

Quick Start Installation

Rotating Cutting Dynamometer (RCD) and Wireless Receiver

Туре 9170В...



Foreword

Thank you for choosing a Kistler quality product. Please read these instructions carefully, so that you can take optimum advantage of the versatile features of this product. The information in this document is subject to change at any time without prior notice. Kistler reserves the right to improve and modify the product in accordance with technical progress without the obligation to inform persons and organizations based on these changes.

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1. General information

The complete measuring system 9170B comprises a sensory tool holder (Rotating Cutting Dynamometer), that can be mounted directly at the machine spindle and a communication box 5347A (WL Receiver), that receives the data through wireless from the tool holder. The spindle type on the machine tool determines which rotor version is required. The piezoelectric 4-component sensor, four charge amplifiers and the digital transmission electronics are integrated into the tool holder. It measures the radial forces F_x and F_y , the axial force F_z and the torque M_z .

2. Device Description

The following brief description explains the basic components of the measuring chain and refers to the corresponding chapters with more detailed descriptions:

Tool holder (RCD) – 9170B...



Back side WL Receiver - 5374A...

Power - 0 Wintertury Burger - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0	Remote Control		Ethernet Sync In Sync C	Cut Roset •
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3	Analog outputs (BNC neg.)	-
4	Light-emitting diodes (LEDs), indicating the status of the corresponding RCD input (left side) or analog output (right side)	2.4
5	Main switch for the power supply of the device	-
6	Ground lug	-
7	Connector of the 24 V power supply (e.g. plug-in power supply unit)	-
8	Remote control connector (D-Sub 9-pole neg.) • Measure/Reset control (Pin 5) • Start/Stop trigger (Pin 4) • 24 V supply (Pin 1) • GND (Pins 2 & 6)	-
9	USB ports for receiver dongle. The dongle must be plugged into one of these ports.	2.3
10	2 Ethernet interfaces (RJ45). Only Sync In connector active	-
11	Reset button for resetting the device to factory settings	4

2.1 Overpressure valve



Do not discard old electronic instruments in municipal trash. For disposal at end of life, please return this product to an authorized local electronic waste disposal service or contact the nearest Kistler Instruments sales office for return instructions.

2.2 Charging the battery

The battery runtime (active measurement) is at least 5 hours. Afterwards, the RCD with built-in battery can be charged via the magnetic charging plug.



Only charge the RCD at an ambient temperature between 0 and 40 °C. Use the original charger and the original charging cables. Charging outside the specifications **can seriously and irreversibly affect the performance and service life** of the rechargeable battery!

2.3 Receiver dongle



The receiver dongle is the receiving and transmitting unit on the stationary side of the measuring system. The receiver dongle contains the transmitting and receiving antenna.

The receiving antenna receives the data signals transmitted by the tool holder (RCD) and forwards them to the WL Receiver. The dongle should be placed as close as possible to the RCD (range ≤ 5 m).

2.4 Status LEDs

The LEDs indicate the status of the corresponding RCD input or analog output and the general operating statuses of the device.

The table below shows the possible statuses

LED status		Operating status				
		RCD input LEDs	Output LEDs			
0	no light	No RCD connected, unit switched off	-			
•	blue	RCD connected, battery ok, no overload	Measurement in progress			
*	blue flashing	-	Reset			
•	yellow	RCD connected, battery <20%	-			
•	red	RCD connected,overload	Overload			
*	red flashing	RCD connected, battery < 10%	-			

• Incorrect handling of the dynamometer has an immediate influence on the balance quality and thus on the quality of the measurement.



Do not allow the dynamometer to fall and do not subject it to any hard blows! The maximum force of a shock of this type could exceed the load range of the device and cause lasting deformations.

3.1 Mounting the tool holder (RCD)

Please observe the respective information in the manual of the machine tool manufacturer before the tool holder (RCD) is inserted in the spindle.



The tool holder (RCD) may only be inserted manually into the spindle without explicit approval from Kistler and may not be changed with the automatic tool changer.

3.2 Connecting via PTS App

The software connection and set-up of the unit is described in the instruction manual of the PTS App Type 2935A. All settings of the measurement chain and its operation can only follow via the PTS App. After starting the app, the first thing to do is to log in with the password "CFM" before you can make any further settings.

4. Restoring all settings

The Wireless Receiver can be reset to the factory settings by using the Reset button (11). This causes all user and network settings to be reset.

To reset the settings, the Reset button (11) on the back of the device must be actuated with a pointed object (e.g. needle) for at least 2 seconds.

5. Service and support

Please contact your sales partner directly for additional product information.

Repairs at Kistler

Repairs at the Kistler factory can be arranged via the local sales company. Information can be found at www.kistler.com. Please contact your sales partner directly for additional product information.

Disposal instructions for electronic devices

Old electronics devices may not be disposed of with household refuse/residual waste. Please return obsolete devices to the nearest electronics disposal center for disposal or contact your Kistler Sales Representative.

