

- Gewindefräser
- Glockengewindefräser
- Kombinationswerkzeuge
- PKD-, CVD-, CBN-Werkzeuge
- Hochleistungs-Schneideisen
- Hochleistungs-Gewinderolleisen
- Präzisions-Gewindelehren

- Thread Milling Cutters
- Shell Type Thread Milling Cutters
- Combination Tools
- PCD-, CVD-, CBN-Tools
- High Performance Thread Cutting Dies
- High Performance Thread Rolling Dies
- Precision Thread Gauges



## eMultiCheck-Instruction manual



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\* = optional

## 1 Introduction

The eMultiCheck is the latest development by JBO. The "e" stands for a combination of our well-proven MultiCheck with a motorised drive which is controlled by a microprocessor.

Scope of delivery:



**Fig 1: Scope of delivery**

- |  |                     |
|--|---------------------|
| 1. Basic device eMultiCheck M8 6H                        | (Part. no. 570 001) |
| 2. measuring sleeve M8                                   | (Part. no. 570 004) |
| 3. Plug gauge GO eMC M8 Tol.6H DLC                       | (Part. no. 570 009) |
| 4. Adjusting block M8                                    | (Part. no. 570 003) |
| 5. Charging station (see Fig. 2) (for battery operation) | (Part. no. 570 002) |

## 5. Charging station for battery



**Fig 2: Charging station for eMultiCheck**

### 1.1 Starting up

Before the device is used for the first time, it should be fully charged in order to ensure a maximum battery life. To do this, just push the eMultiCheck into the charging station. An indexing system on both parts ensures that it can only be pushed in the right way round. The first time, the charging time should be at least one hour. The device is then fully operational.

To remove from the charging station, hold the station tight and pull out the eMultiCheck.



**Fig 3: Charging the eMultiCheck (for battery operation)**

## 1.2 Switching on

The device can be switched on by pressing one of the two buttons on its front (button A or B, Fig. 4). The drag moment of the drive is then automatically calibrated. During calibration, the drive turns for a short time at a constant speed. This process takes place every time the device is switched on. It is important to remember this when the device stays **screwed into** a component for more than 3 minutes.

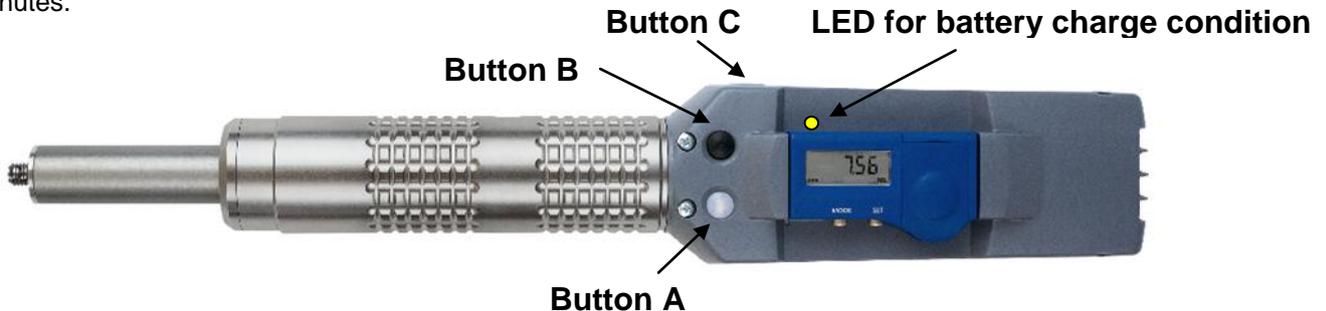


Fig 4: eMultiCheck

## 1.3 Switching off

The device switches off automatically after about 3 minutes when none of the buttons are pressed.

## 1.4 Procedure of inspection for internal threads with gauges

### Application of the GO thread plug gauge

The GO thread plug gauge checks the virtual size of the internal thread. This is effected by checking the minimum limit of the pitch diameter, taking into account pitch errors, errors in the flank angles and deviations of form, which produce an apparent reduction of the pitch diameter of the workpiece. In addition it checks the minimum limit of the major diameter and also whether the length of the straight flank is sufficient, i.e. that the rounding at the root of the profile does not encroach too far upon the flank of the thread.

**!!!! This gauge does not check the minor diameter of the workpiece thread. !!!!**

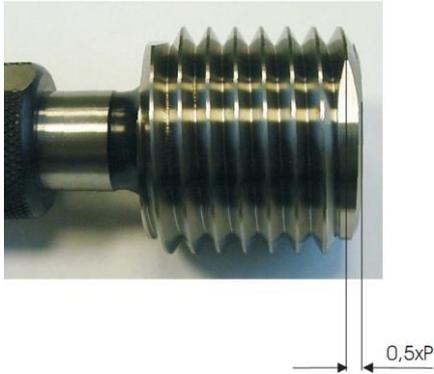
The GO thread plug gauge screwed by hand, without using excessive force, shall enter the whole length of the workpiece thread. If entry is not possible, the workpiece thread does not comply with the specification.

### Application of the NoGo thread plug gauge

The NoGo thread plug gauge checks the maximum size of the pitch diameter. It is acceptable to screw in the NoGo plug gauge into the workpiece without any force two rotations maximum.

### Important:

Before starting, the readout has to be zeroed by pressing the SET button on the Electronics. The DigiMultiCheck is then ready for operation.



**Principle:**

The zero position of the gauge is equivalent to the middle of the truncation of the thread,  $0,5xP$ . This means half of the pitch between middle of truncation and end face. (see illustration).

End face of the gauge sleeve aligned with crest of thread at this point.(middle of the external diameter)

## 2 Using the eMultiCheck

The eMultiCheck is operated with the two buttons on the front of the device. The blue button (button C) at the side is used for adjustment.

### 2.1 Screwing in:

To begin the measuring process, press the **black** button (button B) on the front and the plug gauge GO eMC begins to turn slowly (phase 1).

The plug gauge GO eMC is placed on the thread that needs checking. If a defined torque is exceeded, the device assumes that the plug gauge GO eMC is in the component (initial contact or thread found) and increases the torque and the speed (phase 2).

During this phase of screwing in, if the plug gauge GO eMC is blocked, it is turned back in the opposite direction by  $180^\circ$  and phase 2 is started again.

After one more revolution the device accelerates again and the torque is adjusted to the set target torque (phase 3).

When the thread depth is reached (the end) the device is switched off due to the set torque being reached (phase 4).

In phase 4, the measured thread depth is stored in the memory and used as a reference for the next measurement. This can be influenced with the settings (please also see the "Setting" section).

The measured thread length can now be read off the display (the display must first be switched on by pressing the button. Please note: the display and the motor/controls are independent of one another, i.e. no data exchange takes place between these units).

#### 2.1.1 Manual mode

Pressing and holding down the black button (button B) switches the device to manual mode. Here, the device is switched over immediately to the fast speed and switched off again when the set torque is reached.

#### 2.1.2 Through-holes

With through-holes, when the plug gauge GO eMC exits through the other side of the hole, the torque drops, making the device switch off. This function is used for larger threads where the difference between idle torque and load torque is large enough.

### 2.2 Second measurement:

In a second measurement, the sequence of phases 1-3 is the same as in the first measurement.

Before the last measured thread depth is reached, however, the speed is reduced, in order to prevent contact at the end and to move carefully (gently) against the thread. This ideally reduces the load on the component and the thread plug gauge.

If the thread is deeper, the speed is automatically increased again and is the same as in the normal measuring sequence.

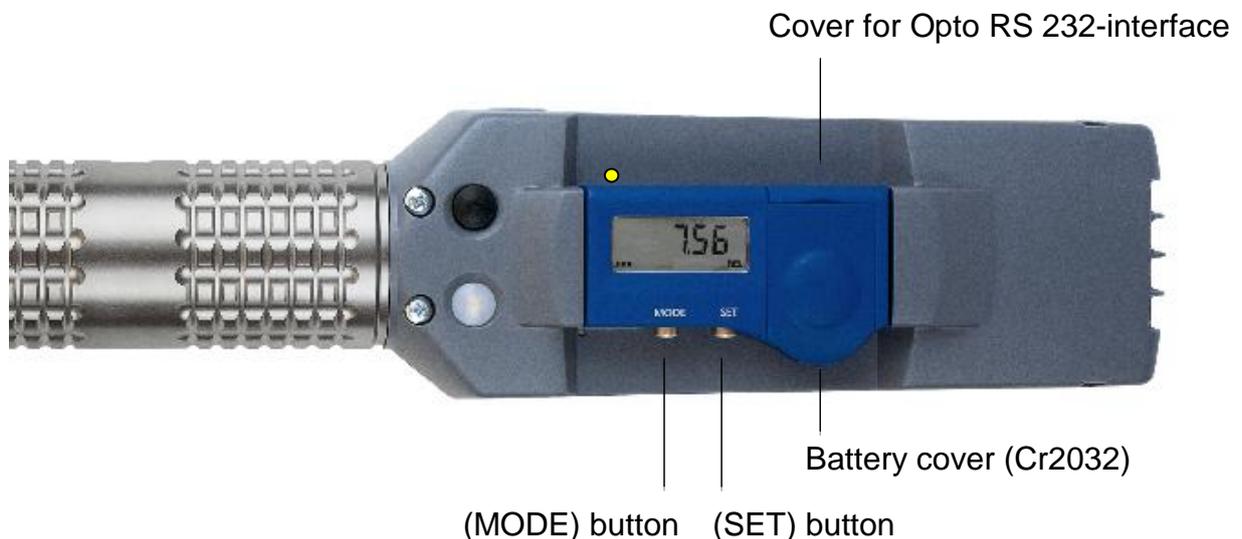
## 2.3 Screwing out:

The plug gauge is unscrewed from the component again by pressing the **white** button (button A) on the front of the device. This is done by pressing the button **briefly** and the device stops automatically when the plug gauge GO eMC has turned back completely again. If the black button is pressed and held down, the plug gauge turns until the button is released again. In this mode, the torque is not limited.

### 2.3.1 Manual mode

If the white button is pressed and held down, the device switches to manual mode. In this mode, the device is set to the maximum torque until the button is released again.

## 3 Digital Display^



### Electronics data:

Measuring Range	4xD	Power supply	1 Lithium battery 3V, type CR2032
Resolution	0,01 mm	Consumption	40yA
Error Limit	40ym	Battery life	5000 hours
Repeatability	10ym	Data output	RS232-compatible format
Max. measuring speed	> 2m/s	Operating temperature	+5° up to +40°C
Measurements/second	> 7s	Type of enclosure	IP65 (IEC 529)

### 3.1.1 Basic functions

#### Switch-ON:

To switch ON, press the "SET" button for a short time

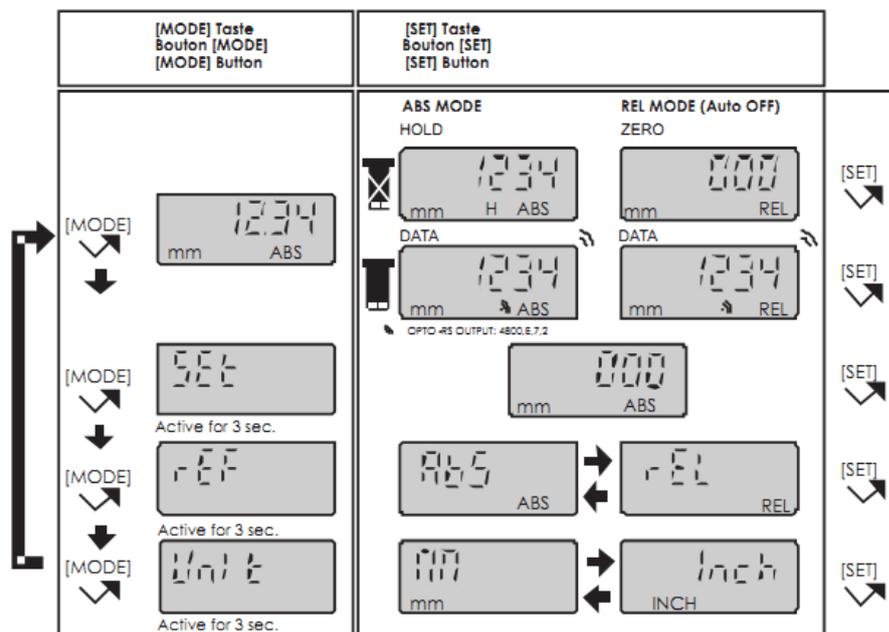
#### Switch-Off:

To switch OFF keep "SET" button pressed for more than 3 seconds

#### Set ZERO:

To reset to ZERO, press the "SET" button

### 3.1.2 Advanced functions Digital Display with serial Interface



### 3.1.3 Preset mode

#### Preselection of a reference value (preset)

The two reference values (REF I and REF II) can be preselected differently and up to a maximum preset value of  $\pm 2999.99$  mm /  $\pm 89.9995$  IN.

1. Select active reference value (in reference mode).
2. Select preset mode (press and hold [mode] until the status display shows 'PRESET').

#### Entering the value you want to change

Press [mode] briefly one or more times to move the cursor under the number you want to change. After the last number the cursor moves under the +/- sign again.

#### Changing a number

Press [set] briefly one or more times to increase the underlined number by one unit. Press and hold the [set] button to move through the numbers automatically until the required value is reached.

#### Changing the preset +/- sign

Move the cursor under the sign and change the sign by pressing [set] briefly.

### Confirming the preselected reference value (preset)

Press and hold the [mode] button until the 'PRESET' status display disappears.

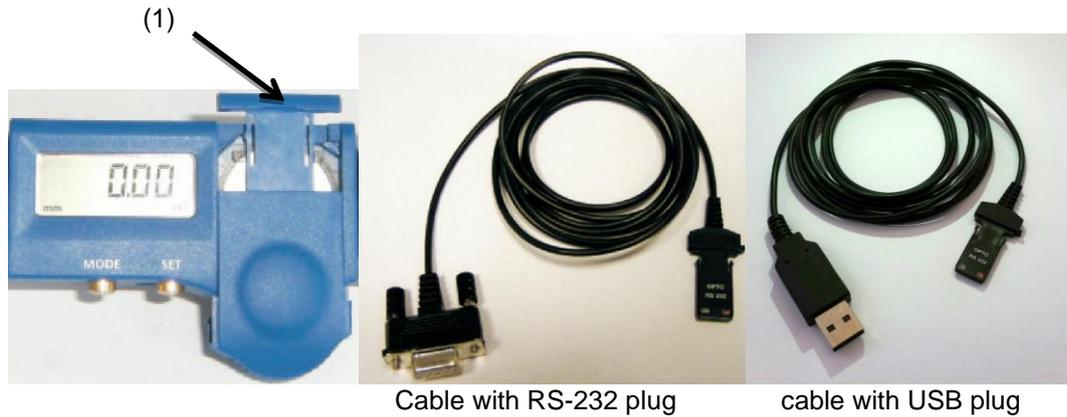
### Recommendations for use

For REF I, preselect the reference value 0.000 as a constant preset value, and use REF II for the preselection of different reference values.

### 3.1.4 Connecting the serial interface:

To connect the serial cable (option) the cover (1) has to be removed. The label of the connector must look backwards to plug it in.

The serial cables are available with RS-232 or USB plug



### 3.2 Digital Display with integrated Wireless Device \*

As a alternative to the standard Digital Display a Digital Display with integrated Wireless Device is available. With a USB Wireless receiver as well as a software it is possible to transfer the measuring results with push the red transfer button wireless to a computer.



#### Technical Data:

Measuring range	4xD	Power supply	1 Lithium Batterie 3V, type CR2032
Resolution	0,01 mm	Battery life	2000 hours / year
Error Limit	40 µ	Frequency band	2403/2439/2475 MHz
Repeatability	10 µ	Communication range	max. 6m
Max. measuring speed	> 2m/s	Operation temperature	+10° bis +40°C
Measurements / second	> 3s	Protection group	IP67 (DIN EN 60529)

### 3.2.1 Basic Functions

#### Switch-On

To switch ON, press the  button for a short time

#### Switch-Off

To switch OFF keep  button pressed for more than 3 seconds

#### Set Zero

To reset to ZERO, press the  button

### 3.2.2 Advanced Functions Digital Display with integrated Wireless Device

#### Intuitive Menüführung

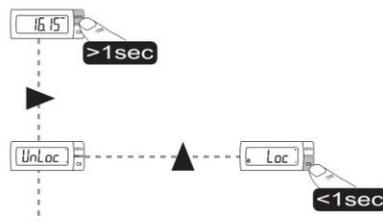
Symbol ▶ Menü-Punkt aufrufen  
Symbol ▲ Wert ändern

1  
Menü starten  
Start menu

#### Intuitive menu guidance

Symbol ▶ Open the menu  
Symbol ▲ Change the value

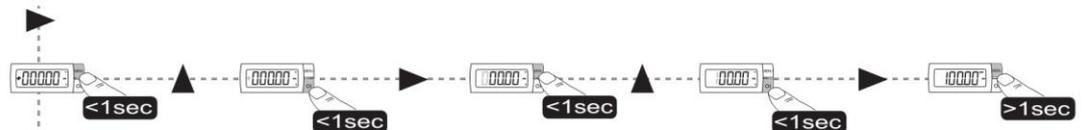
2  
Tastensperre  
Lock function



Hinweis: Bei aktivierter LOCK-Funktion sind die Tasten „Menü“ und „OI“ nicht aktiv. Fehlermeldung „Loc“ erscheint im Display. Die gesetzten Voreinstellungen bleiben erhalten!

Note: When the LOCK function is activated the "Menu" and "OI" are not available. The error message "Loc" appears in the display. The previous settings are maintained!

3  
PRESET eingeben  
Enter PRESET



4  
Funkaufbau  
Wireless setup



Hinweis: Funkaufbau erfolgt durch Drücken der DAT / Hold-Taste wenn Adresse in der Software MarCom zugewiesen wurde. Adresse wird im Display angezeigt. Siehe auch MarCom Bedienungsanleitung.

Note: The wireless setup takes place by pressing the DAT / Hold button once the address has been assigned in the MarCom Software. Address will appear in the display. Refer to the MarCom operating instructions.

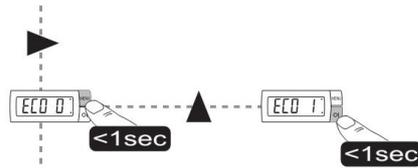
5  
Kanalauswahl  
Channel selection



Hinweis: Werksseitig ist Kanal CH 01 eingestellt. Eine Umstellung der Funkfrequenz ist nur bei Konflikten mit anderen Geräten erforderlich.

Note: The standard factory setting is Channel CH 01. It is only necessary to change this wireless frequency when it conflicts with other devices.

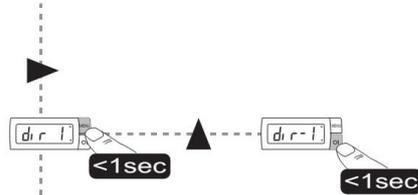
**6**  
Eco-Funktion  
Eco function



**Hinweis:** Im ECO-Modus wird die Übertragungsgeschwindigkeit reduziert. Sollte der ECO-Modus aktiviert sein, muss dieser auch in der Software MarCom aktiviert werden.

**Note:** The rate of transmission is reduced in the ECO mode. If the ECO mode is to be activated, this must also be activated in the MarCom Software.

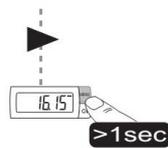
**7**  
Messrichtung  
Measuring direction



**Hinweis:** Ändert die Zählrichtung des Messsystems.

**Note:** Changes the counting direction of the measuring system.

**8**  
Menü verlassen  
Exit menu



**Hinweis:** Durch langen Druck der ►-Taste wird das Menü jederzeit verlassen, bzw. die gewählte Einstellung übernommen.

**Note:** Press and hold the ► button to leave the menu at any time and/or to accept the selected changes.

**9**  
PRESET aufrufen  
Call up PRESET



**Hinweis:** Ist ein PRESET-Wert eingegeben, wird dieser durch Drücken der MENU-Taste aufgerufen und im Display angezeigt.

**Note:** If a PRESET value has been entered, this can be called up by pressing the MENU button and will appear in the display.

### 3.3 LED for battery charge condition

The LED starts flashing if the voltage from the battery is lower than 10.9V. If the voltage drops under 10.5V the LED lights continuous for ca. 5 minutes. Afterwards the device shut down automatic. The battery should now be charged at least 30 minutes.

### 3.4 Special note:

- Contaminations of the device could affect the measuring process
- To clean a contaminated device please use a dry towel. If it is not sufficient please use a towel with a neutral solvent. To prevent any damages don't use volatile solvent, as it causes damages on plastic parts.
- At regular intervals please lubricate the plug gauges with a resin free oil. It will prevent the gauge from corrosion.
- Opening the device will lead to loose the warranty claim.

## 4 Setting

Before changing to Setting mode you must change to the M8 thread plug gauge which is delivered as standard (except for changing the depth mode). A gauge sleeve is not needed in this case!

Press and hold the blue button at the side (button C) for a while (approx. 3 seconds) to change to Setting mode. This mode can be recognised by the movement pattern of the plug gauge (turning forwards, backwards) and is the first level.

### 4.1 Setting level 1 Rotational direction/Torque

Change to this level by pressing the black button (Button B).

The Plug gauge GO eMC now executes a short pattern of movements and then turns slowly in one direction.

You can use this mode to set the rotational direction and torque. This is carried out by using the adjusting block supplied. There are two levels of holes on this block. These holes only differ in depth and are not used to calibrate the depth measurement but to select a data set.

To select a data set, three holes must now be tested. The first dictates the rotational direction (right or left-hand rotation). The second and third holes adjust the required torque. This can be set at nine different levels.

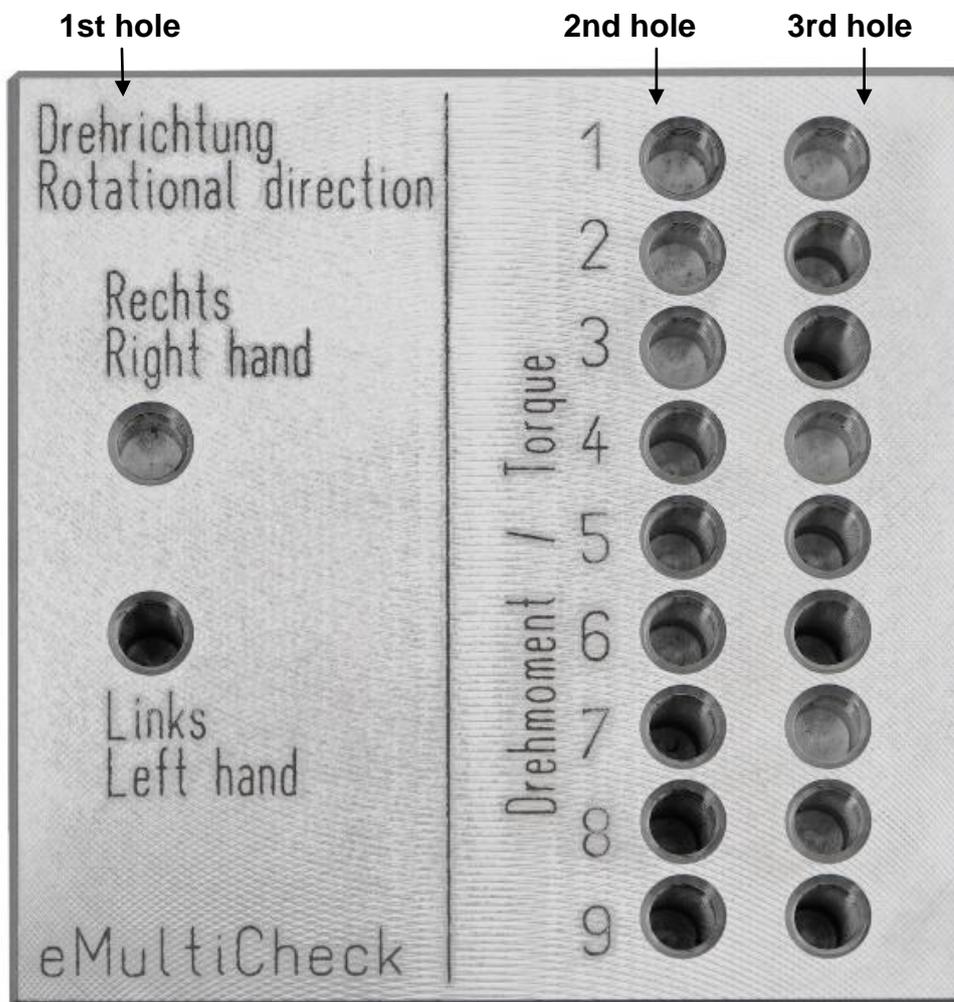


Fig 5: Adjusting block

#### 4.1.1 Pattern of movement

Different patterns of movement can occur during the setting process. These are characterised by:  
(left-hand rotation)

1. One short turn → 1st hole is the next hole
2. Two short turns → 2nd hole is the next hole
3. Three short turns → 3rd hole is the next hole
4. Alternating left/right-hand turns at short intervals → measuring error

In the event of a measuring error (4) the turning pattern for the next hole is displayed again.

#### 4.1.2 Torques

In the relevant standard, there are no fixed torques determined for testing threads. The only specification is "screw in with light manual force". The table below shows the torques with recommendations for a thread size. However, in the end there are many influences that make it necessary to adapt the torque (material, tolerance range of the thread, etc.).

Please note: fluctuations in torque can occur due to temperatures and motor tolerances.

Level	Torque Ncm	Thread range metric from to	
1	10		
2	12	1,6	3,5
3	15	4	5,5
4	16	6	8
5	17	9	13
6	18	14	29
7	20		
8	25		
9	30		

**Table 1: Recommended torques**

## 4.2 Setting level 2, depth measurement

In the depth measurement, the aim is to move gently towards the end of the thread, as previously described above. This is done by counting and saving the number of revolutions required for the previous measurement. In this way, for the following measurement the speed is reduced one revolution before the predicted end. This learning process is set to a fixed depth when this

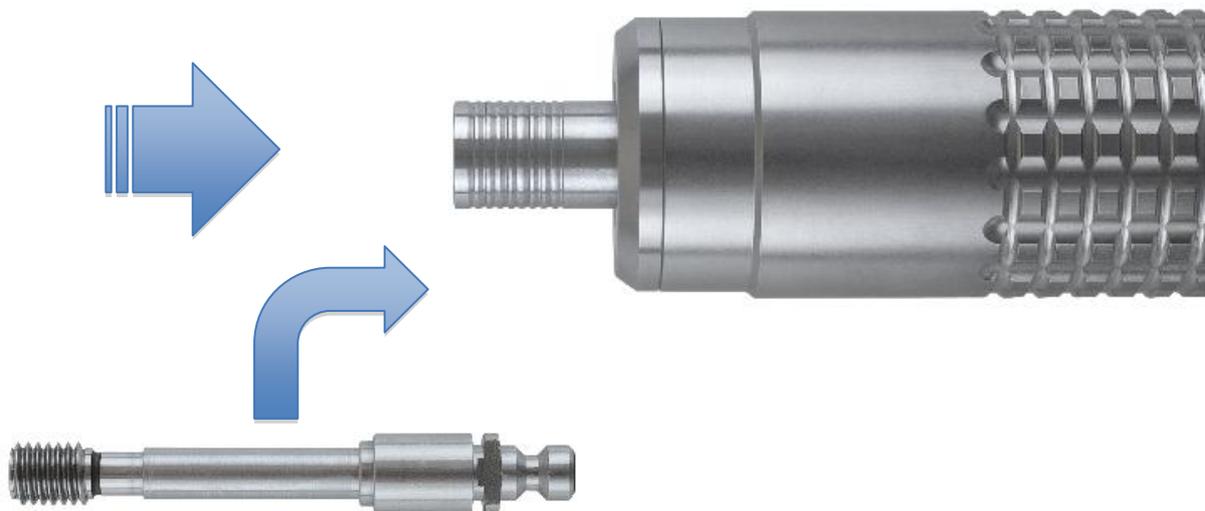
mode is activated. Activating this mode again resets this value and makes the device switch over to normal mode. There is not a display to indicate which mode is active, this can only be ascertained by measuring different thread depths.

To enter depth measurement mode, press the white button (button A).

#### 4.2.1 Measure depth as a function of the thread size

plug gauge go M5	23mm
plug gauge go M6	26,5mm
plug gauge go M7	37mm
plug gauge go M8	38,5mm
plug gauge go M9	38,5mm
plug gauge go M10	38,5mm
plug gauge go M11-M14	44mm
from thread size M15	50mm

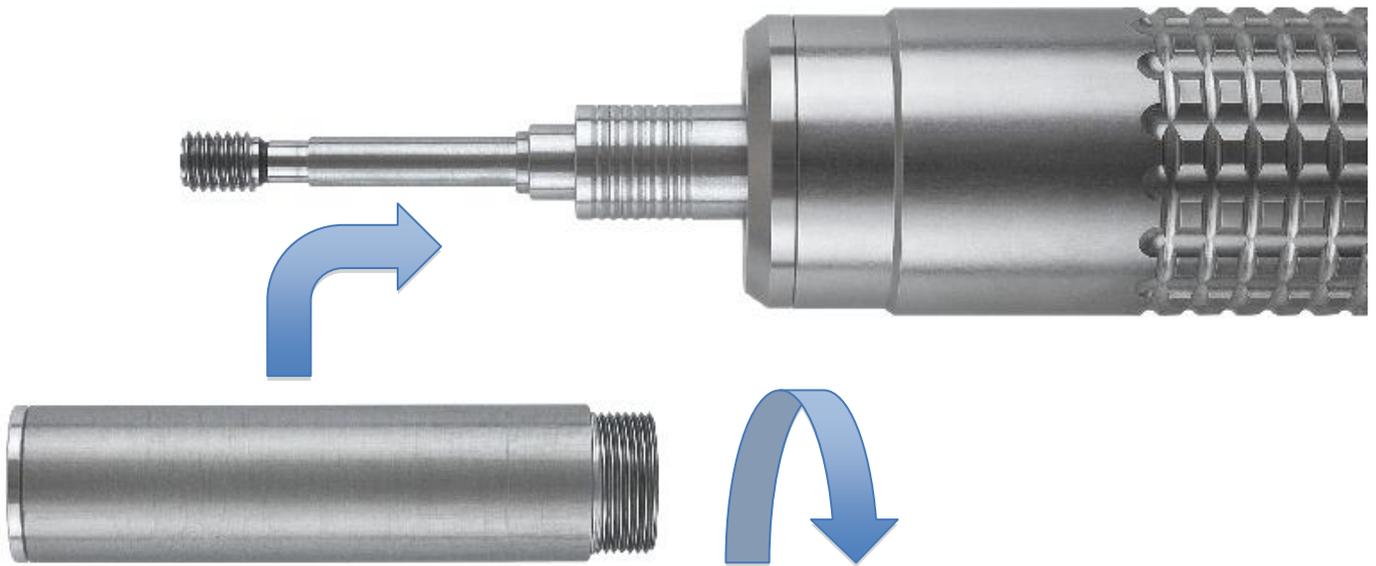
## 5 Assembling the basic device / plug gauge



**Fig 6: Assembly**

The plug gauge GO eMC is mounted in a specially pre-adjusted fitting. First the sleeve on the basic device must be pulled back and then the plug gauge GO eMC with fast-change connector can be pushed into the sleeve (this must click into place with both surfaces). Releasing the sleeve locks the plug gauge GO eMC in place.

## 5.1 Screwing in the measuring sleeve



**Fig 7: Screwing in the measuring sleeve**

The measuring sleeve is now pushed over the gauge and screwed in as far as it will go with manual force. For thread sizes of more than M14, the gauge sleeve must be screwed in first and then the plug gauge. The sleeve can be pulled back at the opening in the gauge sleeve.

The eMultiCheck is now ready for use.



**Fig 8: eMultiCheck ready for use**

## 5.2 Charger

The product is tested for electromagnetic compatibility (EMC) and meets the requirements of the applicable European and German directives. CE conformity has been verified and the relevant declaration is available from the manufacturer.

For safety and certification reasons (CE), you must not modify or change the product in any way. If you use the product for uses other than those described above, the product may be damaged.

Incorrect use of the product can also involve risks, such as short-circuits, fire, electric shocks, etc.

### Starting up

1. Plug the 5.5 mm power plug of the power supply unit into the charger.
2. Connect the power supply unit to an electrical socket.
3. Push the eMultiCheck into the charging station.
4. Status display LEDs: each LED represents one cell of the battery pack. The corresponding LED for each cell lights up red during the charging process and green when the cell is fully charged.
5. The battery is fully charged when all three LEDs light up green. Unplug the power supply unit from the mains socket and take the eMultiCheck out of the charging station.

### Technical data for power supply unit

Input voltage	100 – 240 V/AC, 50/60 Hz
Output voltage	12 V/DC
Output current	1,5 A
Plug size (diameter)	2.1 mm (inner contact), 5.5 mm (outer contact)
Cable length	115 cm
Overload protection	1,25 A
Short-circuit protection	<b>3 A</b>

## 5.3 Option – operation with wall power supply

Here, the power supply for the eMultiCheck is supplied from a standard household mains socket (100 – 240 V/AC, 50/60 Hz). The wall power supply has short-circuit and overload protection.

For safety and certification reasons (CE) you must not modify or change the product in any way. If you use the product for uses other than those described above, the product may be damaged. Incorrect use of the product can also involve risks, such as short-circuits, fire, electric shocks, etc.

### Technical Data

Input voltage .....	100 – 240 V/AC, 50/60 Hz
Input current .....	1200 mA
Output voltage .....	12 V/DC
Output current .....	3500 mA
Output power .....	42 W
Cable length .....	1.8 m
Operating temperature .....	0 to +35 °C
Operating humidity .....	20 – 85 %
Storage temperature .....	-20 to +50 °C
Storage humidity .....	-10 – 90 %
Dimensions (W x H x D) .....	51 x 32 x 88 mm
Weight .....	275 g

## 5.4 Instruction for battery disposal

Consumers are legally required to take old batteries to a suitable collection point/point of sale/dispatch point. The crossed-out wheeled bin symbol means:

Batteries and rechargeable batteries must not be disposed of with household waste. The letters Pb, Cd and Hg indicate contents that are above the legal levels.

Battery registration number according to the battery directive: **21001172**



### The German Battery Act (BattG)

The crossed-out wheeled bin symbol on a battery or rechargeable battery indicates that you are legally required to dispose of this product separately from household waste at the end of its useful life. This waste separation system is intended to prevent the substances contained in the batteries and rechargeable batteries having a harmful effect on the environment and human health, and to allow them to be reused or recycled. If a battery or rechargeable battery contains pollutant heavy metals with labelling requirements acc. to Section 17 Paragraph 3 of the BattG directive, the chemical symbol of the relevant metal must also be specified below the crossed-out wheeled bin symbol. In this case, 'Cd' stands for cadmium, 'Hg' for quicksilver and 'Pb' for lead. You have the option of taking old batteries and rechargeable batteries free of charge to a suitable collection point near you.

## 5.5 Safety instructions

Please read through the operating instructions carefully and pay particular attention to the safety instructions. In the event that you do not follow the safety instructions and instructions for correct use contained in these operating instructions, we cannot accept liability for any resulting damage to individuals or property. Also, in cases of this kind, the warranty/guarantee shall expire.

### People/product

- This product is not a toy. Keep it out of reach of children and pets.
- Protect the product from extreme temperatures, direct sunlight, strong impacts, high humidity, wetness, flammable gases, vapours and solvents.
- Never immerse the eMultiCheck in water, salt water, drinks or other liquids.
- Do not subject the product to mechanical stress.
- If safe operation is not possible, put the device out of service and take measures to ensure that it is not used inadvertently. Safe operation is no longer guaranteed if the product:
  - o shows visible signs of damage,
  - o no longer functions properly,
  - o has been stored in unsuitable conditions for an extended period of time or
  - o has been subjected to extreme transport loads.
- Handle the product with care. Bumping, hitting or dropping it from even minimal heights will damage it.
- The device and the charging station may only be opened by employees of Johs. Boss. Opening the device invalidates all warranty claims.



## Batteries

- Batteries and rechargeable batteries must never be short-circuited, taken apart or thrown into fire. This can cause explosions.
- Leaking or damaged batteries or rechargeable batteries can cause chemical burns on contact with the skin. In this case, use suitable protective gloves.
- Faulty polarisation damages rechargeable batteries. There is also a risk of fire and explosion.
- Recharge the batteries about every 3 months, otherwise so-called depth discharge can occur, which makes the rechargeable batteries unusable.
- Never damage the outside casing of the battery pack, do not cut the foil casing or stab the battery pack with sharp implements. There is a risk of fire and explosion.
- Since both the charger and the battery pack warm up during the charging process, you must ensure there is adequate ventilation around them. Never cover the charger and the eMultiCheck.
- Never leave the batteries unattended during charging.
- Disconnect the eMultiCheck from the charger when it is fully charged.
- Never let the charger or eMultiCheck become damp or wet.

## Other

- Please consult an expert if you are in any doubt about product functions, safety or electrical connection.
- Always have maintenance, alteration and repair work carried out by a specialist or a specialist dealer.
- The product is manufactured in accordance with the ROHS Directive (Restriction of Hazardous Substances) and can therefore be disposed of in accordance with the WEEE Directive.

To the regular calibration check from the zero point of the plug gauge go, order our setting gauge with the ID-Nr. 592010



Further information's you found of our homepage or contact our technical sale.

[www.johs-boss.de](http://www.johs-boss.de)  
Tel. +49 7432/9087-750  
contact@johs-boss.de