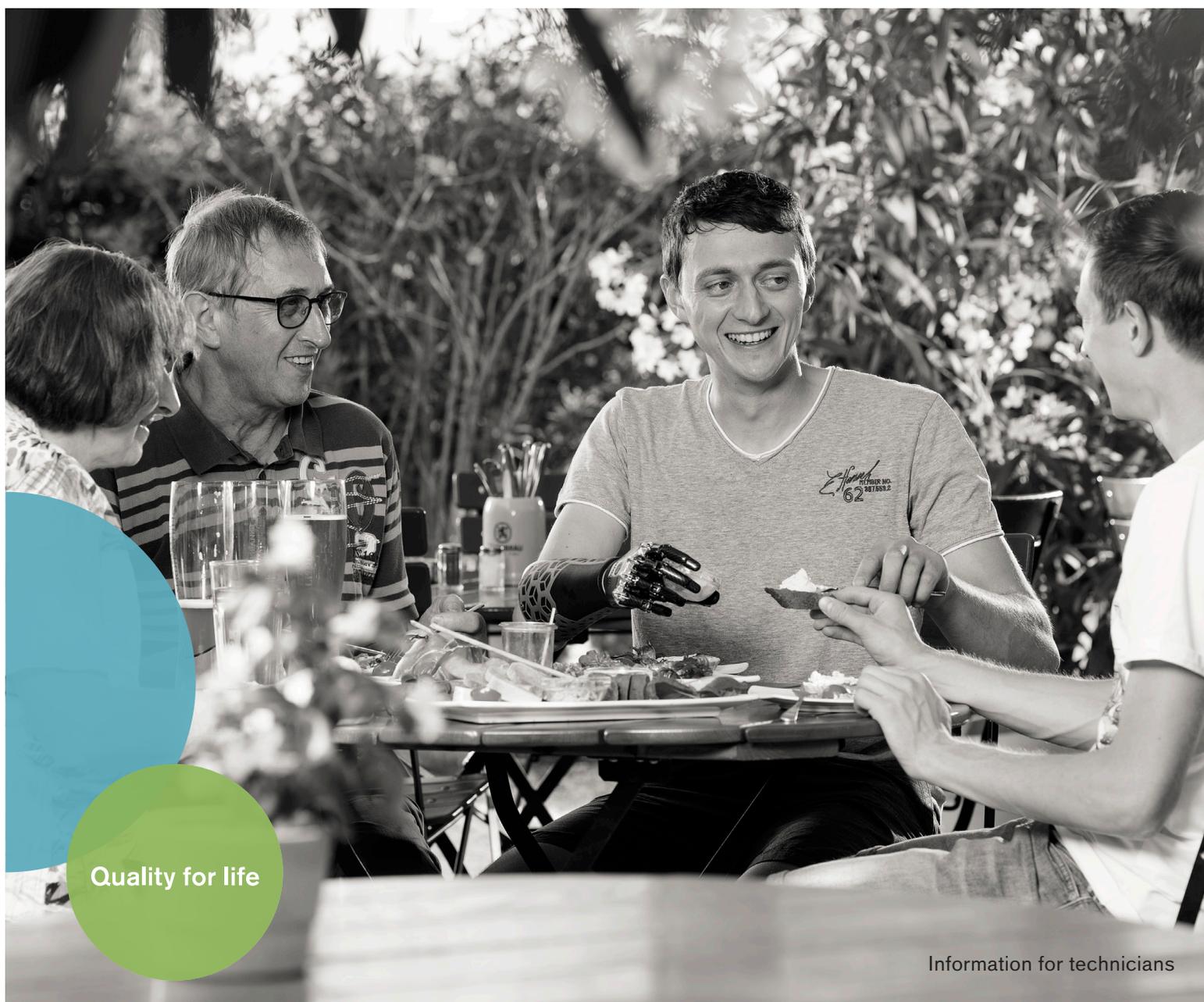


**ottobock.**

# Myo Plus pattern recognition

Unlock hidden potential.



Quality for life

Information for technicians





## Myo Plus – our first control device that is capable of learning

Ottobock is world-renowned for its leading solutions in all areas of modern prosthetics. We have always been convinced that every user deserves the best possible device. And now it's time to take another decisive step forward – with Myo Plus pattern recognition.

