Autoscope Duo

▹ ▹Autoscope® Duo™ is a hybrid radar and video vehicle detection system—the first in a new generation of hybrid sensor-based above ground detection

About Duo

As the complexities of transportation management increase, multi-tasking ITS solutions are providing the capability, accuracy and flexibility required for varying types of roadway situations. The Autoscope® Duo™ sensor is a hybrid radar and video vehicle detection system—the first in a new generation of hybrid sensor-based above ground detection. Duo provides superior detection accuracy in all traffic, lighting, weather, and pavement conditions, with the lowest cost of ownership. The Autoscope Duo sensor provides a consistent vehicle detection solution, and inspires ITS applications of continuous data collection and traffic monitoring.

For transportation professionals, this multi-tasking vehicle detection system provides a superior alternative to in-ground detection, while guaranteeing years of low-maintenance service and significant return on investment, especially when compared to the recurring expense of common inductive loop detectors.

At A Glance

- Provides vehicle detection for intersection stop line and advance extension applications
- EasyLink connectivity for broadband communications
- Streaming digital MPEG-4 video output
- User-definable password protection
- Vehicle detection, traffic data measures, speed, and incident detection
- Bicycle detection and differentiation

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Set-Up & Operation

The ***Autoscope Duo*** unit makes it easier than ever to install and configure an effective detection solution that meets your detection objectives. Multiple detection zones provide traffic count, presence, speed, and incident detection alarms. Incident types include stopped vehicles, wrong direction vehicles, slow-moving vehicles, bicycles, or other customized alarms. Real-time polling or stored data include actuations, volume, occupancy, five vehicle classes by length, density, and other traffic data for user-selected periods or by phase.

Easily assign detector outputs to interface with NEMA TS1/TS2, TEES Type 170/179 and 2070 ATC controllers. Simple mouse and keyboard operations backup your work, troubleshoot with the Operations Log, and modify your detection layout with other tools in the ***Autoscope*** Toolbox. Extensive Boolean Logic capabilities provide flexibility in detector layouts to help validate an event or incident alarm. Integrate traffic data quickly into proprietary software applications with the optional ***Autoscope*** Comserver Software Developer's Kit (SDK) or ***Autoscope*** Traffic Data Protocol.

Failsafe Operation

Autoscope Duo sensors provide electrical failsafe features. Under failed conditions, all associated detector outputs turn on, ensuring safe intersection operation. This electrical failsafe is the same operation as other equipment in the cabinet as required by all major industry specifications.

Benefits

- Superior detection accuracy
- Easy to install and configure
- Flexible design meets a variety of ITS detection and surveillance applications
- Exceptional value when compared to in-ground detection systems
- Reliable performance
- Low power consumption
- Minimal maintenance
- Native language GUI support
- Unprecedented high performance for above ground detection
- Cost-effective ITS solutions for traffic management

Duo Radar

The ***Autoscope Duo*** sensor includes a compact, easily-adjustable radar, designed to meet the performance requirements of the traffic intersection environment. The integrated decision logic process will use radar information in adverse conditions.

During setup, the radar is adjusted with the video camera. A convenient adjustment tool helps align the radar to meet the detection objectives. A variety of mounting brackets allow easy installation on existing poles, mast arms, or other structures. The unique bracket design speeds installation by minimizing loose parts and eliminating steps in the setup process.

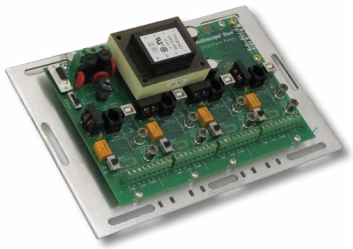
Duo Camera

The ***Autoscope Duo*** sensor includes a compact, high-resolution color zoom camera, designed to meet the performance requirements of the traffic intersection environment. ClearVision™ aspects include a custom environmental aperture to produce consistently high-quality video.

During setup, the 10X zoom lens uses standard zoom control from the ***Duo Interface Panel*** in the cabinet. Focus is factory pre-set. A heated faceplate and adjustable weather shield helps minimize rain, snow, and ice on the faceplate, reducing glare and improving video contrast.

Autoscope Duo Detection Modules

The ***Duo*** Detection Module (DDM) is a detector card for a standard Detector Rack or Input File. It performs the decision logic process to combine radar and video information for optimal detector performance. The DDM converts standard NTSC analog video to streaming digital MPEG-4 video to view locally at the traffic cabinet or remotely from the office. The DDM input/output capabilities include detector port master capabilities. The DDM interfaces detector outputs directly to NEMA TS1/TS2, Type 170/179, or 2070 ATC controllers.



