Electronics & Software

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KiRoad Wireless P1 Onboard Unit   Type 9813D…

for RoaDyn P1… WFTs with Telemetry Module

The on-board electronics Type 9813B… is designed for use with KiRoad Wireless P1 Wheel Units Type 9811B (digital far-field telemetry for RoaDyn P1xy wheel torque transducers). The systems is used for wireless digital transmission of measurement signals and system control information between the wheel force transducer and the on-board unit inside the vehicle.

- On-board electronics for up to four KiRoad Wireless P1 Wheel Units
- Encrypted, digital data transmission in the 2.4 GHz WLAN band
- Digital data output for all channels via DTI, CAN or Ethernet
- Online display of the measurement signals via KiCenter (configuration software)
- Configuration (using USB or Ethernet) via KiCenter
- No reception antennas required outside the vehicle
- Optional: Analog data output for 8 selectable channels

Description

The KiRoad Wireless P1 Onboard Unit serves as access point for up to four KiRoad Wireless P1 Wheel Units, Type 9811B…, and enables measurement data to be output to the connected data acquisition device. The connected RoaDyn wheel torque transducers automatically log on and identify themselves after the control unit is turned on. Any sensor-specific information is automatically read into the device so that the system is quickly ready for operation without additional user action. The signal is output to the data acquisition device via DTI, Ethernet, or CAN bus interface (for all signals) and optionally via analog outputs (8 selectable channels). The zero adjustment of the torque signals can be triggered using the remote control or via Ethernet or USB from the laptop or PC using the KiCenter software.

The complete measurement system consists of three main components: The RoaDyn P1xy wheel torque transducer, the data transmission module (Type 9811B…), and the on-board electronics (Type 9813B…) located inside the vehicle. Because each KiRoad Wireless P1 system sets up its own encrypted WLAN network, several KiRoad Wireless systems can work together simultaneously without problems; for example, several vehicles, each equipped with 4 RoaDyn P1xy.

If a Kistler DTI-Logger is used for data acquisition, only one cable is required for the on-board unit to transfer the data, to provide power, and configure the on-board unit via KiCenter. Otherwise, the CAN signals and analog signals can also be output. System configuration is user-friendly via KiCenter using Ethernet or USB. All transmitted measurement data can be viewed in KiCenter.

Application

The primary applications for the Kistler wheel torque measuring systems include rolling resistance measurements; the development of dynamic stability and traction control systems as well as ABS systems; examination of fading effects, brake jitter, performance measurements; the determination of friction values and coast-down tests. Other applications include the development of powertrain, transmission, and control systems and the preparation of state safety tests.

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Technical Data

System Specifications

Dimensions (LxWxH), approx.	mm	181x125x149
Weight	grams	2 500
Operating temperature range	°C	–20 ... 50
Degree of protection (cable mounted)		IP40
Power suply	VDC	10 ... 28
Power consumption max.	W	17
Wireless standard		IEEE 802.11n

Data Outputs

Digital output – CAN		
CAN Bus – 2 nodes		2.0B
Baud rate	MBd	0,125 ... 1
Resolution (ADC)	bit	16
Digital output – DTI		
Resolution (ADC)	bit	16
Analog output (8 signals, seclectable) [1]		
Output range	V	±10 (±5, 0 ... 5, 0 ... 10)
Resolution	bit	16
USB (Full Speed)		2.0
Ethernet TCP/IP		yes
Transmitted measurement channels per wheel		M_y, V_{bat}, T_{ref}, (T_1, T_2, T_3, T_4) [2]

[1] with adapter to 8xBCN (optional)
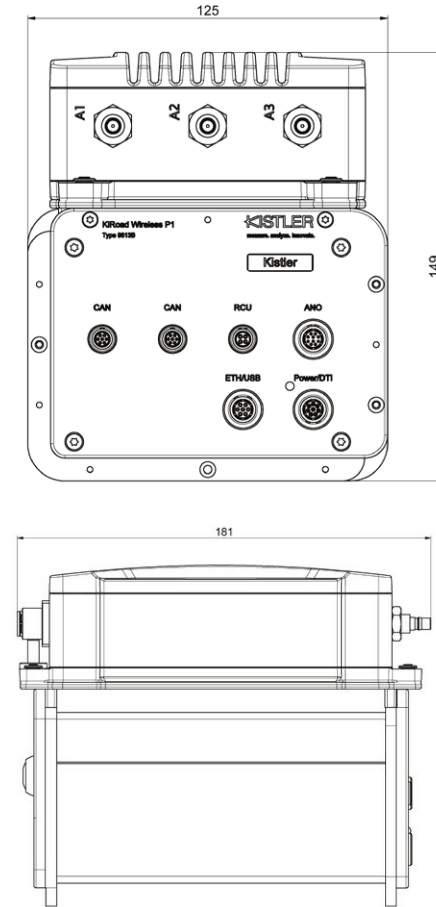[2] if provided by the wheel force transducer

Dimensions

Fig. 1: KiRoad Wireless P1 dimensions

Included Accessories

	Ordering No.
• CAN connection cable, l = 3 m	55155606
• DTI connection cable, l = 0,5 m	55155607
• ETH connection cable, l = 2 m	55155608
• USB connection cable, l = 1,8 m	55155609
• Remote control cable	55158900
• Remote control	18027033
• Rod antenna (3x)	55158080
• Adapter	55157368

Ordering Key

Type 9813B ⬚4 ⬚

Number of Wheels

4	4

Analog Outputs Calibration

No	0
Yes	1

Ordering Example

Type 9813B41

KiRoad Wireless P1 Onboard Unit for 4 wheels, with analog output

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