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 APOLLO DISPLAY
TECHNOLOGIES



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HOVER TOUCH TECHNOLOGY

PCAP MULTI-TOUCH WITH CONTACTLESS OPERATION FEATURE

AVAILABLE FOR PRE-ORDER
10,1" RELEASE IN Q1/2022



HOVER TOUCH - VIDEO

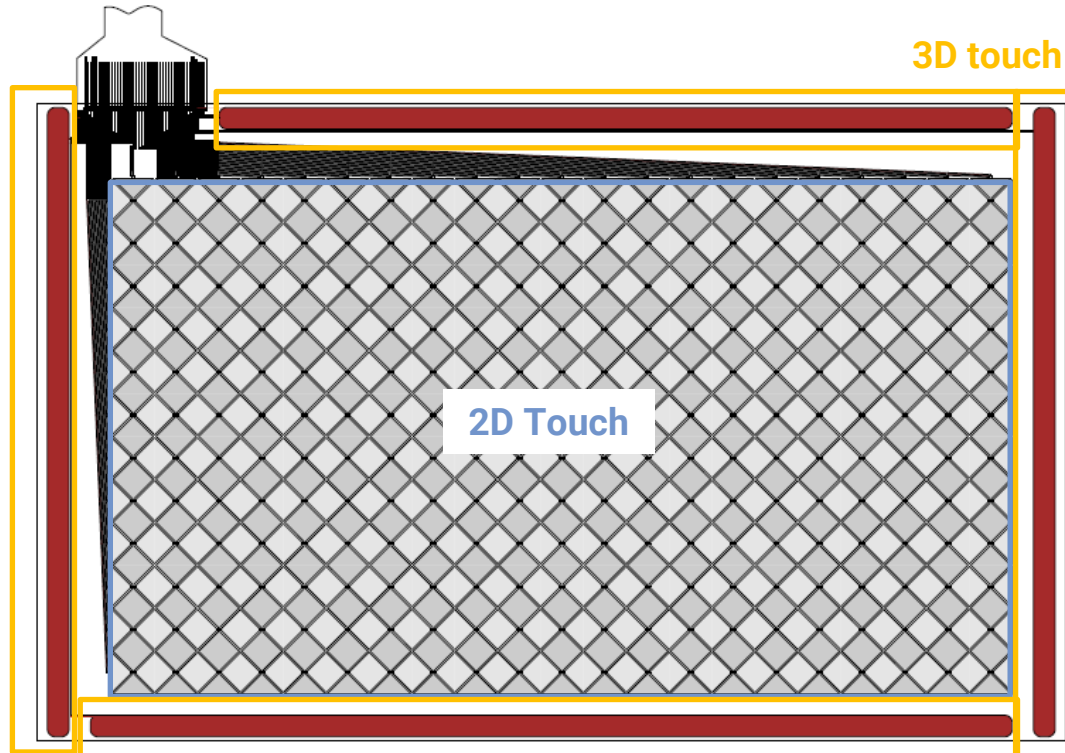
SEE HOW IT WORKS



[Click Image for Video Link](#)

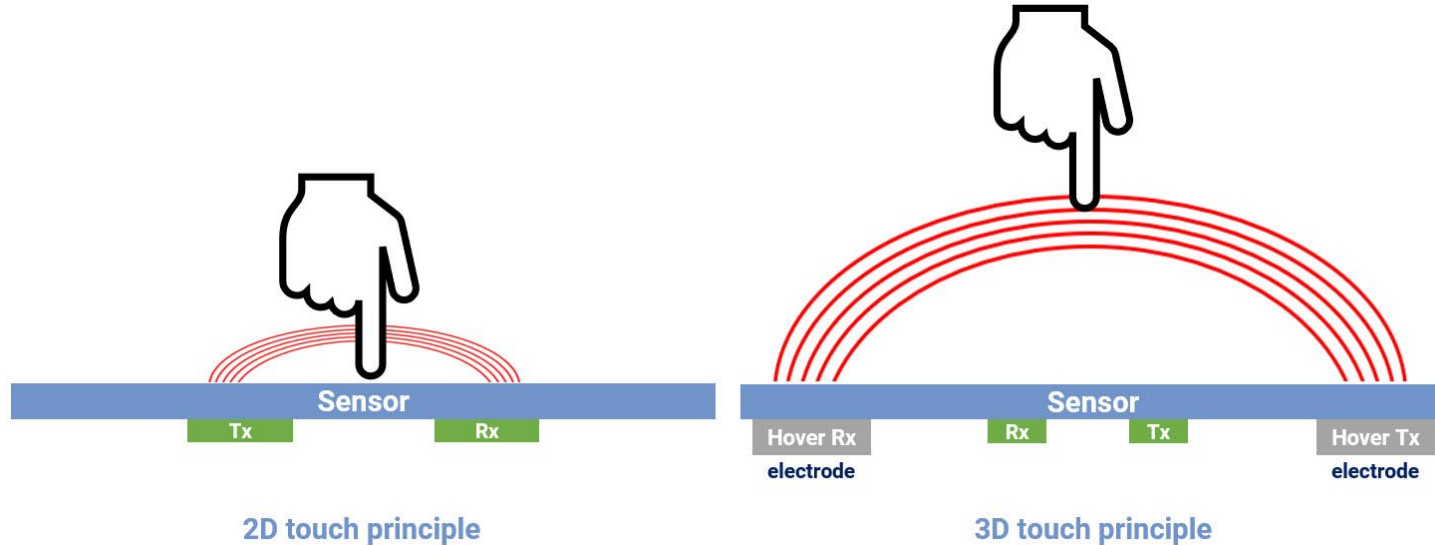
HOVER TOUCH - SENSOR STACK UP & DESIGN

WHAT IS DIFFERENT WITH 2D & 3D – FRONT VIEW



HOVER TOUCH - SENSOR STACK UP & DESIGN

WHAT IS DIFFERENT WITH 2D & 3D – SIDE VIEW



Physical principle:

Induced capacitive sensor

time-multiplex for PCAP/Hover:

>10cm proximity sensing & touch: capacitive

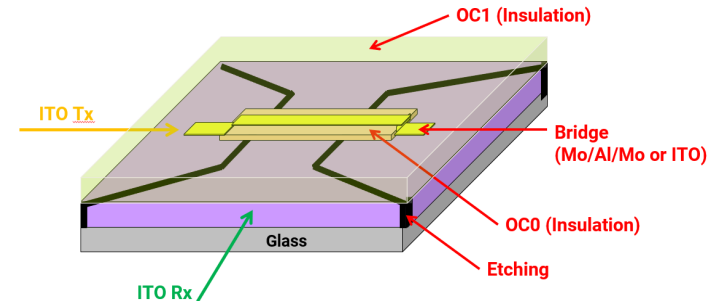
<10cm: narrowband, low-voltage sinusoidal drive waveform

HOVER TOUCH - SENSOR STACK UP & DESIGN

3D SENSOR STACK UP



- Sensor Design – SITO (ITO + Metal Bridge)
- Thickness of Cover Glass – 0.7~10mm
- Thickness of Sensor Glass – 0.4~1.1mm
- Thickness of LOCA/OCA – 0.15~0.25mm



LOCA – liquid optical clear adhesive
OCA – optical clear adhesive
SITO – single side ITO, metal bridge, use mask process

HOVER TOUCH - SENSOR STACK UP & DESIGN

3D SENSOR DESIGN

Current design

Feature	Electrode Arrangement		
	Frame	Single Edge	Single Edge Plus One
Layout	<p>One 3D electrode per side of 2D touchscreen</p>	<p>4 × 3D electrodes along one side of 2D touchscreen</p>	<p>4 × 3D electrodes PLUS One 3D electrode along far side of 2D touchscreen</p>
Space Requirement in X Direction	Touchscreen width + 2 × border + 2 × 3D electrode width	Touchscreen width	Touchscreen width + 3D feed line allowance (track and gap)
Space Requirement in Y Direction	Touchscreen height + 2 × border + 2 × 3D electrode height	Touchscreen height + border + 3D electrode height	Touchscreen height + 2 × border + 2 × 3D electrode height
X Position Indication	Normal	High precision ⁽¹⁾	High precision
Y Position Indication	Normal	Not available	Normal ⁽²⁾
3D Gesture Recognition	Presence Hold Wave X + Y West-East Flicks North-South Flicks Circular Gestures	Presence Hold Wave X West-East Flicks	Presence Hold Wave X + Y West-East Flicks North-South Flicks Circular Gestures
See Section...	Section 2.0 "Frame Style Electrodes"	Section 3.0 "Single Edge Electrodes"	Section 4.0 "Single Edge Plus One"