Duo Interface Panel

The ***Duo*** Interface Panel in the cabinet protects other cabinet equipment from outside surges and noise. Its multiple layers of protection include step-down transformer isolation and fuses. Terminal blocks connect up to four (4) ***Duo*** sensors. A pigtail cable assembly provides simple connection to the ***Duo*** sensor for power, radar, video, and zoom controls. These electronic devices comply with all applicable requirements of TEES, NEMA TS 2, and IEC60529 standards.

Zoom Control

The ***Autoscope Duo*** uses a RS-485 circuit to control the zoom of the lens from a handheld controller. Since aiming the camera is most often a one-time event, this simple zoom control helps keep the overall size of the camera small and compact. The installer can conveniently make adjustments with a handheld zoom controller from the bucket, base of pole, or cabinet.

Sensor Cable

The sensor pigtail cable is available in a wide variety of lengths for connection to branch cabling at the base of the pole or a homerun back to the cabinet. The easy-to-install connector helps keep the overall size of the sensor small and compact.

Autoscope Duo Sensor

- Power
  - *16 to 24 VDC, 8 W maximum*
  - *Consumption, current: 300 mA @24VDC, 8 Watts*
- Radar
  - *Max range (passenger car from typical mast arm mount location) 90 m (290 ft)**
  - *Total field of view: ±35° AZ; ±8° EL*
  - *Max transmit power (EIRP) 20 dBm*
  - *Frequency Band: 24.0—24.25 GHz*
  - *Bandwidth < 100 MHz*
- Environmental
  - *-40°C to +60°C (-40°F to +140°F)*
  - *Video and radar sensors sealed in waterproof and dust tight housing which meet NEMA 4 and IP67 standards*

- Video Sensor
  - *Lens: 10x zoom, 5° to 46° horizontal, 4° to 35° vertical*
  - *¼ in. color CCD, NTSC format*
  - *Resolution > 470 TVL horizontal*
  - *Sensitivity at lens, full video, no AGC, 3.0 Lux (typical)*
  - *S/N > 50 dB*
- Video Output
  - *NTSC Composite 75Ω 1 Vpp, BNC connector*
- Single Integrated Duo Sensor Cable
  - *3-wire Power*
  - *Coaxial cable: video transmission*
  - *Two-wire RS-485 (x2) for lens zoom control & for radar data, command, and control*
- Housing & Sunshield
  - *Lightweight, durable polycarbonate construction*
  - *Thermostatically controlled faceplate heater*
  - *Adjustable weather and sunshield with drip guard*
  - *Weatherproof rear connector*
  - *Standard camera bracket tilt-top provided*
- Overall Dimension & Weight
  - *H x W x L: 13 in x 5 in x 11 in (33cm x 12.7cm x 27.9cm)*
  - *4.5 lb (2.0 Kg)*
- Regulatory
  - *FCC Part 15, Class A*
  - *FCC Part 15.245, EN300440 compliant*

Duo Detection Module

- Power
  - *12 to 24 VDC, 11W maximum*
  - *Consumption, current - @12VDC: 6W, 500mA/@24VDC: 7W, 290mA*
- Communications
  - *Ethernet 10/100 Base-T RJ45 connection for setup and operational use*
  - *Port 1 SDLC DB-15 connector for TS2 Serial Detector I/O communications with the controller*
  - *RS-485 bus on card edge for inter-processor Detector Port communications (master-slave)*
  - *USB connector for serial communications to the radar sensor via the interface panel*
- Environmental
  - *-34°C to +74°C (-29°F to +165°F)*
  - *0 to 95% relative humidity, non-condensing*
- Dimensions & Weight
  - *H x W x L: 4.5 in x 2.24 in x 7 in (114mm x 57mm x 178mm)*
  - *0.5 lb (0.2 Kg)*

Duo Interface Panel

- Power
  - *110/220 VAC 50/60 Hz (switch selectable)*
  - *Fuse protected*
- Environmental
  - *-34°C to +74°C (-29°F to +165°F)*
  - *0 to 95% relative humidity, non-condensing*
- Dimensions & Weight
  - *H x W x L: 4.5 in x 11.0 in x 7.5 in (114mm x 279mm x 190mm)*
  - *3.75 lb (1.7 Kg)*

Warranty

- Three-year warranty
- Extended warranty package to six years

Product Support

- Product support & training by a team of trained Autoscope Technical Support Specialists

Applications

- **Signalized Intersection Control**
  - Bicycle Detection
  - Adaptive, Traffic Responsive
  - Work-zone safety and temporary construction traffic control
- **Traveler information systems & data collection**
  - Sub-system of ATMS
  - Remote video surveillance
  - Comprehensive Traffic Data Collection

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1250 N. Tustin Avenue, Anaheim, CA 92806 · 714-630-3700 · sales@econolite.com · www.econolite.com