

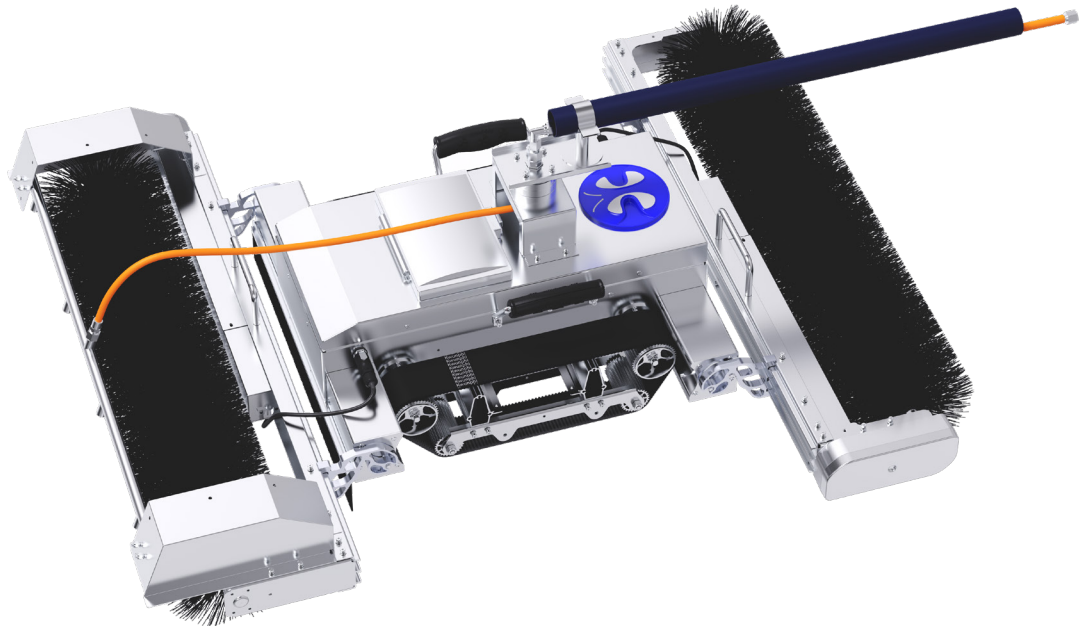
MODEL SPECIFICATION & PRICE COMPREHENSIVE CHART

MODEL ÖZELLİKLERİ & FİYAT KARŞILAŞTIRMA TABLOSU

Model	E22L (B20L2)	E22H (*)	E32L (B30L2)	E32H (*)	E33H (B30M2)
Efficiency <i>Temizlik Kapasitesi</i>	400m ² /h	450m ² /h	600m ² /h	650m ² /h	
Gradeability <i>Tırmanabilirlik</i>	10° (Wet) 15° (Dry)				15° (Wet) 20° (Dry)
Weight <i>Ağırlık</i>	30.3kg	30.35kg	39.3kg	39.35kg	41.25kg
Brush Wide <i>Fırça Geniřlięi</i>	880mm	900mm	1285mm		
Battery Life <i>Batarya Ömrü</i>	4.5h		4h		3h
Water Consumption <i>Su Tüketimi</i>	370 L/h		400 L/h		410 L/h
Recommended Scale Plant <i>Önerilen Kapasite Aralıęı</i>	upto 2MW		2-5MW		Over 5MW

**“Module compatible with adding remote control” are included in the same group of models.

Aynı grup modeller içinde “Kumanda eklemeye uyumlu modul” dahildir.



E22H

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Dry Brushing	Project	Water Washing
0~15°	PV panel Angle*	0~10°
-20~80°C	PV panel Surface Temp.	0~80°C
-20~50°C	Environment Temp.★	0~50°C
40mm	PV panel Gap	40mm
40mm	PV Height Difference	20mm
water Washing Angle	Rainfall	25~50 mm Light Rain
62~74 km/h Fresh Gale	Wind Power	29~38 km/h Fresh Breeze
IP 55	IP Rating	IP 55

* PV panel angle data ultimately depends on the characteristics of the contaminant.
 (★ Shenzhen Kwunphi reserves the right to interpret the data)