HOVER TOUCH - SUPPORTED OS & DRIVERS

- **Windows 8 & 10**
 - Driver available (directly operating - HID)
- **Linux & Android**
 - Driver under development (Q1/2022)
 - Protocol guide ready to release
- **Other OS**
 - Protocol guide ready to release

HOVER TOUCH - SUPPORTED INTERFACES

- I2C
- USB
- Multi-interface Support



↓
USB

↓
I2C

2D & 3D SPECIFICATIONS

■ 3D Touch

- Single hovering application
- $\leq 5\text{cm}$ distance
- Passive stylus & thick glove

■ 2D Touch

- Multi-touch Max. 10pts
- Passive stylus & thick glove
- No water or palm detection

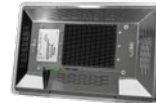
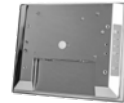
Software ***gesture recognition:***

Air Dwell, **Air Tap**, **Air Swipe** and **Air Spin** can replace button presses, scrolling through a series of screens, and actuating graduated controls such as a virtual rotary knob for controlling audio volume or fan speed.



PRODUCTS: OVERVIEW

COMPARISON



Features	IoT-Compact Panels	POS-MO-PRO	POS-RP-PRO	POS-IQ-PRO	POS-4K-PRO	POS-i-PRO
IP65 protection*	---	✓	✓	✓	✓	✓ **
Housing	---	✓	✓	✓	✓	✓ **
CE certification	---	✓	✓	✓	✓	✓
Raspberry Pi	Artista-IoT / CM3+	---	Artista-IoT / CM3+	---	---	RP 4
x86 platform	---	---	---	✓	---	---
4K platform	---	---	---	---	✓	---
Covered controller board	✓	✓	✓	✓	✓	✓ **
Open frame	✓	---	---	---	---	✓ **
Integrated solution	---	✓	✓	✓	✓	✓ **
Mounting solutions	---	✓	✓	✓	✓	✓ **

* Front side/ ** optional

VACUBOND®

Optical Bonding available for all displays as an option, other displays available upon request

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PRODUCTS: OVERVIEW

POS-IQ SERIES WITH HOVER TOUCH

Hover Touch technology can be combined with our **POS-IQ-PRO** line-up. The first device to be released is the 10,1" variant:

Product Name	Order Number	Size	Touch	Touch Points	Resolution		Aspect Ratio	Brightness	Operating Temperature
POS-IQ-101-02-PRO WXGA/HO *	MO-06-108	10,1	PCAP	10+1 (Hover)	WXGA	1280x800	16:10	850 cd/m ²	0...60 °C
TBA	TBA	15,6	PCAP	10+1 (Hover)	FHD	1920x1080	16:9	300 cd/m ²	0...50 °C

* Caution regarding compatibility: Rear side of housing differs from POS-IQ devices without Hover Touch.

PRODUCTS: OVERVIEW

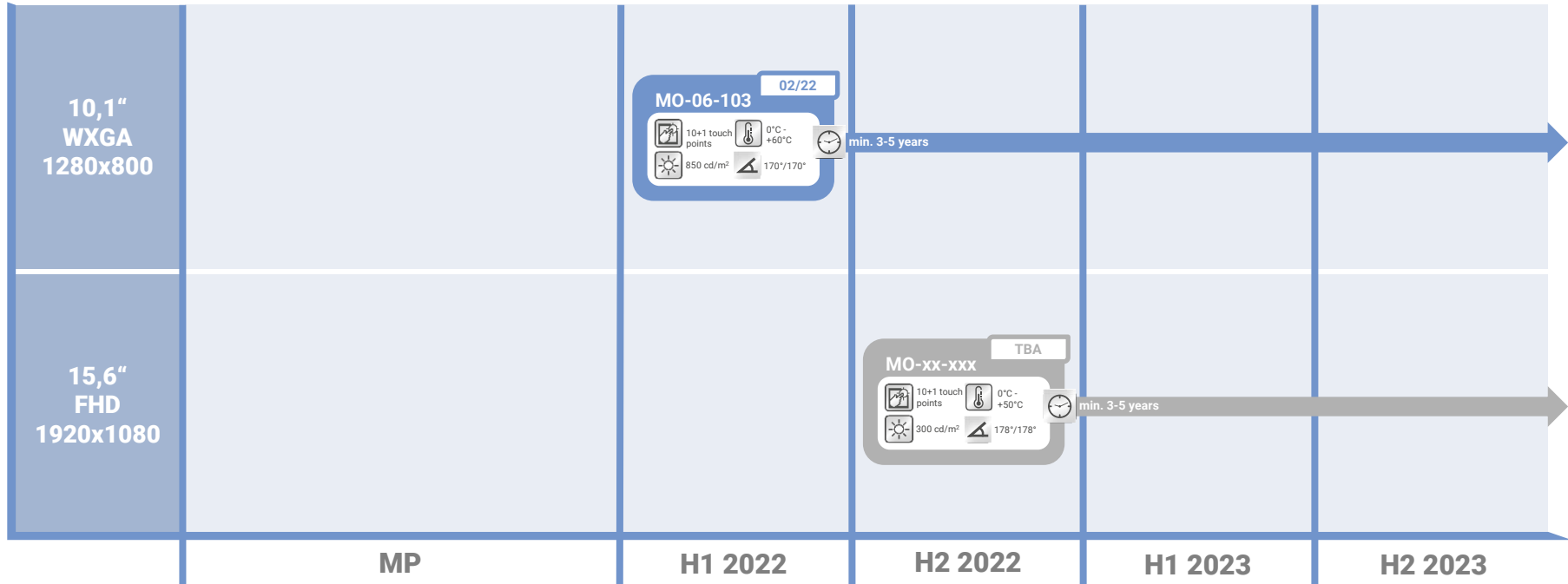
POS-IQ SERIES WITH HOVER TOUCH

Hover Touch technology can be combined with our **POS-IQ-PRO** line-up. The first device to be released is the 10,1" variant:

Product Name	Order Number	Size	RAM	SSD	CPU	I/O
POS-IQ-101-02-PRO WXGA/HO	MO-06-108	10,1	8 GB	64 GB (other on request)	Intel® Pentium® Quad Core Processor N4200	2x Intel® Gigabit LAN 1x RS232/422/485 4x USB 3.0 1x DisplayPort 1.2 1x HDMI 1.4b
TBA	TBA	15,6				

PRODUCTS: ROADMAP

POS-IQ SERIES WITH HOVER TOUCH

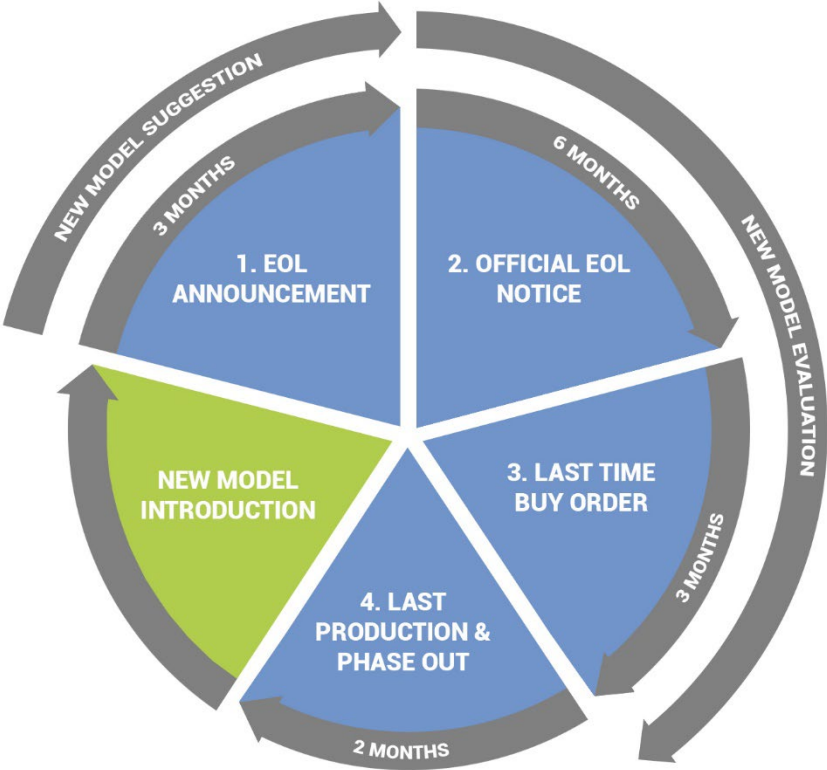


MP Developing Idea/Planned

Brightness PCAP Glass Operating temperature range Viewing angle Transflective Long term availability LED Super long-life LED backlight

LIFETIME STRATEGY

EOL PROCEDURE – 12 MONTHS



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