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KiTraffic Basic

Complete WIM system for weight enforcement

Type 9835A...

The KiTraffic Basic WIM (Weigh In Motion) system is based on Lineas sensors in combination with the Kistler WIM Data Logger and supporting electronics all pre- wired on a DIN-rail.

- High weighing accuracy (OIML R134 certified)
- Wide measuring range for weight and speed
- Count and classify vehicles including weight information
- Quick and easy installation of sensors into road pavement
- Quartz sensor technology
- Fast system installation and configuration

Description

The KiTraffic Basic system (Type 9835A) consists of straight and tilted Lineas sensors (Type 9195) or Lineas compact sensors (Type 9196), a WIM Data Logger (Type 5204A) and associated electronics.

The Lineas WIM sensor is a force sensor with quartz elements specially designed for measuring wheel and axle loads of road vehicles. 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 WIM sensors into wheel, axle and gross vehicle weight and derives vehicle classification information. One WIM Data Logger can cover up to 4 lanes.

The system is fully compatible with Kistler's enforcement software solutions, “Kistler Checkpoint” and “Kistler Studio”.

Applications

The KiTraffic Basic system is intended for use in applications where highest accuracy of the weight data is required. The typical application of the system is direct weight enforcement or pre-selection. In case of tilted Lineas WIM sensors, additional functionality is provided:

- Increased accuracy due to position compensation
- Single / dual tire detection
- Detection of tire anomalies like flat or underinflated tire (only with tilted 9195G)

Technical data

KiTraffic Basic system Type 9835A		
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 channels		4
Expected measuring error	% of GVW	±10 to ±5
Measuring range axle loads	Tons [lb]	0 ... 25 [55 100]
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 & Lineas Compact sensors		
Insulation resistance	Ω	$>1 \cdot 10^9$
Operating temperature range	°C [F]	–40 ... 80 [–40...176]
Sensor length for Lineas 9195	m [ft]	1.5/1.75/2.00 [4.92/5.74/6.56]
Sensor length for Lineas Compact 9196	m [ft]	1.75/2.00 [5.74/6.56]
Cable length	m [ft]	40/100 [131/328]

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Sensor dimensions (9195G & 9196A)

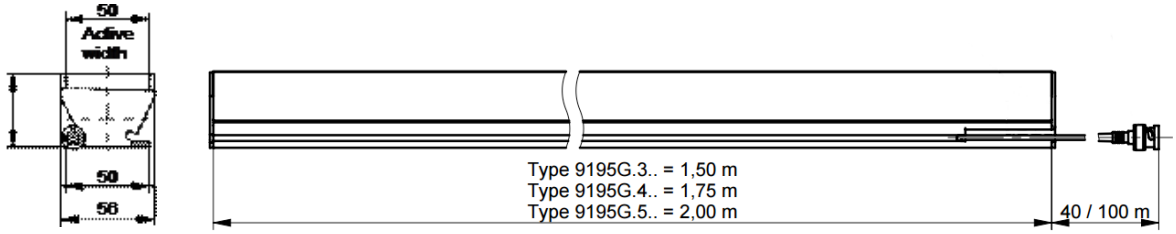

Fig. 1: Dimensions of Lineas sensor (Type 9195…)

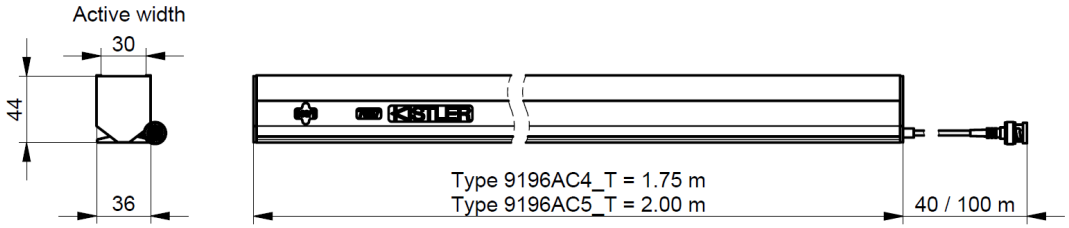

Fig. 2: Dimensions of Lineas Compact sensor (Type 9196…)

Sensor Installation

Lineas and Lineas Compact WIM sensors are easy to install. The Lineas WIM sensors are laid in self-hardening epoxy grout. This provides an optimum and consistent mounting into the pavement.

