10.0 Key Contact Directory

The following directory is a list of MELA's authorized MSAT distributors in North America. Please check our web site at www.melamsat.com for updates and changes to this list.

El Dorado International Holdings Limited Zona Franca, Puntarenas Costa Rica Phone: (506) 663-7707 Fax: (506) 663-2798 **http://www.eldosat.com** Email: eldorado@imailbox.com	**Glentel, Inc.** 8501 Commerce Court Burnaby, BC V5A 4N3 Phone: (800) 784-1721 Fax: (800) 636-6381 **http://www.glentel.com** Email: satinfo@glentel.com
INFOSAT Telecommunications 18 Fawcett Road Coquitlam, BC V3K 6X9 Phone: (888) 524-3038 Fax: (604) 524-6067 **http://www.infosat.com** Email: info@infosat.com	**MOBEX Communications, Inc.** 3512 Cavalier Drive Fort Wayne, IN 46808 Phone: (800) 336-6825 Fax: (219) 471-5294 Email: dcayton@mobex.com ahenderson@mobex.com
NSat Corporation Urb. Caribe, Suite 201 1569 Alda Street San Juan, Puerto Rico 00926 Phone: (787) 763-3131 Fax: (787) 763-3920 Email: nperez@spiderlink.net	**SatCom Systems, Incorporated** P.O. Box 7460 Burbank, CA 91510-7460 Phone: (818) 526-1700 Fax: (818) 526-1715 **http://www.satsrv.com** Email: info@satsrv.com
Seven Seas Communications 1700 E. Las Olas Blvd Suite 202 Ft. Lauderdale, FL 33301 Phone: (800) 566-9600 Fax: (954) 761-7668 **http://www.sevenseascom.com** Email: sails@sevenseascom.com	**SOURCEtech Inc.** 5955 Jimmy Carter Blvd. Suite 201 Norcross, GA 30071 Phone: (678) 966-0023 Fax: (678) 966-0054 **http://www.sourcetechinc.com** Email: orespinoza@sourcetechinc.com
Stratos 3300 Corporate Avenue Suite 108 Weston, FL 33331 Phone: (888) 766-1313 Fax: (709) 748-4305 **http://www.stratos.ca** Email: info@stratos.ca	**Tecnologia Sistemas y Aplicaciones** Calle Cuautehmoc No. 75, El Carmen Coyoacan 04100 Mexico DF Phone: (525) 327-0505 Fax: (525) 554-5576 or (525) 327-0581 Email: tsacom01@mail.internet.com.mx

If you need to contact us, you can reach us at the following locations:

Mitsubishi Electronics America, Inc.	Telephone	Fax
Telecommunications/Network Systems Division 12007 Sunrise Valley Drive Suite 220 Reston, VA 20191 **Product Questions**	(703) 758-7811	(703) 758-7137
Mitsubishi Electronics MSAT Service Center 3040 East Victoria Street Rancho Dominguez, CA 90221 **Technical Support/Out-of-warranty Repairs/Spare Parts**	(800) 966-MSAT (310) 632-9098	(310) 632-9099

11.0 System Specifications

Communication Modes

Voice	Full Duplex Digital Voice at 6400 bps
Net Radio (option)	Half Duplex Digital Voice at 6400 bps
Data	1200 bps/2400 bps/4800 bps / (AT Command Set)

System Specifications

General:

Transmit Frequencies	1626.5 - 1660.5 MHz
Receive Frequencies	1525.0 - 1559.0 MHz
Polarization	Right - Hand Circular (RHC)
Channel Spacing	6 kHz

Communications (MET-C and FES-C) and GC-S Outbound Signaling Channel:

Channel Rate	6.75 kbps
Modulation	DQPSK
Access Method	SCPC/FDMA for Communications Channels TDM for GC-S Channel
Voice CODEC	Improved Multi-Beam Excitation (IMBE) @ 6.4 kbps
Scrambler	Random Pseudo Noise (PN) generator with 15 stages
FEC Encoder	Convolutional, Rate 1/2, k=7
FEC Decoder	Viterbi
Interleaving	Block - data communications and all signaling

