BERGEON

SWISS MADE SINCE 1791

EN Instructions for use
B-FORCE, power sensor kit for hand setting press

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First use

Connect the external LED ① (not obligatory).

Plug the micro USB cable ② into the device and then into the power supply unit which connects to an AC outlet.

Connect the sensor ③ (simply align the red dots on the plug and socket and push straight in). To disconnect the sensor, pull the plug straight out while holding the textured ring.

Install the SD card (not obligatory).

The device turns on and directly displays the work screen.

The working parameters must now be set:

Set the time, language, unit of measurement, etc. (page 3).

Create a «Calibre» and enter the minimum and maximum power values for at least 1 spindle (page 4).

Return to the work or graphic screen. The device is now ready to analyse the power applied to its sensor.

Choose the correct calibre, which corresponds to the correct number of spindles and the correct driving forces.

At the start of a new production order, enter the following information:

- Production order (title or reference number of the production order)
- Username (operator name)
- Part number (usually a PO starts at 1, but this number can be changed)
- Set the tare after installing the parts on the sensor. Each time the weight of the parts placed on the sensor changes (change of positioning, for example), repeat the tare setting.

During driving, do not exert excessive force on the part, as this would change the force reading.

Settings

Go to settings

Access the settings by clicking on ⚙ the work screen (main screen after switching on the device).

① Preferences

Units

Choose the unit of the desired force between N, mN, cN, Kgf, gf and lbf.

Languages

Choose the desired language between French, English, German, Italian, and Spanish.

IMPORTANT: Clicking on return ⤺ saves the information that has been changed.

② Device settings

Date and hour

Click on the «Set date and time» tab, select «Time» and enter the information. Confirm with OK and repeat the operation to set minutes, seconds, year, month, and day.

The «Reset clock» tab resets everything back to 0.

IMPORTANT: Setting the date and time is very important because this information will be taken into account when acquiring data for the SD card.

Sleep mode

Click on the «Standby time» tab and choose the duration in minutes, then confirm with OK.

The default setting is 0 minutes, in which case the device will never go to sleep. Note that after going to sleep, you simply have to click on the centre of the screen to light it up.

③ Security

Principles: 3 levels of passwords. «Production» (limited access), «Methods» (extended access) and «Service» (full). Passwords can be activated or not, and have an adjustable validity period (except the service password).

«Methods department» password (not active by default)

Possibility of creating a password of between 1 and 9 digits, allowing only the methods department to adjust the device, to edit the calibres, and to change the name of the PO and the username Depending on the use, activate or not the «Adjust device» and «Edit calibres» tabs. If the boxes are ticked, the password will be requested when selecting these menus, otherwise they will be free to access.

IMPORTANT: This password is of a higher permission level compared to the production password.

«Production» password (not active by default)

Possibility to create a password of between 1 and 9 digits, allowing only the Production Department to change the calibre, modify the PO, and change the username. Depending on the use, activate or not the «Change calibre» and «Modify PO» tabs. If the boxes are ticked, the password will be requested when selecting these menus, otherwise they will be free to access.

Validity period

Password validity in seconds. By default, the time is set to 0, which, after entering the password, will give permanent access to the settings tabs without being asking to re-enter this.

IMPORTANT: Clicking on return ⤺ saves the information that has been changed.

④ SD Card

Setting parameters related to the SD card, such as:

- Choose the type of file for recording the measured values, or not to record them

IMPORTANT: The measured values are not stored in the device itself, a micro SD card is necessary.

⑤ Sensor (Optional)

Access the sensor information supplied by default (200N).

It is also possible to carry out a calibration if necessary.

⑥ Service (Optional)

Allows access to advanced settings. Explained in page 8.

⑦ Screen settings (Optional)

Access the screen brightness adjustment. Choose the desired intensity using the cursor.

⑧ OFF

Put the device to sleep. Note that this is not a real power-off. To turn it back on, just touch the screen.

⑨ ⤺

Exit the «Settings» menu.

Calibre control

Edit mode (Managed by methods department)

Access the calibre control from the «Calibre» tab. See point ① on page 6.

