

# Radar Sensors for Traffic Detection

## Autoscope Cyclescope

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### What, exactly, is Autoscope Cyclescope?

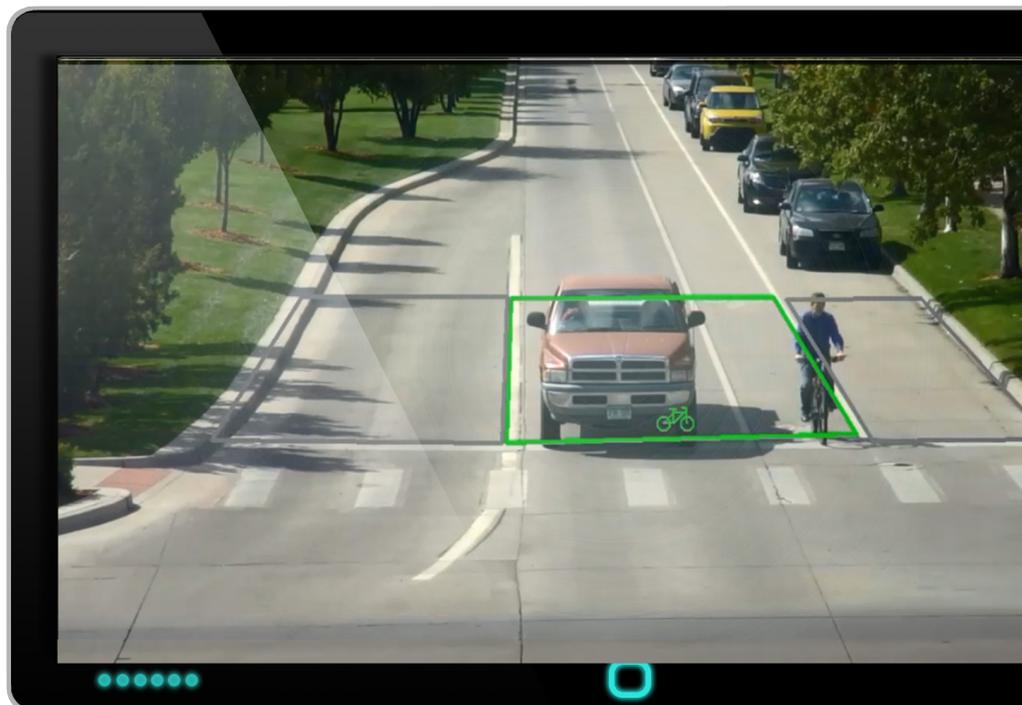
Leveraging Autoscope's bicycle detection capabilities, Cyclescope feature adds the ability to differentiate between bicycles and other vehicles as they approach an intersection. Cyclescope detects the presence of approaching bicycles and distinguishes them from other types of vehicles in all lanes of traffic.

### Why do agencies use Cyclescope?

Cyclescope enables transportation agencies and DOTs to include bicycle timing in their traffic signal control strategy with minimal changes to the intersection configuration, with no changes to the cabinet wiring, and with little or no changes to the controller.

### How does Cyclescope benefit the driving public?

Autoscope Cyclescope can provide the Bike Min Green timing, or it can support a controller's bicycle detector input, providing extra time at the start of green light for bicycles to cross the intersection safely. This helps to ensure safer intersection operations for all roadway users.





## Description

In combination, the general Autoscope bicycle detection capabilities and the Cyclescope feature allow engineers to offer bicycle timings in their traffic control strategy with minimal changes to the intersection configuration, with no changes to the cabinet wiring, and with little or no changes to the controller.

While Autoscope has always been capable of detecting the presence of bicycles, the Cyclescope feature adds the ability to differentiate between bicycles and other vehicles as they approach the intersection. Cyclescope, introduced in version 10.5.0 of the Autoscope Software Suite, detects the presence of approaching bicycles and distinguishes them from other types of vehicles in the same lane of traffic.

Cyclescope is also available with our latest solution - Autoscope Vision.

With Cyclescope, no special pavement markings are necessarily required—a major benefit in some communities. Cyclescope detects bicycles in all lanes, rather than only in bicycle lanes or special areas designated for bicycles. Though many cyclists still ride closer to the curb, more cyclists today behave like motorized vehicles and make turns from the turning lane.

Overall, bicycle detection is more robust with Cyclescope Bicycle Differentiation.

## Easy Setup

Bicycle Differentiation is intended for across-the-intersection head-on fields of view. It can be added to any existing Stop Line Detector Zone.

Adding Cyclescope Bicycle Differentiation to existing Detection Zones in Vision is quick and easy. The "Bicycle Differentiation" option gives detectors two possible bicycle detection states: when not checked bicycles will be detected and a normal vehicle call will be placed, when checked a dedicated bicycle detection output will be sent for the same zone.

There are two output options for handling the bicycle detection information:

- Add the bicycle detection to the existing output to the controller—doubling the detection ability with both bicycle presence and bicycle differentiation to the existing vehicle detection. Autoscope can provide additional extension timing as needed.
- Provide a separate bicycle output to the controller and handle bicycle timing there.

## Bicycle Phase Timings

The simplest option is to use the same phase timings for bicycles as for other vehicles—when choosing this strategy, Cyclescope adds more robustness to the detection of bicycles. But the normal vehicle minimum green and vehicle extension times are not always long enough to provide safe crossing time for a bicycle. Adjusting the vehicle times to always provide enough time for bicycles (whether bicycles are present or not) is not an efficient use of green time for most intersections. Using pedestrian timing for a bicycle is also inefficient, since bicycles can cross more quickly than pedestrians. Therefore, the safest and most efficient option is to provide a unique bicycle timing that allows cyclists an appropriate amount of time to cross the intersection safely—either timed in the Autoscope or timed in the controller. (It is best not to do both—this could double the bicycle times.)

Autoscope can provide the Bike Min Green timing, or it can support a controller's bicycle detector input. Within the detector layout, Autoscope can provide extra time at the start of green for bicycles to cross the intersection, which emulates the timing features of newer traffic controllers without the need to upgrade older controllers in the cabinet (e.g., older model Traconex, Type 170, etc.). Or, for controllers that have a bicycle detector input and a Bike Min Green feature, Autoscope can provide a separate bicycle detector output for each phase or each lane. (A different extension time during green is also possible for a bicycle—timed either by the Autoscope or by the controller. Contact Autoscope Technical Support for assistance with this or any detector layout concerns.)

## Measures of Effectiveness (MOEs)

With Autoscope's capability to collect traffic data, an agency can measure how often bicycles actuate each intersection. For example, many intersections have bicycles just a few times an hour, and mostly during daylight. Each agency can configure the data collection to answer the MOE questions that are most important to them. These MOEs can then help the agency demonstrate the success of their bicycle-friendly programs.

The screenshot shows a traffic camera view of an intersection. A green rectangular overlay is placed on the road, indicating a detection zone. A bicycle icon is visible within this zone. To the right, there is a configuration panel titled "EASY SETUP".

**EASY SETUP**

**Through Lanes**

- Vehicle: [Green] [ ] 2
- Bicycle: [Black] [ ] 10

**Left Turn Lane**

- Vehicle: [Green] [ ] 5
- Bicycle: [Black] [ ] 11

**TS2 Rack 1**

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16

**TS2 Rack 2**

17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32

**TS2 Rack 3**

33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48

**TS2 Rack 4**

49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64

At the bottom of the interface, there are controls for "Show Setup Controls" and "Show Video Overlay", along with standard video playback icons.

