



*Westinghouse Series 1000 Mobile Satellite Telephone System*

## *Features and Specifications*

### **Fleet talk™ Features:**

#### **Components**

**Fleet talk™** consists of four major components: The handset, the transceiver, the antenna electronics unit, and the satellite antenna. Two different antennas are available: a contoured dome, available in high or medium gain, and a medium gain mast.

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#### **Satellite Providers**

**Fleet talk™** operates on satellites owned and operated by American Mobile Satellite Corporation in the U.S., Telecomunicaciones de Mexico in Mexico, and TMI Communications in Canada. Satellite coverage areas include North America and Central America extending 200 miles out to sea, the entire Caribbean, the northern tip of South America, Hawaii and its surrounding waters.

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#### **Satellite Service Providers**

To operate, **Fleet talk™** must be commissioned on a satellite through a satellite service provider. Commissioning, airtime and equipment can be purchased from satellite service providers and their dealers, located throughout the U.S., Canada, Mexico and the Caribbean. For service and dealer information, please call the Westinghouse Customer Support Center at 1-800-851-4807.

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#### **Satellite Communications Services**

**Fleet talk™** is capable of providing voice, dispatch radio, data and fax satellite communications. All communications are private; each call is protected from "eavesdroppers" by using dedicated frequencies and digitally scrambled transmissions.

The voice quality is similar to that of a digital cellular telephone; however, all satellite communications experience a slight delay in transmission.

For dispatch radio, multiple satellite telephones can be linked as part of private communication groups for dispatch radio, similar to a VHF/HF radio network. Conversations, too, are totally private. This capability is currently available on American Mobile Satellite Corporation's and TMI Communication's satellite systems.

Data is standard modem-to-modem interfacing at 2400 baud or 4800 baud depending on the satellite service provider.

Faxes can be sent and received by either personal computer (PC), containing facsimile software, or by fax machine. However, there are two different facsimile transmission methods with which satellite service the phone is commissioned. The two methods are: (1) "*direct*" faxing via a standard fax machine connected to the transceiver, or (2) a "*store-and-forward*" method using a fax machine or a PC. **Fleet talk™** supports both methods.

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### **Built-in Interfaces**

An RS-232/DB25 pin data port is located on the transceiver, and is used to connect a PC or data terminal. To make this connection, an RS-232 cable from the PC or data terminal is needed. Since the phone is the modem, there's no need for a separate modem card in the PC. The phone supports most Hayes compatible AT commands. **Fleet talk™** supports standard consumer communications software such as Procomm, America Online, etc.

A GPS port, located on the transceiver, accepts an NMEA-0183 GPS data stream (strings GGA & ZDA), allowing the satellite transceiver to receive GPS data and display it on the handset.

An external speaker jack allows the caller to connect and use an external speaker while simultaneously using the handset.

An interface called a horn alert is provided for incoming calls to sound a horn, ring a bell, or activate a flashing light.

The standard **Fleet talk™** handset supports "dispatch radio" through handset commands; however, an optional handset with a push-to-talk button located on it's side is also available. (Dispatch radio is referred to by American Mobile Satellite Corporation as *Skycell Plus* Dispatch Service.)

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### **Other Optional Features**

An optional Westinghouse FX-10 card allows the user to connect a cordless phone, touch-tone phone (with a current draw of up to 30ma), or a loop-start

Private Branch Exchange (PBX) trunk line to **Fleet talk™**. This allows the user to retain the handset as part of the system while being connected to an extension phone or PBX trunk line.

An optional Satellite Telephone Interface provides the user with the ability to tie to multiple touch-tone phones (with a current draw of up to 51ma) or any version of PBX loop-start or ground-start system. When using this option, the handset must be removed and the Satellite Telephone Interface connected between the **Fleet talk™** handset port and the PBX or suite of touch-tone phones.

An optional 3-watt cellular transceiver connected to the satellite transceiver allows **Fleet talk™** to become a dual mode cellular/satellite telephone on one handset. The dual mode phone can be preset to search for a cellular signal first, then switch to satellite if one is not found. For this operation, the cellular transceiver requires activation through a cellular service provider and the addition of a cellular antenna.

Packet data software for transmitting X.25 packet data streams, will be available later this year.

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### **Frequently Asked Questions About Fleet talk™**

#### ***What is Fleet talk™?***

**Fleet talk™** is a mobile satellite telephone system that allows you to make or receive direct dial calls from within the satellite coverage area to or from anywhere in the world.

#### ***Where can I buy Fleet talk™?***

For your nearest dealer and satellite service provider, call the Westinghouse Customer Support Center, toll free, at 1-800-851-4807.

#### ***What are the air time costs?***

Air time rates, activation and monthly access fees are set by the satellite service providers. Current U.S. satellite air time rates for **Fleet talk™** range from approximately \$.99 to \$1.49 per minute. This includes long distance service for calls terminated in the U.S. and Canada.

#### ***Is it complicated to use the Fleet talk™ telephone?***

No, it's as easy to use as a cellular phone, just dial the complete telephone number, domestic or international, and press the "Send" key. When you finish the call, press the "end" key. For incoming calls, when the phone rings, just pick up the handset from the cradle or press the "send" key.

### ***What data services does Fleet talk™ support?***

***Fleet talk™*** provides the ability to communicate via personal computer with e-mail, on-line services, or dial up an Internet service provider. ***Fleet talk™*** supports any modem to modem data transfer.

### ***How does facsimile work and where is it available?***

***Fleet talk™*** supports two methods of faxing: "*direct*" and "*store and forward*."

*Direct* faxing requires the installation of an optional Westinghouse FX-10 card. Once installed, a group III fax machine can be connected directly to the RJ-11 fax port. To send a fax just dial the number on your fax pad and press the send key. This method is currently available on the Telecomunicaciones de Mexico satellite system.

*Store-and-forward* faxing requires a separate software package or a separate hardware module. To send a fax using a PC, the *store-and-forward* software package is needed, in addition to standard PC fax software. The PC is then connected directly to the satellite transceiver's RS-232 data port. To send a fax using a Group III fax machine, the *Store-and-forward* hardware module is needed. This module is connected between the fax machine and the satellite transceiver's RS-232 data port. To send a fax dial the number on your PC or fax pad and press the send key.

For customers commissioned on either American Mobile Satellite Corporation or TMI Communications satellites, please contact your satellite service provider for the facsimile service method and service availability date.

### ***How do Fleet talk™ antennas track the satellite?***

The medium and high gain contoured dome antennas track 360 degrees in azimuth (horizontally) and have a 45 degree wide elevation beam designed to track the satellite between 15 to 60 degrees above the horizon. Actual testing has produced ideal performance from between 5 to 75 degrees above the horizon. A rate sensor is used in the antenna to sense movement. Once movement is sensed, the antenna is turned left or right to maintain track of the satellite.

The mast antenna is an omni-directional antenna which radiates in all directions and thus is always in touch with the satellite when line-of-sight is available. When traveling across different zones of the satellite coverage area, the mast antenna must be manually tuned for optimum reception.

***How far can the Fleet talk™ antenna be placed from its electronic components and handset?***

The overall distance from the antenna to the handset will vary with each installation. The maximum distance an antenna can be mounted from its electronic components is determined by the length of the antenna cabling and its routing path. Contoured dome antennas have two cables: an RF cable and a control/power cable. The standard length of the medium gain contoured dome antenna cabling is 12 feet. Twenty foot long optional cables are available. The standard length of the high gain contoured dome antenna cabling is 10 feet. Eighteen foot optional cables are available. The mast antenna comes standard with a single 5 foot antenna cable. An optional 10 foot antenna cable is available. In addition, to allow for the best possible installation location of the electronic components, the handset can be mounted several feet from the transceiver. A six foot coil cord with an 18 foot extension come standard with each handset. Thus, the total distance from the handset to the antenna is determined by the length and path of the antenna cabling, plus the location of the electronic components and handset.

***How does the Fleet talk™ antenna mount to a vehicle?***

Both types antennas can either be mounted directly to a flat surface through a 1/8 inch diameter hole, or they can be mounted using a magnetic mount for the contoured dome or a magnetic trunk lip magnetic mount for the mast.

***Are the antenna cables easy to route through a vehicle?***

Both the contoured dome and mast antenna cables are relatively flexible and easy to route. The contoured dome antenna's RF cable is 0.24 inches in diameter and is pre-terminated with a TNC connector on one end and an SMA connector on the other. The contoured dome antenna's control/power cable is 0.25 inches in diameter and is unterminated on the antenna connection end for easy routing. A field-installable antenna connector is provided. The mast antenna cable is 0.4 inches in diameter and is pre-terminated on each end with TNC connectors.

