

## Assisted Cycling 5CH

**Category:** NMES/FES – motion triggered cyclic

Supports cycling by the stimulation of the lower limb muscles. The cycling motion is detected by placing the stimulator on the right thigh. Trunk stability is trained and pain in the lower limbs and lower back is relieved.

**Indication:** Paralysis or muscle weakness of the lower limbs, e.g., after SCI, MS or stroke

**Stimulation pattern:** sequential activation

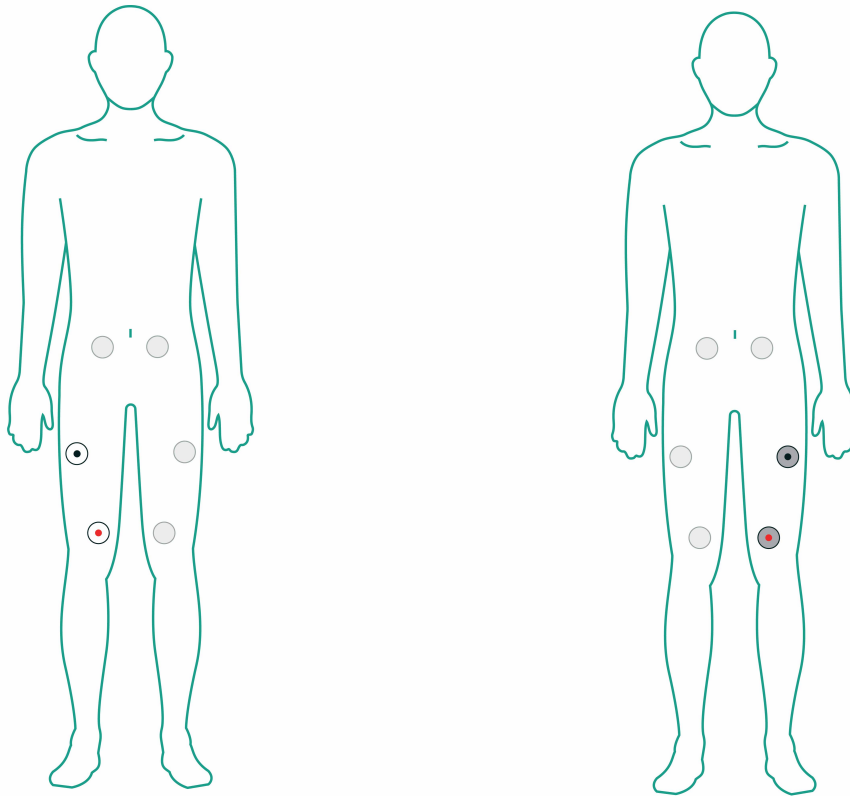
**Stimulation cable:** 5-channel

**Active channels:** Channel 1, Channel 2, Channel 3, Channel 4, Channel 5

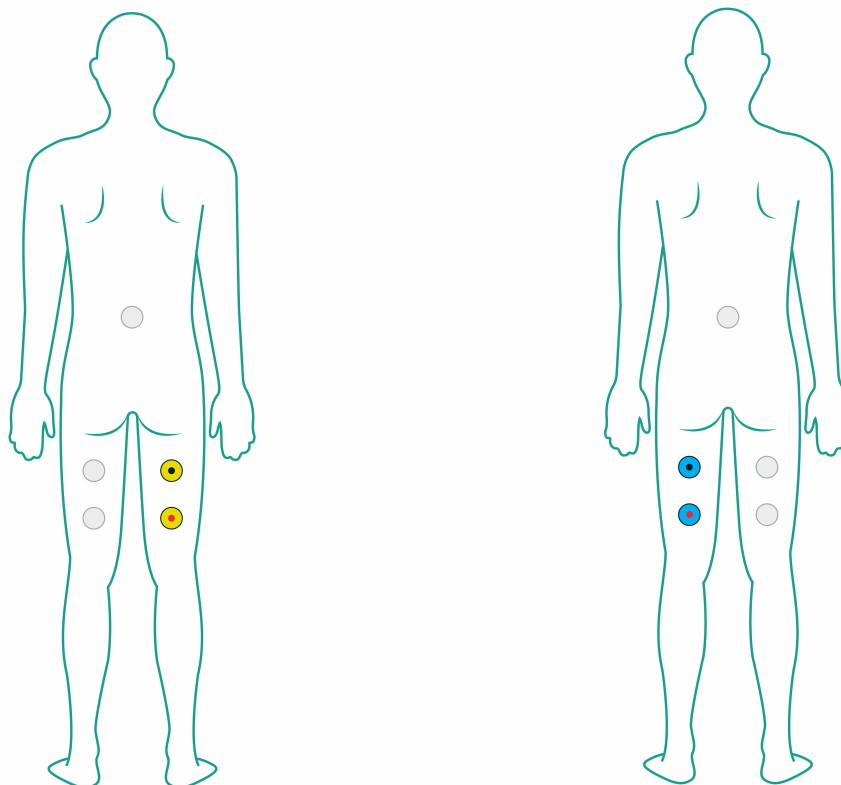