6. Conformations

CE (Europe)

Hereby, Kistler Instrumente AG declares that the radio equipment type 9170B... is in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at the following Internet address:

www.kistler.com > About us > Certificates and product compliance > Product compliance

UΚ

Hereby, Kistler Instrumente AG declares that the radio equipment type 9170B... is in compliance with Directive UK SI 2017 Nr. 1206.

The full text of the EU declaration of conformity is available at the following Internet address:

www.kistler.com > About us > Certificates and product compliance > Product compliance

FCC (USA)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reason-able protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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3. Installation and commissioning

The tool holder (RCD) is a precision instrument that requires careful handling. The following instructions should be followed for that reason:

• The tool holder (RCD) has been fine balanced in order for it to be able to be used for up to 16'000 rotations per minute for force and moment measurements. Depending on the selected adapter, there may be further restrictions on the rotation speed. The binding permissible speed is engraved on the housing of the RCD. • Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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IC (Canada)

Canada Compliance Statement

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license exempt RSS(s). Operation is subject to the following two conditions:

- This device may not cause interference.
- This device must accept any interference, including interference that may cause undesired operation of the device.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be chosen in such a way that the equivalent isotropically radiated power (e.i.r.p.) is not more than that is necessary for successful communication. This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

Canada Déclaration de Conformité

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

- L'appareil ne doit pas produire de brouillage.
- L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement

Conformément aux réglementations d'Industry Canada, cet émetteur radio ne peut fonctionner qu'à l'aide d'une antenne dont le type et le gain maximal (ou minimal) ont été approuvés pour cet émetteur par Industry Canada. Pour réduire le risque d'interférences avec d'autres utilisateurs , il faut choisir le type d'antenne et son gain de telle sorte que la puissance isotrope rayonnée équivalente (p.i.r.e) ne soit pas supérieure à celle requise pour obtenir une communication satisfaisante.

Cet équipement respecte les limites d'exposition aux rayonnements IC RSS-102 définies pour un environnement non contrôlé. Il doit être installé et utilisé en maintenant une distance minimum de 20 cm entre le radiateur et votre corps.

7. Safety instructions

As an environmentally aware company, Kistler does not send out operating instructions in paper form. For this reason, please refer to the following information regarding the installation and operation of Kistler products:

- The safety and warning information set out below
- The specifically applicable instruction manual for the purchased product

Instruction manuals for each product are available on the Kistler website and can be accessed via the type number at www.kistler.com or with the QR code.

Paper instruction manuals can also be requested from Kistler's customer service or the responsible Kistler sales department.



Instruction manuals are subject to change at any time without advance notification, in particular regarding equipment modifications (conversions, retrofits etc.). Instruction manuals must be accessed regularly on the internet for this reason.

8. Safety and warning information

8.1 General

Kistler offers a wide range of products in the dynamic measurement technology sector for recording pressure, force, torgue and acceleration, designed exclusively for use in industry and research with an emphasis on automotive development, industrial automation and further applications engaged in pushing back the frontiers of physical science. These products are high-precision devices that acquire and process data which can be transmitted electronically to other systems. At the time of purchase, each Kistler product is compliant with the necessary and applicable safety regulations and all other relevant requirements. Every product is in perfect condition with respect to safety requirements when it leaves Kistler's factory.

Please check for any damage to the packaging before unpacking the product. Any damage found must be reported to the shipping company and the Kistler Sales Center or its distributor.

The delivery scope must be checked before starting to set up the product. If a part is missing, the responsible Kistler Sales Center or its distributor must be notified.

If the product has visible signs of damage, no longer works, is stored for lengthy periods in unfavorable conditions and/or was exposed to major stresses during shipping, safe operation is no longer guaranteed and the product must immediately be returned for repair to Kistler or the responsible distributor. The product may not be disassembled, opened, repaired or otherwise modified because this may impair its operation and, in particular, can result in electric shocks. Any attempt to open or modify the product or to damage or remove labels will automatically result in the voiding of all warranty claims. The product must not be used in potentially explosive environments unless it is specifically designated for such use.

8.3 Disposable and rechargeable batteries

Please note the following points if the product contains disposable or rechargeable batteries:

Incorrect use of disposable or rechargeable batteries may result in injury, death, material damage or damage to the respective product due (for example) to battery fluid leakages, fire, overheating or explosion.

Leaking battery fluid is corrosive and can be toxic. It may result in burns on the skin and eyes and is damaging to health if swallowed. The following instructions must be followed to minimize the risk of injury:

- Remove disposable or rechargeable batteries from the device when they are empty, or if the device is not being used for a lengthy period.
- Old, weak or empty disposable and rechargeable batteries should be disposed of according to local or national regulations, or should be recycled directly.
- If a disposable or rechargeable battery leaks, it must be removed by following the steps in the installation procedure in reverse order. When doing so, please ensure that the leaking fluid does not come into contact with skin or clothes. If the fluid does come into contact with skin or clothes, immediately rinse the affected areas thoroughly with water. Clean the battery compartment with a dry cloth before inserting new disposable or rechargeable batteries. Please follow the recommendations of the disposable or rechargeable battery manufacturer.
- Disposable and rechargeable batteries must not be opened, perforated, damaged or heated.
- Disposable and rechargeable batteries must not be exposed to direct heat or fire.
- Disposable and rechargeable battery-driven equipment must not be exposed to direct sunlight for lengthy periods.
- Different types of new and old disposable or rechargeable batteries must not be mixed.
- The connections of rechargeable or disposable batteries must not be short-circuited.
- Disposable and rechargeable batteries must not be immersed in water or allowed to become wet.
- Disposable and rechargeable batteries must not be thrown, struck or exposed to other severe physical influences.
- Disposable and rechargeable batteries must not be disassembled or modified.
- Disposable and rechargeable batteries must not be charged close to fire or in hot environments.
- Do not recharge batteries if they are not specifically designed to be rechargeable.
- Rechargeable batteries are highly sensitive, and they may expand and explode if handled incorrectly.
- Rechargeable batteries must only be charged with accessories designed for this purpose.

Self-discharge

Typical self-discharge in the first year at a temperature of 20°C is less than 5%, with a state of charge between 15 and 50%. Storage temperature

The recommended storage temperature is between -20°C to 45 °C out of direct sunlight in a dry, clean, well-ventilated place.



Storage outside these temperatures can lead to higher self-discharge, lower performance and swelling of the battery cells.

Minimum state of charge during storage

A minimum state of charge of 25% at the end of storage is necessary to prevent deep discharge.



Deep discharge can have a serious and irreversible effect on the performance and life of the battery! If the battery voltage is low after storage, the battery must be charged as soon as possible to avoid the voltage of one or more

cells falling below a level where the cell may be damaged. To do this, "wake up" the battery by connecting the charger supplied. If the unit cannot be switched on after charging or if the state of charge is permanently below the permitted level of 25%, please contact Kistler Service.

For storage of more than 3 months to less than 1 year, proceed as follows:

- Regularly check the battery voltage at least every 6 months.
- If necessary: Charge the battery up to 50 % of its capacity.

Use of the RCD after a long storage period

After a long storage period, the following procedure is recommended:

- Completely discharge the battery by running the RCD in operating mode (measuring mode)
- Preferably run a complete charge/discharge cycle. Otherwise it may take 2 to 3 cycles until the maximum capacity is available again.
- Fully charge the battery

8.5 Product use

During storage and operation, the specifications on ambient temperature stated in the technical data must also be observed. The product may be permanently damaged if the permissible ambient temperature is exceeded to a significant extent. The product may only be used under the specified operating conditions; in particular, high relative air humidity and temperature fluctuations that might result in condensation should be avoided.

Under no circumstances must the protective ground conductor be interrupted or rendered ineffective. Its purpose is to provide protection against electric shocks and it must therefore be connected to the relevant equipment. Defective fuses must only be replaced by appropriate substitute types with the specified current rating. "Repaired" fuses must not be used, and fuse holders must not be shortcircuited.

Do not perform tuning, maintenance or repair work on live, open devices.

8.6 Electromagnetic compatibility

To ensure that electromagnetic compatibility (EMC) is maintained for the entire measuring chain, particular attention must be paid to connection of the inputs and outputs of the cable screen, and to the cable installation:

- Cables must not be run parallel to wiring that causes interference.
- Only the supplied or optionally available cables must be used.
- Please ensure a reliable connection between shielding, connector boxes and device enclosures.
- Machinery and hardware must also comply with the EMC standards.

8.7 Software upgrades and updates

The software and firmware available on the Kistler website must

8.2 Setting up and using your product

Only qualified individuals with the necessary technical knowhow are allowed to install and operate Kistler products. These qualified individuals must adhere to all requirements contained in this safety and warning information and in the applicable instruction manual for the respective product. They must also comply with the applicable national safety provisions for installation and operation in each case. If a product is not installed, used or maintained in the proper manner, this could result in serious injuries or fatal accidents and damage to the product and its surroundings.

 Rechargeable batteries must be protected against major temperature fluctuations, impacts, overheating and all other external influences that may have an effect on the function of the rechargeable battery or the device.

8.4 Transportation and storage

All the following safety precautions must be taken if the product is to be shipped or stored for a lengthy period: •All BNC, Fischer and Triax connections must be covered with the dust caps that are supplied.

- The plug connections must be kept dry and dust-free.
- It must be ensured that no dirt can penetrate the product.
- The storage environment must be dry, and must provide protection against vibrations.
- Compliance with the storage temperature is required according to the specifications on the relevant data sheet or in the relevant operating instructions.
- The product must be stored in the original packaging.

always be used. Kistler accepts no liability whatsoever for direct or consequential damage caused by products with outdated firmware.

8.8 Disposal information for electrical equipment



The product must not be disposed of as domestic waste. It must be taken instead to a suitable collection point for the recycling of disposable or rechargeable batteries, electrical and electronic equipment. Sorting, collecting and recycling helps to preserve

natural resources and prevents impairment of human health and the environment by hazardous substances that may be released through the incorrect disposal of disposable or rechargeable batteries, electrical and electronic equipment.

Please contact your Kistler Sales Center if you have any questions about disposal.

Contact addresses and further information are available at this internet address: www.kistler.com



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