Enter the production password if required.

Sort the calibres by name/date. Click on the column heading.

➕ Create a new calibre.
   Enter the calibre name and confirm ✓.

🗐 Duplicate the selected calibre.

🗑 Delete the selected calibre.
   Confirm ✓ the deletion of the calibre.

IMPORTANT: Before any action on a calibre, make sure that the correct calibre is selected. The calibre should be highlighted in green.

Once all the calibres have been created, you have the option of exporting the «Calibre control» to the SD card and duplicating it on other devices in order to avoid having to configure them one by one. Procedure explained on page 8.

Access to edit the selected calibre (highlighted in green) by clicking on 📝 in order to manage the spindles.

Spindle control

Edit mode (Managed by methods department)

In the case where there are several spindles, the spindle selected is framed in yellow. The spindles are sorted in the order of creation, and it is not possible to rearrange them later.

Possibility of creating from 1 to 6 spindles according to the need, the first being always active by default. To create a new spindle, just click on an empty box in the upper panel and fill in the information.

🗐 Copy the selected spindle.

📋 Paste the copied spindle.

   IMPORTANT: Select an empty box to paste a spindle. In all cases, a pop-up will ask whether you wish to overwrite the spindle or not.

🗑 Delete the selected spindle.
   Confirm ✓ deletion of the spindle.

① **Name of the spindle and** ② **Abbreviation of the spindle**

   Click on the «Spindle name» / «3 letter abbreviation» tab, enter the required data and confirm ✓.

③ **Spindle colour**

   Click on the «Spindle colour» tab, choose a colour available in the palette, and confirm ✓.

④ **Show or hide the spindle**

   Option available only from the 2nd spindle, since the 1st is always active.

   Click on the «Show or hide the spindle» tab to alternate between the «Active» and «Hidden» modes.

   If a spindle is active, its colour is solid in the upper panel. Otherwise, it will be pixelated.

⑤ **Automatic spindle incrementation**

   Click on the «Spindle auto. increment» tab in order to change the incrementation «To the right», «To the left» or «None». If «None», the operator must select each spindle manually.

   IMPORTANT: The active spindle by default always remains on the left of the screen regardless of the direction of the incrementation.

Automatic spindle incrementation TOWARDS the right

⑥ **Driving force**

   Click on the «Driving force: MAX limit» / «Driving force: MIN limit», enter the value and confirm ✓.

Once the spindles have been created, exit the edit mode by clicking on ↩ to start production.

Production mode

Basic mode

① Calibre

Access the calibre control by clicking on the «Calibre» tab. Creation/modification explained previously on page 4.

② Tare

The tare setting is necessary to zero the force measured after installing the calibre holder and the calibre on the power sensor. The sensor is not operational until the tare setting has been made. As a reminder, a red dot flashes. In order to set the tare, just click on the tab. Note that the operation can be renewed at any time.

③ + or - incrementation of the part number

The part number can be incremented automatically or manually (in the calibre setting). Each time the number is changed, if measurements have been made, they are saved (a pop-up window will remind you). In manual mode, enter the number of the part you are working on by clicking on the tab and confirm with OK. Possibility to increment with the + and - buttons.

In automatic spindle incrementation mode, the number changes by itself when all the spindles of the current calibre have been passed.

IMPORTANT: If you are working with a single spindle calibre and you want to increment automatically, you must go to the calibre settings, select the spindle, and activate the incrementation, even if there is only one.

④ Production order and ⑤ Username

Click on the tab «Production order» / «Username», enter the production password if required, enter the data required, and confirm ✓.

⑥ Ruler and graphic cursor

During the driving operation, the cursor moves along the vertical ruler, which makes it possible to see directly in which area the operation is being carried out. The green and red colour areas vary according to the minimum and maximum forces defined for the spindle. The green area indicates that the force reached is correct, and the red area indicate that the force reached is not high enough or exceeded.

⑦ System info button / SD card / Alarms / OFF

Access the menu giving information on the device. This also allows you to configure additional settings, such as activating the audible alarm 🔔 when driving, and the control LED 💡.