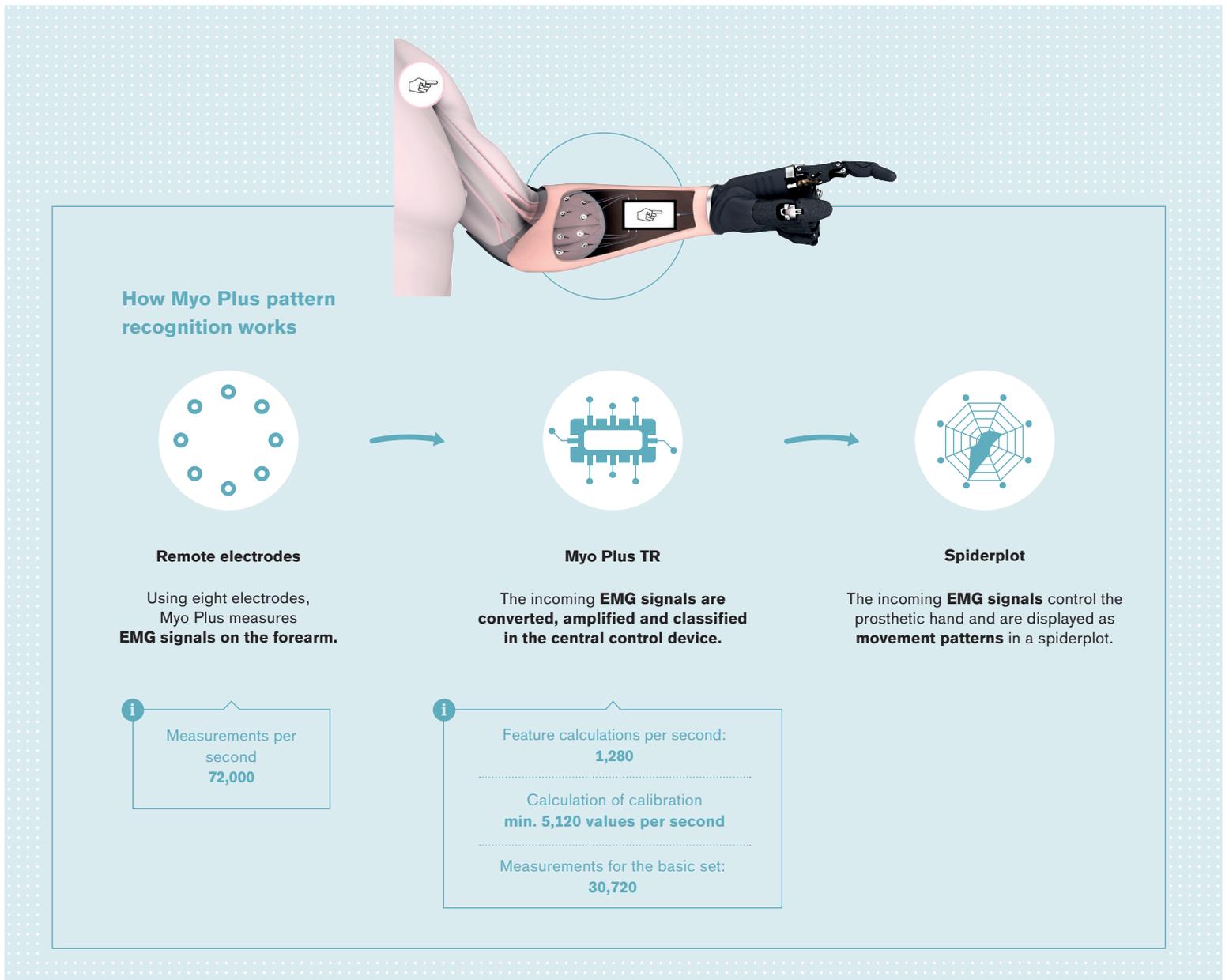
Myo Plus pattern recognition provides intuitive and individualized control by mapping a user's unique muscle patterns and translating them directly into various movements of the prosthesis. For example, if the user thinks of opening his/her hand and activates the physiologic muscles used for that task, the system immediately translates these signals to open the prosthetic hand or terminal device. This innovative control is considerably easier to master, which may increase adoption rate, reduce duration of training and accelerate a return to typical daily activities.



