

MiX Talk LTE Hands Free Cellular Telephone System

Product Overview

Table of Contents

- 1 Overview 3**
 - 1.1 Product part Numbers5
- 2 Technical Specifications 5**
 - 2.1 General5
 - 2.2 Power Supply6
 - 2.3 Microphone Audio Input6
 - 2.4 Microphone Audio Output.....6
 - 2.5 Keypad Display6
 - 2.6 Buzzers6
 - 2.7 Mute7
 - 2.8 RF Communication7
 - Module Rate7
 - 2.9 SIM Card7
 - 2.10 Serial Data Port8
 - 2.11 Environment8
- 3 Statutory and Regulatory 8**
 - 3.1 Compliance8

1 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.
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. 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.

1.1 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: P0054MT-MiX Talk + 440FT0203-FM Voice Kit Speaker + 440FT0196-MiX Talk Microphone + 440FT0119-FM Keypad + 440FT0932-MiX 6000 External GSM Antenna + 440FT0314-MiX Talk Main Harness MP7

2 Technical Specifications

2.1 General

Communication	LTE CAT1/2G
Dimensions	L = 100 mm W = 75 mm H = 33 mm 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)

2.2 Power Supply

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 Over voltage rating: 56 V DC for 60 s
Reverse polarity protection	Standard: ISO7637-2 Reverse Polarity rating: -36 V for 60 s

2.3 Microphone Audio Input

Type	Two wire mono externally biased
------	---------------------------------

2.4 Microphone Audio Output

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

2.5 Keypad Display

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.

2.6 Buzzers

Buzzer	A single buzzer is included in main harness
--------	---

2.7 Mute

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

2.8 RF Communication

Modem

SLM320-E

Description

LTE Cat 1/2G

Output Power Class

LTE FDD/TDD:
Class 3 (23 dBm $\pm$ 2.7dB)
GSM850/EGSM900:
Class 4 (33 dBm $\pm$ 2dB)
DCS1800/PCS1900:
Class 1 (30 dBm $\pm$ 2dB)
GSM850/EGSM900 8-PSK:
Class E2 (27 dBm $\pm$ 3dB)
DCS1800/PCS1900 8-PSK:
Class E2 (26 dBm $\pm$ 3dB)

Band

LTE:
FDD Band 1 (2100 MHz)
FDD Band 3 (1800 MHz)
FDD Band 7 (2600 MHz)
FDD Band 8 (900 MHz)
FDD Band 20 (800 MHz)
FDD Band 28 (700 MHz)
TDD Band 38 (2600 MHz)
TDD Band 40 (2300 MHz)
2G:
PCS Band 2 (1900 MHz)
DCS Band 3 (1800 MHz)
GSM Band 5 (850 MHz)
E-GSM Band 8 (900 MHz)

Module Rate

LTE FDD:
Max 10 Mbps (DL) / Max 5 Mbps (UL)
LTE TDD:
Max 8 Mbps (DL) / Max 2 Mbps (UL)
GPRS:
Max 85.6 Kbps (DL) / Max 85.6 Kbps (UL)

Antenna

External modem antenna, Penta Band, 50 Ω

2.9 SIM Card

Format

Nano (4FF)

2.10 Serial Data Port

Serial Data Interface	DB9 male connector. RS232 electrical standard.
Transmission Speed	Fixed 38400 Baud (with no hardware flow control)
Protection (Transient)	IEC1000-4-2 Air Discharge, 15kV, IEC1000-4-2 Direct Contact,8kV

2.11 Environment

Temperature	Recommended Storage: 0°C to +50°C Operating temperature: -20°C to +80°C
Temperature Shock	The product complies with IEC 60068-2-14 temperature shock requirements (Soak at -20 °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 in all 3 perpendicular axes.

3 Statutory and Regulatory

3.1 Compliance

ICASA TA-2023/2075