The complete installation instructions (Doc.No. 002-466 resp. 002-831) describe all relevant steps including the required angle in case of tilted installations.

The installation of Lineas WIM sensors requires the supervision of a Kistler engineer or an engineer certified by Kistler.

Sensor cross section and slot dimensions

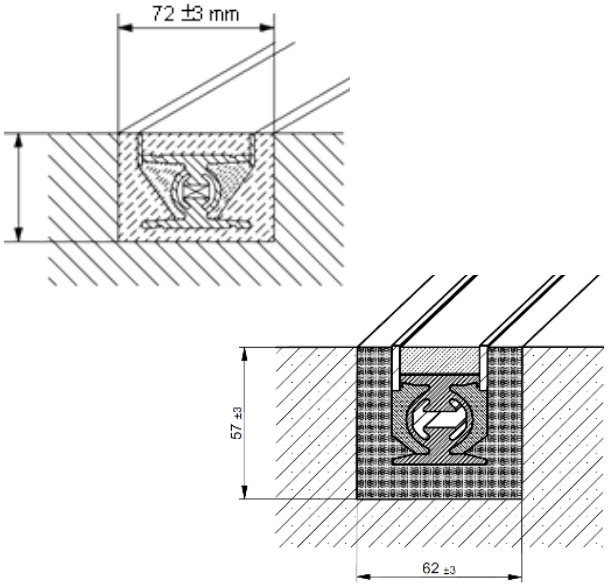

Fig. 3: Sensor cross section and slot dimensions (9195G & 9196A)

System electronics

The WIM Data Logger and system electronics are pre-wired on a DIN rail with WIM Data Logger, induction loop card, power supply and connectors for easy installation typically inside a roadside 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 and an Ethernet data stream is available.

Kistler web interface

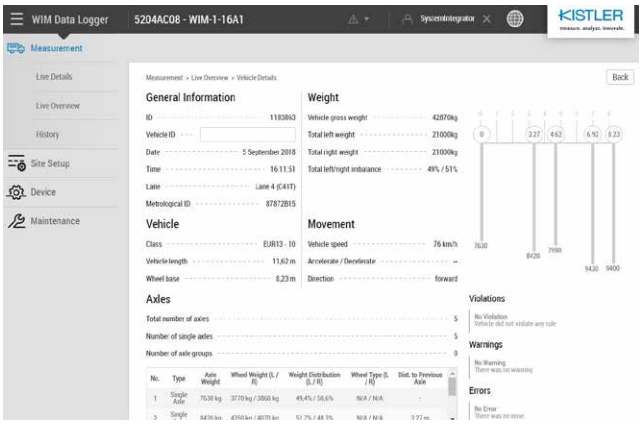

Fig. 4: Kistler web interface

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Sensor layout of KiTraffic Basic

The Lineas WIM sensors and the inductive loop of the KiTraffic Basic system shall be installed on each lane in a layout according the weight accuracy expectation. The performance of the system can be judged upfront by structural road analysis (SRA) service done by support of Kistler including a recommendation for optimal installation location and sensor layout. A typical layout looks as follows

