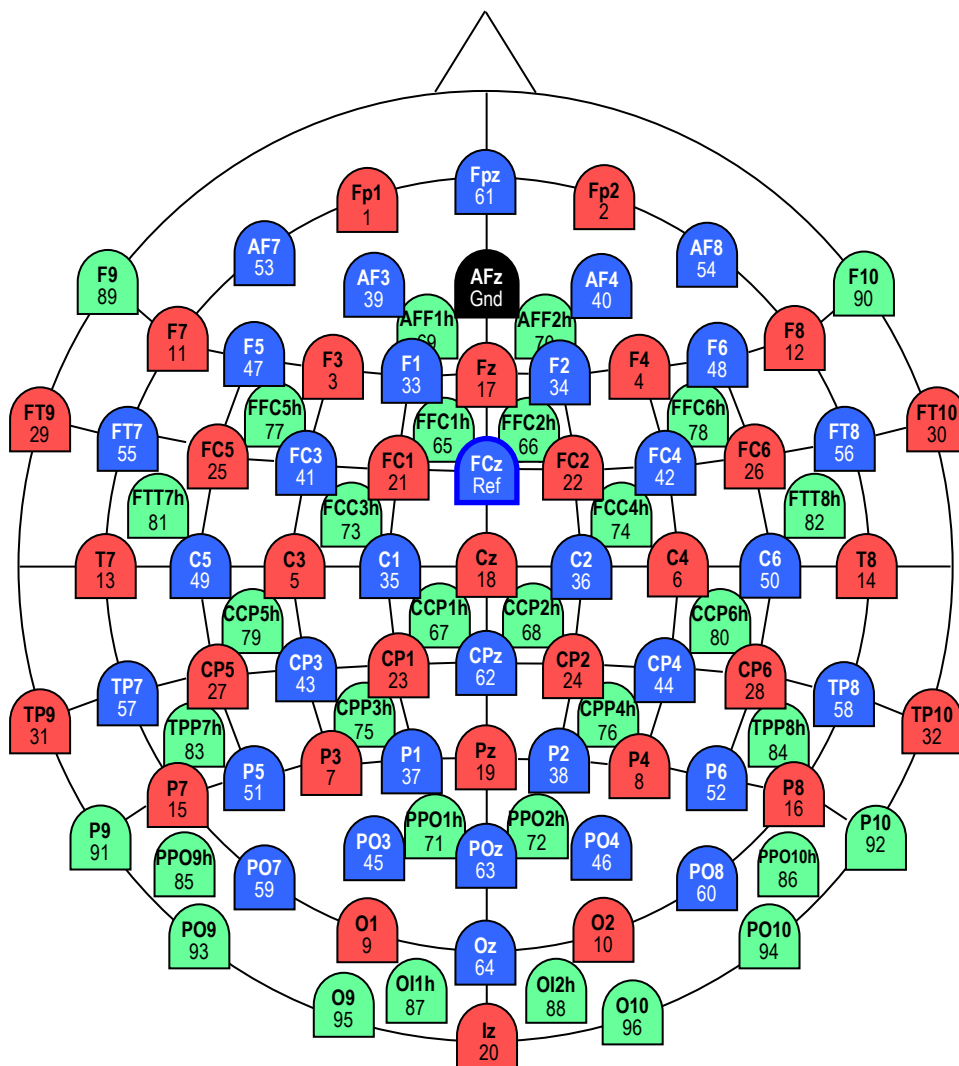


96Ch Standard BrainCap for TMS with Multitrodes

Electrode Layout and Channel Assignment



Electrode Nomenclature according to:
 Oostenfeld, R. & Praamstra, P. The five percent electrode
 system for high-resolution EEG and ERP measurements.
 Clinical Neurophysiology 2001; 112: 713-719



Details

Ordering Information

For ordering please give **Article Number, Cap Cut, and Size** (e.g. *BC-TMS-96, C-Cut, 56*):

- Article Number: **BC-TMS-96**
- Cap Cut: **C-Cut** or **A-Cut**
- Size (given in cm head circumference):
 - Adult caps: **54, 56, 58, 60, 62, 64** (average male: 58, average female: 56)
 - Children caps: **52** (5-10 years), **54** (11-14 years)

The catalogue-number comprises the cap as described. For further information about accessories or consumables please visit our website or contact our local distributor.

Cap

Standard: Subtemporal Cap with integrated chin belt, white.

Sizes 52 – 60 made from High Precision Fabric.

Options: C-Cut or A-Cut, Size. For further variations, contact us.

Electrodes

All electrodes are Multitrodes for TMS with sintered Ag/AgCl sensors. They are buttoned directly into the cap (total height approx. 3 mm) or can be attached to the skin with washers (= double-sided adhesive rings).

All electrodes are name-labelled at the sensor end. The cable colours correspond to the above figure.

The cables are loosely attached to the cap with large double-T nylon threads. Four cable trees leave the cap plait-like in front of and behind the ears, pointing downwards. 20 cm before the connector-boxes there is a crossing-point. Lengths of cable trees are approx. 120 cm.

Termination

Each cable tree is led into a Connector box. From here the caps are connected to BrainAmp with 30 cm-flat-ribbon-cables. These flat ribbon cables come with the BrainAmps. They can be re-ordered from BrainProducts (Cat-No. BP-02400-NN) or from Easycap (Cat.-No. E80).

Theta/Phi-Coordinates

Please find a table with Theta/Phi-Coordinates of all electrode sites at the end of this file.

