KiTraffic Digital

Complete WIM system for weight enforcement

Features

- Certified and unmatched vehicle weighing accuracy
- OIML R134 class F5 certification from Swiss Federal Institute of Metrology (METAS)
- Highest rate of enforceable WIM data records
- Automated tire screening: automatic detection of single, dual, and underinflated tires without the need of additional tilted sensors
- Interlane driving: measures always accurately even when vehicles drive across traffic lanes
- Vehicle classification
- Based on proven proprietary quartz technology
- Quick and easy installation of sensors into road pavement

Description

KiTraffic Digital with its sensors and advanced software automatically monitors traffic at any speed and provides most accurate and reliable vehicle data information.

The KiTraffic Digital system (type 9845) consists of Lineas Digital sensors (type 9181) which are connected to industrial grade standard electronics with Kistler Software. There is no WIM controller/data logger required.

The Lineas Digital WIM sensors provide digitized signals from quartz elements and vehicle presence for measuring wheel, axle and gross weight, as well as speed of road vehicles. These signals contain additional position information to determine tire type (single/dual), tire dimensions and lateral driving position.

Note: Lineas Digital WIM sensors have a proprietary interface which only works with Kistler software on preconfigured electronics to ensure proper performance of the certified WIM measuring chain.

The electronics of a KiTraffic Digital system come pre-wired and on a back panel with preconfigured Power over Ethernet (PoE) Switch, industrial computer and router for easy installation without any mistakes into a roadside cabinet.



The PoE Switch provides power to all sensors in the road and makes sensor signals available to the local computer. The WIM system is accessed via the router. All relevant WIM data is provided on a Graphical User Interface (GUI) and a machinereadable REST API (pull communication) and data stream via web hooks (push communication). The simple web-based GUI enables system configuration and calibration as well as visualization of measurement data.

The KiTraffic Digital system can be upgraded with vehicle identification (ANPR cameras) and additional 3rd party technology. The system is fully compatible with Kistler enforcement software solutions "Kistler Checkpoint" and "Kistler Studio".

Applications

The KiTraffic Digital system is intended for use in applications where highest accuracy on open roads is crucial. Weight enforcement according to national legal frameworks and preselection of overloaded vehicles are typical applications. In addition, KiTraffic Digital enables toll by weight and highly efficient truck weighing in industrial and port applications.

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Туре 9845А...

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Technical data

KiTraffic Digital System (9845)

KiTraffic Digital System

Number of inputs: WIM sensor		unlimited			
Number of ANPR cameras		unlimited			
CE conformity		yes			
User Interface		Graphical UI REST API Webhooks			
OIML certified accuracy Maximum Permissible Error (MPE) at 100% of measured vehicles*	% of GVW	<±2.5% verification <±5% in operation			
OIML certified accuracy axle load class F at 100% of measured vehicles	MPE axle load	2 axle rigid ±8% all other ±16%			
Measuring range axle loads	tons [lb]	025 [55 100]			
Measuring range GVW	tons [lb]	unlimited			
Vehicle types		2-16 axle with rubber tires			
Vehicle classification schemes	EUR13, RUS12, FHWA AUSTROADS, CHINA FHWA-GA, FHWA-MI, SA SWISS10, DNI				
Speed range	km/h [mph]	3250 [2 155]			
Speed measurement accuracy	% of km/h % of [mph]	<±1 [<±0.6]			
Operating temperature range (inside cabinet)	°C [°F]	-20 +70** [-4 158]			
Max. numidity (inside cabinet)	%	90			
Dimensions of the back panel	% mm [in]	90 699 x 1096 [27.5x43.2]			
Dimensions of the back panel Power input	% mm [in] VAC	90 699 x 1096 [27.5x43.2] 100-240			
Max. numidity (inside cabinet) Dimensions of the back panel Power input Power consumption 9845AB1	% mm [in] VAC W	90 699 x 1096 [27.5x43.2] 100-240 Max. 980 Typical < 490			

Sensor dimensions

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Lineas Digital Sensor (9181)

kN	0124
mm	200 x 320
[in]	[7.9x12.6]
°C	-40 80
[F]	[–40 176]
	IP68
m	1.5/1.75/2.00
[ft]	[4.9/5.7/6.6]
m	40/90
[ft]	[131 296]
	Ethernet RJ45
kg	6.8[15.0]/8.5[18.7]
[lb]	7.6[16.8]/9.4[20.7]
	8.5[18.7]/10.3[22.7]
	kN mm [in] °C [F] m [ft] m [ft] kg [lb]

* excellent road conditions and calibration mandatory

** ventilation required

Sensor installation

Lineas Digital WIM sensors are quick and easy to install. They are laid in self-hardening epoxy grout (type 1000A1). The corresponding Installation Instruction describes all relevant steps. The installation of Lineas Digital sensors requires the supervision of a Kistler engineer or an engineer certified by Kistler for Lineas Digital installation.

