EASYCAP
EEG Recording Caps and Related Products

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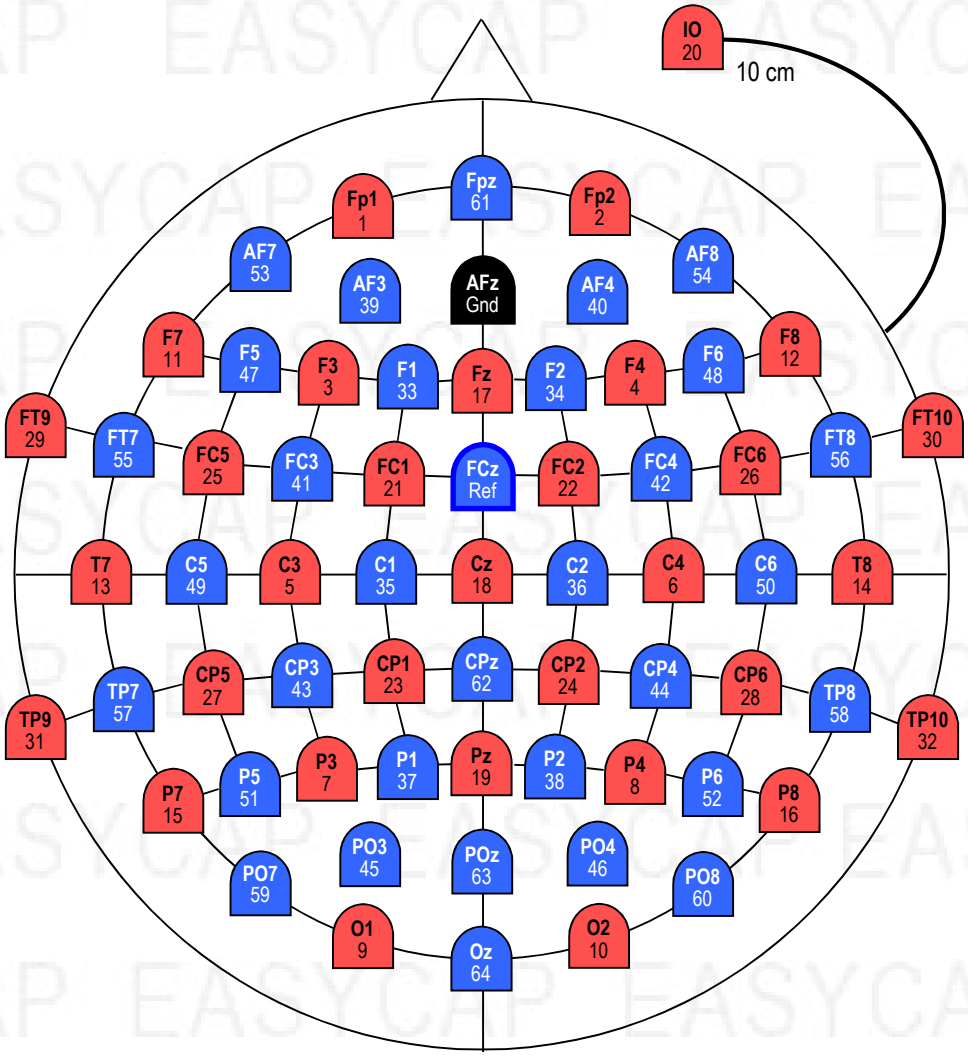
BrainCap 64Ch for MEG with Multitrodes

Electrode Layout and Channel Assignment



Details for Users

Ordering information

For ordering please give **Article Number, Cap Cut, and Size**
(e.g. *BC-MEG-64, Caucasian, 56*):

- Article Number: ***BC-MEG-64***
- Cap Cut: ***Caucasian*** or ***Asian***
- Size (given in cm head circumference):
  Adult caps: ***54, 56, 58, 60, 62, 64*** (average male: 58, average female: 56)
  Children caps: ***50*** (3-4 years), ***52*** (5-10 years), ***54*** (11-14 years)
  Infant caps: ***42***, ***44*** (7 month), ***46***, ***48*** (3 years)

The catalogue-number comprises the cap as described, serial number, and this document; all packed in a labelled cardboard box. 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 – 64 made from High Precision Fabric, Sizes 50 and smaller made from High Comfort Fabric
Options: Caucasian or Asian, Size

Electrodes

All electrodes are Multitrodes for MEG with sintered Ag/AgCl sensors (total height 3,5mm). They are buttoned directly into the cap or can be attached to the skin with washers (= double-sided adhesive rings).

All electrodes are

- number-labelled at sensor end, cable colours according to above graphic
- attached to the cap with nylon threads.

Cables leave the cap plait-like in 2 branches behind the ears, pointing downwards. There is a crossing point of the cable trees shortly before the connectors. Length of cable trees beyond cap rim is approximately 180 cm.

Termination

The cable trees end in two Connector boxes. 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 for Handling MEG-compatible Electrodes

It is important to understand that although MEG-compatible electrodes are and stay non-magnetic if handled correctly; they still contain soft metals which will become magnetic if exposed to a magnetic field.
Therefore, please never take them close to sources of electromagnetic fields, e.g. into a MR-scanner. Even closeness to neon-bulbs, wall outlets etc. should be avoided.

Further, cleanliness is important not only for hygienic but also for technical reasons: it is astonishing how many ferro-magnetic particles are contained in ordinary household dust. Thus not only the cap but also the storage room should be kept clean.

As tap water may contain metallic particles, the whole cleaning process should be performed with purified water (pharmacy-available). If this is not possible, then at least the last step of each cleaning should be to rinse the electrodes with purified water.

In case electrodes become (slightly) magnetized, in most cases they can be made MEG-compatible again either by simple cleaning or else by de-magnetizing the electrodes with e.g. a hand-held degausser (among others available from us).

Table of Coordinates for BC-MEG-64

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	IO	-	-
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
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: