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KiRoad Performance

Type 9817B..., 9817D...

Electronics unit for wheel force transducers

New electronics unit for supply, configuration, signal processing, and data output of up to 4 RoaDyn wheel force transducers (WFTs) for vehicle testing and laboratory tests.

- Fast DSPs for extremely short runtimes
- Various digital and analog output options
- Integrated WFT data base with administration of calibration data and configurations including ISO export
- Wireless operation with WLAN-capable "Mobile Devices" (only 9817B)
- Prepared for extended data connectivity to other Kistler sensors

Description

The KiRoad Performance unit acquires the digital signals of the individual load cells connected to the wheel electronics Type 5241A... (spinning application in on-road testing) or the hub electronics Type 5243A... (stationary application in the test lab) and transforms them in real-time into a vehicle coordinate system including the required calculation of the remaining force vector components. Modern digital signal processors (DSP) provide powerful and synchronous data management with future-oriented extension options making the device capable of mastering every application situation.
The master function board processes the measurement data of up to four WFTs including the related additional channels and provides data output in various formats. The WFTs and the system parameters are configured intuitively via a browser-based graphical interface via wireless connection (only 9817B for the non European market), LAN-connected (tablet) computers or smartphones. The KiCenter software (included in the scope of delivery) provides complete administration of the settings and of the internal data bases.

Application

The KiRoad Performance unit is powered by a suitable direct current voltage source (power supply pack, vehicle battery, etc.) and forwards power to the hub electronics of the connected WFTs. The measuring chain comprises of one to four WFTs of the RoaDyn S6 family, the relating wheel electronics or hub electronics and – if applicable – the transmission unit (for spinning applications).

Additional sensors such as tire pressure monitoring systems (TPMS), strain gage bridges, temperature sensors, etc. may be connected to the KiRoad Performance which transmits and outputs the measurement data. Kistler also offers appropriate modules for direct amplification and conversion of the signals at the rotating WFT.
The sampling rate of the WFT signals can be adjusted according to the application and can also be synchronized with the recording rate of the connected data acquisition system (DAQ) or the test bench controller. If the available DAQ system does not have a compatible digital interface (CAN, USB, Ethernet, SSI, DTI or field bus), the KiRoad Performance electronics unit provides 8 additional analog output channels per WFT, freely allocable and with adjustable output scaling (max. ±10 V). In addition, the device is equipped with an interface for data bus and time synchronization to support further Kistler sensors, especially for vehicle dynamics measurement applications, which helps to reduce the integration efforts for test vehicles.

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Technical data

Inputs/outputs		
Digital inputs for WFTs	Qty.	1, 2, 4
Supply voltage WFTs	V	30
Analog input		
Channels per WFT	Qty.	2
Input range	V	–10 ... +10
Analog output		
Channels per WFT	Qty.	8
Output range	V	–10 ... +10
Analog output (per channel)	mA	35
CLK/TRG	mA	10
AD/DA converter		
Resolution	Bit	16
Output frequency sp [1]	kHz	2
Output frequency nsp [2]	kHz	4.096 or 5

Digital outputs		
CAN – 2 nodes		2.0B
Baud rate	MBd	0.125 ... 1
USB (full speed)		2.0
Ethernet TCP/IP		yes
Field bus (EtherCAT)		yes
WLAN		
9817B		yes
9817D		no
SSI [3]		yes
DTI [4]		yes
Other		on request

System specifications		
Supply voltage electronics	V	10 ... 36
Power consumption max.	W	150
Operating temperature range	°C	0 ... 55
Protection class		IP20
Dimensions (LxWxH, with plugs)	mm	199x182x127
Weight	kg	2.9
Application height	m	2 000
Humidity	%RH	5 ... 80

[1] For rotary application (sp)
[2] For test bench application (nsp)
[3] With optional SSI distributor, Type 9839A1
[4] With optional DTI converter CAN, Type 5639A

