Electronics & Software

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WIM Data Logger

Type 5204AC...

for dynamic vehicle weighing with Lineas sensors

The WIM data logger Type 5204AC... in combination with Lineas Weigh In Motion (WIM) sensors enable customers to monitor traffic and gather accurate vehicle data.

- High weighing accuracy (OIML R134 certified) [1]
- Able to monitor up to 4 traffic lanes
- Handling of stop & go traffic
- Wide speed range (0 ... 250 km/h)
- Measuring range up to 50 tons axle load
- Compact design with integrated amplifier
- Detect single or dual tires
- Quick set up thanks to modern web interface
- Multiple languages available
- Vehicle classification
- Flat tire detection

Description

The WIM data logger is a data processing unit specifically designed to interface with Lineas and Lineas Compact WIM sensors. It allows customers to monitor traffic in real time and to gather vehicle data.

The key is enhanced conditioning and processing of the Lineas and Lineas Compact WIM sensor signals to achieve the best weighing accuracy from low to high speed with the highest reliability. The WIM data logger can be easily integrated into the overall system by the system integrator, providing a customized solution according to the needs of the end user.

Both WIM sensors, Lineas and Lineas Compact, can be directly connected to the WIM Data Logger. Additionally, there are various digital inputs and outputs to interface peripheral devices such as loop cards, beam arrays, traffic signals, camera triggers, barriers, etc. The WIM data logger is available in versions with 4 or 8 channels to monitor 1, 2, 3 or 4 traffic lanes (3 and 4 lanes, only staggered layout).

In Kistler KiTraffic Plus systems, multiple WIM Data Loggers can be combined to monitor a virtually unlimited number of lanes with one single interface to the end user. Every lane can be equipped with 2 to 8 WIM sensors.

[1] System accuracy and speed range depend on sensor layout and road quality. Detailed system information and OIML certificates are available on **www.kistler.com/wim**

Technical Data

General Data

Measuring range (axle load)		tons	0 ... 50
Speed range (without stop & go)		km/h	3 ... 250
Speed range (stop & go)		km/h	0 ... 250
Operating temperature range		°C	–20 ... 65
Degree of protection	EN60529		IP61
Mounting	EN50045	Type	TS-35 (DIN Rail)
Dimensions	WxHxD	mm	213x77x136
Weight (4/8 channels)		kg	1,5/1,65
Vehicle classification			FHWA-13 EUR-13 RUS-12

Electrical Data

Supply voltage		VDC	18 ... 30
Current consumption (typically)	@18 V	mA	210
	@24 V	mA	150
	@30 V	mA	120
Conforming to CE and EMC standards			

Sensor Inputs

Number of channels			4 or 8
Lineas WIM sensor		Type	9195GC...
Lineas Compact WIM sensor		Type	9196AC...

Other Interfaces

Communication ports Ethernet (TCP/IP)			2
Digital input channels			4
Type: Optocoupler with current limitation			
Minimal high-level input current		mA	2,5
Differential voltage range (between +/–)		V	0 ... 30
Digital output channels			4
Type: Semiconductor relais		mA	max. 120
Differential voltage range (between +/–)		V	–30 ... 30
Display interface Type RS-485			1

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Applications

Due to the high measuring accuracy over a wide speed range and the ability to interface different external devices the WIM data logger can be used for several applications:
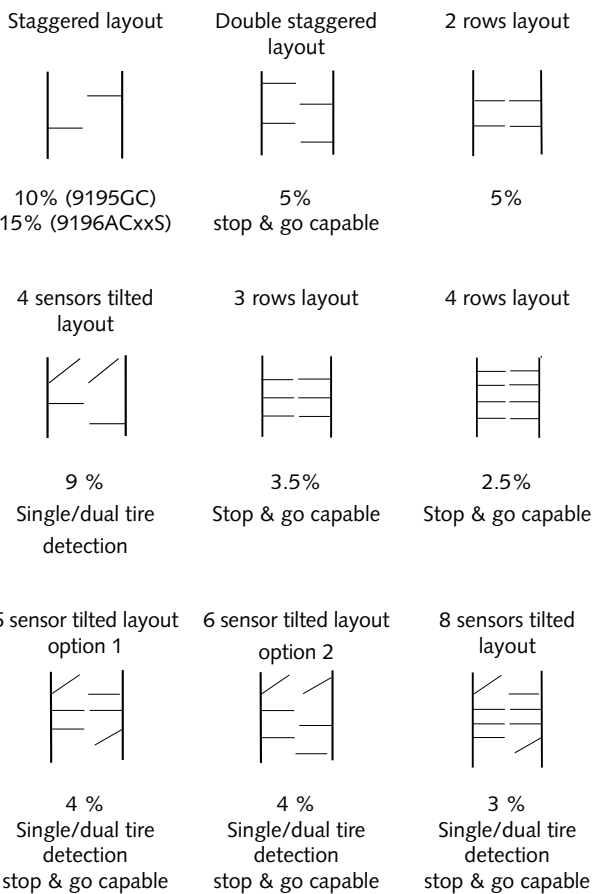• Traffic data collection (e.g. statistics, count & classify)
• Weight enforcement (preselection or direct enforcement of overloaded vehicles)
• Toll collection (manual or automatic toll-by-weight)
• Industrial truck weighing (weight monitoring at harbors, mining, concrete plants or other industrial facilities)
• Overload detection for bridge protection