# Improved functionality and ease of use

Traditional myo-electric control is limited by the number of isolated, strong EMG signals and associated electrode sites (only one or two). Alternatively, Myo Plus pattern recognition uses up to eight myosite pairs. This provides significantly more information as to the nature of the contraction rather than just amplitude to control the prosthesis. Any signal, even those

considered “weak” by conventional myoelectric systems, can be as equally useful if they are present during specific activities. Pattern recognition has the potential to not only improve function for existing myo users, but also allow those previously unable to use myo electrics to do so.





### Indicators of the fitting

- Transradial, myoelectric prostheses
- Traumatic amputations
- Congenital malformations of the forearm
- Users who have difficulty separating signals in a conventional control device
- Experienced and new prosthesis users
- Devices with active and passive rotation

## Myo Plus in everyday life

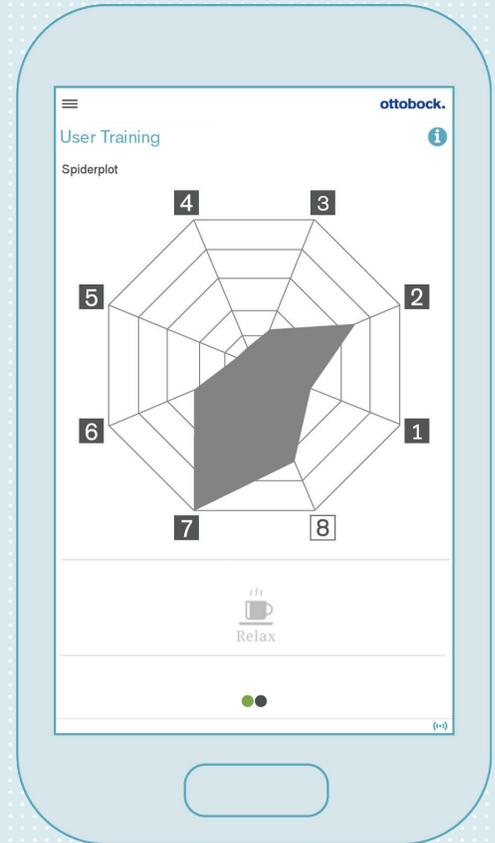
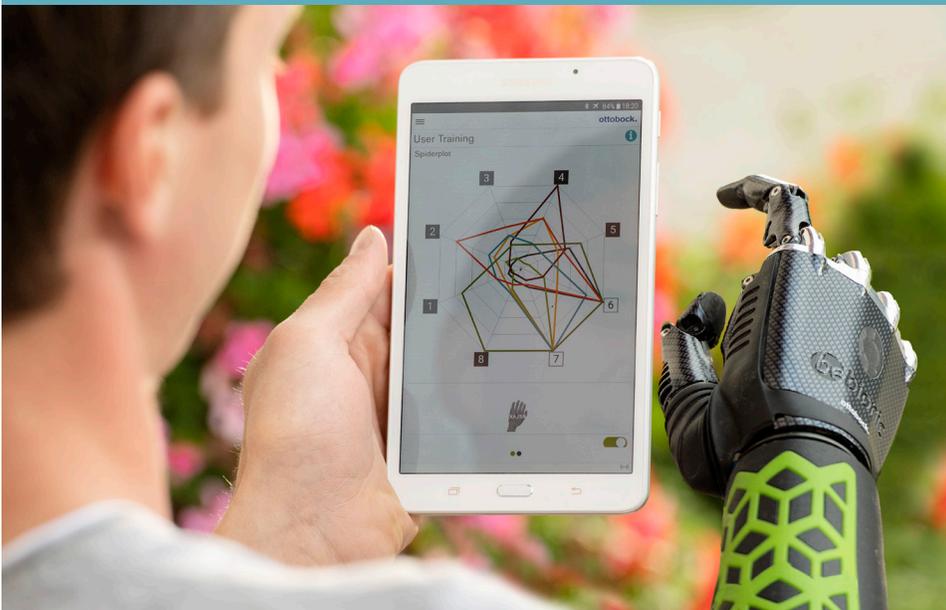
### Features and Benefits