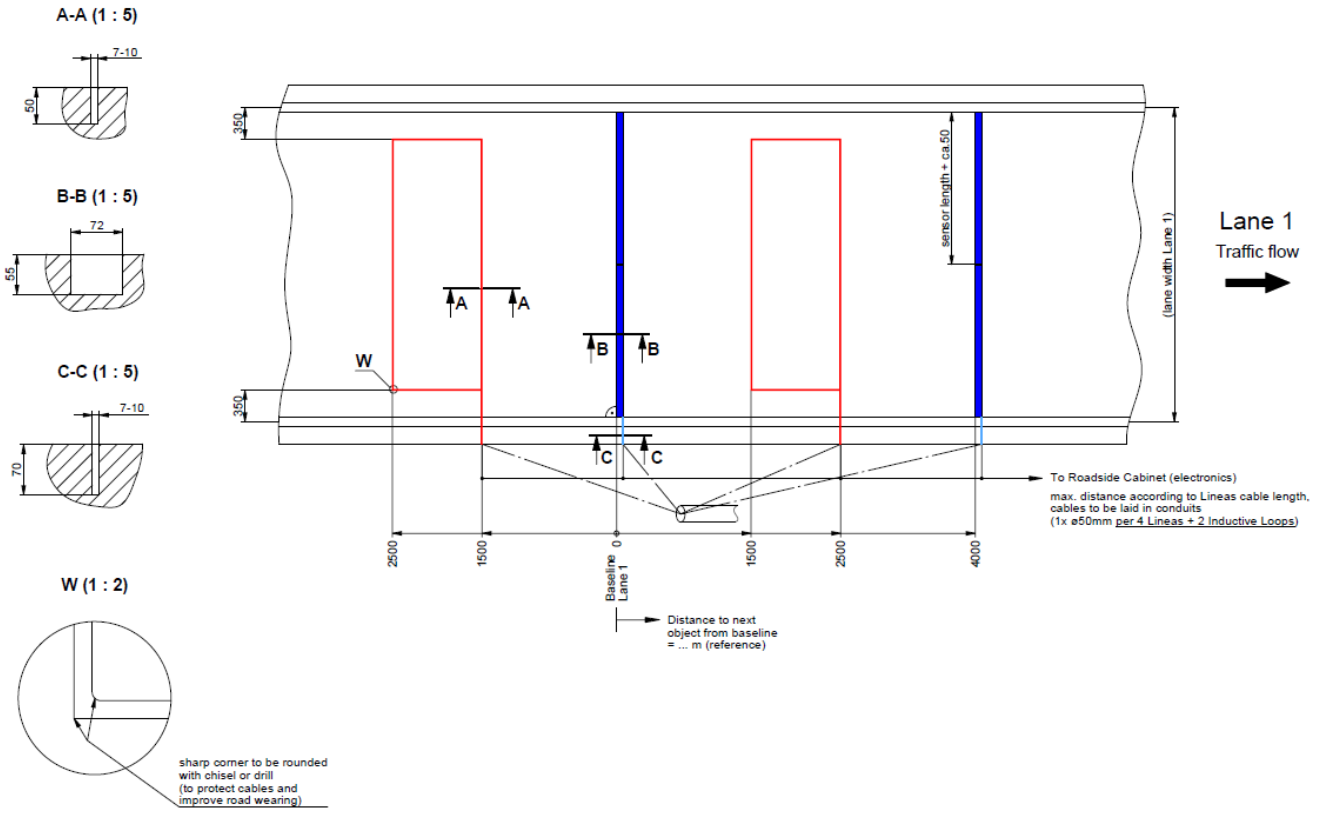

Fig. 5: Example of sensor layout of KiTraffic Basic

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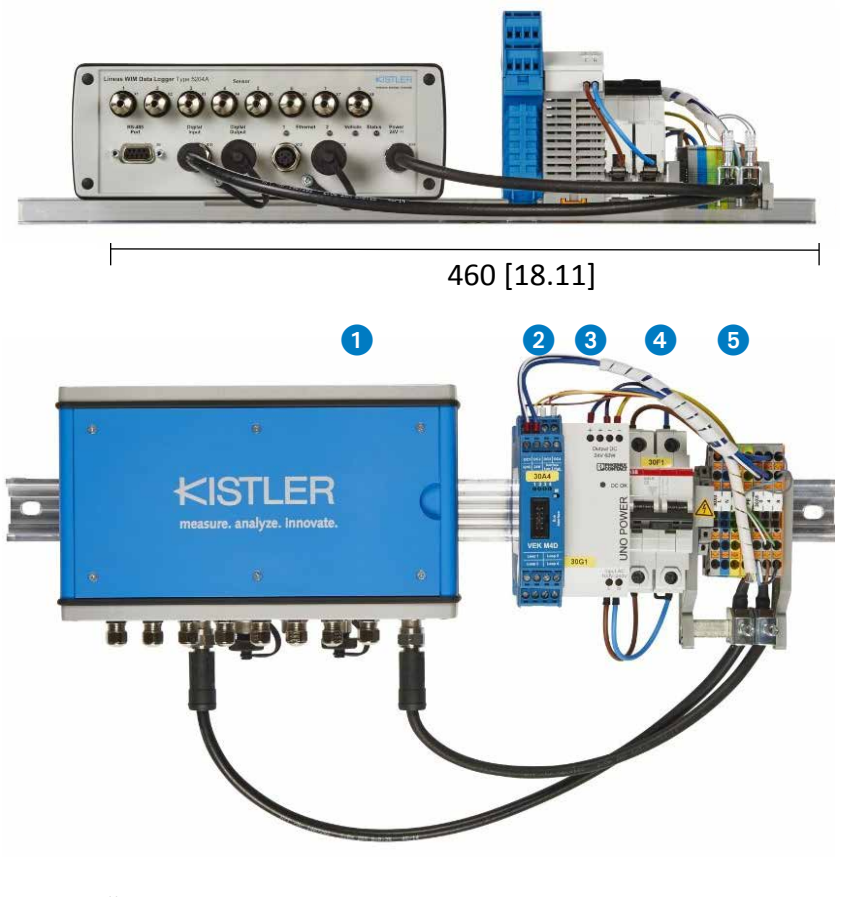

Fig. 6: KiTraffic Basic system components

Included Accessories	**Type/Art. No.**
• Lineas sensors	9195GC…
• Lineas Compact sensors	9196AC…
• WIM Data Logger	5204A...
• WIM system components with loop card	55140423

Mandatory Accessories	**Type/Art. No.**
• Grouting compound (1. bucket per sensor)	1000A1

Optional Accessories	**Type/Art. No.**
• Lineas installation toolkit (contains all required tools for the sensor installation)	Z20015_GC
• Inductive loop cable	9835AZ220
• Ground cable	9835AZ240

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Ordering key

Type 9835A □□□□□□□□□□□□□□

Lineas Sensors	
Quantity Lineas 9195GC31 sensors	0 ... 8*
Quantity Lineas 9195GC32 sensors	0 ... 8*
Quantity Lineas 9195GC41 sensors	0 ... 8*
Quantity Lineas 9195GC42 sensors	0 ... 8*
Quantity Lineas 9195GC51 sensors	0 ... 8*
Quantity Lineas 9195GC52 sensors	0 ... 8*
Lineas Compact Sensors	
Quantity Lineas 9196AC41T sensors	0 ... 8*
Quantity Lineas 9196AC42T sensors	0 ... 8*
Quantity Lineas 9196AC51T sensors	0 ... 8*
Quantity Lineas 9196AC52T sensors	0 ... 8*
* Sum of all sensors must not exceed 8 sensors	
Electronics	
4-channel WIM Data Logger and prewired components with loop card	1
8-channel WIM Data Logger and prewired components with loop card	2
Scope of delivery	
Hardware & Basic software	H
Software (only for existing devices)	S
Software features	
Basic functionality	0
Automated tire screening	1

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