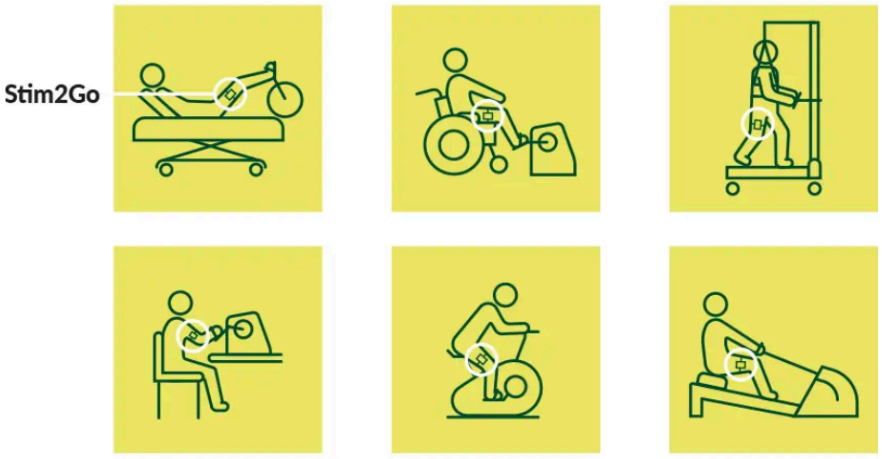
Stim2Go Neurostimulator - Program description

Assisted Cranking 4CH – Bilateral



Assisted Cranking 4CH – Bilateral

Program ID – mode: FES15 – Motion triggered cyclic

Supports arm cranking by stimulating the biceps and triceps on both arms. The cranking motion is detected by placing the stimulator on the right arm. The range 0 to 50% of the cycle corresponds to the flexion phase of the right elbow joint. The range 50 to 100% of the cycle corresponds to the extension phase of the right elbow joint.

Indication: Function recovery, Muscle training

Body region: Upper extremities

Required stimulation cable: 5 channel cable

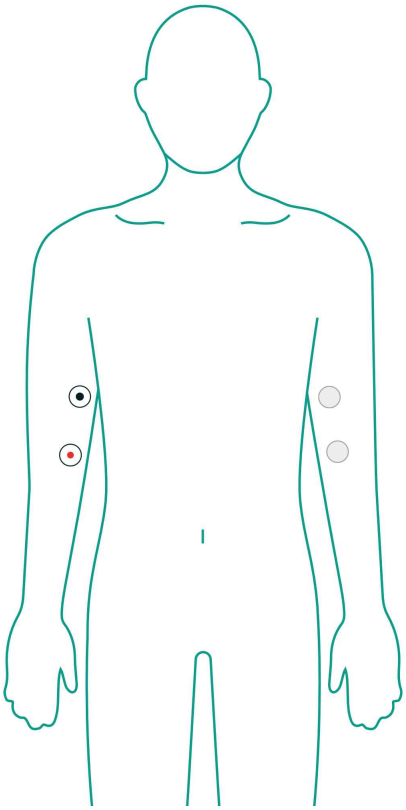
Channels: Channel 1, Channel 2, Channel 3, Channel 4

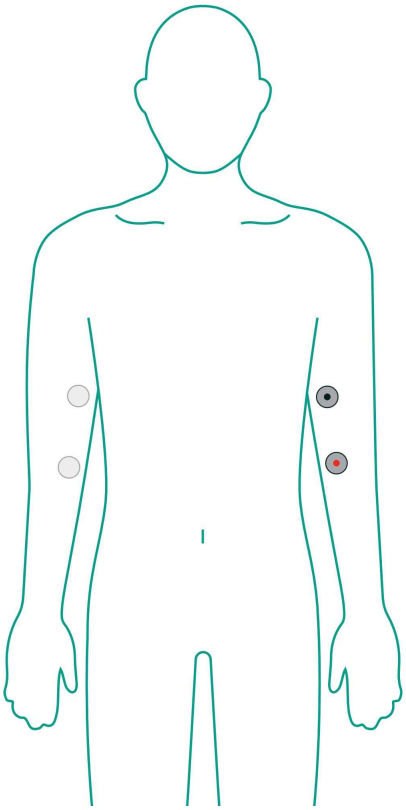
Solo mode allowed:[1] Yes

Measurement mode:[1] Horizontal

Placement of electrodes and stimulator

Channel	Description	Electrode description / Size
1	Biceps right	Bipolar, square / 2" × 2" (5cm × 5cm)
2	Biceps left	Bipolar, square / 2" × 2" (5cm × 5cm)
3	Triceps right	Bipolar, square / 2" × 2" (5cm × 5cm)
4	Triceps left	Bipolar, square / 2" × 2" (5cm × 5cm)