- **Intuitive and Individualized Control:** Myo Plus maps a user's unique muscle patterns and translates directly into various movements of the prosthesis.
- **Elimination of Switching Events:** The user has direct mode selection and access to prosthetic movements without requiring cumbersome or difficult mode switching (physical switch or co-contraction). Myo Plus provides direct, fast control and decreases the cognitive and physical burden on the user.
- **Reduced Complexity:** Clinicians no longer have to identify and place electrodes on specific anatomical targets to isolate strong signals. Weak signals are equally important because with pattern recognition, multiple myo-sites are working together. This enables the system to recognize and utilize the contraction of multiple muscles that are then recognized as patterns.
- **Improved Speed and Proportional Control:** Myo Plus pattern recognition maps and utilizes multiple sets of data that are also used to enhance and provide proportional control. For example, the user can generate a "weak" signal and the hand will close more slowly around a glass.
- **Real-Time App Feedback and Adjustment:** With the Myo Plus app and patented Spiderplot EMG signal graphical interface, both users and clinicians are provided with real time feedback and the ability to make immediate adjustments.
- **Less Compensatory Movements:** With the intuitive control of the Myo Plus pattern recognition system, users can increase the functionality, efficiency and speed of their prosthesis and potentially avoid the strain of unnatural compensatory movements.

# Myo Plus app – a window into the prosthesis

## Spiderplot – the central element in the Myo Plus app

An essential feature of the Myo Plus pattern recognition system is that it makes movement patterns visible for the first time. In a way, it can be read like a transverse cross section of the residual limb and its muscles. The octagonal spiderplot presents the movement patterns as an easy-to-read relational graphic. Each of the eight corners of the octagon corresponds to the signal of one electrode on the residual limb. The arrangement and numbering of the electrodes corresponds to the labeling on the spiderplot. The currently generated movement pattern is displayed as a grey, dynamic and moving area.



Myo Plus app – spiderplot



Myo Plus diagnostic cuff

## The Myo Plus diagnostic cuff

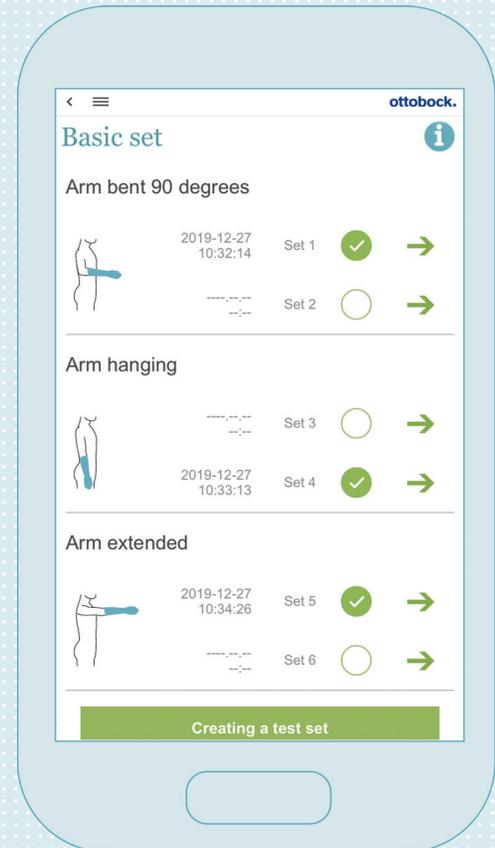
Together, the Myo Plus Cuff and the Myo Plus app provide a very compact, easy-to-use tool for O&P professionals and therapists to evaluate existing movement patterns and determine their quality.

The graphic display in the app gives technicians, therapists and users a direct idea of the prosthesis function without requiring the fabrication of a test socket. Once recognized, movement patterns are reproduced as images in the spiderplot. The initial analysis shows how many movement patterns a user can generate and how the prosthetic hand can be controlled.

## The basic set

The basic set is configured by the O&P professional. This ensures that the four basic prosthesis functions – “open hand”, “close hand”, and internal and external rotation – function properly. The basic set cannot be changed by the user. However, users can revert back to these default settings in the Myo Plus app at any time.