Hints when performing TMS and EEG simultaneously

To minimize the TMS artefacts onto the EEG signal, electrode cables should be led away from the TMS stimulation point. To be able to do so, the electrode cables are not firmly attached to the cap and can be rotated in their cap holes. You may secure a certain cable geometry with the enclosed cable clips and velcro straps.

Depending on the site of the TMS stimulation, it may be advisable to move the REF electrode away from the stimulation point to another position further away.

Table of Coordinates for BC-TMS-96

| Channel-number | Name | Theta | Phi |
|----------------|------|-------|-----|
| 1 | Fp1 | -90 | -72 |
| 2 | Fp2 | 90 | 72 |
| 3 | F3 | -60 | -51 |
| 4 | F4 | 60 | 51 |
| 5 | C3 | -45 | 0 |
| 6 | C4 | 45 | 0 |
| 7 | P3 | -60 | 51 |
| 8 | P4 | 60 | -51 |
| 9 | O1 | -90 | 72 |
| 10 | O2 | 90 | -72 |
| 11 | F7 | -90 | -36 |
| 12 | F8 | 90 | 36 |
| 13 | T7 | -90 | 0 |
| 14 | T8 | 90 | 0 |
| 15 | P7 | -90 | 36 |
| 16 | P8 | 90 | -36 |
| 17 | Fz | 45 | 90 |
| 18 | Cz | 0 | 0 |
| 19 | Pz | 45 | -90 |
| 20 | Iz | 112 | -90 |
| 21 | FC1 | -31 | -46 |
| 22 | FC2 | 31 | 46 |
| 23 | CP1 | -31 | 46 |
| 24 | CP2 | 31 | -46 |
| 25 | FC5 | -69 | -21 |
| 26 | FC6 | 69 | 21 |
| 27 | CP5 | -69 | 21 |
| 28 | CP6 | 69 | -21 |
| 29 | FT9 | -113 | -18 |
| 30 | FT10 | 113 | 18 |
| 31 | TP9 | -113 | 18 |
| 32 | TP10 | 113 | -18 |
| 33 | F1 | -49 | -68 |
| 34 | F2 | 49 | 68 |
| 35 | C1 | -23 | 0 |
| 36 | C2 | 23 | 0 |
| 37 | P1 | -49 | 68 |
| 38 | P2 | 49 | -68 |
| 39 | AF3 | -74 | -68 |
| 40 | AF4 | 74 | 68 |
| 41 | FC3 | -49 | -29 |
| 42 | FC4 | 49 | 29 |
| 43 | CP3 | -49 | 29 |
| 44 | CP4 | 49 | -29 |
| 45 | PO3 | -74 | 68 |
| 46 | PO4 | 74 | -68 |
| 47 | F5 | -74 | -41 |
| 48 | F6 | 74 | 41 |
| 49 | C5 | -68 | 0 |

| Channel-number | Name | Theta | Phi |
|----------------|--------|-------|-----|
| 50 | C6 | 68 | 0 |
| 51 | P5 | -74 | 41 |
| 52 | P6 | 74 | -41 |
| 53 | AF7 | -90 | -54 |
| 54 | AF8 | 90 | 54 |
| 55 | FT7 | -90 | -18 |
| 56 | FT8 | 90 | 18 |
| 57 | TP7 | -90 | 18 |
| 58 | TP8 | 90 | -18 |
| 59 | PO7 | -90 | 54 |
| 60 | PO8 | 90 | -54 |
| 61 | Fpz | 90 | 90 |
| 62 | CPz | 22 | -90 |
| 63 | POz | 67 | -90 |
| 64 | Oz | 90 | -90 |
| 65 | FFC1h | -35 | -73 |
| 66 | FFC2h | 35 | 73 |
| 67 | CCP1h | -16 | 45 |
| 68 | CCP2h | 16 | -45 |
| 69 | AFF1h | -57 | -82 |
| 70 | AFF2h | 57 | 82 |
| 71 | PPO1h | -57 | 82 |
| 72 | PPO2h | 57 | -82 |
| 73 | FCC3h | -35 | -19 |
| 74 | FCC4h | 35 | 19 |
| 75 | CPP3h | -46 | 48 |
| 76 | CPP4h | 46 | -48 |
| 77 | FFC5h | -62 | -35 |
| 78 | FFC6h | 62 | 35 |
| 79 | CCP5h | -57 | 12 |
| 80 | CCP6h | 57 | -12 |
| 81 | FTT7h | -79 | -10 |
| 82 | FTT8h | 79 | 10 |
| 83 | TPP7h | -81 | 29 |
| 84 | TPP8h | 81 | -29 |
| 85 | PPO9h | -101 | 45 |
| 86 | PPO10h | 101 | -45 |
| 87 | OI1h | -101 | 81 |
| 88 | OI2h | 101 | -81 |
| 89 | F9 | -113 | -36 |
| 90 | F10 | 113 | 36 |
| 91 | P9 | -113 | 36 |
| 92 | P10 | 113 | -36 |
| 93 | PO9 | -113 | 54 |
| 94 | PO10 | 113 | -54 |
| 95 | O9 | -112 | 72 |
| 96 | O10 | 112 | -72 |
| Gnd | Afz | 67 | 90 |
| Ref | FCz | 23 | 90 |

These values are standardized to a Theta of 90°
for the plane through Fpz, T7, T8, Oz.

The signs follow this convention:

