

## Site Surveillance, Project Management and Communications System for Remote Locations in High-Risk Environments

A major problem in providing security and technical oversight for construction sites in remote locations around the world is the cost, time and risks involved in dispatching qualified people to support these efforts. This problem is compounded when the site is in a potentially high-risk location, such as a war zone, or a region that is in the midst of political turmoil.



In response to this situation **MetroLink Solutions, Inc.** has developed the '**SITE MAST-R**' (Site Management, Assessment, Surveillance & Telecom - Remote) system. The SITE MAST-R system is designed to support site security, safety and telecommunications needs by providing remote video surveillance, perimeter security, personnel status, asset tracking and communications to virtually any location in the world via the Internet. The system can also be used to monitor and assess the progress of construction activities on the site by providing a real-time view of the site. This feature greatly reduces the amount of time qualified oversight personnel need to be on the site, and reduces their exposure to potential danger due to the need for fewer trips to the site.

### Cost Saving Features

The MetroLink SITE MAST-R system allows military, government agencies or multi-national companies to utilize local 'in-country' resources and still meet project goals by providing a conduit for home-base management to oversee many aspects of construction on a real-time basis. With the SITE MAST-R system the best engineering, architectural and project management talent can be utilized in support of multiple projects, in locations throughout the world, without the need of venturing forth from their primary place of work.

A recent analysis of a client's current operations in high-risk locations around the world has indicated that deployment

of the SITE MAST-R system could result in potential cost savings of over 70%. These savings are derived from the SITE MAST-R system's ability to mitigate the ever increasing cost of international travel, insurance, life support and security services related to maintaining an expatriate presence on the ground in hostile environments.

## Video System

A variety of camera options can be utilized in the video surveillance system including:

- High-definition IP cameras with a variety of field-of-view and video resolution options
- Remotely controlled (via Internet) IP cameras providing a full range of electronic or mechanical pan, tilt and zoom functions
- Very low light and infrared (IR) cameras for extreme or poor lighting conditions
- Wireless portable high-definition cameras that can be used to monitor in fine detail the status of construction activities, as well as specific elements of the construction process
- Advanced video analytics for facial and license plate recognition and geo-fence applications.

The video system can be complemented by a high quality audio system that can be extended through the use of additional wireless audio pickup devices.

## Communications System

The SITE MAST-R system not only provides high-resolution video, it also supports high quality telecommunications and Internet coverage through the application of a 'carrier grade' wide area Wi-Fi network. The wireless feature allows on-site personnel to:

- Communicate real-time with off-site engineering and operations personnel using portable VoIP-SIP phones
- Access regional or international telephony services (via VoIP)
- Send and receive changes, modifications and updates in construction drawings and plans to the site, via FTP, over the Internet
- Access the Internet while roaming the site with laptops, 'Smart Phones' or any other Wi-Fi enabled device.

## Security & Safety Enhancements

Optional 'Trace-GEO' enhancements are available in the SITE MAST-R system to support a wide variety of security and safety applications such as:

- Trace-GEO-MIDI (Multimodal Intrusion Detection & Identification): an advanced perimeter protection and monitoring solution that incorporates a wide range of sensors (motion detection, passive IR, acoustic and seismic transducers), high-definition video surveillance, video analytics and an intelligent incident management system, to remotely detect and identify intrusions and recommend response actions in the harshest environments.
- TraceGEO-PST: wireless, satellite and GPS-based 'Lone Worker' and 'Man-Down' systems that support the monitoring and safety of personnel working in hazardous or potentially hostile environments.
- TraceGEO-AST: a complete line of asset, vehicle and equipment tracking, status monitoring and incident management and resolution solutions and services.

In addition, machine-to-machine control and status monitoring is available through the application of the latest wireless M-M technology. The M-M system can be used to:

- Remotely turn on and off pumps, generators and other site equipment
- Monitor the status of electrical systems, engines and support systems
- Poll performance and maintenance data from the J Bus of construction equipment.

### **System Range**

Depending on topography, buildings and site clutter a single SITE MAST-R system can effectively cover a perimeter with a radius of approximately one hundred to two hundred meters. The effective range of the system can be extended to up to five kilometers or more by adding additional SITE MAST-R modules. The Wi-Fi 'mesh' technology can be used to provide 'seamless' coverage for large areas, or along lengthy perimeters such as pipelines.

### **System Power**

The standard SITE MAST-R system is powered by a commercial 120-240 VAC (50-60 Hz) power source. Due to the unreliable nature of power sources in many remote locations the SITE MAST-R system is equipped with battery backup that provides for up to eight hours of self-contained power. Backup power can be extended for up to 24 hours through the application of additional battery modules. In addition, an optional solar power system is available for deployment in areas where commercial power is unavailable or unreliable. This system is backed up with a 12-24 hour battery reserve.

### **Backhaul**

The SITE MAST-R system is linked to the Internet by a very small aperture satellite (VSAT) uplink. The VSAT system is available in two configurations:

- Transmitting full-time on a dedicated basis
- Transmitting only when polled from a remote location, or when there is a change in a pre-determined status condition (such as an unauthorized site intrusion).

Since in the latter mode the SITE MAST-R system transmits only when requested, or when a pre-determined alarm condition occurs, the configuration saves on costly satellite time and conserves battery life, especially if the system is solar powered.

### **System Configurations**

The SITE MAST-R system is available in three configurations:

- A portable rapidly deployed system that is packaged in seven ATA cases that can be loaded on a commercial airliner or military helicopter
- A mobile trailer mounted system that is packaged for longer term deployments, supporting larger coverage areas, where access by road is possible
- A static system mounted on rigid monopoles designed for permanent installations along site perimeters and pipelines.

## Summary of Features

- A high-resolution low-to-high light level video camera equipped for Internet-controlled remote pan, tilt and zoom
- A portable wireless high-resolution camera with macro-zoom lens for close examination of construction details
- An extended-area Wi-Fi system designed to support high-quality voice, data and video
- Site-wide wireless pedestrian mobile Internet access for laptops, PDAs, and other Wi-Fi enabled devices
- Low-cost international long distance service from anywhere on the site, utilizing portable Wi-Fi (VoIP) SIP phones
- A differential GPS system to determine the exact locations of on-site personnel, assets and end-user devices
- Wireless 'mesh' technology (at either 2.4 or 5.8 GHz) to seamlessly link multiple Wi-Fi systems over a wide area
- Battery backup for up to eight hours, expandable to over twenty-four hours
- Optional solar power with fourteen to twenty-four hour battery backup
- Reliable VSAT backhaul to provide access from any location in the world
- Wireless interface for M-M control and status monitoring
- Optional perimeter security, personnel status monitoring and asset tracking capability
- Intelligent security, monitoring and control software
- Optional 7X24 Tactical Operations Center (TOC) services are available
- Rapid response system deployment and maintenance.

The MetroLink SITE MAST-R system is an effective tool for maintaining site security and project management effectiveness in remote and hostile environments. It can improve project oversight and support by bringing to bear the best talent and tools to insure that a project is properly managed, without exposing X-Pat personnel to the dangers and rigors of frequent site visits or extended stays. The service is competitively priced and can be deployed rapidly and effectively to virtually any location worldwide.

## About MetroLink Solutions

**MetroLink Solutions, Inc.** provides a wide variety of telecommunications applications, products and support services designed to bring world-class voice, data and video services, for education, healthcare and community development, to remote and rural areas of emerging markets worldwide. MetroLink also provides sophisticated security technology supporting a wide variety of perimeter, facility and personnel safety solutions in high-risk situations. MetroLink has formed strategic alliances with leading providers of protective security services, proprietary applications and advanced security hardware. These unique alliances are focused on ensuring the safety of personnel, safeguarding critical facilities, tracking the whereabouts of assets and monitoring the movement of vehicles in hostile and high-risk environments.

Many of MetroLink's security products and services were originally designed for use by the Department of Defense, and are in use by security agencies around the globe. Military versions of a number of these systems are in use today, supporting critical applications in hostile environments around the world.

## Contact Information

For more information about MetroLink Solutions, Inc., and its products and services, please visit our website at [www.metrolinksolutions.com](http://www.metrolinksolutions.com) or contact:

### In Canada:

MetroLink Solutions, Inc.  
501-525 Seymour Street  
Vancouver, BC V6B 3H7

Patrick Fitzsimmons

**Tel: 604-700-9324**

[pfitzsimmons@metrolinksolutions.com](mailto:pfitzsimmons@metrolinksolutions.com)

### In the US:

MetroLink Solutions Corp.  
15323 146th Ave SE  
Snohomish, WA 98290

Paul Brandenburg

**Tel: 360-540-2058**

[paulb@metrolinksolutions.com](mailto:paulb@metrolinksolutions.com)