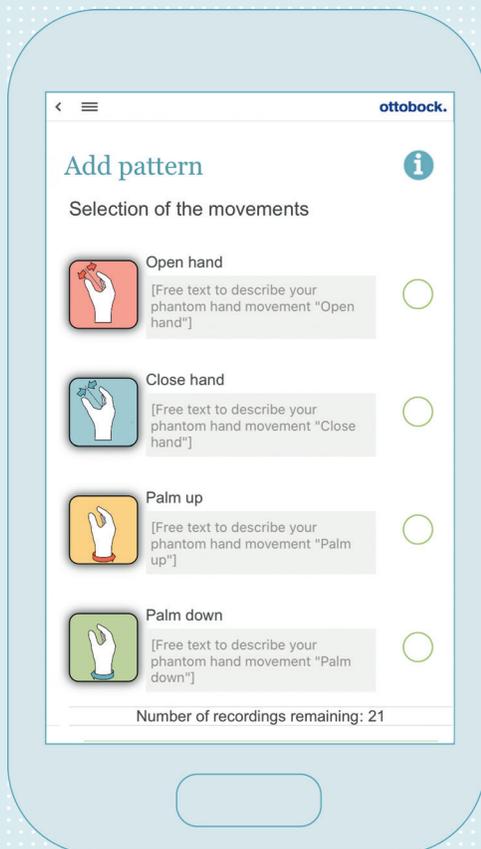
The Myo Plus app gives technicians important functions for support and customer service even after the fitting process is completed. Important points can be checked quickly and easily every time the customer is seen.



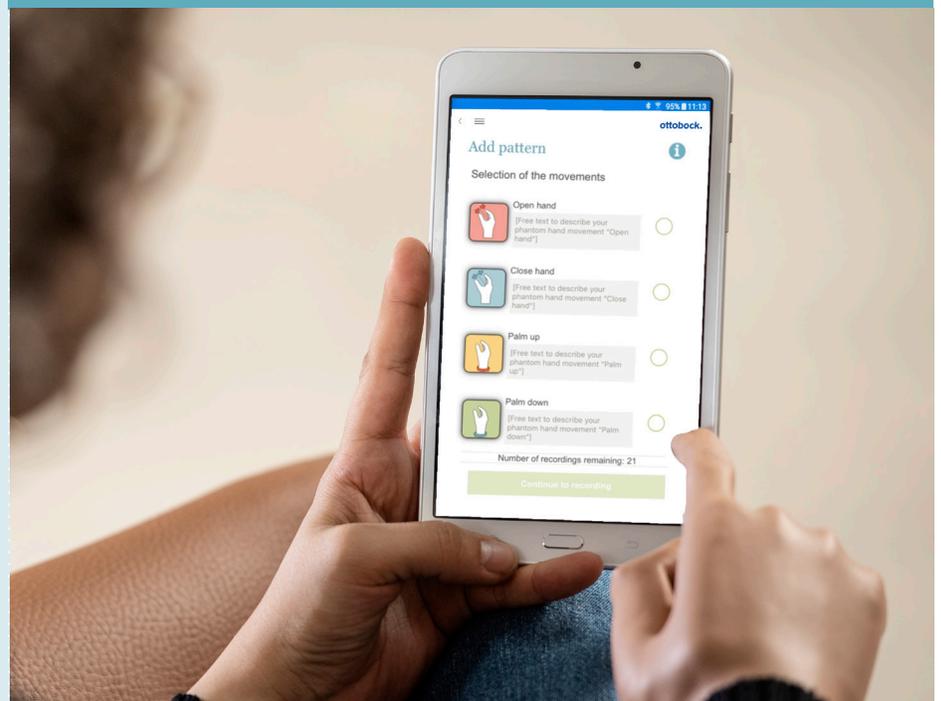
Myo Plus app – basic set

## User interface

Myo Plus allows users to adjust the speed or sensitivity of the prosthesis or even activate or deactivate certain movement patterns on their own to suit a specific situation. As a safety feature, the basic set can only be accessed by the clinician.



Myo Plus app - user interface



# Compatible Ottobock terminal devices



## **bebionic hand**

For the first time ever, the potential of the world's most natural bionic hand can be exploited in full.

- Highly functional multi-articulating hand
- Suitable for work and everyday use
- Passively movable fingers with padded fingertips
- Available in 3 hand connection options: Short Wrist, Electronic Quick Disconnect and Flexion (now with 5 locking positions)
- Up to 14 grip pattern options with 8 selections per program



## **DMC VariPlus Electric Greifer**

The classic device allows users to perform both precision work and powerful grips.