Sensor slot dimensions





Sensor layout

Depending on required WIM accuracy, Lineas Digital sensors can be installed in 2 rows (4 sensors, accuracy class F10), 3 rows (6 sensors, accuracy class F5) or 4 rows (8 sensors, accuracy class F5) per lane.

The KiTraffic Digital sensor layout is flexible to adapt to site-specific road conditions and special requirements while adhering to key criteria. Distances between sensor rows must be unequal, ranging from 1m to 4m. One induction loop must be installed per traffic lane, with loop lengths between 1m and 2m, and a 0.5m to 2m distance from the loop to the Lineas Digital sensors. The following image illustrates example layouts that meet these criteria:



Road requirements

For accurate WIM measurements it is important to determine an appropriate road segment with a flat, well paved surface. Rutting or cracks may change the vehicle dynamics or shorten the lifetime of a WIM sensor. Both parameters therefore exert a direct influence on the WIM system's accuracy and must be minimized as far as possible. Also the road geometry must be taken into account since accuracy is directly influenced by the surroundings due to drivers' acceleration and deceleration behavior.

Pavement requirements for OIML certified KiTraffic Digital operation



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Ordering Key	Туре No.
Lineas Digital Sensors (mandatory)	
Lineas Digital, sensor length = 1.50 m, cable length = 40 m	9181AD31
Lineas Digital, sensor length = 1.75 m, cable length = 40 m	9181AD41
Lineas Digital, sensor length = 2.00 m, cable length = 40 m	9181AD51
Lineas Digital, sensor length = 1.50 m, cable length = 90 m	9181AD32
Lineas Digital, sensor length = 1.75 m, cable length = 90 m	9181AD42
Lineas Digital, sensor length = 2. 00 m, cable length = 90 m	9181AD52
Electronics and software (mandatory) Option 1: Prewired backpanel	
Prewired backpanel for up to 21 sensors (including pre-configured industrial computer, 24-port switch, router, I/O remote, loop card)	9845AB1
Prewired backpanel for up to 43 sensors (including pre-configured industrial computer, 24-port switch, 24-port extension switch, router, I/O remote, loop card)	9845AB2
Option 2: Single components	
Industrial computer with Kistler software	9845AZ110
24-port switch	9845AZ300
24-port extension switch	9845AZ310
8-port switch	9845AZ320
8-port extension switch	9845AZ330
Router	9845AZ210
I/O remote	9845AZ220
Loop card	9835AZ200
Installation tools (mandatory)	
Grouting compound bucket	1000A1
Toolkit for Lineas Digital installation	Z22227
Features	
Standard software license (mandatory)	9845AIXXX
OIML certified software license: certified weight data with metrologically relevant information for direct enforcement	9845AX1XX
Automated tire screening software license: single, dual and flat tire detection without the need of additional tilted sensors	9845AXX1X
Interlane driving software license: accurate measurements, even when vehicles drive across traffic lanes	9845AXXX1

Graphical User Interfaces (GUI)

• Standard web-based GUI

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lystem	Ad 26, 2024, 4:42:06 AM	1	20,389 lb	49%/51%	FHMA-8	4	Forward	45 mph	68.35 R	50.42 11	OK	
	AN 26, 2024, 4:38:18 AM	1	49,711 lb	47%/53%	FHMA-9	5	Forward	42 mph	75.08 ft	60.43 ft	OK	
	Jul 26, 2024, 4:37:44 AM	1	42,453 lb	50%/50%	FHMA-9	5	Forward	32 mph	75.99 R	57.52 ft	OK	
	Ad 26, 2024, 4:35:14 AM	1	27,227 lb	48%/52%	FHMA-5	3	Forward	39 mph	41.76 ft	34.93 ft	OK	
	Jul 26, 2024, 4:35:01 AM	1	26,003 lb	49%/51%	FHWA-5	2	Forward	42 mph	40.31 ft	22.58 位	OK	
	Jul 26, 2024, 4:33:15 AM	1	34,168 lb	45%/55%	EHMA-9	5	Forward	34 mph	76.48 ft	59.77 ft	Flat	
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• Optional upgrade to KiTraffic Plus with additional 3rd party technology and Checkpoint end-user GUI



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