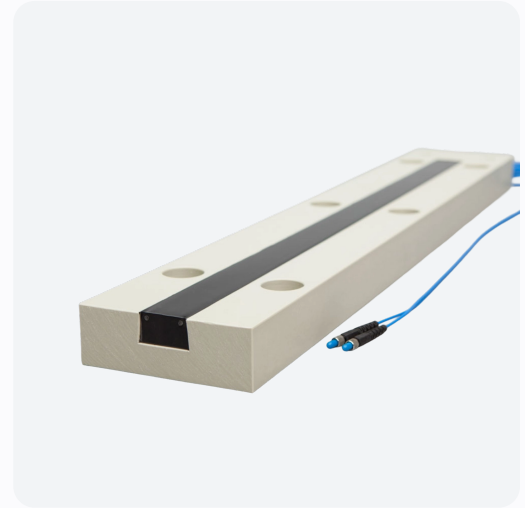




SL EZ Fiber-Optic Tolling Sensor

Frame-Mounted Axle Detection With a Replaceable Sensor Strip



Overview

The SL EZ is a reinforced fiber-optic traffic sensor built for free-flow tolling. A polyurethane sensing element sits in a high-density polymer frame bolted to a concrete foundation in the roadway, where wheel pressure deforms the sensor and reduces the light transmitted through its fiber. Opto-electronic interfaces read that change and convert it into axle-level traffic data.

What sets the SL EZ apart is the frame. Its sensing element is a replaceable strip: when a sensor reaches end of life, the SL EZR strip installs into the existing frame without roadworks, so the sensor is renewed without cutting the road or repeating the civil work.

Powered by Sensor Line technology, the SL EZ is part of Quarterhill's road-traffic portfolio.

The Data It Delivers

A single SL EZ installation supports:

- Axle counting and dual-tire detection
- Speed measurement
- Vehicle classification
- Headway measurement

It detects at better than 99.99%, independent of light and weather, whether fog, dust, rain, snow, or smoke, and reads axles cleanly at speeds up to 250 km/h.

Replace the Sensor, Not the Road

The frame is the permanent part of the installation. Once the SL EZ frame is bolted to its concrete foundation, the fiber-optic sensor inside it is renewed as an SL EZR strip. The SL EZR is chamfered and adhesive-backed to seat diagonally into the frame without additional roadworks, turning sensor renewal into a short intervention rather than a full re-cut and re-grout, and keeping the lane closure short each time.

A Non-Metallic Sensor in the Road

The SL EZ frame is high-density polymer with no metal parts, so it does not corrode, and the sensor is immune to electromagnetic interference and lightning. The sensing element itself is optical and passive, with no moving parts to wear, no material fatigue, and no recalibration once installed. It carries a 24-month warranty and a rated service life of more than 5 years or 10 million axles.

Sized to the Lane

The frame is available in one to four sensor slots, from 133 mm wide for a single slot to 295 mm for four, in lengths up to 4.5 m to span the lane. Sensor centers are spaced 54 mm apart, with insensitive zones at the tip (60 mm) and feeder joint (200 mm) that keep the detection zone clean and well-defined.

Cabling and Interfaces

Each sensor connects through a thin fiber-optic feeder cable, in a standard 2.5 by 5 mm profile or a PE-reinforced 4 by 6.6 mm version for higher pull strength, in runs up to 250 m with FSMA plastic or reusable metal connectors. The SL EZ feeds the same Quarterhill opto-electronic interfaces as the rest of the fiber-optic range: the analog SL MA-110, SL MA-210, and SL MA-310 in one, two, and three channels, or the digital SL MD-220.

Proven in the Field

SL EZ sensors are in service on major tolling and traffic installations worldwide, including the New York Thruway, the Bosphorus Bridge in Istanbul, toll stations in Bangkok, traffic control in Bogota, and toll operations in Pakistan.

Technical Specifications

Performance	
Specification	Value
Detection	Axle counting and dual-tire detection, vehicle classification, speed, headway at better than 99.99%, independent of visibility
Sensor Element	Up to 4.5 m long, 45 mm high, Shore hardness 86
Sensor Center Distance	54 mm
Standard Slot Gap	19 mm
Maximum Speed	Up to 250 km/h
Operating & Storage Temperature	-30°C to 85°C
Humidity	No limitation
Service Life (MTTF)	More than 5 years or 10 million axles
Warranty	24 months

Frame & Construction

Specification	Value
Insensitive Zones	Tip: 60 mm; feeder joint: 200 mm
Frame (Slots, Width, Weight)	1 slot: 133 mm, 6 kg/m; 2 slots: 187 mm, 8.2 kg/m; 3 slots: 240 mm, 9.5 kg/m; 4 slots: 295 mm, 12.5 kg/m
Frame Material	High-density polymer with no metal parts

Feeder Cable & Connectivity

Specification	Value
Standard Feeder Cable	2.5 × 5 mm, up to 250 m, 12 g/m
Standard Cable Pull Force	Maximum short-term pull: 20 N
Standard Cable Bend Radius	Minimum bend radius: 25 mm
PE-Reinforced Cable	4 × 6.6 mm, up to 250 m
PE Cable Pull Force	Maximum short-term pull: 60 N
PE Cable Bend Radius	Minimum bend radius: 25 mm
Connectors	FSMA plastic or reusable metal
Connector Length	34 mm
Maximum Connector Diameter	8.5 mm
Compatible Interfaces	SL MA-110, SL MA-210, SL MA-310 analog (1-, 2-, and 3-channel); SL MD-220 digital

Mounting & Installation

Property	Value
Mounting	Bolted to a concrete foundation with the Bolt Set, sealed with PUR Slot Filler where required
Installation	Store, transport, and install straight and flat. Never bend or twist.

Ordering Information

SL EZ frames are specified as: **nEZ XXX-Y-ZZ (PE)**

Code	Description
n	Number of sensors per frame (1 to 4)
XXX	Frame length in cm
Y	Connector type (1 = plastic FSMA, 2 = reusable metal FSMA)
ZZ	Cable length in meters
PE	Optional reinforced polyethylene-sheathed sensor cable

Replacement strips follow the same format as **EZR XXX-Y-ZZ (PE)**.

A Tolling Sensor Built to Be Serviced

The SL EZ brings better-than-99.99% fiber-optic axle detection to free-flow tolling in a non-metallic frame that stays in the road while the sensor inside it is renewed as an SL EZR strip without roadworks. Powered by Sensor Line technology, it pairs a long service life and all-weather, high-speed detection with a replacement path that keeps crews out of repeat civil works.