

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| **Type** | Two wire mono externally biased |

## Microphone Audio Output

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| **Output Power** | 5 Watt to achieve a Total Harmonic Distortion plus Noise of 0.1% at 1kHz into a load of 8Ω |
| **Volume Control** | Potentiometer controlled external voltage feedback |

## Keypad Display

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| **Buttons** | The external keypad display unit has 5 buttons. Four buttons are numbered from 1 to 4. The 5th button has a red telephone (end call) sign. |
| **LEDs** | The external keypad display unit has 6 LEDs. The first 5 are red LEDs associated and positioned close to the 5 buttons. The 6th LED is a dedicated multi-colour (green and red) LED to indicate the power status of the system. |

## Buzzers

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| **Buzzer** | A single buzzer is included in main harness |

## Mute

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| **Radio Mute Function** | An open collector output from the MiX Talk unit gives it the ability to automatically Mute / Un-mute an in-cabin radio for incoming and outgoing calls |

## RF Communication

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| **Modem** | SLM320-E |
| **Description** | LTE Cat 1/2G |
| **Output Power Class** | **LTE FDD/TDD:**<br>Class 3 (23 dBm±2.7dB)<br>**GSM850/EGSM900:**<br>Class 4 (33 dBm±2dB)<br>**DCS1800/PCS1900:**<br>Class 1 (30 dBm±2dB)<br>**GSM850/EGSM900 8-PSK:**<br>Class E2 (27 dBm±3dB)<br>**DCS1800/PCS1900 8-PSK:**<br>Class E2 (26 dBm±3dB) |
| **Band** | **LTE:**<br>FDD Band 1 (2100 MHz)<br>FDD Band 3 (1800 MHz)<br>FDD Band 7 (2600 MHz)<br>FDD Band 8 (900 MHz)<br>FDD Band 20 (800 MHz)<br>FDD Band 28 (700 MHz)<br>TDD Band 38 (2600 MHz)<br>TDD Band 40 (2300 MHz)<br>**2G:**<br>PCS Band 2 (1900 MH)<br>DCS Band 3 1800 MHz)<br>GSM Band 5 (850 MHz)<br>E-GSM Band 8 (900 MHz) |
| **Module Rate** | **LTE FDD:**<br>Max 10 Mbps (DL) / Max 5 Mbps (UL)<br>**LTE TDD:**<br>Max 8 Mbps (DL) / Max 2 Mbps (UL)<br>**GPRS:**<br>Max 85.6 Kbps (DL) /Max 85.6Kbps (UL) |
| **Antenna** | External modem antenna, Penta Band, 50 Ω |

## SIM Card

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| **Format** | Nano (4FF) |

## Serial Data Port

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| **Serial Data Interface** | DB9 male connector. RS232 electrical standard. |
| **Transmission Speed** | Fixed 38400 Baud (with no hardware flow control) |

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| **Protection (Transient)** | IEC1000-4-2 Air Discharge, 15kV,<br>IEC1000-4-2 Direct Contact,8kV |

### Environment

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| **Temperature** | Recommended Storage: 0°C to +50°C<br>Operating temperature: -25°C to +85°C |
| **Temperature Shock** | The product complies with IEC 68-2-14 temperature shock requirements (Soak at -25 °C for 30 min; change over in less than 3 min to 30 °C and soak for 30 min; repeat cycle 3 times) |
| **IP Rating** | Rated IP20 |
| **Vibration** | In accordance with ISO 16750-3:2007(E) for 3h in each of the perpendicular axes. The vibration profile is as per table 14 of ISO16750-3:2007(E) |
| **Shock** | In accordance with Mil-Std-810F method 516.5 at a level 30g and with pulse duration of 11ms. The test consists of three shocks to be executed in each major axis and for both positive and negative directions resulting in a total of 18 shocks (in all 3 perpendicular axes). |

## STATUTORY AND REGULATORY

### Compliance

ICASA TA-2023/2075