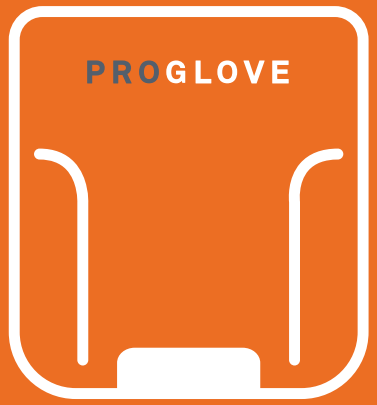
PROGLOVE

USER MANUAL



Technical document

PROGLOVE USER MANUAL

TABLE OF CONTENTS

ABOUT THESE OPERATING INSTRUCTIONS

FUNCTION OF THIS DOCUMENT

This user manual contains a system overview, technical data about the Hardware and Wearables, detailed step-by-step instructions for using ProGlove system and information about configuration settings and troubleshooting.

It is intended for process planners, configurators and maintenance technicians who are using ProGlove system for the first time. It is designed so that ProGlove system can be used safely without prior knowledge.
→ Read carefully before use and keep for future reference.

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ProGlove User Manual
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EXPLANATION OF SYMBOLS

A warning notice is used in these instructions.
Always read and observe this warning notice.
The warning notice is introduced with the word **CAUTION** and means the following:

CAUTION
Slight bodily injury or danger of physical damage to ProGlove system is possible.

In addition, other symbols are used that mean the following:

NOTE
Additional notices provide more information about the respective chapter.

TIP
Additional tips facilitate the implementation of a certain procedure.

RESULT
The result will show the outcome of the prior action.

SAFETY INSTRUCTIONS

HARDWARE

CAUTION
Keep all cables and wires away from high voltage sources or power supplies to the following warning! This may otherwise lead to damage or faults due to overvoltage, line noise, electrostatic discharge or other irregularities.

CAUTION
Do not use damaged cables or power supplies! Otherwise the safe functioning of ProGlove system cannot be ensured.

CAUTION
Do not unscrew the Hardware housing!
This may otherwise lead to ProGlove system not functioning properly.

CAUTION
Do not replace the battery of the scanner!
This may otherwise lead to ProGlove not functioning properly.

CAUTION
Do not modify ProGlove system!
This may otherwise lead to ProGlove system not functioning properly.

CAUTION
Do not stare directly into beam!
Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous laser light exposure. Class 2 laser scanners use a low power, visible light diode. As with any very bright light source, such as the sun, the user should avoid staring directly into the light beam. Momentary exposure to a Class 2 laser is not known to be harmful.

WEARABLES

CAUTION
Keep Wearables away from moving machine parts and do not use without a scanner
Otherwise the Wearables may get stuck on objects.

CAUTION
Use Wearables in the right size!
Otherwise this may cause pain or pressure points on your hand.

BATTERY SAFETY

The area in which the units are charged should be clear of debris and combustible materials or chemicals. Particular care should be taken where the device is charged in a noncommercial environment.

- Follow battery usage, storage, and charging guidelines found in the user guide.
- Improper battery use may result in a fire, explosion, or another hazard.
- To charge the device battery, the battery and charger temperatures must be between +41 °F and +104 °F (5 °C and +40 °C). Do not use incompatible batteries and chargers. Use of an incompatible battery or charger may present a risk of fire, explosion, leakage, or another hazard. If you have any questions about the compatibility of a battery or a charger, contact ProGlove support.
- Do not disassemble or open, crush, bend or deform, puncture, or shred.
- Severe impact from dropping any battery-operated device on a hard surface could cause the battery to overheat.
- Do not short circuit a battery or allow metallic or conductive objects to contact the battery terminals.
- Do not modify or remanufacture, attempt to insert foreign objects into the battery, immerse or expose to water or other liquids, or expose to fire explosion or other hazards.
- In the event of a battery leak, do not allow the liquid to come in contact with the skin or eyes. If contact has been made, wash the affected area with large amounts of water and seek medical advice.