Kwun E22H Technical Specification

Technology	Based on TianyunOS Operating System
	Based on Glass vSLAM Visual Navigation Technology
	Based on Goodzenn Path Planning Technology
	Based on Ai-KWUN Operating Platform
	Based on OTA-KWUN Operating Platform

Life & Endurance	Design Life: 6 years
	Warranty(whichever comes first): 1 year or 2400 hours
	Battery Capacity: 15Ah
	The Battery Life*: 4.5 hours
	Charging Time: 3 hours
8 Hours Battery Life: Replace The Battery Every 4.5 hours	

Ability to Clean	Dust (adhesion $\leq 10^{-6}N$) : $\geq 99\%$
	Dust Accumulation (adhesion $\leq 10^{-4}N$) : $\geq 95\%$
	Dried Guano (adhesion $\leq 10^{-2}N$): $\geq 85\%$
	Cleaning Efficiency: $\geq 450m^2/h$

Shape	Body Size* (without brushes): 585*560*250mm
	Body Weight* (without brushes): 19.75kg
	Brush Length* (detachable): 936mm (D type)
	Brush Weight*: 5.7kg & 4.9kg (D type)
	Number of Rolling Brushes: 2

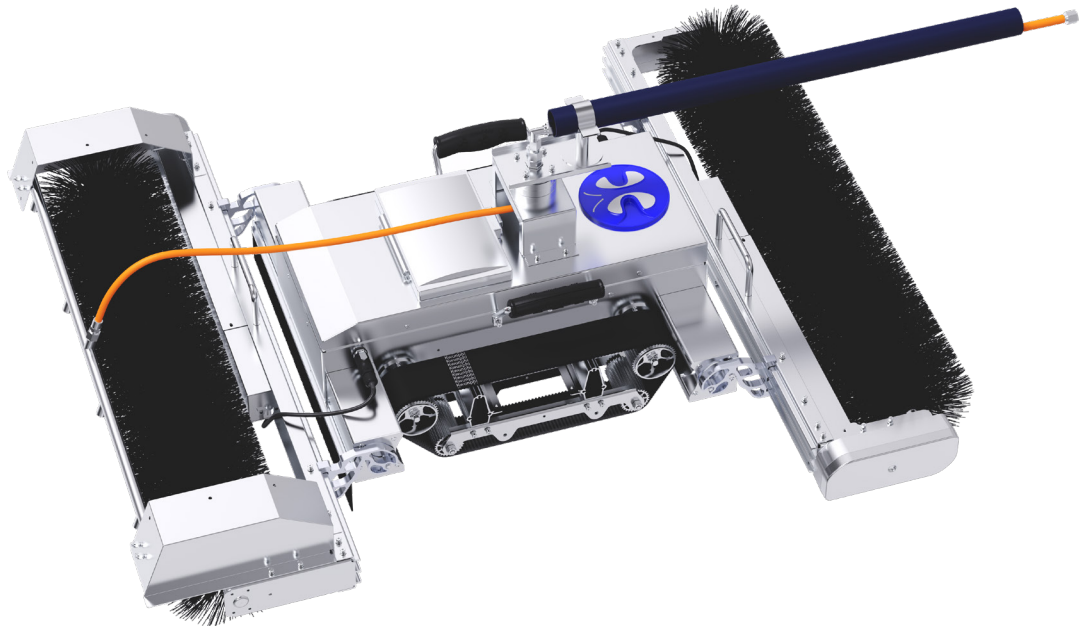
Mani- pulation	Maximum of Single Control: 24 sets
	Roof RECO Maximum Number Operate: 4 sets
	RECO Maximum Number Operate on Slopes: 4 sets
	Software Upgrade: OTA
	Work at Night: Yes
	View Logs in Real Time: Yes
	UAV Retraction: Yes
	Unmanned on Approach Bridge: Yes
	APP Control Remotely: Yes
	Remote Control: Yes
	Breakpoint Continuation: Yes
	Adjust the Brush Speed: Yes
Rated Brush Speed: 120r/min	

Security	Working Mode: Autonomous Work; Mobile APP
	Positioning Mode: AI Semantic Vision
	Positioning Accuracy: $\leq 10mm$
	Steering Mode : High Precision Adsorption Steering Mechanism
	Anti-fall Protection : AI Semantic Vision + Ultrasonic
	Anti-skid : Track Self-cleaning + High Precision Deviation Correction Algorithm
	Protection Rate : IP65
	Security : 10000 Cycles without Microcrack

* Battery life may vary due to different situation, loads, battery consumptions and other factors.

* Weight and size of robots may vary slightly due to the change of suppliers.

(☆ Shenzhen Kwunphi reserves the right to interpret the data)



E22L

KWUNPHI —

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Dry Brushing	Project	Water Washing
0~15°	PV panel Angle*	0~10°
-20~80°C	PV panel Surface Temp.	0~80°C
-20~50°C	Environment Temp. ★	0~50°C
40mm	PV panel Gap	40mm
40mm	PV Height Difference	20mm
water Washing Angle	Rainfall	25~50 mm Light Rain
62~74 km/h Fresh Gale	Wind Power	29~38 km/h Fresh Breeze
IP 55	IP Rating	IP 55

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Kwun E22L Technical Specification

Technology	Based on TianyunOS Operating System
	Based on Glass vSLAM Visual Navigation Technology
	Based on Goodzenn Path Planning Technology
	Based on Ai-KWUN Operating Platform
	Based on OTA-KWUN Operating Platform

Life & Endurance	Design Life:	6 years
	Warranty(whichever comes first):	1 year or 2400 hours
	Battery Capacity:	15Ah
	The Battery Life*:	4.5 hours
	Charging Time:	3 hours
8 Hours Battery Life:		Replace The Battery Every 4.5 hours

Ability to Clean	Dust (adhesion $\leq 10^{-6}N$) :	$\geq 85\%$
	Dust Accumulation (adhesion $\leq 10^{-4}N$) :	$\geq 80\%$
	Dried Guano (adhesion $\leq 10^{-2}N$):	$\geq 70\%$
	Cleaning Efficiency:	$\geq 400m^2/h$

Shape	Body Size* (without brushes):	585*560*250mm
	Body Weight* (without brushes):	19.7kg
	Brush Length* (detachable):	936mm (D type)
	Brush Weight*:	5.7kg & 4.9kg (D type)
	Number of Rolling Brushes:	2

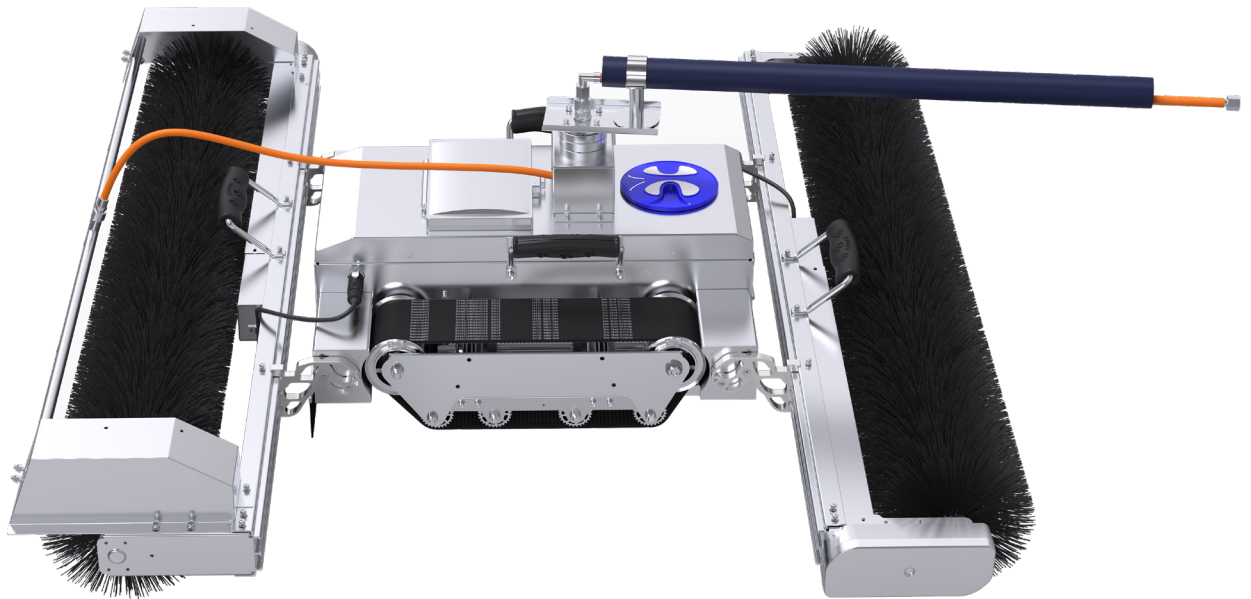
Manipulation	Maximum of Single Control:	12 sets
	Roof RECO Maximum Number Operate:	2 sets
	RECO Maximum Number Operate on Slopes:	2 sets
	Software Upgrade:	OTA
	Work at Night	No
	View Logs in Real Time:	Yes
	UAV Retraction:	No
	Unmanned on Approach Bridge:	Yes
	APP Control Remotely:	Yes
	Remote Control:	No
	Breakpoint Continuation:	No
	Adjust the Brush Speed:	Yes
Rated Brush Speed:	120r/min	

Security	Working Mode:	Autonomous Work; Mobile APP
	Positioning Mode:	AI Semantic Vision
	Positioning Accuracy:	$\leq 20mm$
	Steering Mode :	High Precision Adsorption Steering Mechanism
	Anti-fall Protection :	AI Semantic Vision + Ultrasonic
	Anti-skid :	Track Self-cleaning + High Precision Deviation Correction Algorithm
	Protection Rate :	IP55
	Security :	10000 Cycles without Microcrack

* Battery life may vary due to different situation, loads, battery consumptions and other factors.

* Weight and size of robots may vary slightly due to the change of suppliers.

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E32H

KWUNPHI — The Advocator of High Standard Clean Quality

Dry Brushing	Project	Water Washing
0~15°	PV panel Angle*	0~10°
-20~80°C	PV panel Surface Temp.	0~80°C
-20~50°C	Environment Temp.★	0~50°C
40mm	PV panel Gap	40mm
30mm	PV Height Difference	25mm
water Washing Angle	Rainfall	25~50 mm Light rain
62~74 km/h Fresh Gale	Wind Power	29~38 km/h Fresh Breeze
IP 55	IP Rating	IP 55

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Kwun E32H Technical Specification

Technology	Based on TianyunOS Operating System
	Based on Glass vSLAM Visual Navigation Technology
	Based on Goodzenn Path Planning Technology
	Based on Ai-KWUN Operating Platform
	Based on OTA-KWUN Operating Platform

Life & Endurance	Design Life:	6 years
	Warranty(whichever comes first):	1 year or 2400 hours
	Battery Capacity:	15Ah
	The Battery Life*:	4 hours
	Charging Time:	3 hours
8 Hours Battery Life:		Replace The Battery Every 4 hours

Ability to Clean	Dust (adhesion $\leq 10^{-6}N$) :	$\geq 99\%$
	Dust Accumulation (adhesion $\leq 10^{-4}N$) :	$\geq 95\%$
	Dried Guano (adhesion $\leq 10^{-2}N$):	$\geq 85\%$
	Cleaning Efficiency:	$\geq 650m^2/h$

Shape	Body Size* (without brushes):	585*560*250mm
	Body Weight* (without brushes):	23.85kg
	Brush*(detachable):	7.2kg (B type)
	Brush and Water Branch*:	8.3kg (B type)
	Brush length*:	1285mm (B type)

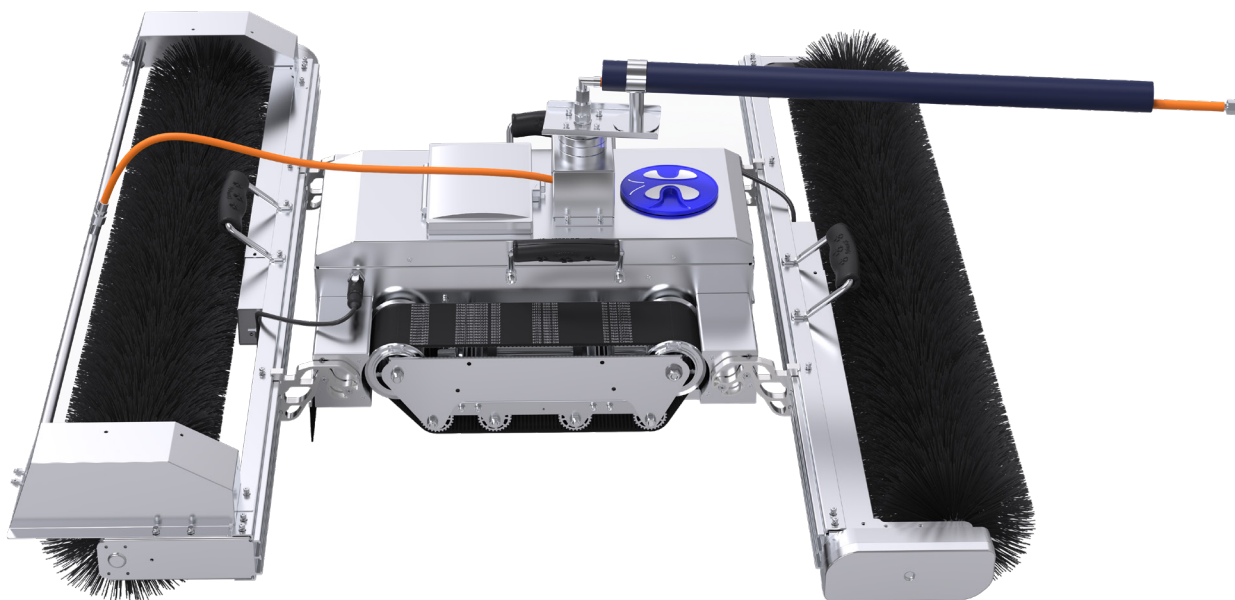
Manipulation	Maximum of Single Control:	24 sets
	Roof RECO Maximum Number Operate:	4 sets
	RECO Maximum Number Operate on Slopes:	4 sets
	Software Upgrade:	OTA
	Work at Night	Yes
	View Logs in Real Time:	Yes
	UAV Retraction:	Yes
	Unmanned on Approach Bridge:	Yes
	APP Control Remotely:	Yes
	Remote Control:	Yes
	Breakpoint Continuation:	Yes
	Adjust the Brush Speed:	Yes
Rated Brush Speed:	160r/min	

Security	Working Mode:	Autonomous Work; Mobile APP
	Positioning Mode:	AI Semantic Vision
	Positioning Accuracy:	$\leq 10mm$
	Steering Mode :	High Precision Adsorption Steering Mechanism
	Anti-fall Protection :	AI Semantic Vision + Ultrasonic
	Anti-skid :	Track Self-cleaning + High Precision Deviation Correction Algorithm
	Protection Rate :	IP65
	Security :	10000 Cycles without Microcrack

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E32L

KWUNPHI — The Advocator of High Standard Clean Quality

Dry Brushing	Project	Water Washing
0~15°	PV panel Angle*	0~10°
-20~80°C	PV panel Surface Temp.	0~80°C
-20~50°C	Environment Temp.★	0~50°C
40mm	PV panel Gap	40mm
30mm	PV Height Difference	25mm
water Washing Angle	Rainfall	25~50 mm Light rain
62~74 km/h Fresh Gale	Wind Power	29~38 km/h Fresh Breeze
IP 55	IP Rating	IP 55

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Kwun E32L Technical Specification