***What about product safety?***

***Fleet talk™*** has been independently tested by Underwriters Laboratories, Inc. and is UL/CUL listed in the U.S. and Canada. ***Fleet talk™*** is designed to shut down in case of overheating or RF power overload. ***Fleet talk™*** displays all proper caution and warning labels required by law.

Please call the Westinghouse Customer Support Center at 1-800-851-4807 if you have additional questions or comments concerning ***Fleet talk™***.

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## **Fleet talk™ Specifications:**

### **Communication Mode**

Voice	Full duplex digital voice Half duplex digital voice - dispatch Cellular analog voice (optional)
Data	2400/4800 bps
Fax	PC or Group III facsimile

### **System Specifications**

Transmit Frequencies	1626.5 - 1660.5 Mhz
Receive Frequencies	1525.0 - 1559.0 Mhz
G/T <i>Fleet talk™</i>	-16 dB/°K from 15° - 70° elevation, mast antenna -16 dB/°K from 15° - 60° elevation, dome antenna
<i>Fleet talk PLUS™</i>	-13.5 dB/°K from 25° - 60° elevation, dome antenna
EIRP	12.5 - 16.5 dBW
Polarization	Right-hand circular (RHCP)
Channel Spacing	6 Khz

### **Interface Specifications**

Voice	RJ-45 supports satellite voice, dispatch radio, & cellular; RJ-11 touch-tone telephone and VHF radio interface (option); push-to-talk handset (option)
Data	DB-25, RS-232 Hayes compatible AT command set
Fax	External DB-25, RS-232; AMSC, TMI Internal RJ-11 / FX-10 card (option); Telecomunicaciones de Mexico
Power	12 VDC nominal (11.5 - 15.6 V range) 2 A receive, 6.5 A transmit

### **Physical Specifications**

Antenna - Mast	Size	0.8" dia. (2 cm) x 37.0" H (94 cm)
	Weight	2.0 lb (0.9 kg)
<i>Fleet talk™</i>	Cable	RF=0.4" dia (1.0 cm) pre-terminated with TNC

		connectors
Antenna - Dome	Length	5.0 ft (1.5 m), 10.0 ft (3.0 m) (option)
	Size (LWH)	10.4" x 9.4" x 6.5" (26 cm x 24 cm x 16.5 cm)
	Weight	2.2 lb (1 kg)
<i>Fleet talk™</i>	Cables	RF = 0.25" dia (0.6 cm) pre-terminated with TNC/SMA connectors Control /power = 0.25" dia (0.63 cm) unterminated with pins attached
	Length	12.0 ft (3.6 m), 20.0 ft (6.1 m) (option)
<i>Fleet talkPLUS™</i>	Cables	RF = 0.25" dia (0.6 cm) pre-terminated with TNC/SMA connectors Control /power = 0.25" dia (0.63 cm) unterminated with pins attached
	Length	10.0 ft (3.0 m), 18.0 ft (5.5 m) (option)
Antenna Electronics Unit	Size (LWH)	9.0" x 7.0" x 2.5" (22.6 cm x 17.8 cm x 6.4 cm)
	Weight	7.0 lb (3.2 kg)
	Size (LWH)	12.0" x 7.0" x 2.0" (30.5 cm x 17.8 cm x 5.3 cm)
Transceiver	Weight	7.5 lb (3.4 kg)
Handset	Size (LWH)	7.8" x 1.5" x 1.5" (19.7 cm x 3.8 cm x 3.8 cm)
	Weight	0.4 lb (0.2 kg)
Cellular Module (option)	Cable	24.0 ft (9.2 m) - 6.0 ft coil, 18.0 ft straight
	Size (LWH)	8.0" x 3.3" x 1.0" (20.5 cm x 8.5 cm x 2.8 cm)
	Weight	1.3 lb (0.6 kg)

### **Dynamic Specifications**

Dome Antenna Turning Rate	70°/sec, maximum
Dome Antenna Acceleration Rate	500°/sec <sup>2</sup> , maximum

**Operating Temperature** -22°F to +130°F (-30°C to +55°C)