

tēmi

THE PERSONAL ROBOT

S1 Technical spec

REVISION-09

10 / 27 / 2021 | ENG



DISCLAIMER

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- Any information regarding features and performances in this document is evaluated or approximate.
- Features and performances may change from time to time.
- Features and performances are mostly related to SW version. The Spec will be updated accordingly.
- In case of mismatch between this document and a new version release-note, the release note is determinative
- Performances may differ between devices.
- Performances are very much affected by the environment, use cases and conditions.

DOCUMENT REVISIONS

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Revision	Description	Date	Changed by
01	Internal review release	04/22/2020	Zamir
02	Release for Account managers review	04/26/2020	Zamir
03	Added battery life cycle & Lidar MTBF	05/21/2020	Zamir
04	Added CE certified version. Doc revision 02	2020/09/16	Zamir
05	Update speed parameters, add wireless charger data	2020/10/29	Zamir
06	Update the maximum height from 100 to 97cm	2020/11/30	Zamir
07	Add Homebase dimensions	2020/12/22	Leslie
08	Add temi S1 V2 info and restructure the document	2021/05/21	Leslie
09	Update temi S1 V2 image	2021/10/27	Leslie
10	Update certifications	2021/11/04	Leslie

CONTENT

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CONFIGURATIONS-MAIN DIFFERENCE

Item	Temi S1 V1		Temi S1 V2		Temi S1 V2 CE	
LIDAR	0.2 - 10m		0.2 - 40m		0.2 - 40m	
Ground Depth	~40cm		~1.2m		~1.2m	
Cliff Sensor	No		No		Yes	
Tray	Wireless Charger		12V DC Thread		12V DC Thread	
Tablet USB	No		Yes		Yes	

CONFIGURATIONS-GENERAL SPEC-TEMI S1 V1



CONFIGURATIONS-GENERAL SPEC-TEMI S1 V2



CONFIGURATIONS-GENERAL SPEC-TEMI S1 V2 CE



CONFIGURATIONS-GENERAL SPEC – -TEMI S1 V2 CE



Head USB socket:

- Standard type A USB
- 5V / 0.9A
- Access to Android

Tray accessories attachment M4 screw

Tray power outlet:

- Power barrel jack 694106402002
- 12V / 1.2A

CONFIGURATIONS-SENSORS SPEC-TEMI S1 V1

Ground camera	Type	TOF depth camera
	Detection range	~40cm
	Min Obstacle detection	Height: 5cm(material sensitive) Color: Not black, opaque, No strong reflection Stairs Height: 15cm



Head Depth	Type	TOF depth camera
	Detection range	3m
	Min Obstacle detection	Ref. To FOV



LIDAR	Type	Triangulation
	Detection range	0.2 – 10m
	Min Obstacle detection	Leg size: 1.5cm X 1.5cm Height: >22cm Color: Not black, opaque, No strong reflection
	Accuracy	(0-3m) 1% / (3-8m)3%
	MTBF	9000Hrs



CONFIGURATIONS-SENSORS SPEC-TEMI S1 V2 + S1 V2 CE

Ground camera	Type	Depth camera
	Detection range	~1.2m
	Min Obstacle detection	Height: 1cm(material sensitive) Color: Not black, opaque, No strong reflection Stairs Height: 10cm



Head Depth	Type	TOF depth camera
	Detection range	3m
	Min Obstacle detection	Ref. To FOV



LIDAR	Type	TOF LIDAR
	Detection range	0.2 – 40m
	Min Obstacle detection	Leg size: 1.5cm X 1.5cm Height: >22cm Color: Not black, opaque, No strong reflection
	Accuracy	±5cm
	MTBF	9000Hrs



CONFIGURATIONS-SENSORS SPEC-TEMI S1 V2 + S1 V2 CE

Ground camera	Type	Depth camera
	Detection range	~1.2m
	Min Obstacle detection	Height: 1cm(material sensitive) Color: Not black, opaque, No strong reflection Stairs Height: 10cm



Head Depth	Type	Depth camera
	Detection range	Distance 3m, Heigh 1.05m
	Min Obstacle detection	Ref. To FOV



LIDAR	Type	TOF LIDAR
	Detection range	0.2 – 40m
	Min Obstacle detection	Leg size: 1.5cm X 1.5cm Height: >22cm Color: Not black, opaque, No strong reflection
	Accuracy	±5cm
	MTBF	9000Hrs



CONFIGURATIONS-NOISE LEVEL



S1 V1: 47dB at 0.5m



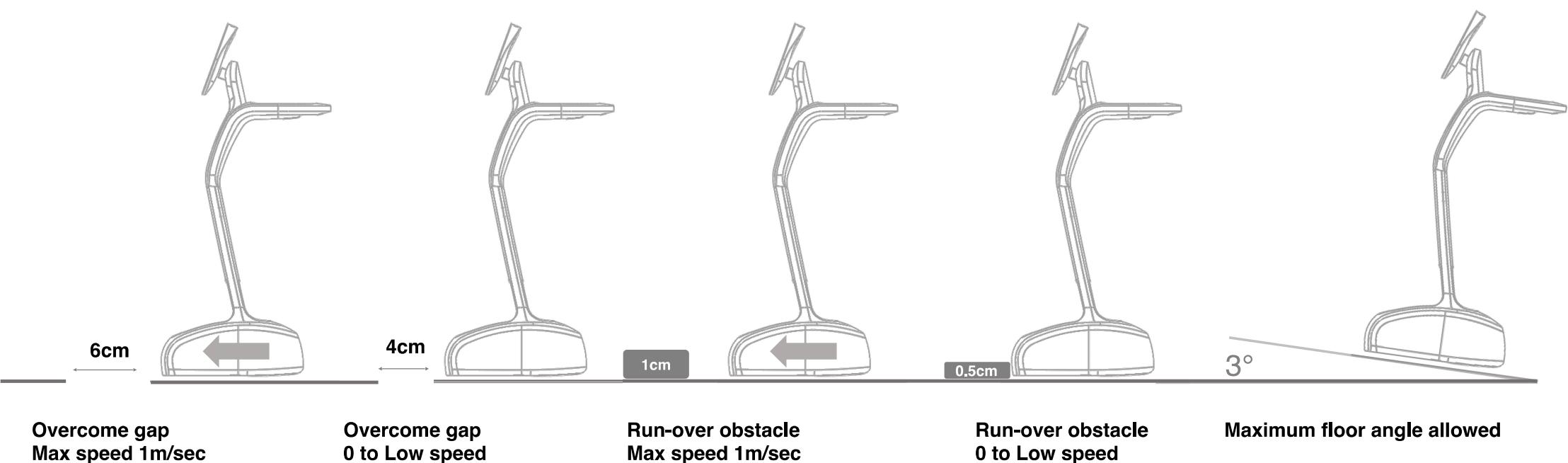
S1 V2 & V2 CE: 40dB at 0.5m

GENERAL PERFORMANCES

Category	Item	Value
Follow	Speed (maximum)	1.2m/sec
	Recommended detection distance	~0.6m
	Max detection distance	2m
	Max follow distance	3m
Go-To	Speed	0.9m/sec
	Locations accuracy	0.1m (map depending)
Remote control	Speed (maximum, linear)	0.9m/s
Floor conditions	Maximum obstacle to climb over	0.5 cm, static 1 cm at 1 m/s
	Maximum gap width	4 cm, static 6 cm, at 1 m/s
	Floor angle	< 3°
Mapping	Maximum map size	100mX100m
	Maximum locations allowed	200 (Recommended)

GENERAL PERFORMANCES

Floor angle / gaps / bumps



ROBOX GENERAL SPEC

Item	Units	Value
CPU		RK3399 Dual-core Cortex-A72 1.8GHz Quad-core Cortex-A53 1.4GHz
OS		Ubuntu
Memory		4GB
Flash		32GB
Charging		Autonomous charging, 220V/110V, Charger output 19V/5A
Audio - Subwoofer	W	20 (High Fidelity equalizer)
Audio - Midrange	W	2 x 15
Audio – tweeter	W	2 x 1
Microphone array		4 Omni-directional digital mics, real-time localization, beam forming, acoustic echo-cancellation, noise reduction
RGB Camera		1MP, FOV110°, Hybrid IR filter
Tilt	X°	Autonomous face tracking, -15° to +55° tilting
Wireless charger(Temi S1 V1)	W	15W maximum (dependent on the charging device)
DC power socket(Temi S1 V2 & S1 V2 CE)		12V@1.2A

TABLET SPEC

Item	value
Android version	Android 6.0.1
CPU	RK3288 Quad-core Cortex-A17 1.8GHz
Memory (*CE version)	LpDDR3 2GB / *LpDDR4 2GB
Flash	EMMC5.0 16GB(TEMI S1 V1) / 32GB(TEMI S1 V2 & S1 V2 CE)
Display size	10.1"
Max Brightness	340 cd/m2
Display resolution	1200 X 1920
Wide camera	13MP High resolution, Fixed focus, 1080P@30FPS, FOV 90°, digital zoom
Narrow camera	13MP High resolution, autofocus, 1080@30FPS, FOV 60°, digital zoom
Supported languages	English / Chinese / Korean / Japanese / Deutsch / Thai / Cantonese / Traditional Chinese(Taiwan) / Traditional Chinese(Global) / Indonesian / Portuguese / Arabic / French(Canada)
Available storage	7GB(TEMI S1 V1) / 22GB(TEMI S1 V2 & S1 V2 CE)
Wi-Fi	802.11 b/g/n/ac
Bluetooth module	4.1BLE

BATTERY PERFORMANCES / SPEC

Performances	Item	value
	Charging time 0-100% powered on	4.5h
	Charging time 0-100% powered off	3.5h
	Working time – normal usage	8h
	Working time – heavy usage	4-5h
	Return to HB level	15%
	Life cycle (25°)	>500 charging cycles*



SPEC	Item	value
	Cell type	Li-Ion
	Battery output	12-16.4V
	Charging voltage	16.4V
	Fully charged voltage	16.4V
	Return to HB voltage	13.308-13.335V

*After 500 charging cycles maximum capacity will degraded to 70% and lower

CERTIFICATIONS

Item	Market	description
FCC/IC	USA/CA	EMC/RF testing
BQB (International)		Bluetooth RF/Profile testing
FDA		Registration based on product Laser class I test report
DOE-BCS		Energy efficiency
CEC-BCS		Energy efficiency
NRCAN		Energy efficiency
CP65		Mainly Chemical test for Pb,Phthalates content to touchable parts of robot
IEC60825 (International)		Laser parts class I testing
CPSC		Mainly Chemical test for Pb,Phthalates content to touchable parts of robot

CERTIFICATIONS

Item	Market	description
CCC	CHINA	EMC/Safety testing
SRRC		WIFI&BT RF testing
CE RED(RF/EMC)	EU	RF/EMC testing
CE-MD		Safety testing including ISO13482/EN60204
GDPR(Not yet)		General data protection
POPS(Not yet)		Chemical testing
WEEE(Not yet)		Waste Electrical and Electronic Equipment
RoHS 2.0		Chemical testing
REACH (SVHC211 Items)		Chemical testing
RCM	AUSTRILIAN	Doc transfer, need CE-RF/EMC/EN60950 Safety report
MIC for telecom-JATE	JAPAN	WiFi & BT protocol testing
MIC for Radio-TELEC		WiFi & BT Signaling interaction testing

CERTIFICATIONS

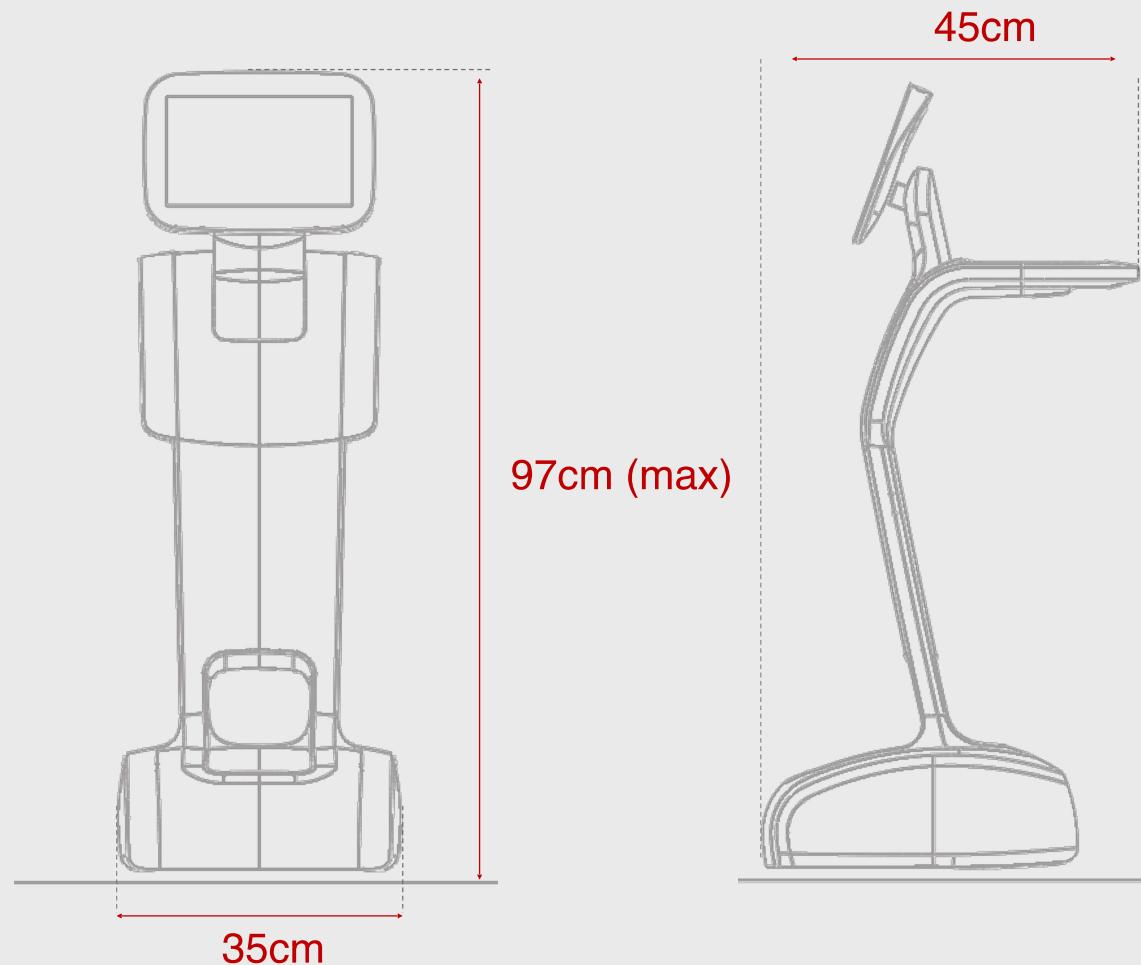
Item	Market	description
IMDA	SINGAPORE	Doc transfer, need CE-RF/EMC report
NTC	PHILIPPINE	Doc transfer, need CE-RF/EMC/EN60950 Safety report
MSIP	KOREA	EMC/RF testing
WPC	INDIA	Doc transfer, need CE-RF/EMC/EN60950 Safety report
NCC	TAIWAN (CHINA)	RF/EMC testing
OFCA	HK (CHINA)	Doc transfer, need FCC Safety report
NBTC	THAILAND	Doc transfer, need CE-RF/EMC/EN60950 Safety report
TRA	UAE	Doc transfer, need CE-RF/EMC/EN60950 Safety report
ANATEL	BRAZIL	RF/EMC testing

SECURITY

ROBOT DIMENSIONS

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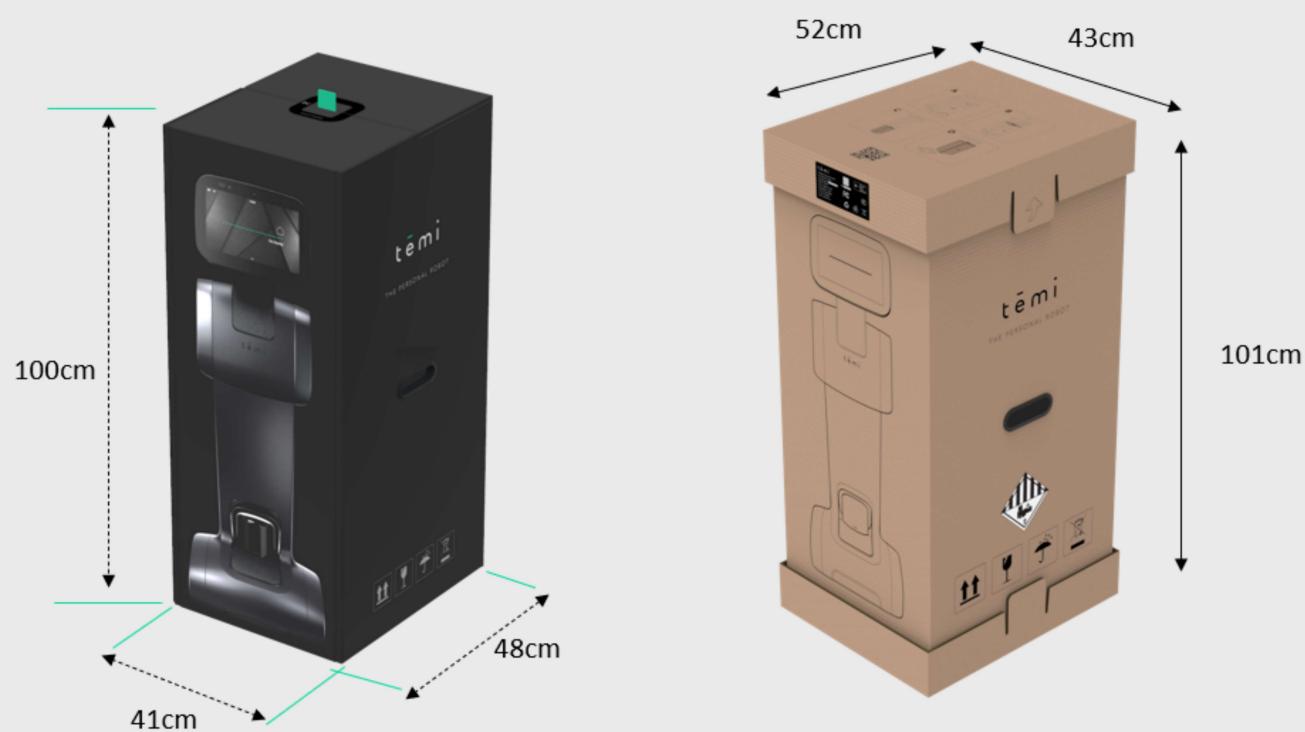
Item	Weight[kg]
Robots WO battery	12
HB	1.3
Battery	1.2kg



PACKAGE DIMENSIONS

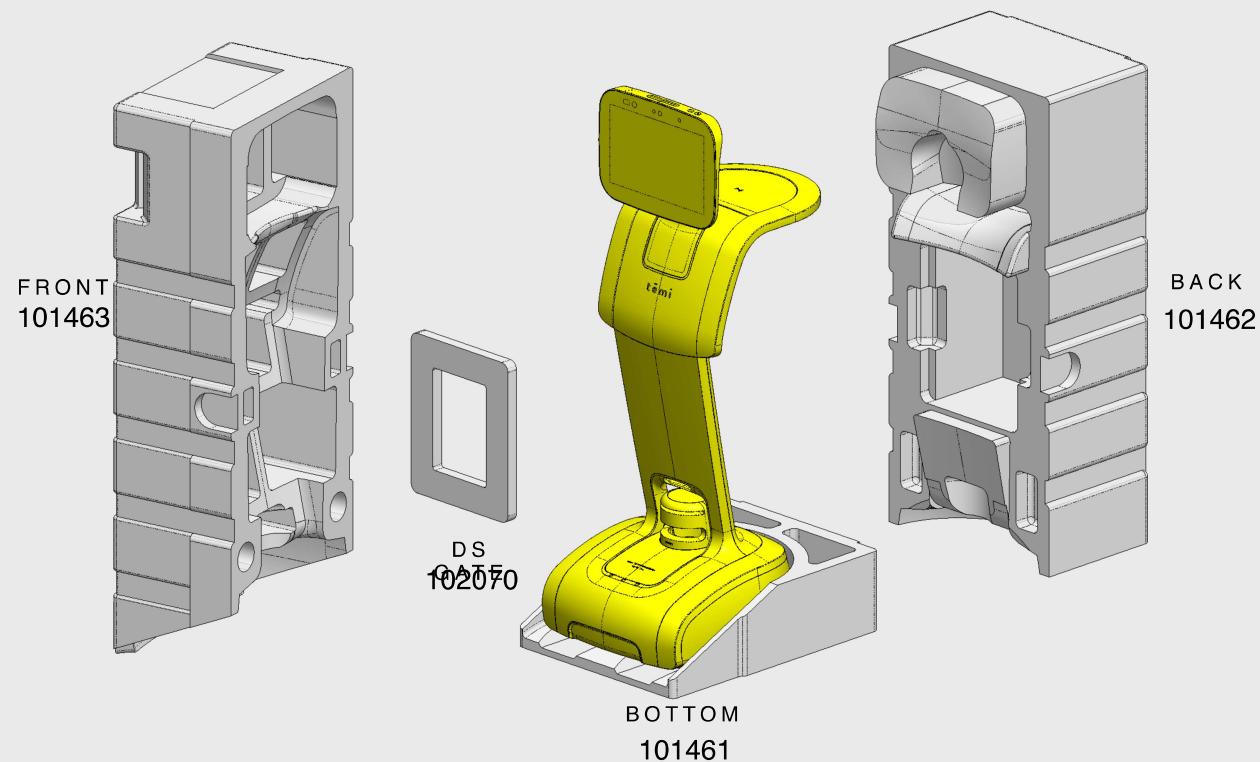
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Item	Weight[kg]
Empty package	9.2
Fully packed robot	24.1