**Solo mode:** Yes

### Placement of electrodes and stimulator

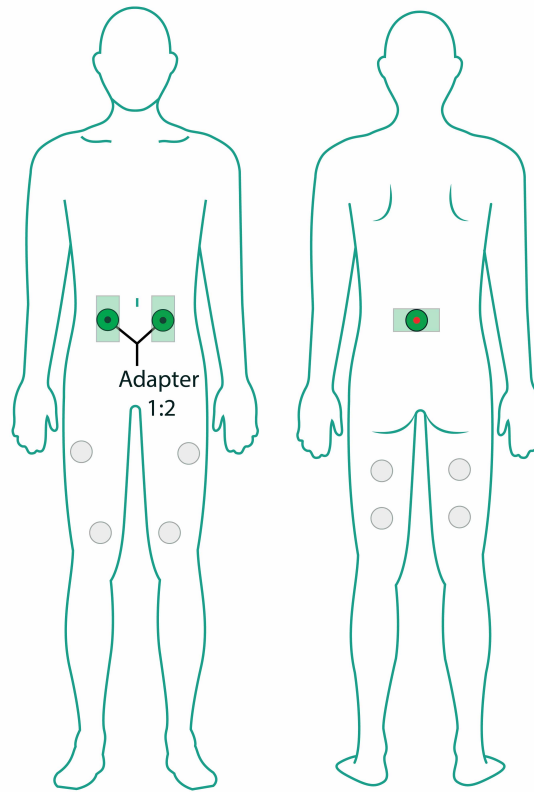
Channel	Function	Electrode type
1	knee extensor right	bipolar, rectangle 2" x 3.5" (5cm x 9cm)
2	knee extensor left	bipolar, rectangle 2" x 3.5" (5cm x 9cm)
3	knee flexor right	bipolar, rectangle 2" x 3.5" (5cm x 9cm)
4	knee flexor left	bipolar, rectangle 2" x 3.5" (5cm x 9cm)
5	lumbar	3x rectangle 2" x 3.5" (5cm x 9cm) + y-adapter



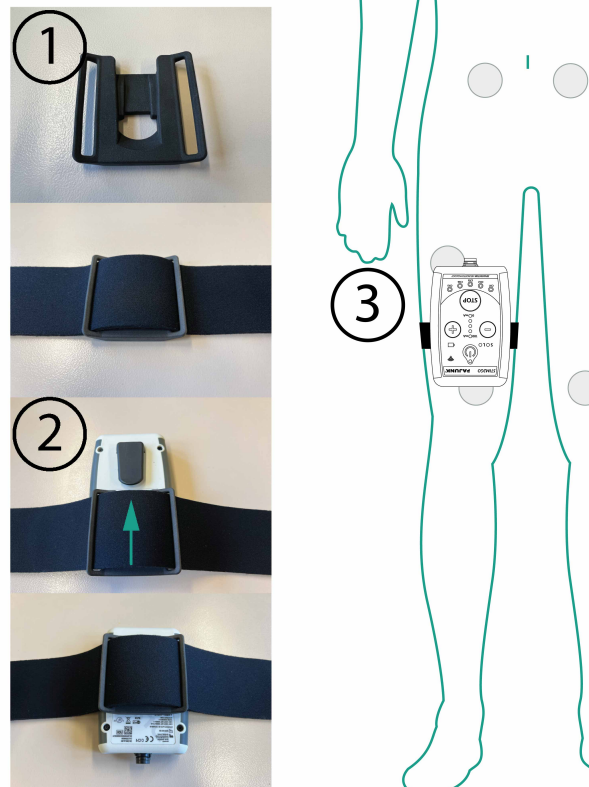
**Electrode placement:** channel 1 – knee extensor right and channel 2 – knee extensor left



**Electrode placement:** channel 3 – knee flexor right and channel 4 – knee flexor left



**Electrode placement:** channel 5 – lumbar

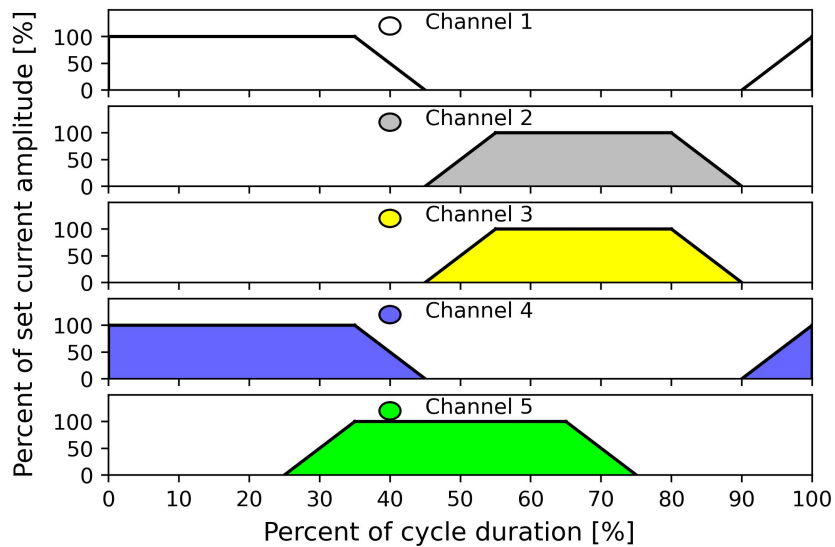


**Stimulator placement**

## Current settings for stimulation stages

### Training:

<b>Total duration</b>		30:00:000 (min:sec:msec)			
<b>Sequence duration</b>		N/A			
<b>Sequence mode<sup>1</sup></b>		motion triggered cyclic			
Channel	Maximal current	Maximal pulse width	Frequency	Pulse form	Pulse mode <sup>2</sup>
1	100.0 mA	500 $\mu$ s	33.3 Hz	biphasic (100 $\mu$ s pause)	sequential
2	100.0 mA	500 $\mu$ s	33.3 Hz	biphasic (100 $\mu$ s pause)	sequential
3	100.0 mA	500 $\mu$ s	33.3 Hz	biphasic (100 $\mu$ s pause)	sequential
4	100.0 mA	500 $\mu$ s	33.3 Hz	biphasic (100 $\mu$ s pause)	sequential
5	80.0 mA	750 $\mu$ s	50.0 Hz	biphasic (no pause)	sequential



Activation of the stimulation channels for training

**<sup>1</sup>Sequence modes**

- Automatic repetition: The stimulation sequence will be automatically repeated until the total duration of the stage is reached.
- Motion triggered cyclic: The stimulator is placed on a limb and the cycle percentage will be estimated during cyclic movements like leg cycling or arm cranking. The Stimulation is controlled as a function of the current cycle percentage and can be activated in up to three phases per active channel.
- Motion triggered with threshold: The stimulation sequence will be triggered by an change in the inclination angle of a body segment on which the stimulator is placed. The angle and direction of change (increasing or decreasing) must be defined.
- Manually triggered: The stimulation sequence will be manually triggered by the therapist or patient using the Stim2Go app.

**<sup>2</sup>Pulse modes**

- Sequential: The stimulation is activated in up to three phases within a sequence duration or motion cycle.
- Always on: For a current amplitude larger than zero, the stimulation of a channel is permanently on over the entire sequence duration.