

KiTraffic Statistics

Type 9841A...

Complete WIM system for traffic data collection

The KiTraffic Statistics WIM (Weigh In Motion) system is based on Lineas Compact subsurface sensors in combination with the Kistler WIM data logger and supporting electronics all pre-wired on a DIN-rail.

- Wide measuring range for weight and speed
- Count and classify vehicles with weight information
- Quick and easy installation of sensors into road pavement
- Excellent price-performance ratio
- Extended life time due to subsurface installation
- Quartz sensor technology
- Fast system installation and configuration



Description

The KiTraffic Statistics system (Type 9841A) consists of Lineas Compact subsurface sensors (Type 9196), a WIM data logger (Type 5204) and associated electronics.

The Lineas Compact WIM sensor is a force sensor with quartz elements specially designed for measuring wheel and axle loads of road vehicles. The sensor is installed permanently under the road surface for long term durability. When a force is applied to the sensor, the quartz elements yield an electrical charge signal proportional to the applied force.

The sensor requires connection to the Kistler WIM data logger. The WIM data logger converts the electric charge signals of all Lineas Compact WIM sensors into wheel, axle and gross vehicle weight and derives vehicle classification information. Temperature measurements are taken to compensate changing pavement characteristics. One WIM data logger can cover up to 4 lanes. Note: Lineas Compact WIM sensors are only available with Kistler WIM data logger and electronics to ensure best sensor performance.

Applications

The KiTraffic Statistics system is intended for use in applications where economic and reliable counting and classifying of vehicles is more important than the highest accuracy of the weight data. The typical application of the system is traffic data collection for monitoring of traffic on roads and on bridges. The KiTraffic Statistics system comes pre-wired on a DIN-rail with WIM data logger, induction loop card, power supply and connectors for easy installation. The sensor layout and direction of traffic can be configured individually for each lane. The user has easy access to the measured vehicle data via a web interface or the machine readable REST API.

Technical data

KiTraffic Statistics system Type 9841A

Number of inputs: WIM sensors		4 or 8
Digital inputs (loops)		4
Number of traffic lanes		up to 4
Number of outputs: Ethernet	TCP/IP	2
Digital outputs (triggers)		4
Measuring error with staggered layout (2 Lineas compact sensors p. lane)	% of GVW	±15
Weight measurement accuracy confidence level	%	95
Measuring range axle loads	tons [lb]	0 ... 25 [55100]
Speed range	km/h [mph]	3 ... 250 [2 ... 155]
Electronics operating temperature range	°C [F]	-20 ... 65 [-4 ... 149]
Mounting (EN50045)	Type	TS-35 (DIN Rail)
Power Input	VAC	85 ... 264
Power Consumption	W	<8

Lineas Compact sensor Type 9196

Insulation resistance	Ω	>1·10 ⁹
Operating temperature range	°C [F]	-40 ... 80 [-40...176]
Sensor length	m [ft]	1.75/2.00 [5.74/6.56]
Cable length	m [ft]	40/100 [131/328]

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Sensor dimensions

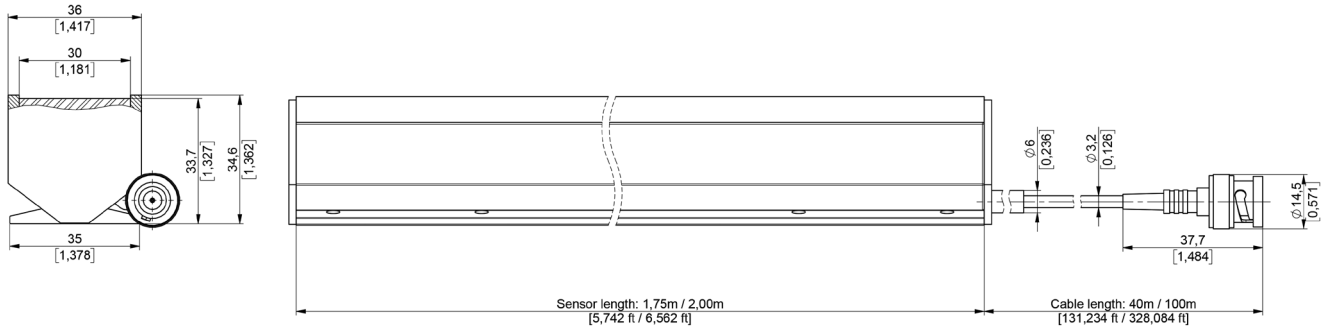


Fig. 1: Dimensions of Lineas Compact subsurface (Type 9196ACxxS)

