



SL MA-110 Opto-Electronic Interface

Single-Channel Interface for Fiber-Optic Road Sensors



Overview

The SL MA-110 is the electrical bridge between one embedded fiber-optic sensor and the system that acts on its data. It supplies and reads a single fiber-optic load sensor and converts its optical signal into analog and digital output.

The interface sends light through the sensor and measures the amount transmitted. When a wheel loads the sensor and the transmitted light drops past its threshold, the 110 produces a digital trigger alongside a continuous analog load signal.

Powered by Sensor Line technology, the SL MA-110 is part of Quarterhill's road-traffic portfolio.

Works Out of the Box

The SL MA-110 is factory-configured and needs no field adjustment. It ships in editions matched to the sensor it pairs with: a Standard edition set to a 0.33% detection threshold, a Bike edition at 0.16% for higher sensitivity, and a Modified edition at 0.04%. Connect the sensor and power, and it runs.

Compact, Housed, and Protected

Unlike the board-level two- and three-channel units, the SL MA-110 comes in a compact plastic housing measuring 67 by 58 by 25 mm, rated IP 30, with reverse-power and short-circuit protection built in. It draws under 100 mA from a 12 to 24 VDC supply and operates from -40 to 85 °C.

The Outputs It Provides

The SL MA-110 delivers a digital trigger and a fault output through optocouplers that behave like relay contacts, plus a continuous analog load signal with monitor and reference outputs for normalization and diagnostics. The optocoupler outputs are rated 60 V and 25 mA.

Part of the SL MA-x10 Family

The SL MA-110 is the single-channel member of the SL MA-x10 family. The two-channel SL MA-210 and three-channel SL MA-310 use the same detection approach for sites with more sensors.

Technical Specifications

General

Specification	Value
Channels	1 (SL MA-210: 2-channel, SL MA-310: 3-channel)
Function	Opto-electronic interface for a fiber-optic load sensor, transmittance-based
Editions and factory-set detection threshold	Standard 0.33%, Bike 0.16%, Modified 0.04%

Optical Performance

Specification	Value
Optical Interface	850 nm IR LED transmitter, low-noise silicon photodiode detector
Optical Connectors	Two SMA-905 receptacles
Sensor Attenuation	3–25 dB
Feeder Cable Length	Up to 250 m
Speed Range	5–250 km/h

Electrical

Specification	Value
Power Supply	12–24 VDC
Current Consumption	<100 mA continuous
Outputs	Digital trigger & fault (optocoupler 60 V, 25 mA); analog load, monitor & reference outputs (10-pin screw terminal)

Mechanical & Environmental

Specification	Value
Housing	Plastic
Dimensions	67 × 58 × 25 mm
Protection Rating	IP 30 (NEMA 2)
Operating & Storage Temperature	-40 to 85 °C
Humidity	Under 80% at 25 °C

Safety & Compliance

Specification	Value
Protection	Reverse-power and short-circuit protection
Compliance	RoHS
LED Classification	Risk Group RG 0

A Simple, Self-Contained Single-Channel Interface

The SL MA-110 gives one embedded fiber-optic sensor a compact, factory-configured interface that produces clean trigger and analog output with no field adjustment. Part of a family spanning one to three channels, it connects a single sensor to the system that uses it.