



# Axle Counter

The new concept of axle counting based on Artificial Intelligence

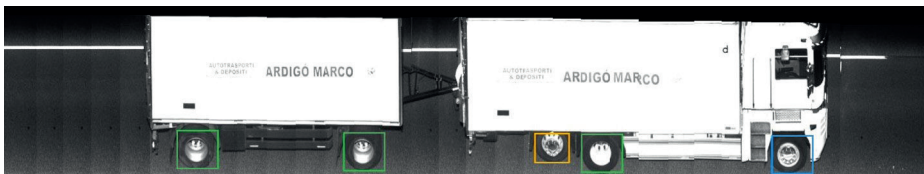
- ⚙ All-in-one axle counting system: The presence of the internal illuminator minimizes infrastructure requirements and simplifies cabling & installation.
- ⚙ Axle Counter is targeted to free-flow tolling applications; with an aboveground layout, no road works are needed for installation and maintenance, and no distraction for the drivers, thanks to the infrared illumination.
- ⚙ Axle Counter through his image analysis is able to detect:
  - Number of axle
  - Raised axles (minimum height 15 cm – 5,9 in)
  - Twins wheels
- ⚙ A dedicated onboard neural network processor allows for real-time image analysis to identify a vehicle's characteristics, including axle counting, raised axles, and speed estimation, at any hour of day or night.
- ⚙ Axle Counter system doesn't require an external trigger, it detects transits by image analysis thanks to Stark object detector.
- ⚙ Axle Counter can also receive an external trigger, allowing flexible interfacing with existing devices such as laser barriers, ALPR (ANPR) cameras, and loops.
- ⚙ Axle Counter through the Stark platform provides the resulting metadata together with the reconstructed image of the vehicle, giving evidence of the transit.

**Optional:** Expandable local storage / GPS / WIFI



FREE FLOW TOLLING

# Axle Counter



	AXLE COUNTER
<b>Software features and Performance</b>	
Processed Lane	1
Installation	Gantry
Installation height	7m (typical) - 23ft
Detection accuracy	99%
Managed vehicles	Up to 2400 v/hour
Axes counting accuracy	>95% over 4 classes (2,3,4,5+ axes)
Raised axles detection	Yes
Twin wheels detection	Yes
Speed estimation	Yes
Processing	Onboard processing
AES256	Yes
SHA2	Yes
Data buffering and storage	Yes
Compression	JPG
<b>Configuration</b>	
Web Server	Installation and configuration with on board Web Application
Integration	REST and binary protocol available
Date and Hour	Synchronization via NTP protocol or optional internal GPS
Software Update	Upgrading via Web Application and integration protocols
<b>Data Transmission</b>	
FTP	FTP Client mode for remote data transmission
Standard protocols	REST and binary protocol
Configuration	Actions and content customizable
Serial Port	Insulated RS485
<b>Operating Mode</b>	
Autotrigger	Self triggering based on image analysis
Trigger Ethernet	Image capture and processing triggered by Ethernet with start and stop message
Trigger Input	Image capture and processing triggered with start and stop digital signal

	AXLE COUNTER
<b>System</b>	
Image capture sensor	2 Megapixels grayscale
Illuminator	Infrared Internal Illuminator
Lenses	Fixed lens configuration
Operating System	Linux Operating System
Digital I/O	2 Inputs – 2 Outputs – 1 Strobe output
IP Protection	IP68
Ethernet	Gigabit Ethernet 10/100/1000
Storage	uSD up to 128 GB
Vandal proof Connector	Yes
Antitamper sensor	Yes
Internal SSD	Optional, up to 1TB
GPS	Optional
Wifi	Optional
<b>Technical Data</b>	
Operating & Storage Temperature	From -40° to +60° C - From -40° to +140° F
Operating & Storage Humidity	Up to 95% non condensing
Dimensions	225x244x132mm
Weight	3,6kg
Power supply voltage	24 Vdc
Power consumption	29W

## Part Numbers

AXLE COUNTER SYSTEM	
F02002-500	Axle Counter with internal illuminator