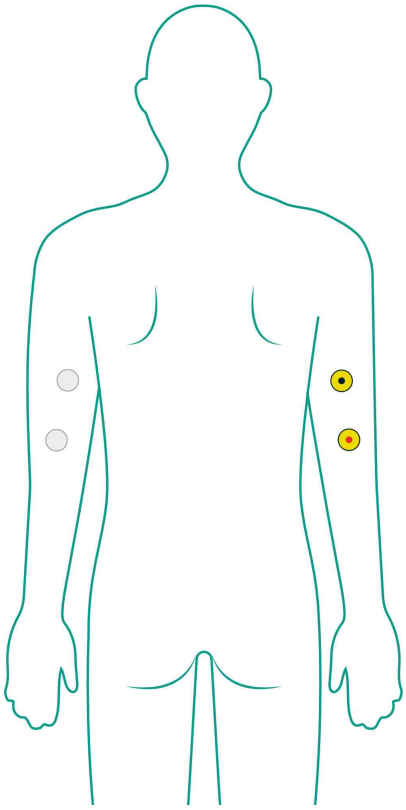


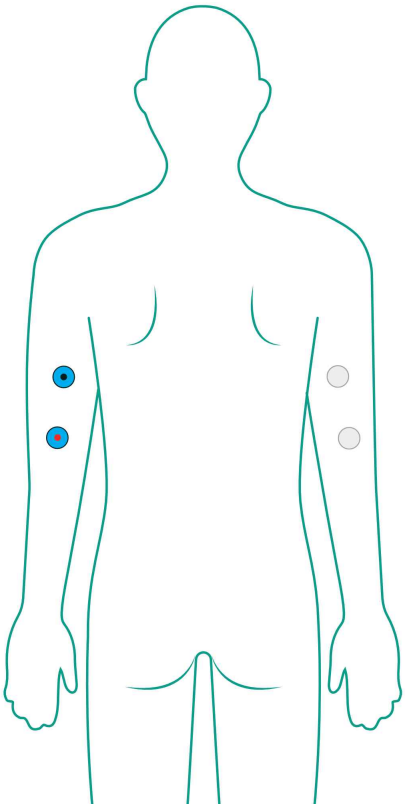


Electrode placement:

Channel 1 – Biceps right

Channel 2 – Biceps left

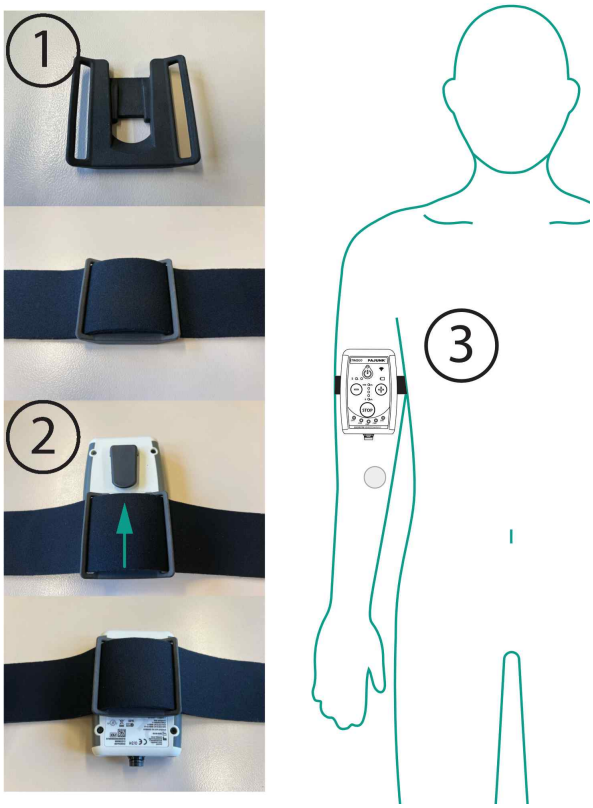




Electrode placement:

Channel 3 – Triceps right

Channel 4 – Triceps left



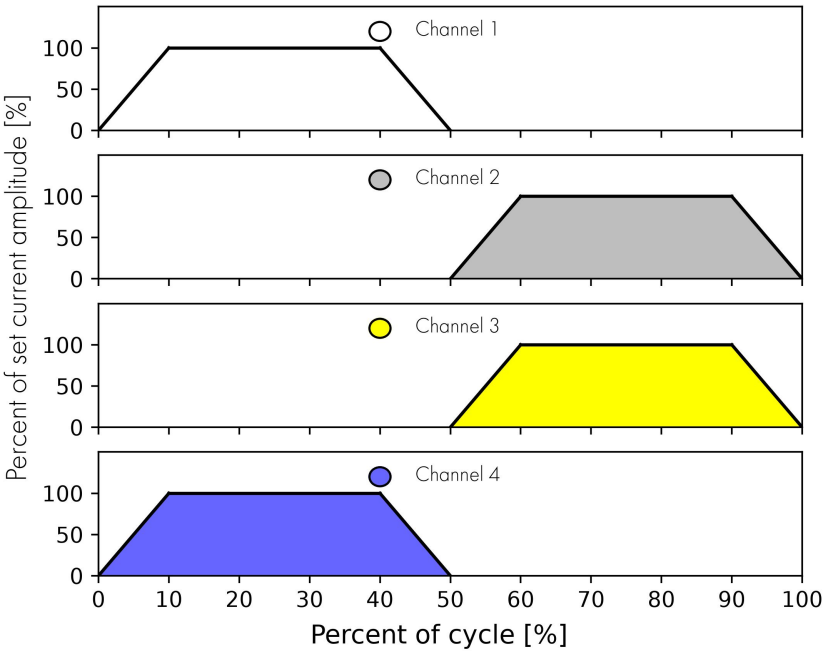
Stimulator placement: 1) Attaching the strap holder to the strap.
2) Mounting the stimulator to the strap holder.
3) The stimulator position on the limb required for this program.

Channel settings for stimulation stages

Training:

Total duration	30:00:000 (min:sec:msec)
Sequence duration	n.a.
Sequence mode[2]	Motion triggered with threshold
Show intensity wizard[1]	Yes

Channels	Max. amperage	Pulse width	Frequency	Pulse form	Channel mode[3]
1	100.0 mA	500 µs	33.3 Hz	Biphasic	Sequential
2	100.0 mA	500 µs	33.3 Hz	Biphasic	Sequential
3	100.0 mA	500 µs	33.3 Hz	Biphasic	Sequential
4	100.0 mA	500 µs	33.3 Hz	Biphasic	Sequential



Activation of the stimulation channels for training

1. Settings

Solo mode:	Allows a program to run independently without a smartphone connection once the program has been started in the app and the electrode placement is completed. By activating the SOLO mode, the app disconnects from the stimulator. The stimulator runs and controls the program solo (without the app). The user can simultaneously increase/decrease the stimulation intensity of all active channels with the PLUS and MINUS keys on the stimulator's keypad or end the program by pressing STOP.
Intensity wizard:	The intensity wizard is displayed before the start of a program stage in order to preset and test the intensity of each individual channel in advance.

Measurement mode

Horizontal measurement mode:	The inclination angle is measured within ±80° of the horizontal reference line. Rotation of the stimulator around its longitudinal axis does not affect the calculated angle, providing greater flexibility in stimulator orientation..
Vertical measurement mode:	The inclination angle is measured within ±80° of the vertical reference line. Rotation around the stimulator's longitudinal axis affects the calculated angle, so the stimulator must be attached in the position and orientation shown in the app.

2. Sequence mode

Auto repeat:	The stimulation sequence is automatically repeated for the duration of the program stage.
Motion triggered with threshold:	The stimulator is attached to the arm or leg depending on the program. For cyclical activities such as cycling or arm cranking, the current movement status is determined as a percentage of the cycle using the integrated sensor. The stimulation is controlled depending on the value determined and can be activated in up to three phases per active channel.
Motion triggered cyclic:	The stimulation sequence is triggered when the inclination angle exceeds or falls below a predetermined threshold value. The stimulator is placed on an arm or leg to measure the inclination angle with a built-in sensor.
Manually triggered:	The stimulation sequence is manually triggered by the operator using the Stim2Go app.

3. Channel modes

Sequential:	The stimulation pattern consists of repeated stimulation sequences which are activated depending on the sequence mode. The stimulation sequences consist of one to three phases and have a predetermined duration in most programs. The duration of the stimulation sequence of cyclic motion-triggered programs is not fixed because it depends on the speed of the cyclic movement.
Always on:	The stimulation of the channel is permanently active. Stimulation sequences are not relevant.