PACKAGE STRUCTURE

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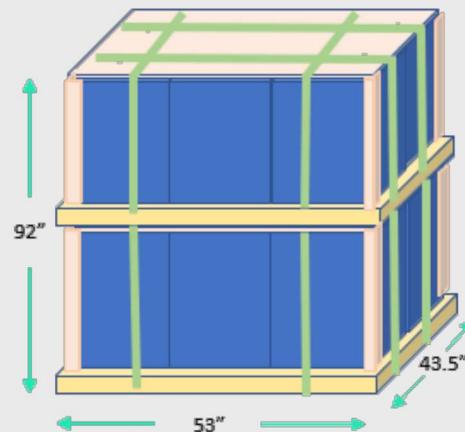


PALLETIZATION

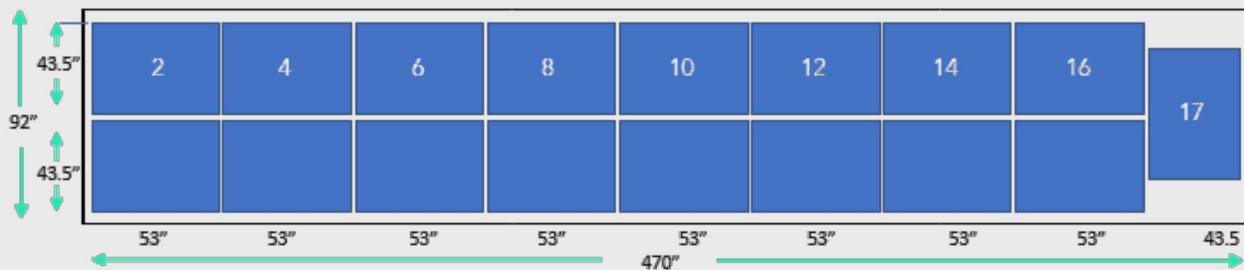
temi

Pallet:

- 1 pallet size with 6 units temi: 53" L X 43.5" W X 46" H
- 6 units per pallet, double stacked, total height: 92"
- Pallet gross weight: 330 lbs



Loading in container (High 40') - $17 \times 2 \times 6 = 204$ units per container

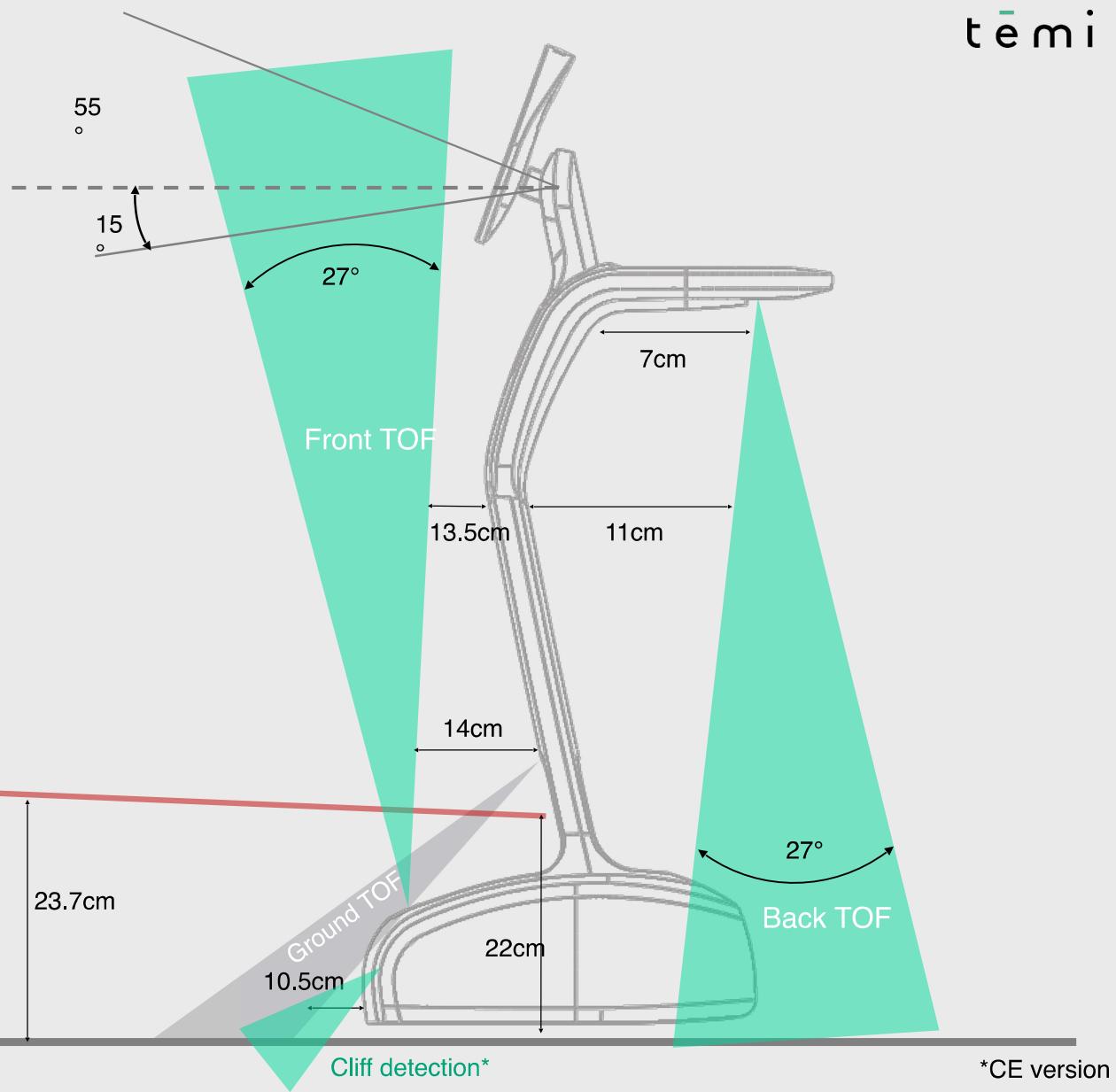
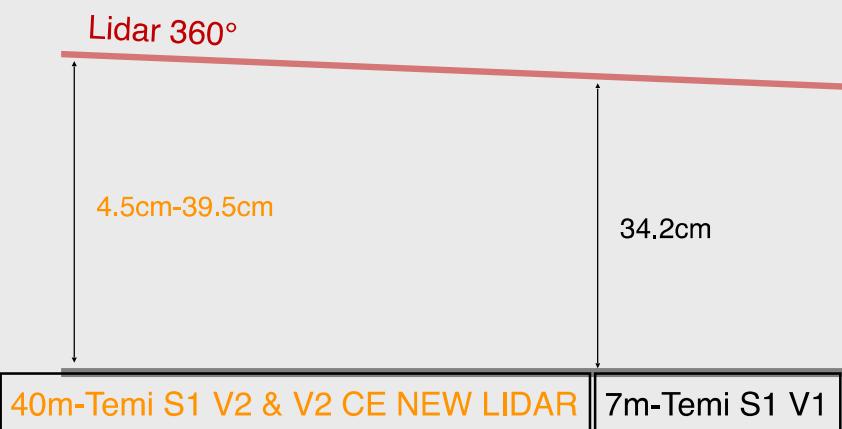


STORAGE CONDITIONS

Item	Units	Value
Environment		Indoor conditions
Humidity range	%	15-65
Recommended Humidity	%	<60
Temperatures range	°C	0-45
Recommended Temperature	°C	25
Sunlight		Avoid direct sunlight

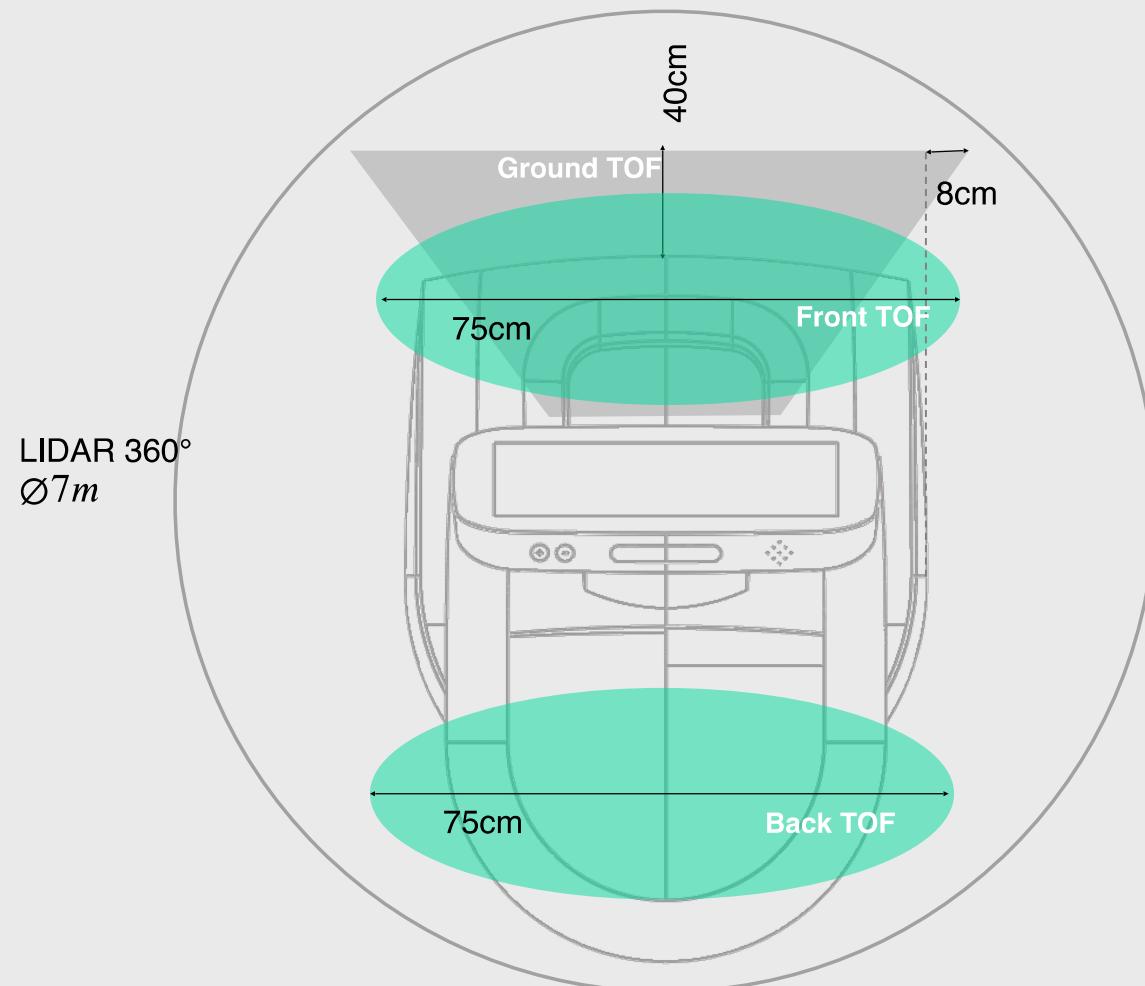
SENSOR'S COVERAGE

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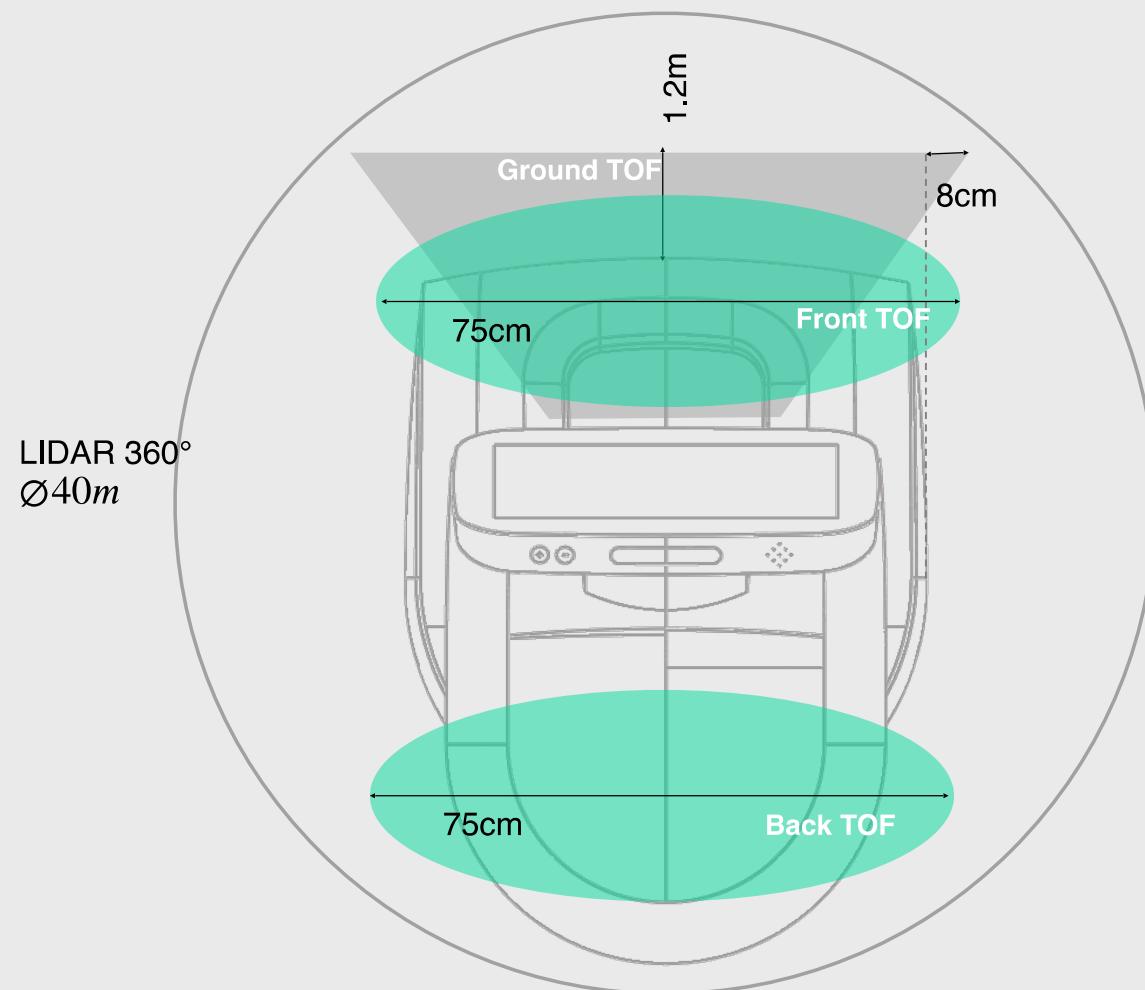
SENSOR'S COVERAGE-S1

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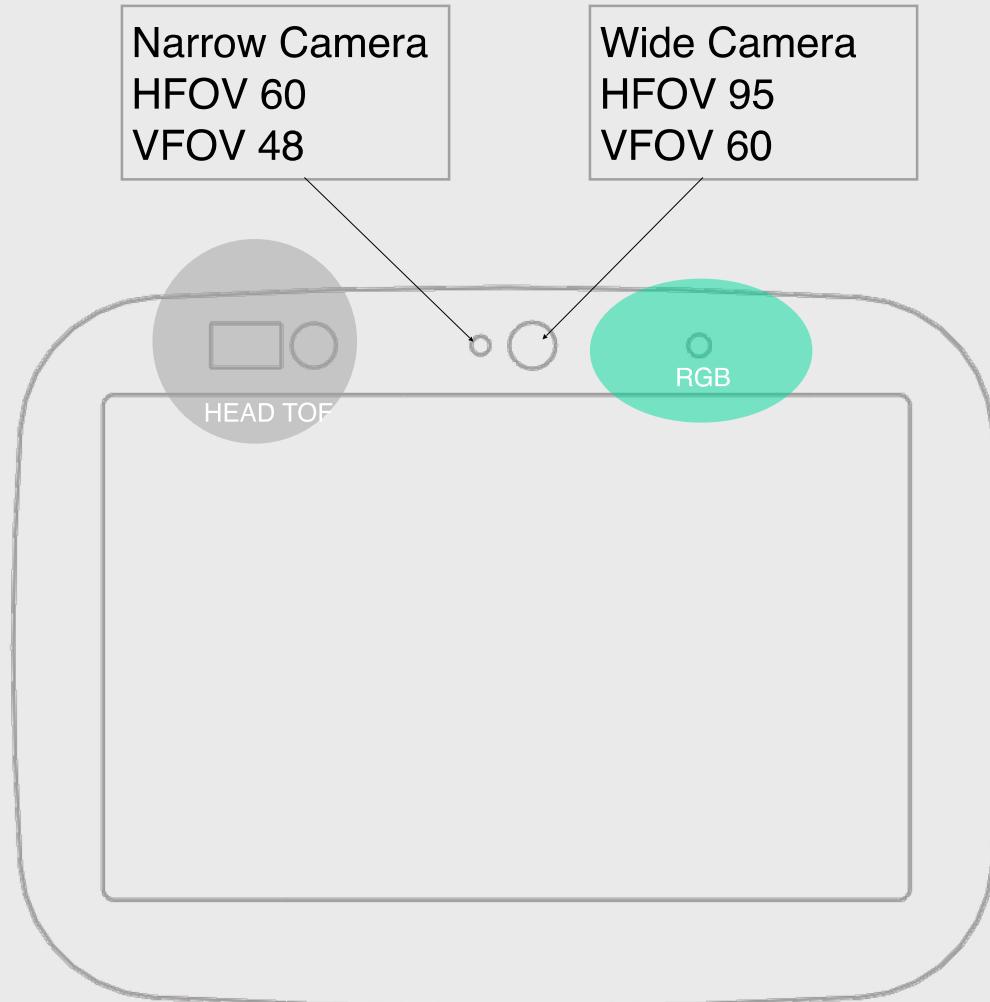
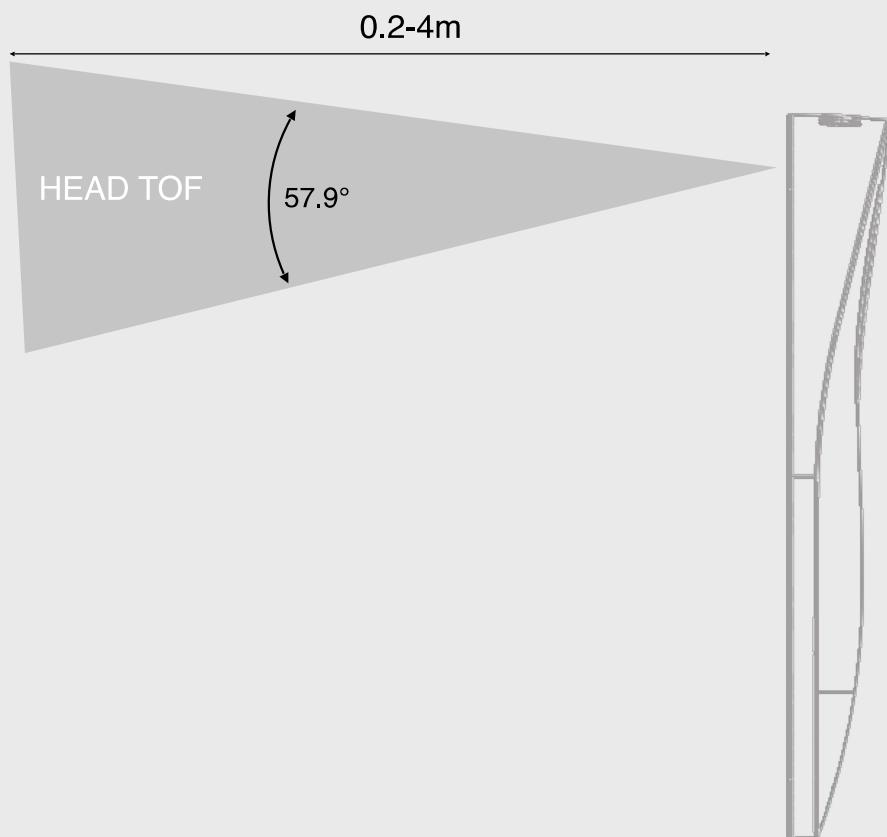
SENSOR'S COVERAGE- S1 V2 & S1 V2 CE

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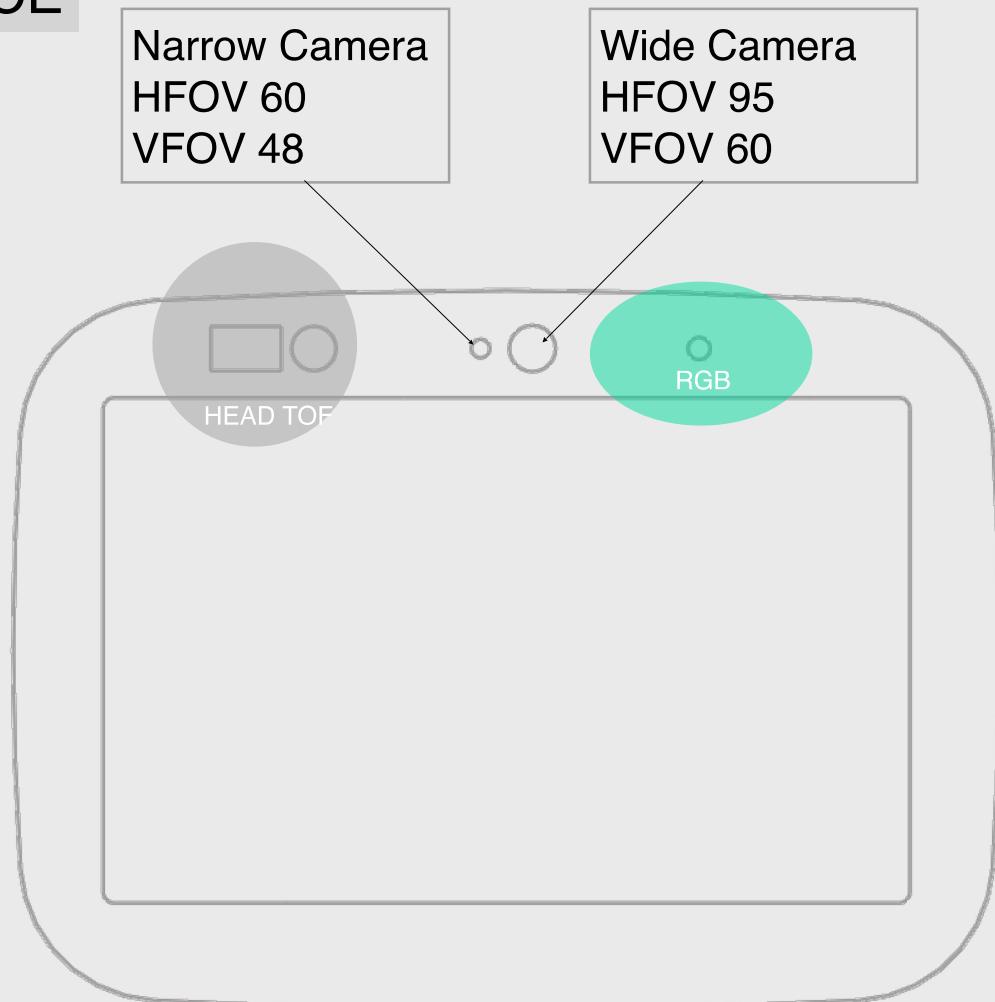
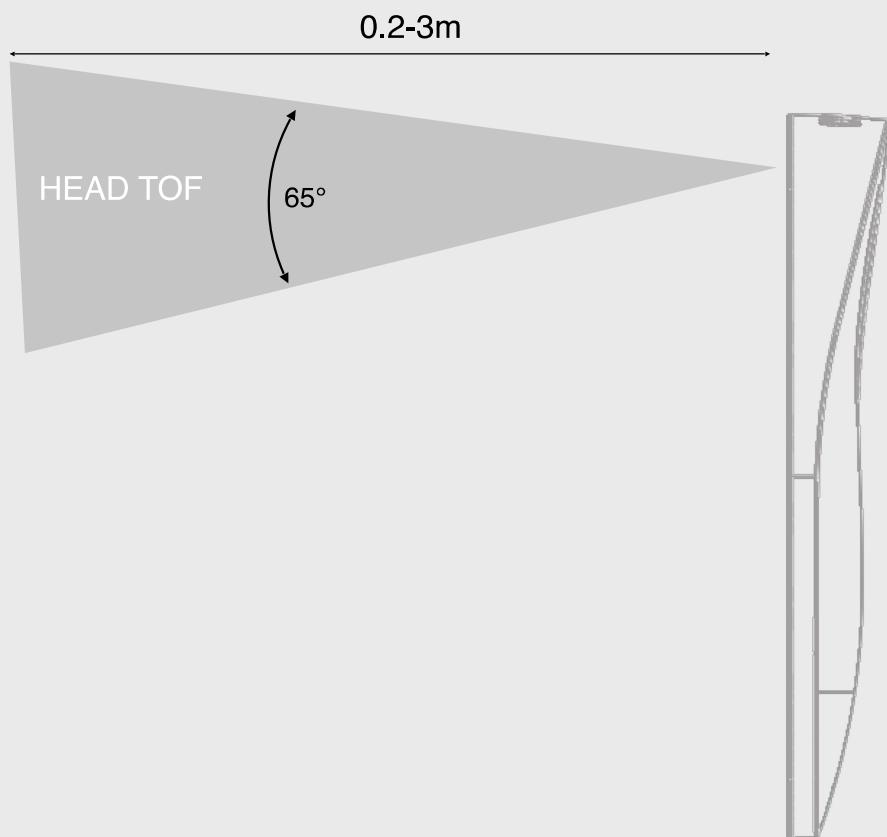
SENSORS COVERAGE

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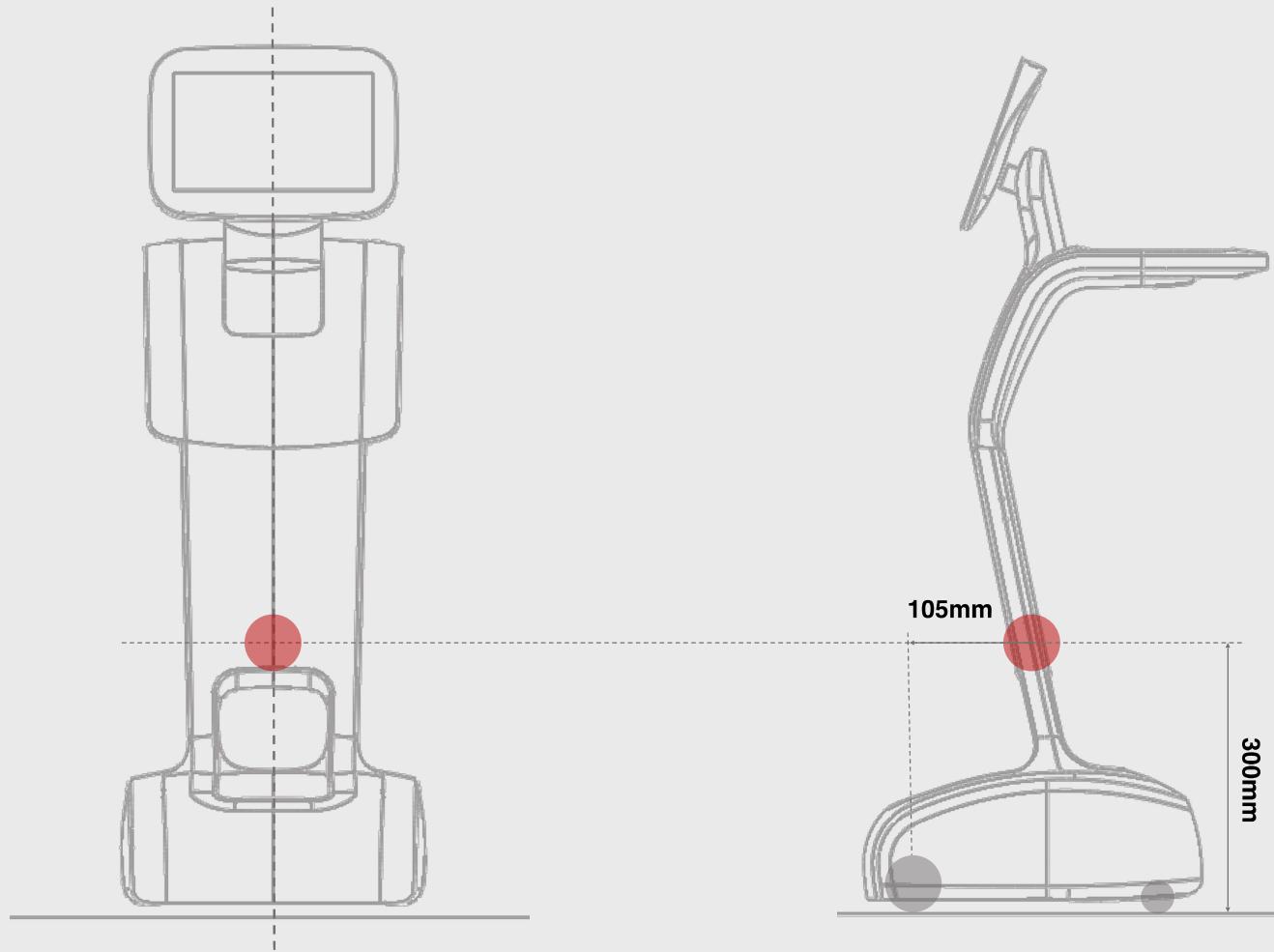
SENSORS COVERAGE- S1 V2 & S1 V2 CE

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ACCESSORIES – CENTER OF MASS