Sensor Installation

Lineas Compact WIM sensors are quick and easy to install. The Lineas Compact WIM sensors are laid in self-hardening epoxy grout under the pavement surface (use of grout Type 1000A1 mandatory). This provides an optimum and consistent mounting into the pavement and long term durability. The standard installation depth is 20 mm, check with Kistler for other depths. The installation instruction for type 9196 describes all steps. The installation of Lineas Compact sensors requires the supervision of a Kistler engineer or an engineer certified by Kistler.

System electronics

The WIM data logger and system electronics are pre-wired on a DIN rail for easy installation typically inside a road side cabinet close to the WIM site. The user friendly web interface can be used for system configuration and calibration, visualization of measurement data and monitoring of the correct operation of the system. In addition, a state of the art machine readable REST API interface is available.

Kistler web interface

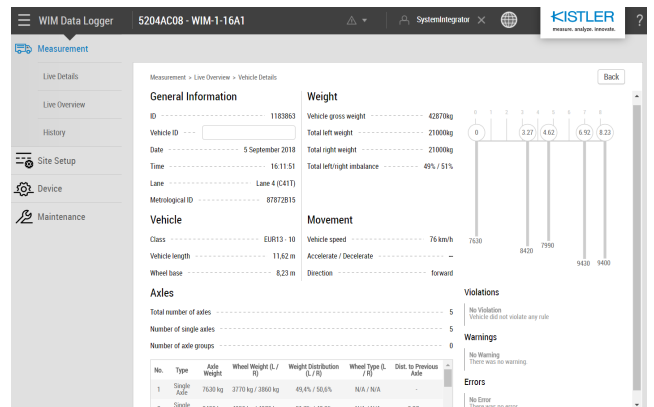


Fig. 3: Kistler web interface

Sensor cross section and slot dimensions

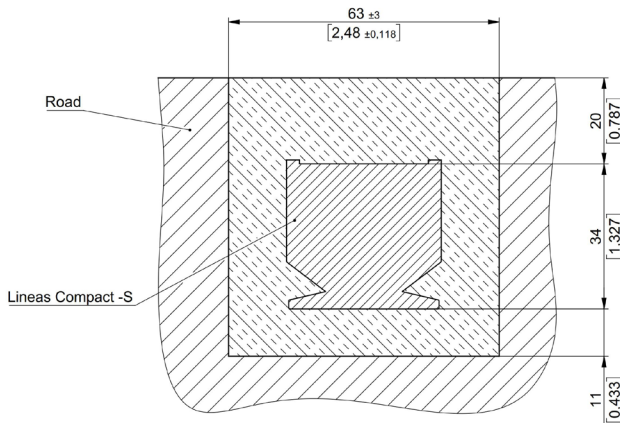
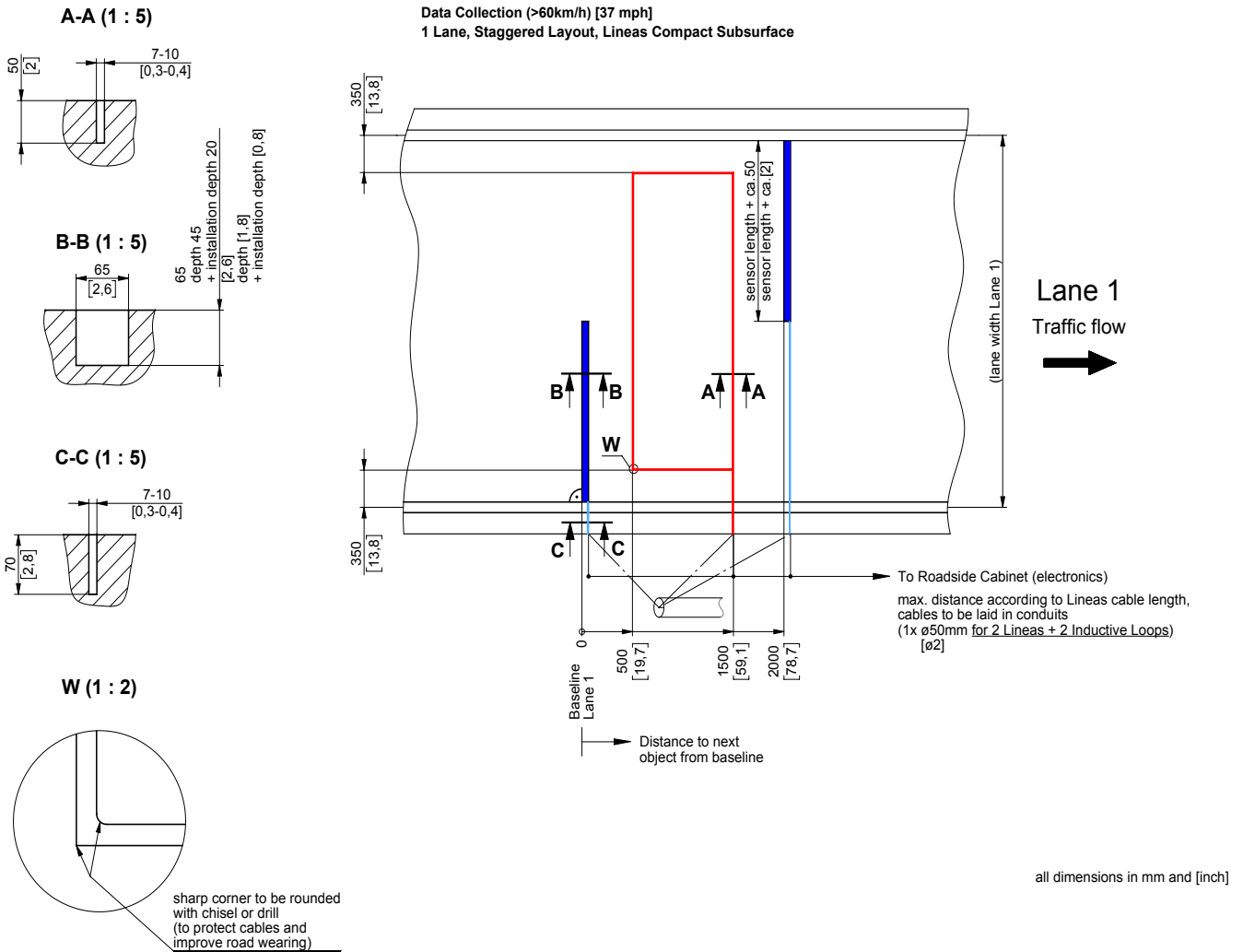


Fig. 2: Sensor cross section and slot dimensions

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Sensor layout of KiTraffic Statistics

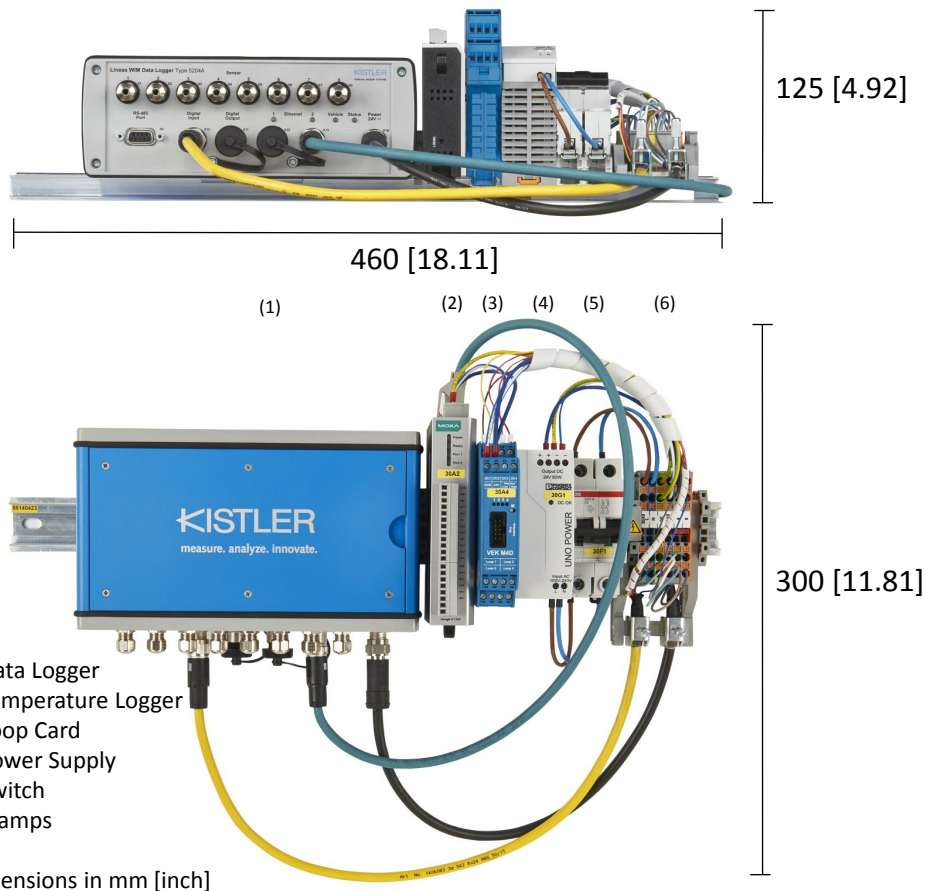
The Lineas Compact WIM sensors and the inductive loop of the KiTraffic Statistics system shall be installed on each lane in a simple staggered layout. This layout enables cost efficient weighing of vehicles at all driving speeds and is illustrated below for one lane (color coding: dark blue = slots for Lineas Compact sensor, light blue = slots for sensor cable, red = slots for inductive loop cable). One KiTraffic Statistics system can support up to four lanes with this layout.



- All dimensions specified and proved for WIM components provided by KISTLER. Other dimensions technically possible (to be checked with KISTLER service engineer).
- For concrete slabs: Do not cut closer than 100mm (laterally) and 500mm (driving direction) to expansion joints. [3,9] [19,7]
- For further information refer to the installation instructions (document 002-831)

Fig. 4: Sensor layout of KiTraffic Statistics

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All dimensions in mm [inch]

Fig. 5: KiTrafic Statistics system components

Included Accessories

- | | |
|--|-----------------------------------|
| • Lineas Compact sensors | Type/Art. No.
9196A...S |
| • WIM data logger | 5204A... |
| • WIM system components with loop card and temperature logger prewired on a DIN rail | 55187847 |
| • Temperature sensor (40 m or 100 m cable) | 9841AZ1... |

Mandatory Accessories

- | | |
|--|--------------------------------|
| • Grouting compound (1.5 buckets per sensor at 20 mm installation depth) | Type/Art. No.
1000A1 |
|--|--------------------------------|

Optional Accessories

- | | |
|---|-----------------------------------|
| • GPRS modem | Type/Art. No.
9835AZ400 |
| • Lineas installation toolkit (contains all required tools for the sensor installation) | Z20015_GC |
| • Inductive loop cable | 9835AZ220 |
| • Ground cable for Lineas Compact sensor | 9835AZ240 |

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Ordering key

Type 9841A

Quantity of Type 9196AC41S sensors*			
Sensor length 1.75 m	Cable length 40 m	0 to 8	
Quantity of Type 9196AC42S sensors*			
Sensor length 1.75 m	Cable length 100 m	0 to 8	
Quantity of Type 9196AC51S sensors*			
Sensor length 2 m	Cable length 40 m	0 to 8	
Quantity of Type 9196AC52S sensors*			
Sensor length 2 m	Cable length 100 m	0 to 8	
Temperature sensor			
	Cable length 40 m	A	
	Cable length 100 m	B	
4-channel WIM data logger and prewired components for loop card		1	
8-channel WIM data logger and prewired components for loop card		2	

* Maximum total amount of sensors: 8

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