MT-ST and MT-SR Inbound Signaling Channel:

Channel Rate	3.375 kbps
Modulation	Differential Phase Shift Keying (DPSK)
Access Method	TDMA - MET-ST Slotted Aloha - MET-SR
Scrambler	Random Pseudo Noise (PN) generator with 15 stages
FEC Encoder	Convolutional, Rate 1/2 and 3/4
FEC Decoder	Viterbi
Interleaving	Block

ST211 (Land Mobile) Performance Specifications

G/T	-16 dB/K (15^{o} to 60° elevation)
EIRP	12.5 - 16.5 dBW
Turning Rate	60°/sec max.
Turning Acceleration	20°/sec max.

ST221M (Fixed Site) Performance Specifications

G/T	-5 dB/K (5^{o} to 50° elevation) -4 dB/K (50^{o} to 90° elevation)
EIRP	12.5 - 16.5 dBW

ST211 (Land Mobile) Power Specifications

Power Consumption

Primary DC Voltage	12V DC nominal (11.5 to 15.6V range)
Transmit	4.5 A
Receive	1.8 A

ST221M (Fixed Site) Power Specifications

Power Consumption

Primary AC Voltage	120VAC nominal (85 to 265 VAC range)
Primary DC Voltage	12V DC nominal (11.5 to 15.6V range)
Transmit	2.4 A
Receive	0.8 A

Physical Specifications

Transceiver Unit	
WxHxD	8.1" x 2" x 12.1"
Weight	6 lb.
Handset	
WxHxD	8" x 2.2" x 1.3"
Weight	0.6 lb.
AU601B Antenna Unit	
Dia. x Height	33.5"(Θ) x 17"(H)
Weight	16.1 lb.
AU201A Antenna Unit	
Dia. x Height	6.8"(Θ) x 6.6"(H)
Weight	3 lb.
Beam Steering Unit	
WxHxD	0.8" x 2" x 2"
Weight	0.4 lb.

ST211/ ST221M Environmental Specifications

Temperature

State	Antenna Unit		Transceiver Unit	
Operating	-30°C to 43°C	(-22°F to 109°F)	-30°C to 55°C	(-22°F to 131°F)
Power-On	-45°C to 49°C	(-49°F to 120°F)	-40°C to 85°C	(-40°F to 185°F)
Storage	-55°C to 85°C	(-67°F to 185°F)	-55°C to 85°C	(-67°F to 185°F)

Relative Humidity	98% at 38°C	98% at 38°C
Rain	2"/hr (50mm/hr)	NA
Solar Radiation	1120 W/m^2	NA
Shock (survival)	½ sin, 20g, 11ms	½ sin, 20g, 11ms

Vibration (Note: 5-20Hz: 0.05g^2/Hz, 20-150 Hz: -3dB/octave)

Operating	1.05g rms	1.05g rms
Storage	1.7g rms	1.7g rms

ST211 Wind Specification

State	Antenna Unit	Transceiver Unit
Operating	120 mph (200 km/hr)	NA
Storage	163 mph(272 km/hr)	NA

ST221M Wind Specification

State	Antenna Unit	Transceiver Unit
Operating	67 mph (30 m/s) *100mph w/positive lock*	NA
Storage	134 mph(60 m/s)	NA

OmniQuest® ST251 General Specifications

Primary Voltage	9.6V DC nominal (11.5 to 15.6V range)
Power Consumption	
Transmit	2.4 A (1 hour continuous talk time)
Receive	1.7 A (2.5 hour receive time)
Standby	0.8 A (8 hours stand-by time)
Sleep Mode	0.6 A
Power Off	0.1 mA
G/T	-14.6 dB/K (25° to 60° elevation)
EIRP	12.5 - 16.5 dBW (25° to 60° elevation)