From this tab, it is also possible to export the measurements just acquired via a QR code. Simply click on 🔳 then scan. The details of the device (Series no., etc.) will be available by displaying the dedicated QR code.

Put the device to sleep. Note that this is not a real power-off.

📥 Possibility to save the last measurement on the SD card.

⑧ Graphics mode

Graphics mode

Control mode

Access the graphics mode by clicking on 📈 from the work screen (main screen after switching on the device).

This allows you to use the device in graphic form instead of the menu-based basic interface.

In this mode, you can only work on one spindle at a time. For a calibre with several spindles, you must return to the basic mode for each.

It is mainly used to control the driving process (e.g. hard point).

The tare setting is also available from this window. However if you switch to the production mode, you will not be asked to set the tare again.

Use in production mode

Driving (Managed by user)

Passing from spindle to spindle

The automatic incrementation moves on to the next spindle once the measurement has been made. When working in manual mode (without incrementation), if there are several spindles, these must be selected one after the other.

Saving of drive data

Check that the spindle to be worked on is the one selected (it must be framed in yellow) before you start driving.

In the case of a job without automatic incrementation of the spindles, and when you want to move on to the next part and save the data, it is necessary to increment manually with the +/- buttons, or click on the «Part No.», enter the number, and confirm with OK.

IMPORTANT: The system does not give any message about the measurements made before these manipulations.

Once manually incremented, a pop-up opens asking what the system should do with the data. Options include:

✓ Confirm - the data will be saved on the SD card.

🗑 Delete - data will be lost.

↶ Return - allows you to return to the last driven part.

IMPORTANT: By clicking on each spindle, it is possible to read the value of the last drive, but only on the current part.

When working with automatic spindle incrementation, the pop-up will appear by itself once all the spindles are finished.

If driving has to be repeated, touch the selection button for the corresponding spindle, then touch the number corresponding to the force reached. This resets this value to zero, and the operation can then be restarted.

Drive outside of the limit

If the drive of a spindle is outside of the limit, a pop-up opens to confirm the passage to the next spindle regardless of the wrong force, or to repeat the drive correctly by clicking on return ↶.

To repeat the drive while keeping the data of the other spindles. To do so, simply click on ❶ «Force reached». A pop-up opens to confirm the deletion of the previous measurement.

IMPORTANT : (concerns only the last spindle) In the event of a new drive on the last spindle, the incrementation is temporarily cancelled. It is therefore necessary to increment manually using the buttons +/-, or No. to go to the next part. The automatic incrementation remains activated as long as you are not on the last spindle.

Service

Setting menu

① Export the calibres to the SD card for duplicate on other devices

Go to the setting menu ⚙. Click on the «Service» tab and enter the service password and validate ✓.

Click on «Back up -> SD» and confirm ✓.

Wait for the backup to finish and confirm ✓.

② Import the calibres on a device

Insert the SD card with the backup into the other device.

Go to the setting menu ⚙. Click on the «Service» tab and enter the service password and validate ✓.

Click on «SD -> Memory» and confirm ✓.

Wait for the backup to finish and confirm ✓.

The backup can also be saved to a computer in order to store it for later use. The file is called: bk_calib.hex

③ FACTORY setting

Not available. Must be carried out by the manufacturer.

④ Clear personal data

Clears user settings without touching the calibration.

⑤ Save Cal. Date

Recording of the date of the last calibration.

⑥ Device firmware update (Update Firmware)

Remove the micro SD card from the device and connect it to the computer (if necessary use the adapter supplied, or a USB card reader, not supplied).

Unzip the received .bin file to update and drop it in the root of the micro SD card.

IMPORTANT: There can only be one .bin file on the micro SD card.

Go to the setting menu ⚙. Click on the «Service» tab and enter the service password and validate ✓.

Click on Update Firmware and confirm ✓.

Wait for the device to update.

IMPORTANT: Do not turn off the device during the update process.

When the update has been successfully completed, the system notifies you and offers to restart the device. In order to finalise the update, the device must be restarted.

⑦ Reset

Restarts the device without erasing the data.

SD Card

Recording procedure

Insert the SD card into the device and make sure that a recording format is active in the SD menu.