Dimensions

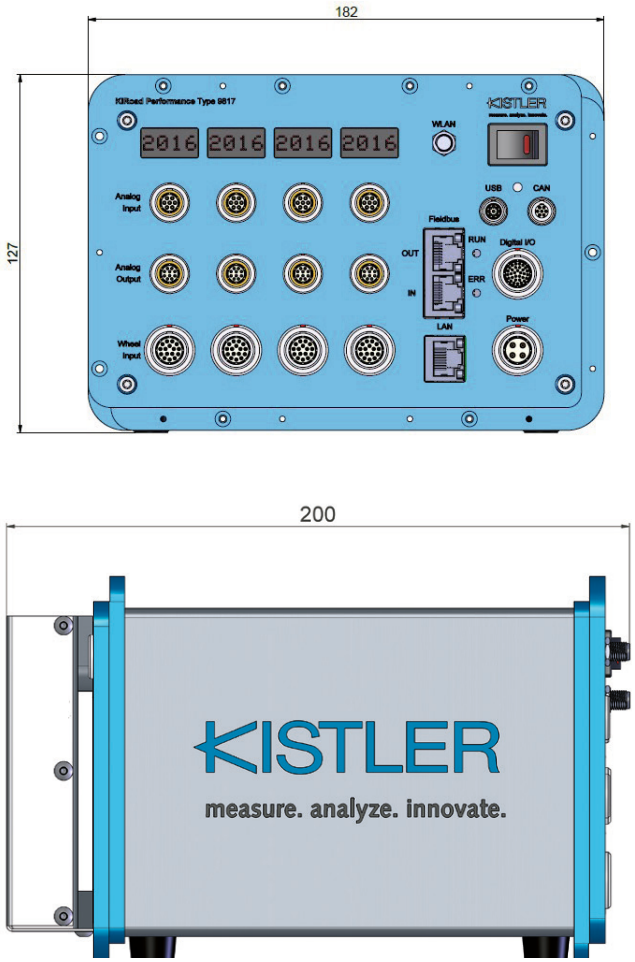

Fig. 1: Front and side view of the KiRoad Performance electronics unit

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Included accessories	Ordering no.
• Ethernet cable blue 1:1, l = 5 m	55089865
• Power cable, l = 2 m	55132911
• WiFi antenna WLAN 88339 DELOCK (9817B)	55135180
• CAN cable CAN output, 2 x D-Sub DE9, l = 1.5 m (only included in sp version)	55135186
• USB cable, l = 1.5 m	55135188
• Sync cable clock synchronization, l = 1.5 m	55135189
• Case Peli Case 1560 (517x392x229) mm	55135785
• USB memory stick	22000444

Optional accessories	Ordering no.
• Adapter 6 pin LEMO – BNC, analog input	22000262
• Adapter cable 10 pin LEMO – 8xBNC, analog output, l = 1.5 m	55135185
• Digital I/O (e.g. Aditec)	55135179
• GPS antenna Aero-AT 575-59	55065880
• Connection cable for WiFi antenna, l = 3 m (9817B)	55065902
• Link cable, link connector (rear panel)	55135326
• Adapter cable for hub electronics Type 5243A... for test bench application:	
5 pin, l = 1 m	55151640
6-pin, l = 1 m [5]	55151641
• SSI Distributor, Type 9839A1	18032625
• SSI cable I-Lab	55188794
• SSI cable M-Flex	55162266
• DTI Converter CAN, Type 5639A...	18033804
• Rack integration Kit for mounting in a 19" Rack	
with SSI distributor	55161034
without SSI distributor	55170210

Ordering key

Type 9817 □ □ □

Market

Rest of the world	B
Europe	D

Number of Supported Wheel Force Transducers

For 1 WFT	1
For 2 WFTs	2
For 4 WFTs	4

Application

Rotating (sp) [6]	1
Stationary (nsp) [7]	2
Rotating and stationary (sp + nsp)	3

Ordering example

Type 9817D41

KiRoad Performance, European market, electronics unit for 4 WFTs, spinning application

[5] Included in the scope of delivery of Type 9817B...2 and 9817B...3
[6] E.g. for on-road vehicle testing
[7] E.g. for application on test benches (axle or full-vehicle)

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