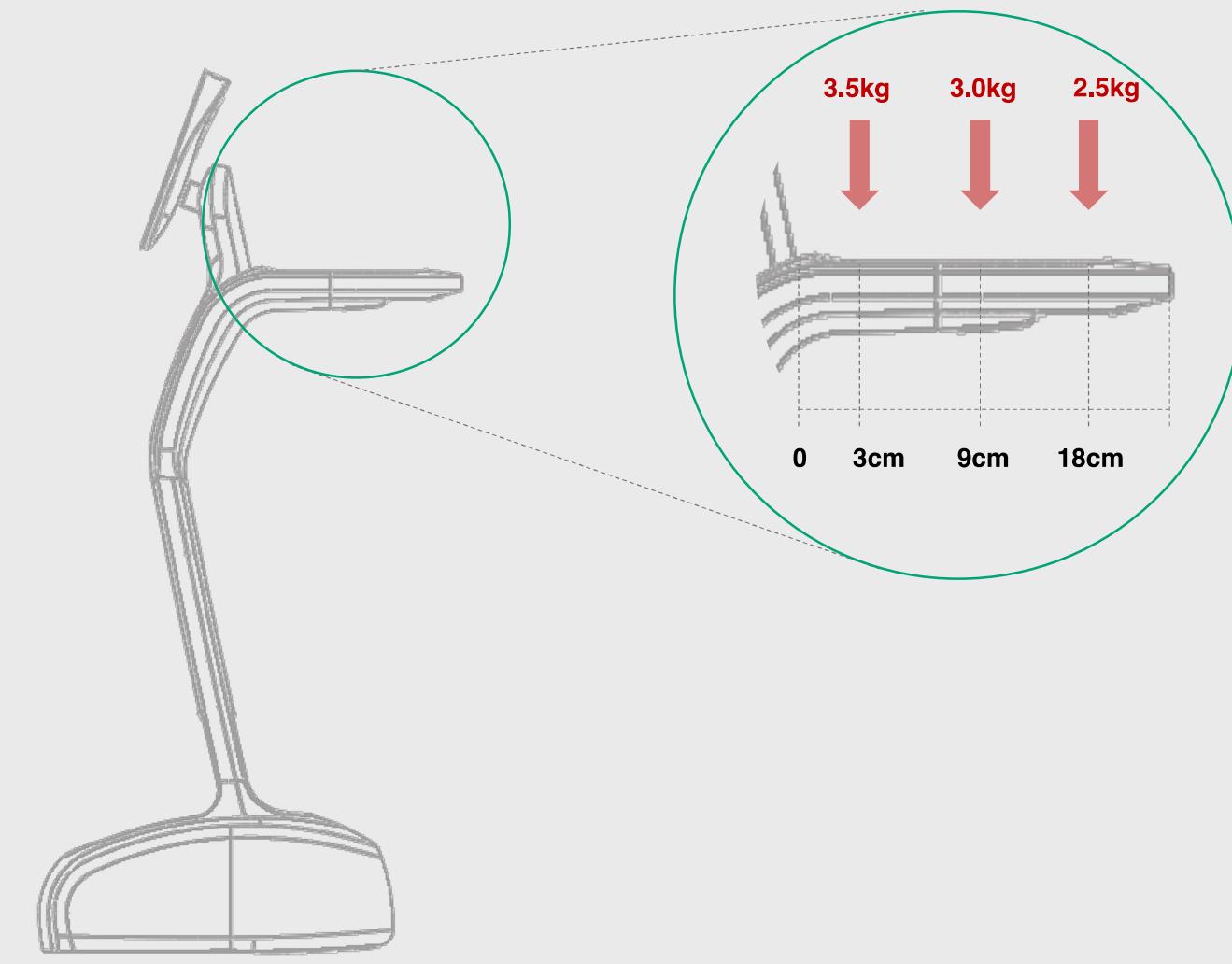
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ACCESSORIES – MAX LOAD ON TRAY

Maximum load allowed

3.5kg



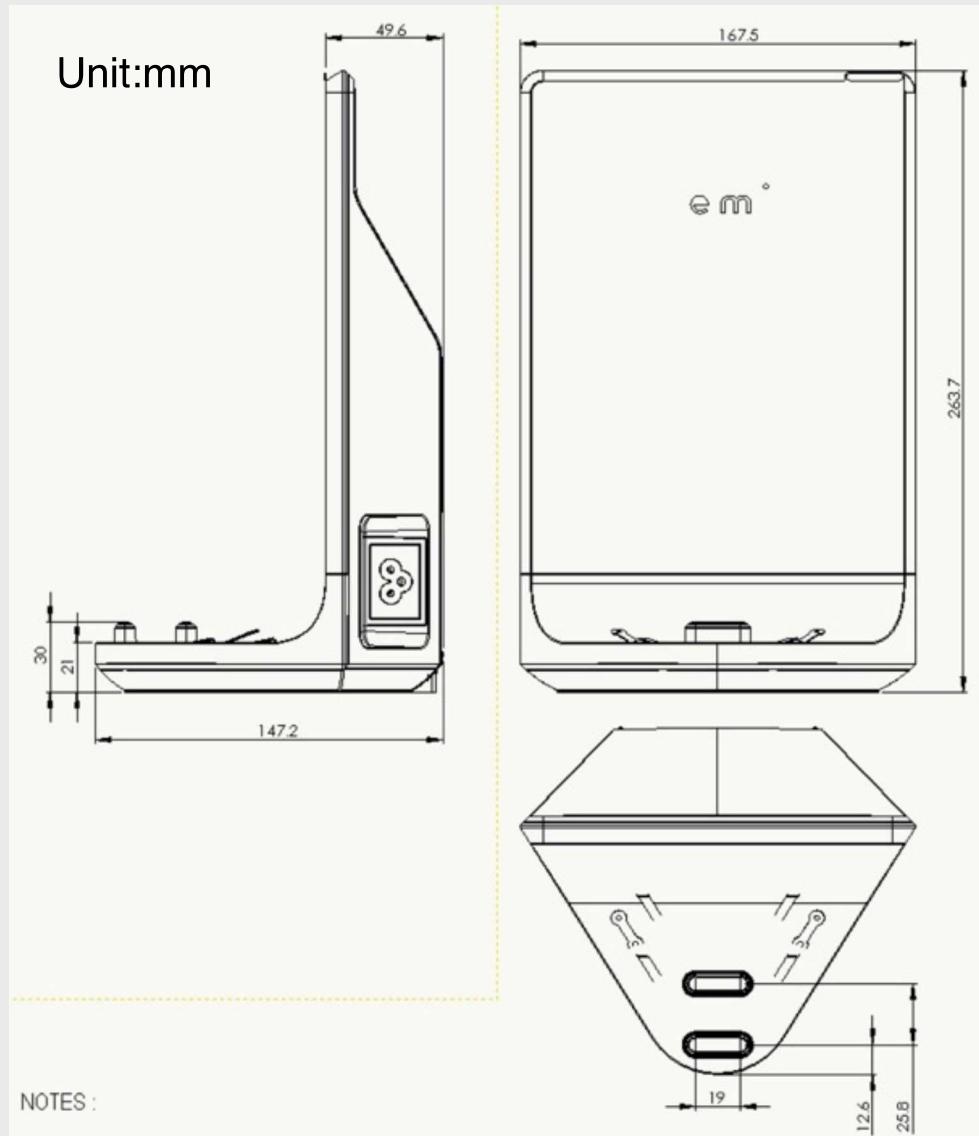
ACCESSORIES – MAX LOAD ON HEAD

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ACCESSORIES-HOMEBASE – DIMENSION

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THANK YOU



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