BATTERY INFORMATION

ProGlove approved rechargeable devices are designed and constructed to the highest standards within the industry. However, there are limitations as to how long a device can operate or be stored before needing replacement.

Many factors affect the actual life cycle of a battery pack such as heat, cold, harsh environmental conditions, and severe drops. When batteries are stored over six months, some irreversible deterioration in overall battery quality may occur.

Store batteries at half of full charge in a dry, cool place, removed from the equipment to prevent loss of capacity, rusting of metallic parts, and electrolyte leakage.

When storing batteries for one year or longer, the charge level should be verified at least once a year and charged to half of full charge. Replace the device when a significant loss of run time is detected.

The standard warranty period for all ProGlove devices is one year.

SCOPE OF DELIVERY

CAUTION
Do not use any damaged Hardware or Wearables!
➔ Check whether Hardware and Wearables are properly packaged and undamaged.

SCANNER


MARK 3


MARK 2


MARK Basic


MARK Display

WEARABLES


Hand Stripe


Index trigger


Reel

CHARGING STATION



Charging Station S / 10-Slot Charging Station with power cable (USB-C) and power supply

USB CONNECTION


Access Point One S with USB cable


Gateway 1 with USB cable

RS232 CONNECTION


Access Point with RS232 cable


Power supply with power cable

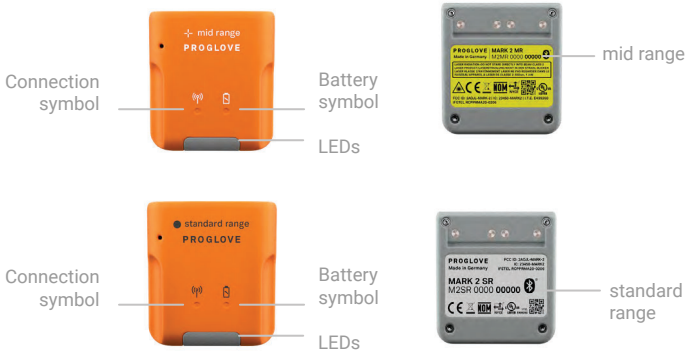
SCANNER

OVERVIEW

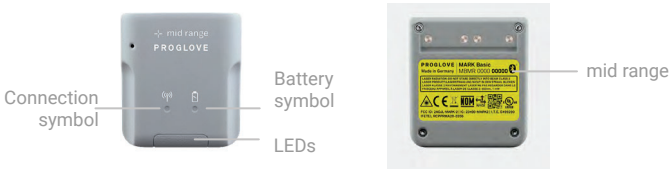
After scanning a barcode, the scanner returns feedback signals: haptically by vibrations, acoustically by audio signals and optically by LEDs. The serial number on the rear label indicates whether it is a standard or mid range device.
Standard range serial number: MXSR ...
Mid range serial number: MXMR ...

Standard range (available for MARK 2, MARK Basic, MARK Display):
4 - 31 in (10 - 80 cm)
Mid range (available for MARK 2, MARK Basic, MARK Display):
12 - 59 in (30 - 150 cm)
Multi Range (available for MARK 3): 4in - 20ft (10-600cm)

MARK 2



MARK BASIC



MARK DISPLAY

MARK 3

TECHNICAL DATA
MARK 2 AND MARK BASIC

MECHANICAL PROPERTIES:

Dimensions:..... 1.47 x 1.77 x 0.63 in
(50 x 45 x 16 mm)
Weight:..... 1.41 oz (40g)

ELECTRICAL PROPERTIES:

Battery type: ..... Lithium polymer (rechargeable)
Charge duration:..... 2 hours
Number of scans:..... MARK 2: up to 12000 scans
MARK Basic: up to 7000 scans
(depending on application
and environmental conditions)

BLE : ..... 2400 - 2483.5 MHz
MARK 2 Sub-1-GHz: ..... EU: 863-870 MHz on 70
channels (100kHz channel spacing)
NA: 902-928 MHz on 30
channels (752kHz channel spacing)

Max radio-frequency power transmitted: ..... <20dBm

BARCODE TYPES - 1D:

Auto decodes all standard 1D codes including GS1 DataBar linear codes et al.

BARCODE TYPES - 2D:

PDF417, MicroPDF417, Data matrix, QR Code, Micro QR Code, Aztec, RSS, Composite, TLC-39, MaxiCode et al.

BARCODE TYPES - POSTAL:

US PostNet, US Planet, UK Postal, Australia Postal, Japan Postal, Dutch Postal (KIX) et al.

LED CLASSIFICATION:

CDRH Class 2/IEC 825 Laser Class 2 Device (mid range)
Excluded risk group LED product according to IEC/EN 62471
(standard range)

NOTE
Further technical specifications are available on docs.proglove.de.

TECHNICAL DATA - MARK 3

MECHANICAL PROPERTIES:

Dimensions: ····· 1.47 x 1.77 x 0.67 in (50 x 45 x 17 mm)

Weight: ····· 1.48 oz (42g)

ELECTRICAL PROPERTIES:

Battery type: ····· Lithium polymer (rechargeable)
Charge duration: ····· 2 hours
Number of scans: ····· up to 12000 scans (depending on application and environmental conditions)

BARCODE TYPES - 1D:

Auto decodes all standard 1D codes including GS1 DataBar linear codes et al.

BARCODE TYPES - 2D:

PDF417, MicroPDF417, Data matrix, QR Code, Micro QR Code, Aztec, RSS, Composite, TLC-39, MaxiCode et al.

BARCODE TYPES - POSTAL:

US PostNet, US Planet, UK Postal, Australia Postal, Japan Postal, Dutch Postal (KIX) et al.

LED CLASSIFICATION:

Multi Range: CDRH Class 2/IEC 825 Laser Class 2 Device

NOTE
Further technical specifications are available on docs.proglove.de

TECHNICAL DATA MARK DISPLAY

MECHANICAL PROPERTIES:

Dimensions:..... 1.47 x 1.77 x 0.7 in (50 x 45 x 18 mm)
Weight:..... 1.7 oz (48g)

ELECTRICAL PROPERTIES:

Battery type: ..... Lithium polymer (rechargeable)
Charge duration:..... 2 hours
Number of scans:..... up to 7500 scans (depending on application and environmental conditions)

DISPLAY:

Display: ..... E-Paper Display
Size:..... 1.54 inch
Resolution:..... 200 x 200 pixel resolution, 188 Dpi

INTEGRATION REQUIREMENT:

ProGlove Connect: ..... Provides a full featured integration for Android enterprise applications. All information on proglove.com/integration

BARCODE TYPES - 1D

Auto decodes all standard 1D codes including GS1DataBar linear codes et al.

BARCODE TYPES - 2D:

PDF417, MicroPDF417, Data matrix, QR Code, Micro QR Code, Aztec, RSS, Composite, TLC-39, MaxiCode, Dotcode et al.

BARCODE TYPES - POSTAL:

US PostNet, US Planet, UK Postal, Australia Postal, Japan Postal, Dutch Postal (KIX) et al.

LED CLASSIFICATION:

According to EN 60825-1: 2014 and IEC 60825-1 (Ed. 3.0)
Laser class 2 device (mid range)

NOTE
Further technical specifications are available on docs.proglove.de.

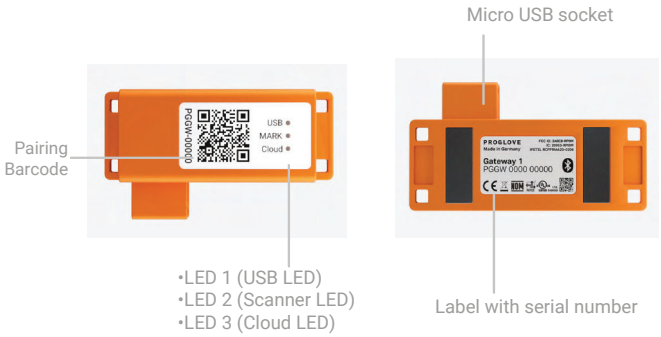
CONNECTIVITY DEVICE

OVERVIEW ACCESS POINT

The Access Point receives the scanned barcode data from the scanner via 868/915 MHz. This barcode data is transmitted to the end device via USB cable or RS232 cable. In the USB HID mode, the Access Point simulates a computer keyboard. A serial connection is emulated in the USB CDC mode. In order to use the USB CDC mode, the device must be set to “USB CDC” in the configuration tool (config.proglove.de) under “Device settings - Output mode”.
A RS232 cable establishes a serial connection between Access Point and the end device.

OVERVIEW GATEWAY

The Gateway receives the scanned barcode data from the scanner via BLE. This barcode data is transmitted to the end device via USB cable. In the USB HID mode, the Gateway simulates a computer keyboard. A serial connection is emulated in the USB CDC mode. In order to use the USB CDC mode, the device must be set to “USB CDC” in the ProGlove Insight Configuration Tool (https://insight.proglove.com/) under “Connectivity Configuration - Integration path”. Also multipairing is possible. The Gateway can be connected with up to 5 scanners simultaneously.



TECHNICAL DATA ACCESS POINT

MECHANICAL PROPERTIES:

Dimensions:..... 5.4 x 2.5 x 1.3 in (138 x 64 x 33mm)

Weight:..... 3.5 oz (100g)

ELECTRONIC PROPERTIES:

Power supply of Access Point via USB cable:..... 5 VDC (0.5A) via host computer

Power supply of Access Point via RS232 cable:..... 12 VDC (1A) via power supply PG12-10P55

WIRELESS COMMUNICATION:

SubGHz: ..... EU: 863-870 MHz on 70 channels (100kHz channel spacing)
NA: 902-928 MHz on 30 channels (752kHz channel spacing)

Max radio-frequency power transmitted: ..... <20dBm

NOTE
Further technical specifications are available on docs.proglove.de.

USB CDC CONNECTION:

Baud rate: ..... All standard baud rates are supported. Standard setting: 115.200

Data bits:..... 8

Stop bits:..... 1

Parity:..... NONE

Data flow:..... OFF

Required Control Signal:..... DTR

Handshake control:..... OFF

RS232 CONNECTION:

Baud rate: ..... All standard baud rates are supported. Standard setting: 115.200

Data bits:..... 8

Stop bits:..... 1

Parity:..... NONE

Data flow:..... OFF

Handshake control:..... OFF

TECHNICAL DATA GATEWAY

MECHANICAL PROPERTIES:

Dimensions: ..... 3.74 x 2.06 x 0.94 in (95 x 52,3 x 23,8 mm)

Weight: ..... 1.50 oz (42,5 g)

ELECTRICAL PROPERTIES:

Power supply of Access Point via USB cable: ..... 5 VDC (0.5A) (via host computer)

UTILITIES & ACCESSORIES:

ProGlove Configuration Tool: ..... https://insight.proglove.com/
Use for barcode, interface, device configuration et al.

UTILITIES & ACCESSORIES:

USB: ..... USB HID (keyboard input on host)
USB CDC (virtual com port)
ProGlove Deep Integration Protocol via USB

WIRELESS COMMUNICATION:

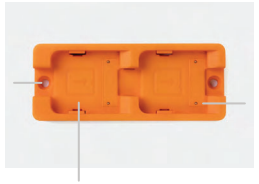
BLE : ..... 2400 - 2483.5 MHz
WiFi : ..... 2400-2483.5 MHz
Max radio-frequency power transmitted: ..... <20dBm

NOTE
Further technical specifications are available on docs.proglove.de.

CHARGING STATION S

OVERVIEW

The Charging Station S consists of two charging trays that charge two scanners at the same time. The charging status is indicated by the LEDs of the scanner. The LEDs pulse red while in charging mode. When the battery is fully charged, the LEDs pulse green constantly. It takes about 2 hours to charge a scanner. The Charging Station S can be attached to work stations, for example, through the attachment openings (with M5 screws or cable ties).



TECHNICAL DATA

MECHANICAL PROPERTIES:

Dimensions: ..... 5.5 x 2.2 x 0.7 in (140 x 56 x 19mm)

Weight: ..... 3.9 oz (110g)

ELECTRONIC PROPERTIES:

Power supply: ..... 5 VDC (1.2 A)
via power supply
EU: SYS1561-1105
NA: SAW-06D-050-1200GB

NOTE
Further technical specifications are available on docs.proglove.de.

10-SLOT CHARGING STATION

OVERVIEW

The 10-Slot Charging Station provides multiple options to mount to flat surfaces, workstations and racks. The charging status is indicated by the LEDs of the scanner. The LEDs pulse red while in charging mode. When the battery is fully charged, the LEDs pulse green constantly. It takes about 2 hours to charge a scanner.

MOUNTING

CAUTION
Do not mount the 10-Slot Charging Station higher than 2m!

On the front and back side are different holes and recesses to enable secure mounting of the 10-Slot Charging Station (with screws and/or zip-ties).
Two wall mount slots on the back side can be used to fix the device with screw heads 135mm apart from each other.
The rail slot on the back enables mounting to a standard DIN rail, facilitating the installation in an IT rack or similar constructions. Additionally, the 10-Slot Charging Station can be installed on a monitor arm or stand with holes 75mm appart horizontally and vertically.

TECHNICAL DATA

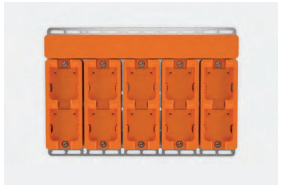
MECHANICAL PROPERTIES:

Dimensions: ..... 3.74 x 2.06 x 0.94 in
(298 x 203 x 25 mm)

Weight: ..... 2,2 kg

ELECTRONIC PROPERTIES:

Power supply: ..... 24 VDC (1.67A)
via power supply
INT: GE40I 24-P1J
Use the provided power supply only. Using any other type of AC power supply is prohibited.



WEARABLES

HAND STRAP

The ProGlove Hand Strap offers an elastic, adjustable Velcro closure that ensures an optimal fit for any user's hand size and shape. It can be worn with or without other gloves underneath. The trigger is located on the side of the index finger and is activated with the thumb. The Hand Strap is a consumable that must be replaced regularly after use.

PROPERTIES

GENERAL:

Packaging unit: ..... 3 or 10 pieces per package

Available sizes: ..... one size

Available variants: ..... right / left

SAFETY & CERTIFICATION:

Standards: EN388 (2131)
EN420

Certification: ..... RoHS / REACH
CE mark

NOTE
Further technical specifications are available on docs.proglove.de.

WEARABLES

INDEX TRIGGER

The ProGlove Index Trigger offers hand size optimized variants and can be wrapped around the hand in one movement. The thumb hole fixes the wrap in the correct position and the flexible Velcro mechanism allows it to be securely fastened to the user's hand. It can be worn with or without other gloves underneath. The trigger is located on the side of the index finger and is activated with the thumb. The Index Trigger is a consumable that must be replaced regularly after use.

PROPERTIES

GENERAL:

Packaging unit: ..... 3 or 10 pieces per package

Available sizes: ..... S, M, L

Available variants: ..... right / left

SAFETY & CERTIFICATION:

Standards: EN388 (2131)
EN420

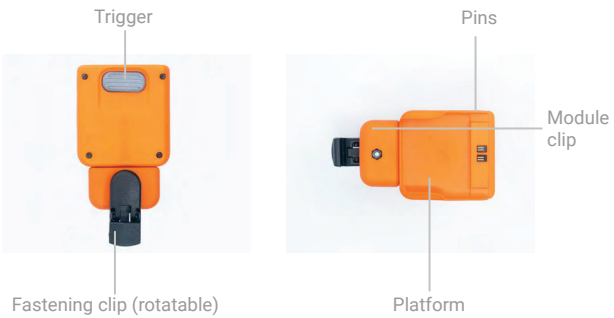
Certification: ..... RoHS / REACH
CE mark

NOTE
Further technical specifications are available on docs.proglove.de.

WEARABLES

REEL

The ProGlove Reel can be attached with the black, rotating fastening clip to the desired spot. This can be, for example, on the user's clothing or on a belt. Alternatively, the Reel can also be worn on a lanyard around the neck. The trigger is located on the bottom of the Reel and is activated by pressing it. The cord between the mounting clip and the scanner holder is 27 in (70 cm) long and retractable. When retracted, the scanner holder is additionally fixed by magnets to prevent it from dangling.



PROPERTIES

GENERAL:

Packaging unit: ..... 2 reels per package

SAFETY & CERTIFICATION:

Certification: ..... RoHS / REACH
CE mark

NOTE
Further technical specifications are available on docs.proglove.de.

COMPATIBILITY MATRIX

This Compatibility Matrix shows the connection possibilities with the different scanners:

	MARK 3	MARK 2	MARK BASIC	MARK DISPLAY
ACCESS POINT	NO	YES (s. page 18)	NO	NO
GATEWAY	YES (s. page 29)	YES (s. page 18)	YES (s. page 18)	NO
BLE HID	YES (s. page 29)	YES (s. page 21)	YES (s. page 18)	NO
PG INSIGHT MOBILE	YES (s. page 29)	YES (s. page 20)	YES (s. page 20)	YES (s. page 20)

NOTE
For a simplified display, only a MARK 2 scanner and, if necessary, an Access Point will be used in the next steps.

APPLICATION OF PROGLOVE SYSTEM

1ST STEP: CHARGE SCANNER

CAUTION
Only use scanner in a dry Charging Station and only touch with dry hands!
This may otherwise lead to the Charging Station not functioning properly.

→ The pins face down. Insert scanner in the Charging Station.

RESULT
Scanner pulses red and charges in the Charging Station.

NOTE
The LEDs pulse red while in charging mode. When the battery is fully charged, the LEDs pulse green. It takes about 2 hours to charge a scanner.

2ND STEP: CONNECT THE CONNECTIVITY DEVICE

CAUTION
Only touch the connectivity device with dry hands!
This may otherwise lead to the connectivity device not functioning properly.

NOTE
The following steps are only needed when connecting via Access Point or Gateway.

CONNECTION WITH USB CABLE IN USB HID MODE:

1. Connect the USB cable with the end device.

2. Plug the other end of the USB cable into the RJ50 socket of the Access Point.
A clear clicking sound confirms the correct fastening.

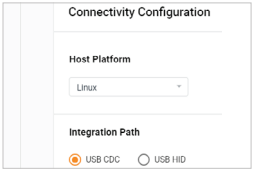
2. Plug the other end of the USB cable into the Micro USB socket of the Gateway. A clear clicking sound confirms the correct fastening.

RESULT

The LED of the Access Point lights up green. The boot up of the Gateway takes around 2min until the LED 1 lights up green. The connectivity device is connected to the end device.

CONNECTION WITH USB CABLE IN USB CDC MODE:

Follow the previous step 1 and step 2 for “Connetion with USB Cable in USB HID Mode”. Continue with the following steps:



3. In the configuration tool (https://insight.proglove.com/) under “Connectivity Configuration > Integration Path” select USB CDC. More detailed information about this can be found in chapter “Configure devices and firmware update.”

4. Connect with the COM port on the end device.

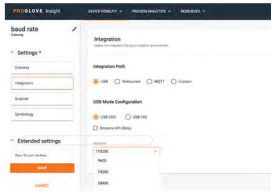
RESULT

The LED of the Access Point lights up green. The boot up of the Gateway takes around 2min until the LED 1 lights up green. The connectivity device is connected to the end device.

CONNECTION WITH RS232 CABLE VIA ACCESS POINT

1. Connect the RS232 cable with the end device. Connect the power supply to the RS232 cable and into an external power source.

2. Plug the other end of the RS232 cable into the RJ50 socket of the Access Point. A clear clicking sound confirms the correct fastening.



3. Check which baud rate must be set. The baud rate is set to 115,200 as a standard. At a different baud rate, this is to be set in the configuration tool (config.proglove.de).

4. Select the COM port on the end device and set the appropriate baud rate.

RESULT

The LED of the Access Point lights up green.
The Access Point is connected to the end device.

3RD STEP: SWITCH ON THE SCANNER

1. Position Scanner on the fastening rail of the wearable. The pins face down.

2. Push scanner down. A clear clicking sound confirms the correct fastening.

3. Press the textile trigger on the glove for about 2 seconds.

RESULT
Scanner lights up with all LEDs. You can hear a beeping sound and feel a short vibration.
Scanner is switched on.

NOTE
Scanner switches off automatically after 15 minutes without being used.

4TH STEP: CONNECT THE SCANNER

CONNECT VIA CONNECTIVITY DEVICE

1. Press the textile trigger on the wearable in order to activate the red crosshairs.

2. Aim scanner crosshairs on the connectivity device and scan the pairing barcode on the Access Point or Gateway.

RESULT
Scanner lights up twice. You can hear a beeping sound and feel a short vibration.
Scanner is connected to the connectivity device.

4TH STEP: CONNECT SCANNER (BLE)

CONNECT VIA PG INSIGHT MOBILE:

→ For using MARK Display or MARK 2 / MARK Basic with PG Insight Mobile via Software Keyboard, Intent or SDK find more information under proglove.com/support > *PG Insight Mobile*.

CONNECT VIA BLE HID TO AN END DEVICE

The scanner can be used to establish a connection via Bluetooth Low Energy Human Interface Device (BLE HID) to an end device. Possible operating systems are: Apple iOS, Google Android, Microsoft Windows.

The individual steps for connecting to the respective operating systems for the first time can be found in the following.

PREREQUISITES:

☑ The end device supports at least Bluetooth 4.0 standard

☑ No interference or physical obstacles (e.g. metal shelves) interfere with the connection between the scanner and the end device

☑ The range between the scanner and the end device is < 33 ft (10m)

TIP 1
Visually label the connected devices (Scanner with the end device) , e.g.using numbering or a color code. This will allow the user to find the right devices faster.

TIP 2
Adhere the pairing barcode to the end device. In this way, the user can find it quickly and easily.

On a battery-operated end device, the power-saving mode can lock the end device and MARK 2 simultaneously.
→ Permanently disable the power-saving mode of the end device.

The last 5 digits of the serial number attached to the back side identify the scanner among the available Bluetooth devices.
→ Read the serial number of the scanner.

RESULT
Example serial number: MARK 2 - 00000.

To make the scanner visible for the end device, the scanner must be put into pairing mode:

1. Press the tetile trigger on the wearable in order to activate the red crosshairs.

2. Aim the scannercrosshairs at the pairing barcode and scan.

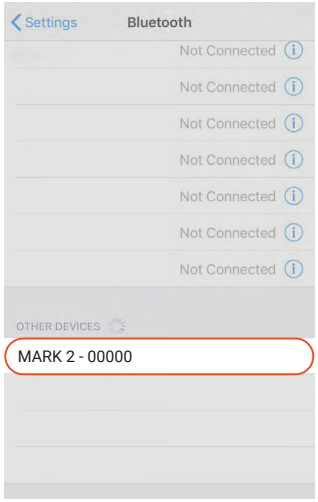
RESULT
Scanner pulses blue and beeping sounds can be heard.
Scanner is searching for an end device in pairing mode.

CONNECT WITH APPLE iOS 11 OR HIGHER:

01

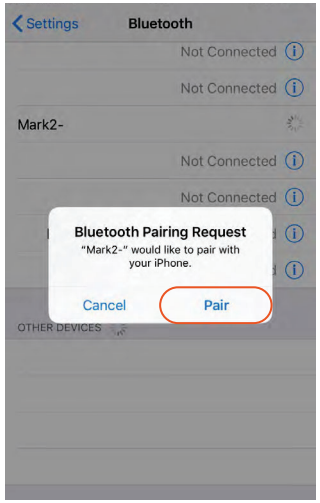
Under “Settings - Bluetooth,” activate the Bluetooth option.

02



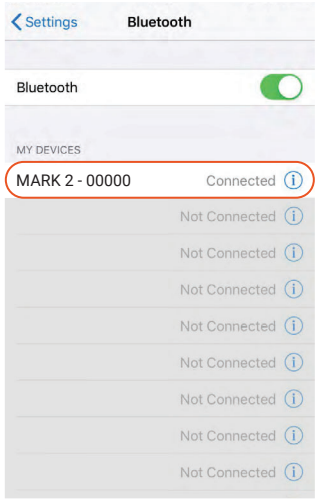
Select “MARK 2 - 00000”.

03



Confirm the “Bluetooth Pairing Request”.

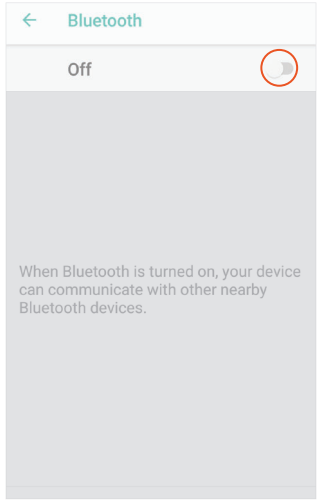
RESULT



The scanner will flash blue twice and you will hear two beeps. The scanner will be shown as connected under “My devices” and is ready for use.

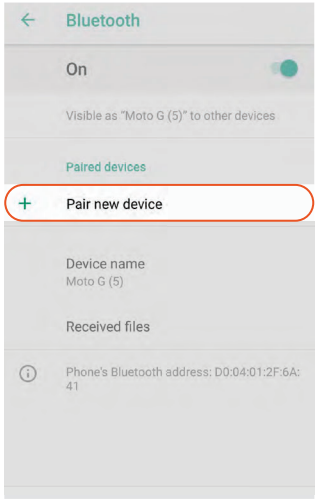
CONNECT WITH GOOGLE ANDROID 4.4 OR HIGHER:

01



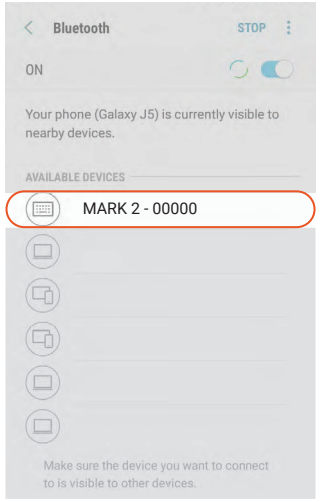
Under “Settings - Connected devices,” switch on the Bluetooth option.

02



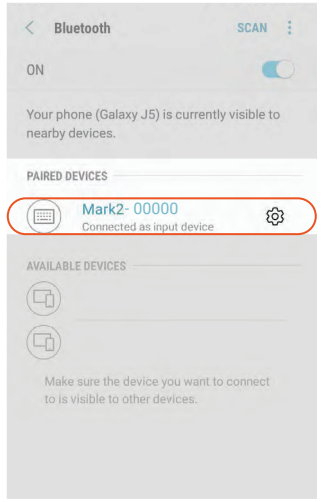
Tap “Bluetooth” and select “Pair new device.”

03



Select ‘MARK 2 - 00000’.

RESULT



The scanner will flash blue twice and you will hear two beeps. The scanner will be shown as connected under “Paired devices” and is ready for use.