

# Brake force measuring system

Type 2899A...

## For maintenance, assessment and research of railway brake systems

The brake force measuring system enables simple and reliable verification of the locomotive and carriage braking system. The system verifies proper operation of the mechanical and pneumatic brake systems via force measurement. Features of the test system include:

- Reliable, accurate and robust force sensor for shoe and disc brakes verification
- Sensors suitable for typical railway brake systems deployed worldwide
- Simultaneously measures the brake system air pressure
- Determination of railway brake system specific parameters by dedicated analysis software
- Reliable data reporting
- Robust cabling, suitable for the everyday use
- Flexible configurations from 1 to 8 simultaneous force sensors. Additional pressure and trigger sensors are available
- Full ground isolation between railway and workshop mass
- Battery powered for mobile use
- WiFi-connection between sensors and laptop.
- Self-contained solution in one case for in-field testing

### Description

The system consists of force sensors for brake shoe and disc brakes, signal conditioning, data acquisition and analysis.

The force sensors are based on our long-term proven piezo-electric force sensors. The mechanical adaptation meets the specification of UIC and the robust sensors are built to withstand the harsh conditions encountered in the railway environment.

The userfriendly data acquisition system is pre-configured to transmit the measured data to the dedicated railway brake force analysis and reporting software.

Detection of wear and damage to the pneumatic and mechanical parts of the brake system are monitored and recorded. This data enables engineering and maintenance personnel to extend the maintenance cycle of the brake system and confidently ensure safety and security.



Fig. 1: All components are integrated in a rugged case

2899A\_003-342e-06.18



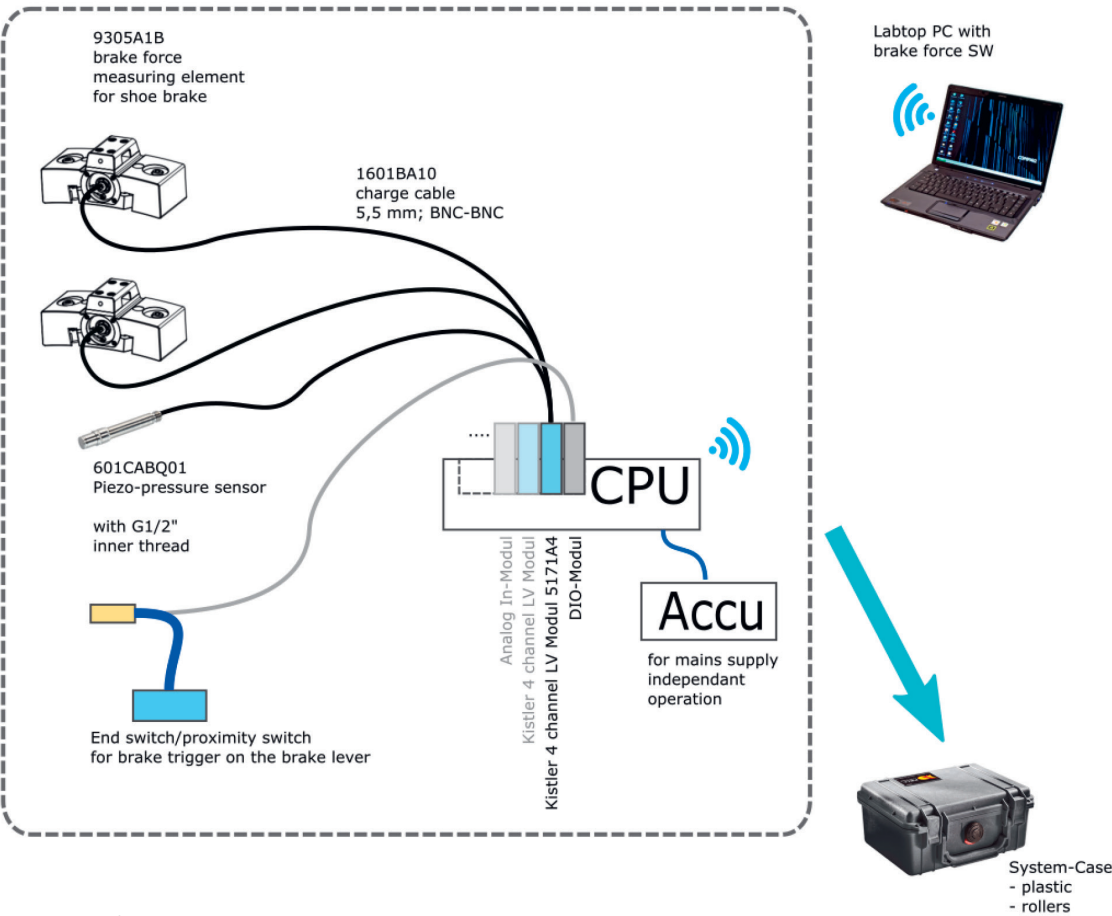


Fig. 5: Brake force measuring system overview

**The system software provides the following features:**

- Configuable system settings
- Supporting of multiple simultaneous measurement channels
- Calculation of wheel diameter correction-real time measurement of instant values (digital meter)
- Recording and analysis of signals (pressure, force) over time. Determination of characteristic brake build up and decay values
- Determination of brake process start with proximity switch on the brake handle
- Display of pressure vs. force
- Report generation

**System components**

Additional to the basic components such as power supply, DAQ-module, and case, the system is highly configurable with the following components:

	Type
• Brake force measuring element for shoe brakes	9305B1B
• Brake force measuring element for disc brakes	9303B...
• Air pressure sensor for railway applications	601CABQ01
• 4-channel charge amplifier module	5171A4
• Sensor connection cable	1601BA10
• Brake process trigger sensor with stand	

**Ordering key**

**Type 2899A**

Type of brakes	
Block brakes	1
Disc brakes	2