- Especially reliable and robust
- Suitable for work and everyday use
- Suitable for handling small objects and performing manual tasks
- Exchangeable gripping tips (wide, narrow or rubber coated)
- Integrated LED light
- Ottobock Quick Disconnect enables fast, easy switching between terminal devices

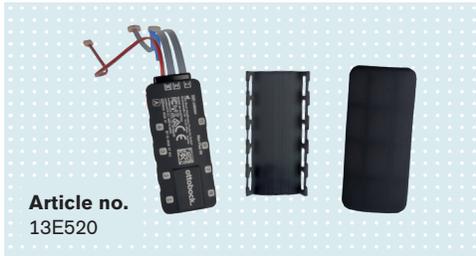


## **MyoBock VariPlus Speed or SensorHand Speed**

Especially fast, and equipped with especially high gripping power.

- Objects can be gripped quickly and precisely
- Suitable for work and everyday use
- Ottobock Quick Disconnect enables fast, easy switching between terminal devices

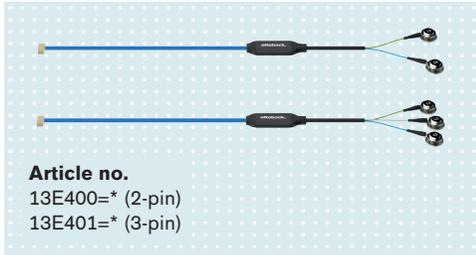
# Accessories



Article no.  
13E520

## Myo Plus TR

- Central control device for Myo Plus pattern recognition
- Integrated into compact, domed housing for optimal positioning in the inner socket
- Complete control electronics for the electric rotator included; no further need for the MyoRotronic
- All eight remote electrodes are attached to the Myo Plus TR; the connector holder (supplied) prevents the connectors from coming loose in everyday use



Article no.  
13E400=\* (2-pin)  
13E401=\* (3-pin)

## Remote electrodes

- Available in two different cable lengths (90 mm or 140 mm)
- Small parts are held together with an O-ring that also acts as a seal
- No loosening of screw connections in everyday use
- Plastic cover isolates the dome screws from the outer socket
- Teflon-coated, high-strength, anti-kink wires



Article no.  
13Z161 (flat, 2.2 mm)  
13Z162 (medium, 3.5 mm)  
13Z163 (high, 4.2 mm)

## Electrode domes

- Available in three different heights
- The inner side is tapered so that it fits snugly against the inner socket material
- Attached to a flexible cord for individual placement



Article no.  
757M20=\*

## Myo Plus diagnostic cuff

- The Myo Plus diagnostic cuff evaluates existing muscle patterns and determines their quality without a test socket
- Comfortable, medical grade, flexible armband for application to the end user's sound limb
- Bluetooth enabled, for use with the Myo Plus app



Article no.  
623F50

## Positioning band

- Elastic positioning aid
- Simplifies electrode positioning
- Defines the spacing and the arrangement of the drill holes for the electrode domes
- Included in the scope of delivery of the Myo Plus TR



Article no.  
757B35=\*

## MyoEnergy Integral

Power is supplied by a battery that is integrated into the prosthesis

# Components

## Technical data

	<b>Myo Plus TR</b>
Article number	13E520
Size	67 x 27 x 9.2 mm/2.64 x 1.1 x 0.36 inch

## Accessories

Remote electrodes	13E400=* (2-poled)
Art. no.	13E401=* (3-poled, includes ground)
Electrode domes	13Z161 (low profile, 2.2 mm)
Art. no.	13Z162 (medium profile, 3.5 mm)
	13Z163 (high profile, 4.2 mm)
Myo Plus Cuff	757M20=50-OB
Art. no. returnable	623F49 spare cuff sleeves (package of 10)
Myo Energy Batteries and Charger	757B35=3 or 757B35=5 and Charger 757L35







Comprehensive information on the Myo Plus app is available here:

<http://www.ottobock.com/en/apps/myoplusapp>



Discover the Ottobock Professionals YouTube channel:

<http://videoguides.ottobock.com/myoplus>