AiQ Synertial

G5 Mocapsuit SE

Sports Edition

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G5 Mocapsuit Sports Edition

In 2018 motion capture market leaders, Synertial partnered up with smart clothing pioneers, AiQ, fusing 25 years of cutting-edge data capture technology with 21st century fabric science.

Specifically designed for the sports science industry, our second skin suit, the G5 Mocapsuit Sports Edition, offers unparalleled accuracy for those seeking ultimately reliable and repeatable sports performance data capture.

AiQ-Synertial's suits and gloves are the new motion capture industry benchmark for sports, robotics, VR/AR integration, Digital Factory environments and all data collection needs.

Ultimate sports data capture

- 25 years of Synertial tech at a new affordable price
- Engineered for precision data capture during intense sports activity
- Personalised skeletons
- Joint and segment analysis - export data either way
- Record heartbeat data
- Always 180 FPS
- Data mapped onto tailored graphs for easy performance comparison
- Optional precision finger motion capture with Cobra gloves
- SD Card recording: up to 200 hrs

AiQ Synertial

Super flexible second skin fabric suit

- Fully hand-washable with sensors
- Super-stretchy material ideal for intensive exercise
- Up to 24 built-in fast-tracking sensors
- Size options for best fit
- Low profile / skin tight

AiQ Synertial

VIVE-hybrid ready

- Ships with HTC VIVE plug-in
- Zero drift motion capture with HTC VIVE plug in
- Instant calibration for VIVE: 2 poses + 3 key strokes
- Transmits via Bluetooth or WiFi
- Sync multiple suits in one HTC VIVE space

AiQ Synertial

Add 8, 13 or 16-Sensor Cobra Gloves

- Unparalleled accuracy
- HTC Vive compatible
- Calibrate accurately with a single keystroke with or without jigs
- Pinky and ring finger metacarpal sensors (Palm Flex)
- Open Kinematics: edit skeletons or calibration procedure
- Use ordinary scanner to auto-measure phalange lengths

AiQ Synertial

AiQ Synertial

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System specification:

Power

Power supply	External 3.3~5V
Battery capacity:	Based on customers' choice
System operation voltage	3.3V
System power consumption	Total 24 sensor ~1.8W
Operation time	Based on Num. of sensors and battery capacity.

Data transmission

Basic (Suit-hub only)	Bluetooth 5.0, up to 2Mbps (24 sensors, 60fps)
Option (Suit-dongle with Wi-Fi)	Wi-Fi 2.4G, support 802.11 b/g/n, up to 65Mbps.

＊Maximum data rate, frame rate, and distance relative to the PC, gateway performance and environment.

Storage

Flash	4GB (24 sensors, 60fps, about 80 hours)

Sensor support

Number	Up to 24 sensors

Suit & Glove

Stretch suit (upper & lower body, head)	L, M, S size
Armor suit (upper & lower body, head)	Single size, tunable
Glove	3-, 8-, 17-sensors /per hand

Water proof

Water proof level	IPX4

Certification

Certification	CE, FCC (Bluetooth already have) FCC, IC, TELEC, RED (Wi-Fi already have)

Software

Software support	SynDash, AutoCal
Plug-in for application	Unity, UE4, MoBu

Expansion

Expansion possibility	The additional function can be implemented in suit-dongle. (ex. voice, vibration, lighting….etc)

Sensor specification:

Supply voltage	3.3~5V
Operation voltage	3.3V
Current consumption	18mA
Accelerometer range	+/- 8g
Gyroscope range	+/- 2000 ˚/s

Number of sensors per set (up to 24 sensors):

Suit with palms only	15 + 2 sensors (17)
Suit with 4-sensor pincers	15 + 8 sensors (23)
Optional	8, 13 & 16-sensor gloves

Sensor Report Rate:

Gyro rotation Vector	1000 times/sec
Rotation Vector	400 times/sec
Gravity00 times/sec	400 times/sec
Linear Acceleration	400 times/sec
Accelerometer	500 times/sec
Gyroscope	400 times/sec
Magnetometer	100 times/sec

Suit-hub specification:

Power

Supply voltage	3.3~5V
Operation voltage	3.3V

Data transmission

Basic (Suit-hub only)	MtM+ Technology M905, Bluetooth 5.0 Up to 2Mbps (Support 23 sensor, 60fps) (Bluetooth in hub will be disabled when Wi-Fi exist)

＊Maximum data rate, frame rate, and distance relative to the PC, gateway performance and environment.

Storage

Flash	4GB (TBD, 23 sensor, 60fps, ~80 hour)

IMU sensor

IMU	Integrated IMU sensors, same spec as body

Expansion

Expansion possibility	Reserved SPI can support customized suit-dongle.
Support FW upgrade	
MCU	Yes
BT	Yes
IMU	Yes

Water proof

Water proof level	IPX5

Certification

Certification	CE, FCC (M905 already have)

Dimensions

Outer/Top	Ø25.4mm x 5.5mm
Base	Ø35mm x 3.2mm
Combined	Ø35mm x 8.7mm

‘Snap-on’ WiFi dongle specification

Power

Supply voltage	3.3~5V
Operation voltage	3.3V

Data transmission

Wireless version	Telit GS2200M, Wifi 2.4G, 802.11bgn, up to 65Mbps.*1 (Bluetooth in hub will be disabled when Wi-Fi exist)
Wire connection version	Up to 3Mbps, suitable for radio complex environment. (Ex. CES, COMPUTEX)

＊Maximum data rate, frame rate, and distance relative to the PC, gateway performance and environment.

Storage

Flash	No

Expansion

Expansion possiblity	Can be customized for different applications. (ex. voice, vibration, lighting….etc)

Water proof

Water proof level	IPX4

Certification

Certification Compliance	FCC, IC, TELEC, RED (GS2200M already have)

Overall Dimensions

dongle	Ø33mm x 11.3mm
hub + dongle	Ø35mm x 12.3mm

Mocap SW comparison sheet

Feature	SynShow	SynDash-Light	SynDash-Pro
Shows real time skeleton model of the user	Yes	Yes	Yes
Speed of Capture (frames/second)	Based on HW	Based on HW	Based on HW
Captures Data	Yes	Yes	Yes
Shows, calibrates & captures multiple devices in the same scene	No	Yes	Yes
One keystroke, 2 poses calibration	Yes	Yes	Yes
Exports Data In Rotational BVH format	Yes	Yes	Yes
Exports Data In Joint Positions format	Yes	Yes	Yes
Exports Data in FBX	Yes	Yes	Yes
Replays or loads for review	Yes	Yes	Yes
Replay time scroll bar	No	Yes	Yes
Skeleton Loader	Yes	Yes	Yes
Skeleton Editor	No	No	Yes
Calibration Editor	No	Yes	Yes
Sensor number report	Yes	No	No
Configures Hardware	Yes	No	No
Live sensors state table	Text	Colored	Colored
Records dashboard for random access to takes	No	Yes	Yes
Follows subject with replay/live camera	Yes	Yes	Yes
Real-time graphs	No	No	Yes
Max view windows	1	4	4
Battery level indicator	Text	Colored	Colored
Replays frame by frame	No	Yes	Yes

Graph modes

Segment Rotations	N/A	N/A	Yes
Joint position relative to another position	N/A	N/A	Yes
Joint position absolute	N/A	N/A	Yes
Max graph view windows	N/A	N/A	Yes