Typical Layouts

With KiTraffic Plus, each layout can be installed on a virtually unlimited number of lanes.

Layout for one lane:

Typical GVW accuracies for Lineas Type 9195GC (if not mentioned otherwise)

Staggered layout	Double staggered layout	2 rows layout
10% (9195GC) 15% (9196ACxxS)	5% stop & go capable	5%

4 sensors tilted layout	3 rows layout	4 rows layout
9 % Single/dual tire detection	3.5% Stop & go capable	2.5% Stop & go capable

6 sensor tilted layout option 1	6 sensor tilted layout option 2	8 sensors tilted layout
4 % Single/dual tire detection stop & go capable	4 % Single/dual tire detection stop & go capable	3 % Single/dual tire detection stop & go capable

Lineas WIM sensor ———   Road marking |

Induction loops/beam array not considered in layouts
Both driving directions possible

Communication

The control unit (user interface) is usually a computer located in a remote office which is connected to the WIM data logger via Ethernet cable or wireless router. There are two options to communicate with the WIM data logger.

1 Via the Kistler web interface (by using a common web browser)
2 Via a machine readable interface

1 The web interface of the Kistler WIM data logger allows the following tasks to be performed:
– System setup (configuration and calibration)
– Visualization of vehicle data (live and history)
– Supervision (detect violations)
– Access system information and status
– Remote support
– …

Fig. 1:   Kistler web interface

2 The machine readable interface is based on a state of the art RESTful API interface. This allows quick and easy data communication and device control of any server in the network with the WIM data logger.

Output Data

The WIM data logger generates a large variety of vehicle data such as:
• Gross vehicle weight
• Axle information (wheel and axle load, axle distance, number of axles, wheel with single tire or dual tires)
• Vehicle speed and length
• Driving direction
• Imbalance (difference left/right in %)
• Time between vehicles (traffic density)
• Violations
• Driving behavior
• Vehicle classification
• Flat tire information

This information corresponds to the current state of knowledge. Kistler reserves the right to make technical changes. Liability for consequential damage resulting from the use of Kistler products is excluded.

Mounting and Dimensions

The WIM data logger is typically mounted in a road side cabinet close to the WIM site. Inside this electrical cabinet, it can be fixed to a DIN rail with the provided adapter in three different positions.
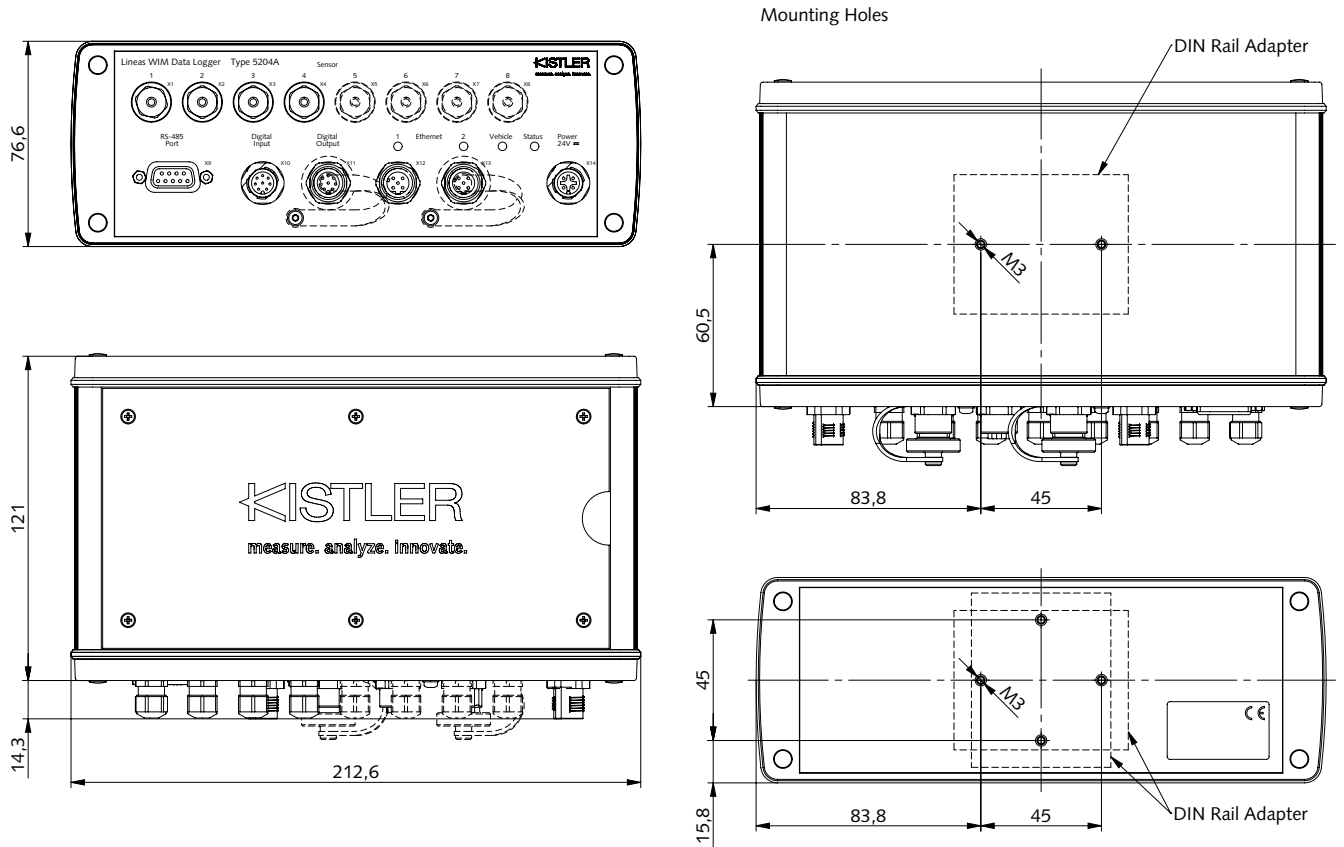
Fig. 2:   Mounting and dimensions of Type 5204A…

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Included Accessories	Ordering No.
• Cable for power supply (M12 – open end, l = 2 m)	1700A119A2
• Ethernet cable (M12 – RJ-45, l = 2 m)	1200A195A2
• Digital input cable (M12 – open end, l = 2 m)	1700A115A2
• DIN rail adapter	55126892
• Protection cap for D-Sub	55066918
• Protection caps for M12 (fix mounted)	65008419
• Sealing inserts for not used channels	55138567
• Systems including WIM data logger:	
– KiTraffic Plus	9843A
– KiTraffic Statistics	9841A
– Weigh In Motion System	9835A

Optional Accessories	Ordering No.
• WIM system components with loop card prewired on a DIN rail	55140423
• WIM system components for beam array prewired on a DIN rail	55140424
• Power supply (24 VDC/100 W) *	9835AZ100
• Loop card for up to 4 inductive loops (for >10 km/h)	9835AZ200
• Beam array set for vehicle separation incl. heating (for <20 km/h) for 1 lane	9835AZ300
• GPRS modem with antenna	9835AZ400
• Digital output cable (M12 – open end, l = 2 m)	1700A117A2
• Power transformator 110 V for beam array heating prewired on a DIN rail	55140425
• Power transformator 230 V for beam array heating prewired on a DIN rail	55140426
• Lineas toolbox for Type 9195GC sensors	Z20015_GC

* For measuring equipment only – for beam array heating power transformator Type 55140425 or 55140426 to be used.

Ordering key

Type 5204A ☐☐☐

Number of Channels*

4 Channels for WIM Sensors	04
8 Channels for WIM Sensors	08
SW order for existing device	–

Scope of Delivery

Hardware & Basic Software	H
Software only (for existing devices)	S

Automated Tire Screening

No	0
Yes	1

***Examples:**
5204AC08H0: 8 channel device without Automated Tire Screening functionality.

5204AC--S1: Automated Tire Screening functionality for an existing WIM Data Logger in the field.

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