Technology	Based on TianyunOS Operating System
	Based on Glass vSLAM Visual Navigation Technology
	Based on Goodzenn Path Planning Technology
	Based on Ai-KWUN Operating Platform
	Based on OTA-KWUN Operating Platform
Life & Endurance	Design Life: 6 years
	Warranty(whichever comes first): 1 year or 2400 hours
	Battery Capacity: 15Ah
	The Battery Life*: 4 hours
	Charging Time: 3 hours
8 Hours Battery Life: Replace The Battery Every 4 hours	
Ability to Clean	Dust (adhesion $\leq 10^{-6}N$) : $\geq 85\%$
	Dust Accumulation (adhesion $\leq 10^{-4}N$) : $\geq 80\%$
	Dried Guano (adhesion $\leq 10^{-2}N$): $\geq 70\%$
	Cleaning Efficiency: $\geq 600m^2/h$
Shape	Body Size* (without brushes): 585*560*250mm
	Body Weight* (without brushes): 23.8kg
	Brush*(detachable): 7.2kg (B type)
	Brush and Water Branch*: 8.3kg (B type)
	Brush length*: 1285mm (B type)
Mani-pulation	Maximum of Single Control: 12 sets
	Roof RECO Maximum Number Operate: 2 sets
	RECO Maximum Number Operate on Slopes: 2 sets
	Software Upgrade: OTA
	Work at Night: No
	View Logs in Real Time: Yes
	UAV Retraction: No
	Unmanned on Approach Bridge: Yes
	APP Control Remotely: Yes
	Remote Control: No
	Breakpoint Continuation: No
	Adjust the Brush Speed: Yes
Rated Brush Speed: 160r/min	
Security	Working Mode: Autonomous Work; Mobile APP
	Positioning Mode: AI Semantic Vision
	Positioning Accuracy: $\leq 20mm$
	Steering Mode : High Precision Adsorption Steering Mechanism
	Anti-fall Protection : AI Semantic Vision + Ultrasonic
	Anti-skid : Track Self-cleaning + High Precision Deviation Correction Algorithm
	Protection Rate : IP55
	Security : 10000 Cycles without Microcrack

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E33H

KWUNPHI — The Advocator of High Standard Clean Quality

Dry Brushing
0~20°
-20~80°C
-20~50°C
40mm
30mm
water Washing Angle
62~74 km/h Fresh Gale
IP 55

Project
PV panel Angle*
PV panel Surface Temp.
Environment Temp.★
PV panel Gap
PV Height Difference
Rainfall
Wind Power
IP Rating

Water Washing
0~15°
0~80°C
0~50°C
40mm
25mm
25~50 mm Light rain
29~38 km/h Fresh Breeze
IP 55

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Technology	Based on TianyunOS Operating System
	Based on Glass vSLAM Visual Navigation Technology
	Based on Goodzenn Path Planning Technology
	Based on Ai-KWUN Operating Platform
	Based on OTA-KWUN Operating Platform

Life & Endurance	Design Life:	6 years
	Warranty(whichever comes first):	2 years or 4800 hours
	Battery Capacity:	15Ah
	The Battery Life*:	3 hours
	Charging Time:	3 hours
8 Hours Battery Life:		Replace The Battery Every 3 hours

Ability to Clean	Dust (adhesion $\leq 10^{-6}N$) :	$\geq 99\%$
	Dust Accumulation (adhesion $\leq 10^{-4}N$) :	$\geq 95\%$
	Dried Guano (adhesion $\leq 10^{-2}N$):	$\geq 85\%$
	Cleaning Efficiency:	$\geq 650m^2/h$

Shape	Body Size* (without brushes):	650*560*250mm
	Body Weight* (without brushes):	25.75kg
	Brush* (detachable):	7.2kg (B type)
	Brush and Water Branch*:	8.3kg (B type)
	Brush Length*:	1285mm (B type)

Manipulation	Maximum of Single Control:	24 sets
	Roof RECO Maximum Number Operate:	4 sets
	RECO Maximum Number Operate on Slopes:	4 sets
	Software Upgrade:	OTA
	Work at Night	Yes
	View Logs in Real Time:	Yes
	UAV Retraction:	Yes
	Unmanned on Approach Bridge:	Yes
	APP Control Remotely:	Yes
	Remote Control:	Yes
	Breakpoint Continuation:	Yes
	Adjust the Brush Speed:	Yes
Rated Brush Speed:	160r/min	

Security	Working Mode:	Autonomous Work; Mobile APP
	Positioning Mode:	AI Semantic Vision
	Positioning Accuracy:	$\leq 10mm$
	Steering Mode :	High Precision Adsorption Steering Mechanism
	Anti-fall Protection :	AI Semantic Vision + Ultrasonic
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