

# Measuring Hub RoaDyn® S260

Type 9289A113

## to Measure Tire Rolling Resistance of Commercial Vehicle Tires on Tire Test Machines

The 2 component measuring hub RoaDyn S260 is the ideal instrument to measure rolling resistance on commercial vehicle tire test machines. The measuring hub measures the longitudinal and vertical forces  $F_x$  and  $F_z$ , acting at the tire contact area respectively tire footprint.

- High precision rolling resistance measurements for commercial vehicle tires by using force method
- Based on the rolling resistance regulations ISO 28580, SAE J1269 and ETRTO 117
- Strain gage load cell technology for static measurements, combined with high sensitivity in longitudinal ( $F_x$ ) direction
- Static measurement of vertical force  $F_z$  can be used for tire test machine controlling (no additional force sensors necessary)
- Modular design
- High rigidity
- Compatible with analog and digital measuring chains
- Factory calibrated
- Prepared for oil lubrication

### Description

RoaDyn measuring hub S260 is a rigid and high precision measuring tool, instrumented with four strain gage load cells which are mounted between a base and top plate. The instrumentation itself is stationary, i.e. top plate, base plate and load cells are mounted non rotating. The tire/rim combination will be mounted to the rotating spindle (shaft). This build up guarantees an optimization of flux respectively application of force. The measurement of rolling resistance basically takes place by using the force method, described in corresponding ISO and SAE regulations. In that case the reaction force is measured as close as possible at the tire contact area/footprint. The force method increases measuring accuracy and reduces parasitic losses compared with the common approach based on "torque, deceleration or power method"!

Furthermore the force method allows to check two tires simultaneously, which is compared with the other methods a significant increase in efficiency.



### Based on rolling resistance regulations

ISO 28580, SAE J1269, ETRTO 117 for commercial vehicles respectively up to tire load index 170

|                          |       |   |                               |
|--------------------------|-------|---|-------------------------------|
| Measuring range          | $F_x$ | N | -1 200 ... 1 200              |
|                          | $F_z$ | N | ±60 000                       |
| Instrumentation accuracy | $F_x$ |   | ±1 N or ±0,5 % <sup>1)</sup>  |
|                          | $F_z$ |   | ±30 N or ±0,5 % <sup>1)</sup> |

<sup>1)</sup> whichever value is the greater

### Technical Data

|                   |          |    |              |
|-------------------|----------|----|--------------|
| Max. Load         | $F_x$    | N  | ±4 500       |
|                   | $F_y$    | N  | ±1 500       |
|                   | $F_z$    | N  | ±60 000      |
| Calibrated range  | $F_x$    | N  | 0 ... 1 200  |
|                   | $F_z$    | N  | 0 ... 60 000 |
| Natural frequency | $f_n(x)$ | Hz | ≈530         |
|                   | $f_n(y)$ | Hz | ≈1 670       |
|                   | $f_n(z)$ | Hz | ≈960         |

