











Technical Specification

DESCRIPTION					
	INSIGHT 2.0	EPOC+	EPOC X	EPOC FLEX	MN8
Sensor Count	5 (+2 references)	14 (+2 references)	14 (+2 references)	Up to 32 (+ 2 references)	2 (+4 references)
Sensor Locations	AF3, AF4, T7, T8, Pz	AF3, AF4, F3, F4, FC5, FC6, F7, F8, T7, T8, P7, P8, O1, O2	AF3, AF4, F3, F4, FC5, FC6, F7, F8, T7, T8, P7, P8, O1, O2	Configurable in any 10-20 location	Left and Right Ear Canal
Resolution	16 bits per channel	14 bits or 16 bits per channel	14 bits or 16 bits per channel	14 bits per channel slew rate limit 65µV/sample	14 bits per channel
LSB Resolution	0.1275µV (16 bits mode)	0.51µV (14 bits mode), 0.1275µV (16 bits mode) <i>(user configured)</i>	0.51µV (14 bits mode), 0.1275µV (16 bits mode) <i>(user configured)</i>	0.51µV	0.51µV
Dynamic Range	±4.17 mV	±4.17 mV	±4.17 mV	±4.17 mV	±4.17 mV
Sensor Technology	Long life semi-dry polymer	Saline soaked felt pads	Saline soaked felt pads	Saline OR Ag/AgCl + Gel	Dry non-toxic non-allergenic conductive elastomer earbud
Motion Sensor	9 axis sensor (4 quaternions, 3x accelerometer, 3x magnetometer)	9 axis sensor (4 quaternions, 3x accelerometer, 3x magnetometer)	9 axis sensor (4 quaternions, 3x accelerometer, 3x magnetometer)	9 axis sensor (4 quaternions, 3x accelerometer, 3x magnetometer)	6 axis sensor, 4 quaternions
Connectivity	–	Proprietary USB receiver (included): 2.4GHz band.	Proprietary USB receiver (included): 2.4GHz band.	Proprietary USB receiver (included): 2.4GHz band.	
	Bluetooth® Low Energy	Bluetooth® Low Energy	Bluetooth® Low Energy	Bluetooth® Low Energy	Bluetooth® Low Energy
	BT5		BT5 Ready		
	Extender Support – future feature	USB 2.0 (with Extender)	USB 2.0 (with Extender) Support for EMOTIV Extender will be available with upcoming software and firmware updates.	USB 2.0 (with Extender)	USB 2.0 (firmware updates and headset charging only)
Battery Life	Up to 20 hours	Up to 6 hours	Up to 9 hours	Up to 9 hours	Up to 6 hours
References	CMS/DRL references on left mastoid process	CMS/DRL references at P3/P4; left/right mastoid process alternative	CMS/DRL references at P3/P4; left/right mastoid process alternative	CMS/DRL configurable in any 10-20 location or on ears (contains compatible ear clips for sensors – Gel model only)	Averaging circuit using Split CMS, split DRL sensors on rear of ear flap (pinna)
Sample Rate	2048 internal downsampled to 128 SPS	2048 internal downsampled to 128 SPS or 256 SPS (user configured)	2048 internal downsampled to 128 SPS or 256 SPS (user configured)	1024 internal downsampled to 128 SPS	8kHz, filtered and down-sampled to 128Hz
Contact Quality	Realtime CQ monitor (patented)	Realtime CQ monitor (patented)	Realtime CQ monitor (patented)	Realtime CQ monitor (patented)	Realtime CQ monitor (patented)
Frequency Response	0.5 – 43 Hz	0.16 – 43 Hz	0.16 – 43 Hz	0.16 – 43Hz	0.16 – 45Hz

Detections

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	INSIGHT 2.0	EPOC+	EPOC X	EPOC FLEX	MN8
Facial Expressions	Blink Wink Left/Right Furrow (frown) Raise Brow (surprise) Smile Clench Teeth (grimace)	Blink Wink Left/Right Look Left/Right Furrow (frown) Raise Brow (surprise) Smile Clench Teeth (grimace) Laugh Smirk Left/Right	Blink Wink Left/Right Look Left/Right Furrow (frown) Raise Brow (surprise) Smile Clench Teeth (grimace) Laugh Smirk Left/Right	Blink Wink Left/Right Look Left/Right Furrow (frown) Raise Brow (surprise) Smile Clench Teeth (grimace) Laugh Smirk Left/Right	TBA
Emotional States	Excitement Long term excitement Stress Engagement Relaxation Interest/Affinity Focus	Excitement Long term excitement Frustration Engagement Relaxation Interest/Affinity Focus	Excitement Long term excitement Frustration Engagement Relaxation Interest/Affinity Focus	Excitement Long term excitement Frustration Engagement Relaxation Interest/Affinity Focus	Cognitive Stress <i>More to come...</i>