



Autoscope® *Terra*™ Technology for the Next Generation Autoscope System

Introduction

In recent decades, the growth of internet communications and modern transportation systems has shrunk the world dramatically, leading to economic growth and greater freedom of movement. However, traffic congestion and incidents continue to plague our roadways, threatening public safety, mobility, and quality of life.

Meanwhile, digital video and broadband communications are transforming the electronics industry and enhancing new applications. We see these technologies appearing in our cars, computers, mobile phones, portable media players, and communication networks. These technologies are also transforming how we view and manage our physical transportation networks and traffic management systems, inspiring interesting new products and traffic applications. Whether for surveillance, vehicle detection, data collection, or traffic monitoring systems, digital video and broadband technologies are improving traffic information, system performance, and cost efficiencies. Ultimately, new technologies help traffic managers improve safety, reduce air pollution, and mitigate traffic congestion on roadways worldwide.

Welcome to a new generation of Autoscope products based on ***Terra Technology***. ***Terra***, meaning “earth,” is an appropriate name because high-quality traffic information is the foundation of effective transportation systems. Imagine how Autoscope products with ***Terra Technology*** can become the foundation for leading intelligent transportation systems—offering the world another powerful tool to keep traffic moving in the neighborhood, through a city, or across the country.

What is ***Terra Technology***?

Autoscope ***Terra Technology*** combines state-of-the-art advances in digital video, digital image signal processing, broadband communications, and System-on-Chip (SoC) processors to add versatility and boost processing performance. The benefits will be clear in the simpler installation, easier set up, reduced maintenance, and increased accessibility. Here are the key features that characterize Autoscope ***Terra Technology***:

- EasyLink™ connectivity provides easy connection to customer networks at broadband speeds.
- Video-ready, dual-core processors further enhance already legendary Autoscope detection performance.
- Web server feature provides convenience for setup and monitoring via common internet web browsers.
- Streaming digital MPEG-4 video is available from each Autoscope processor to view locally, at the Traffic Management Center (TMC), or over the internet.
- Password protection gives managers access control on shared networks in this age of increased security consciousness.



Key Features

EasyLink Connectivity

Autoscope systems have always had industry-leading, robust communications. EasyLink connectivity means simpler installation and connection of Autoscope **Terra** equipment to your Ethernet-based communications networks. Power and in-cabinet communications connections use standard, off-the-shelf cabling. A standard CAT-5 cable connects **Terra Technology** products into a network to view video, collect traffic data, and maintain the Autoscope system. All **Terra** equipment uses Internet-standard, IP-based addressing, each with its own unique Ethernet MAC address.

For the Autoscope Solo **Terra**, EasyLink connectivity simplifies installation, saving time and money. The Solo **Terra** uses “three wires only” cabling and a field-installable, reusable, 3-wire EasyLock connector. Since this connector is field-installable in the bucket truck, the cable may be pulled from either the top or the bottom of the pole. Most significantly, no coaxial cabling is needed—digital video and data communications are all transmitted over the “three wires only” cable.

You may ask “How are video, data, and power transmitted over a 3-wire cable?” The Solo **Terra** uses “broadband over power” technology to communicate with the traffic cabinet. Leading edge, field-proven broadband communications technology transmits video, setup, data communications, and detector port data over a standard power cable. The 14 MB/sec-rated power cable transceivers deliver a remarkable throughput up to 6 Mb/sec. This robust communication technology is more than sufficient to simultaneously transmit traffic data, alarms, and streaming video at full frame rates.

EasyLink connectivity means simple installation into the traffic cabinet and integration into an agency’s Ethernet-based communications network of any type—in the field and at the TMC.

Dual-Core Processing Power

The Autoscope **Terra** dual-core processor provides sophisticated DSP image processing with ARM general-purpose processing in a small SoC package for low power consumption. This powerful SoC contains video acceleration co-processors optimized for highly efficient, flexible digital video processing capacity, memory, I/O bandwidth, and peripheral support. Multi-threaded software processes video images in real-time to detect traffic, extract data, identify incidents, and transmit detector outputs while simultaneously streaming MPEG-4 video output. The additional power of these processor cores allow future growth of algorithms for even better detection performance and development of new Autoscope applications.

Web Server Capability

Terra Technology provides a simple Internet browser interface. Common Internet browsers such as Mozilla Firefox or Microsoft Windows Internet Explorer can connect to Autoscope **Terra** products to access streaming video, perform simple configuration tasks, and monitor system activities. The embedded



web server capability is a convenience to users who do not have the Autoscope Software Suite on their PC—either at the traffic cabinet or from home-monitoring the traffic system. The capability also meets many customer requirements for deploying equipment on wide-area networks.

Streaming MPEG-4 Video

Standard MPEG-4 streaming video comes with every Autoscope product employing **Terra Technology**, which means you can watch Autoscope video anywhere. Depending upon available network bandwidth, you can typically view streaming video at rates varying from 5 fps up to 30 fps. The Autoscope Video Player or any standard digital video player such as QuickTime can display the video stream on your computing device from a standard Ethernet connection. In the traffic cabinet, the Autoscope **Terra** Access Point (TAP) or the Autoscope RackVision™ **Terra** also provide standard NTSC or PAL video output to an analog video monitor.

Password Protected Security

In this age of increasing security consciousness, **Terra Technology** provides password-protected access that is safe and secure, even over the Internet. This password validation lets managers control staff access to Autoscope **Terra** products. This is a critical management concern for traffic systems operating over shared communications networks. The administrator creates password-protected user accounts to set levels of access to the Autoscope equipment, ranging from a basic monitoring level to view video to a field maintenance access to troubleshoot, or complete access to change configurations.

Autoscope Video Detection Systems

Terra Technology addresses the main concerns of transportation system managers for ease of installation and setup, minimal maintenance, robust operations, consistent high-quality performance, and long life. Transportation managers worldwide are deploying more video technology to move traffic efficiently and safely. They need timely information and video verification to respond quickly to incidents. Autoscope Video Detection Systems are always a step ahead with innovative **Terra Technology** as the foundation for the successful transportation system solutions of tomorrow.

Autoscope® Solo Terra

Wide Area Video Vehicle Detection System

Legendary Performance. Endless Possibilities.™