The information area indicates whether the card is absent (crossed out) or present (black symbol).

When working, if the recording has been successful, a green tick mark is displayed above the card symbol. Otherwise, a red cross is displayed, as well as the «Warning» symbol.

Extraction of data

The SD card can be read in any type of computer. The data is saved in the form of text separated by semicolons (CSV), and the file has the extension .xls in order to facilitate import into a spreadsheet (Excel, Open Office, etc.).

When importing, it may be necessary to activate the symbol «;» as a column separator. The text is formatted in UTF-8 (accented characters).

Retirer la carte micro SD de l'appareil et la connecter à l'ordinateur (si nécessaire utiliser l'adaptateur fournit, ou un lecteur de carte USB non fourni).

The measurement files are located in the root directory.

IMPORTANT: The adapter has a «lock» selector. If set to «lock» while reading files from the computer, the computer's operating system may change the file attributes to «read-only», which may prevent the SD card from working normally.

General information

Casing

Black anodised aluminum casing with adjustable non-slip stand.

Safety stop to avoid any impact with the SD card when the stand is rotated.

Electrical power supply

The device is powered by an AC adapter supplied, compatible with 100 - 240 V, 50 - 60 Hz.

On the device, the USB connector is compatible with most USB power sources, including Power Banks, chargers of all brands, computers, smartphones and tablets (using an appropriate cable). Requires 5 V / 500 mA and tolerates 4 to 12 V.

IMPORTANT: Poor quality power supply can affect measurement accuracy and safety.

After switching on, the device starts automatically.

There is no physical switch for complete power-off.

The device must be manually disconnected from the mains or plugged into a multiple socket fitted with a switch.

Screen

5 inch capacitive touch screen, 800 x 480 px, 256 colours. Works well with stylus with soft tip.

Data storage

The device parameters and calibres are stored internally. The measurements are recorded on a micro SD card.

An SDHC format micro SD card (TS-card) is supplied with the device. Possibility to insert another micro SD card of maximum 32 GB.

Sensor

The sensor can withstand a maximum force of 200 N.

Base in Ø 31 mm.

Number of calibres

The device can manage a maximum of 99 calibres in memory.

Passwords

Methods department password

Modifiable in settings

Production password

Modifiable in settings

Service

Cannot be modified

Technical specifications

Sensor 8935-KCF-CAP200N

Principle: differential resistive bridge sensor

Measuring range: - 200N to + 200N

Maximum admissible force: - 500N to + 500N, beyond which the sensor undergoes irreversible damage

Linearity: 0.5% (full scale)

Hysteresis: 0.5% (full scale)

Repeatability: 0.5% (full scale)

Temperature sensitivity: < 0.15% / 10°C

Serial number and factory calibration parameters: Stored in the sensor

Recommended calibration check period: 12 months

Device 8935-KCF

Dimensions: 155 x 131 x 41 mm

Weight: 520 g

Power consumption: < 3 W

Voltage: nominal 5 V (min 4 V, max 12 V)

Current: < 500 mA

Measuring amplifier: 24 bit analogue to digital converter, resolution 1.0 nV

Non-linearity: ± 0.001% (full scale)

Sampling frequency: > 38 Hz

Max temperature gain drift: ± 8 ppm/°C

Offset drift at max temperature: ± 1 ppm/°C

Operating temperature: 10° to 35° C

Storage temperature: 0° to 65° C

IP protection: IP30

Timekeeping battery

CCR1220, lithium 3 V coin cell Ø 12 mm x 2.0 mm

Estimated battery life: > 50 months (depends primarily on self-discharge of the battery. Also depends on the conditions of storage and use, the quality of the battery, the conditions and duration of storage of the battery before its installation in the device, etc.).

Current consumed on the battery by the internal clock: < 0.09 uA

IMPORTANT: The clock battery must only be changed by qualified personnel. Please contact the manufacturer.

LED

Visual inspection accessory.

Adaptable to the Bergeon 8935 press.

Notes

Notes

Dispose of contents and container in accordance with all local, regional, national and international regulations.