OmniQuest® ST251 Physical Specifications

Base Unit	Total (Excluding Handset Cradle)
WxHxD	11.3” x 2.0” x 8.3” (287 mm x 51 mm x 210 mm)
Weight	5.3 lbs (2.4 kg)
Handset	
WxHxD	8” x 2.2” x 1.3” (203 mm x 56 mm x 33 mm)
Weight	0.7 lbs (0.3 kg)
AC Adapter / Charger	
WxHxD	4.0” x 2.5” x 7.5” (102 mm x 64 mm x 190 mm)
Weight	1.7 lbs (1.0 kg)
Soft Carrying Case	
WxHxD	16.3” x 12.5” x 3.3” (412 mm x 318 mm x 83 mm)
Weight	2.2 lbs (1.0 kg)

OmniQuest® ST251 Environmental Specifications

Parameter	
Operating Temperature	
w / AC Charger	-25°C to +50°C (–13°F to +122°F)
w / Standard Battery	0°C to +40°C (32°F to +104°F)
Storage Temperature	-35°C to +85°C (–31°F to +185°F)
Relative Humidity (non-condensing)	98% at 38°C (100°F)
Wind	
Operating	22 mph (36 km/h)
Rain	5 mm/hr (Base Unit when closed - do not use in rain)
Solar Radiation	1120 W/m^2
Shock (Survival)	1/2 sin, 20g, 11 ms
Vibration	(note: 5 - 20 Hz: 0.50 g^2/Hz, 20 - 150 Hz: -3 dB/octave)
Operating	1.05g rms
Storage	1.7g rms

GLOSSARY

AC	Alternating Current
AMSC	American Mobile Satellite Corporation
AMSC1	AMSC's Satellite @ 101°W
AMSS	Aeronautical MobileSatellite Service
ASA	Authorized Sales/Service Agent
ASD	Authorized Service Depot
CFC	Commissioning Frequency Code
CGS	Communications Ground Segment
CLA	Cigarette Lighter Adapter
CNV	Converter
CODEC	Coder/Decoder
DC	Direct Current
DPSK	Differential Phase Shift Keying
DQPSK	Differential Quaternary Phase Shift Keying
DTE	Data Terminating Equipment
EIRP	Effective Isotropic Radiated Power
ESN	Electronic Serial Number
FCN	Function
FDMA	Frequency Division Multiplexing
FEC	Forward Error Correction
FES	Feeder Earth Station
FIU	Facsimile Interface Unit
FTIN	Forward Terminal Identification Number
GC	Group Controller
GC-S	Group Control Signaling
GHz	Gigahertz
HPA	High Power Amplifier
IMBE	Improved Multi-Band Excitation
KHz	Kilohertz
LNA	Low Noise Amplifier
MET-SR	Mobile Earth Terminal-Signaling Random
MET-ST	Mobile Earth Terminal-Signaling TDMA
MSAT	Mobile Satellite
MSAT1	TMI's MSAT Satellite @ 101°W
MTBF	Mean Time Between Failure
MT	Mobile Terminal
NAM	Number Assignment Module
NCC	Network Communications Controller
NG	No Good
NOC	Network Operations Center
NVRAM	Non-Volatile Random Access Memory
PFC	Pilot Frequency Code
PN	Pseudo-random Number
PNC	Private Network Capacity (Provider)

PSTN	Public Switched Telephone Network
PVT	Performance Verification Test
QPSK	Quaternary Phase Shift Keying
RF	Radio Frequency
RFU	RF Unit
RHC	Right Hand Circular
RSSI	Receive Signal Strength Indicator
RTIN	Reverse Terminal Identification Number
SCPC	Single Channel Per Carrier
SVC	Service
TDMA	Time Division Multiple Access
TMI	TMI Communications
TPB	Transportable
TU	Transceiver Unit
VASP	Value Added Service Provider