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**Measuring Chain**

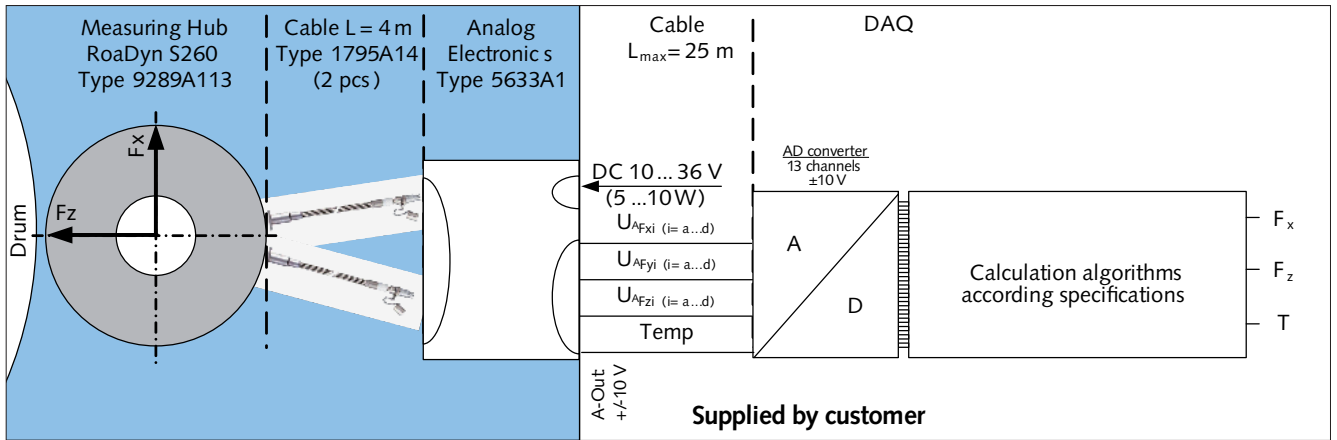


Fig. 3: Analog measuring chain RoaDyn® S260

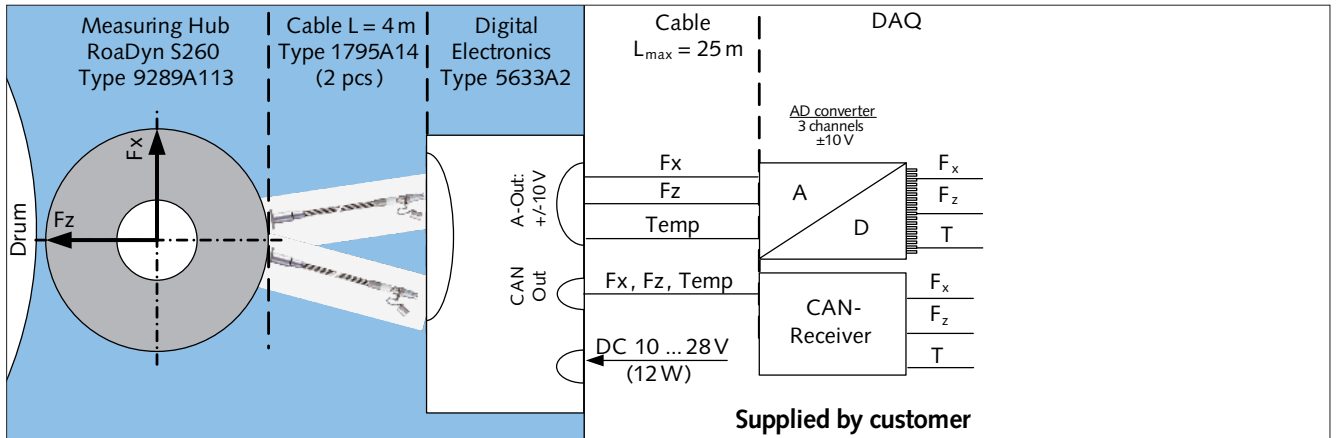


Fig. 4: Digital measuring chain RoaDyn® S260

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**Included Accessories**

- Mounting material

**Optional Accessories**

Analog version

- |  |         |
|--|---------|
| • Connecting cable low impedance, length = 4 m, straight connector | 1795A14 |
| • Connecting cable low impedance length = 4 m, angle connector     | 1795A24 |
| • Analog electronics box, 24 channels                              | 5633A1  |

Digital version

- |  |         |
|--|---------|
| • Connecting cable low impedance, length = 4 m, straight connector | 1795A14 |
| • Connecting cable low impedance length = 4 m, angle connector     | 1795A24 |
| • Digital electronics box, 16 channels                             | 5633A2  |

Calibration equipment

- Set of deadweights (11 pieces, 20 kg each) 9907A2

**Supplied by Customer**

- Hydraulic oil pump lubrication system (non-pulsating)
- DAQ

**Ordering Code**

- Measuring hub RoaDyn S260 **Type 9289A113**  
to measure tire rolling resistance of commercial vehicle tires on tire test machines

**Other Kistler Products in this Application**

- Measuring hub RoaDyn S220 **9289A103**  
to measure tire rolling resistance of passenger car tires on tire test machines
- RoaDyn P530 measuring hub **9295B...**  
to measure tire characteristics on tire test machines (passenger car)
- RoaDyn S5ST (60 kN) measuring hub **9289A253**  
for durability and tire characteristics measurement on tire test machines (truck and bus)
- RoaDyn S5MT (100 kN) measuring hub **9289A263**  
for durability and tire characteristics measurement on tire test machines (truck and bus)

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