

Information highway

Transportation managers depend on their data-collection equipment for the day-to-day success of their traffic systems. Higher-standard technology sets new levels for robustness, features and performance in video detection

The expansion of internet communications and modern transportation systems has shrunk the world dramatically, leading to economic growth and greater freedom of movement. Yet traffic congestion and incidents continue to plague the world's roadways, threatening public safety, mobility and quality of life.

Meanwhile, digital video and broadband communications are transforming the electronics industry, enabling new applications and products. We see these technologies appearing in our cars, computers, mobile phones, portable media players, and communication networks.

The forward march of these technologies is also transforming how we view and manage our physical transportation networks and traffic management systems.

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, these new technologies help today's traffic managers improve safety, reduce air pollution and mitigate traffic congestion.

A new generation of Autoscope products based on Terra Technology brings digital video and broadband communications to today's ITS. Terra Technology provides the high-quality traffic information foundation so crucial to effective global transportation systems – a simple-to-use yet highly sophisticated tool to help keep traffic moving on roadways worldwide.

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. Benefits include simpler installation, easier set up, increased accessibility and reduced maintenance. Key features of the new technology include:

- EasyLink connectivity to provide easy connection to customer networks at broadband speeds; streaming digital MPEG-4 video to view over the internet; dual-core

processors, which further enhance field-proven Autoscope detection performance; web server feature to provide convenient set up and monitoring via internet web browsers; and password protection, which gives operations managers access control on shared networks in an age of increased security consciousness.

CONNECTIVITY

EasyLink connectivity means simple installation and connection of Autoscope Terra products to an agency's ethernet-based communications. Power and in-cabinet communications connections use standard, off-the-shelf cabling. A standard CAT-5 cable connects the products into a network to view video, collect traffic data and maintain the system. All equipment uses internet-standard, IP-based addressing, each with its own unique ethernet MAC address.

For the Autoscope Solo Terra sensor, EasyLink connectivity simplifies installation, thereby saving time and money. The sensor uses 'three-wires-only' power cabling, which quickly installs into a reusable EasyLock connector. As this connector is field installable in the bucket truck, it simplifies the task of pulling power cable – either up or down the pole. Furthermore, meeting 'no-splice' requirements is much easier for the contractor. Most significantly, neither pigtail nor coaxial cabling is required – this three-wires-only cabling communicates digital video and data to the traffic cabinet.

How are video, data and power transmitted over a three-wire cable? The sensor uses a 'broadband-over-power' capability to communicate with the traffic cabinet. Field-proven broadband communications technology transmits video, set up, data communications and detector port data over standard power cabling. The 14Mb/sec-rated power-cable transceivers deliver a throughput up to 6Mb/sec. This robust communication technology is more than sufficient to simultaneously transmit



Autoscope products with Terra technology are a simple-to-use yet highly sophisticated tool to help keep traffic moving on roadways



☉ Terra technology is a combination of advances in digital video, digital image signal processing, broadband communications and SoC processors

traffic data, alarms and streaming video at full video frame rates.

For the Autoscope family of products, EasyLink connectivity equates to simpler cabling and set up of the sensor, simpler integration into an ethernet-based communications system, simpler integration with any traffic control cabinet configuration, and simpler maintenance for the traffic equipment manager.

STREAMING MPEG-4 VIDEO

Terra Technology means users can watch Autoscope video anywhere, anyhow, as standard MPEG-4 streaming digital video comes with every product. Depending upon available network bandwidth, you can typically view streaming video at rates from 5-30 frames/sec. 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 master or the Autoscope RackVision Terra processor also provide standard NTSC or PAL video output to an analog video monitor.



☉ Each detector card slides into standard rack systems and easily integrates with Autoscope communications networks



☉ Traffic managers need timely information and video verification to respond to highway incidents

DUAL-CORE POWER

The dual-core processor provides sophisticated DSP image processing with ARM general-purpose processing in a small SoC package for low energy consumption. This powerful SoC contains video acceleration co-processors optimized for efficient, flexible digital video processing capacity, memory, I/O bandwidth, and peripheral support.

Multi-threaded software analyzes video images in real time to detect vehicles, extract traffic data, identify incidents, and transmit detector outputs while simultaneously streaming MPEG-4 video output.

WEB SERVER COMMUNICATIONS

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 Technology products to access streaming digital video, to perform simple configuration tasks, and to monitor system activities. The embedded web server 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.

Terra Technology is password protected, safe and secure – even over the internet. In this age of ever-increasing network connectivity and use of the internet for

traffic systems, it provides password-protected access that meets the basic needs for security. Additionally, this password-validation feature lets managers create controlled access levels to the video detection system. This is a critical management concern for traffic systems operating over shared communications networks. The administrator may create password-protected user accounts to set levels of access to the equipment, which may range from a basic monitoring level with video viewing privileges, to field maintenance troubleshooting access, or to complete access to change system configurations..

SIMPLY AUTOSCOPE

Terra Technology addresses the main concerns of transportation system managers for ease of installation and set up, minimal maintenance, robust operations, consistent high-quality performance, and long life expectancy. 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 information foundation for successful transportation system solutions. ■

For further information about the Autoscope range of products, please contact Econolite by emailing sales@econolite.com, or Image Sensing Systems by emailing imagesensing@imagesensing.com. Alternatively, log on to autoscope.com