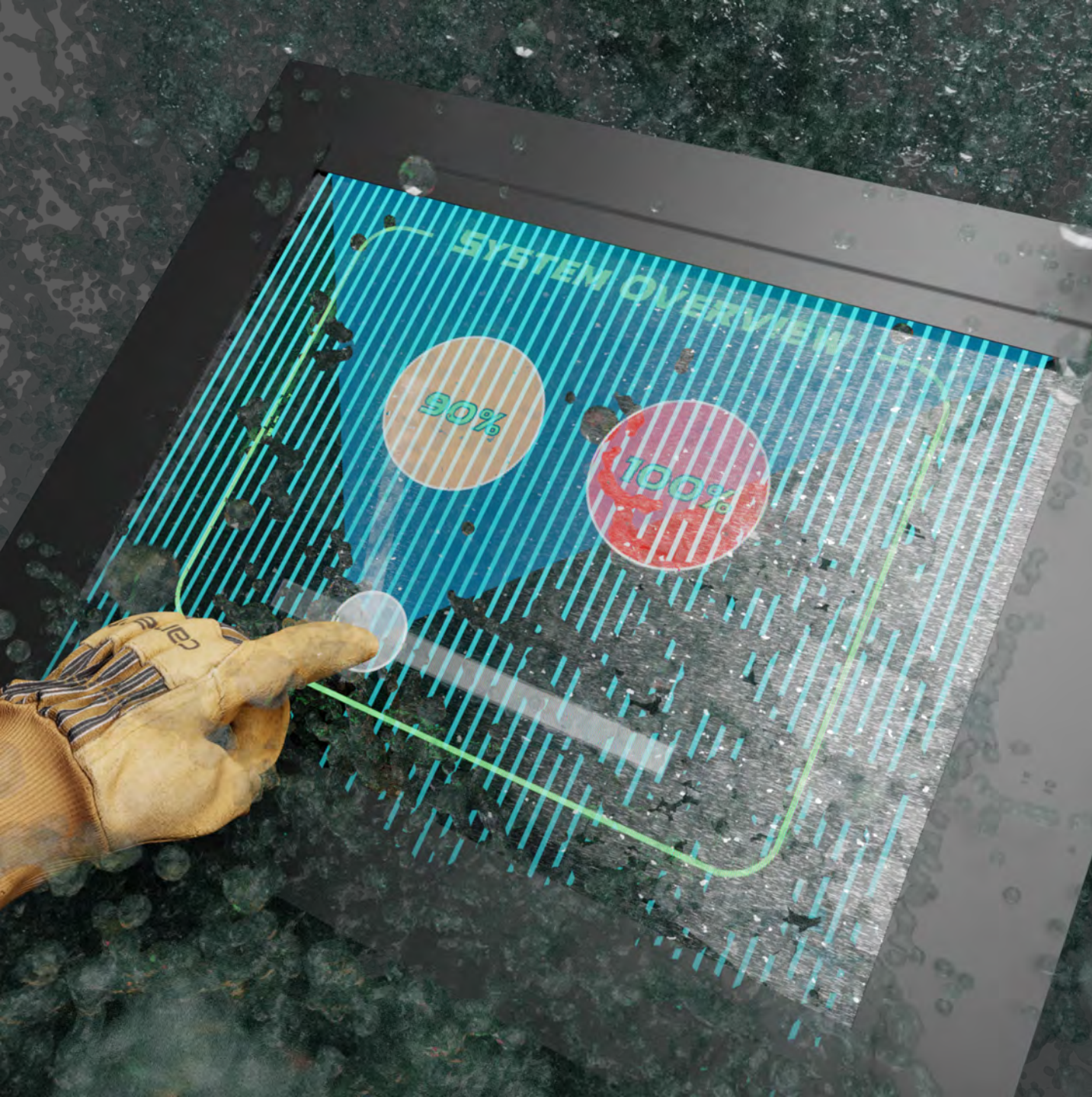




Take rugged interaction to a new level with Neonode's Touch Sensor, customize freely and bring touch functionality to your product.



**Touch Solutions for
Rugged Systems**



Neonode optical reflective platform is based on light reflection technology, integrating optics and electronics in a thin strip along one side of an intended interactive area, creating a 2-dimensional interactive plane.

Neonode optical reflective technology interacts with the position and movement of any reflective object within its range. It enables reliable touch interaction on any display or surface, with any overlay/protective front cover. Works with any input, including gloves, wet and greasy hands.

Neonode technology is suitable for implementation in harsh environments.



Light Resistant

Neonode touch sensors technology work in environments with glaring light without aging.



Temperature Robustness

Neonode touch sensors will add interaction on any surface in hot and cold temperatures without degradation.



Gloves On!

Protection gear should always be worn.
Neonode touch sensors work with gloved hands - independent of thickness.



No Electromagnetic Interference (EMI)

Reliable interaction without EMI issues in sensitive environments.



Climate Independent

Dress your display for bad weather or dirty environments with easily adjustable detection distance.

Neonode rugged technology solutions are suitable for a wide range of original designs and retrofit applications such as:

- Industrial touchscreen monitors
- Machine control panels
- Military control systems
- Hand-held devices
- Kiosks
- Instrument panels



Key technical and business benefits

Adds touch to industrial terminals with support for thick gloved input

Utilize the sensor even for replacing mechanical switches and controls

Can perfectly operate even in harsh environments (e.g. liquids, dust, dirt)

Enables robust and reliable touch sensing without EMI issues

Works perfectly with any protective cover/front glass



Rugged design that withstand harsh commercial environments

Works with any input, including gloves, wet and greasy hands and long finger nails

Weather-proof interactivity

Ideal for both indoor and outdoor applications

Resistant to liquids, dust, dirt etc

Rugged design allows for a sleek look and feel without sacrificing functionality and performance

Allows for touchless operation

Cost effective implementation of touch on large screens (Selective Area Touch)



Rugged design built to survive tough conditions and exposure of:

- Rain and liquids
- Dust and dirt
- Physical damage

Neonode rugged solutions are designed to meet the demanding environmental and safety requirements for harsh environments.

The touch sensors enable reliable operation when used with gloves, even thick ones.

The Smart Airport Luggage Carrier

Chigoo's cTrolley is a smart luggage carrier that guides, informs and entertains the passenger in their native language as they make their way to their flight. The cTrolley is activated by simply swiping a boarding card in front of the carrier's 13.3" touch-screen.

Chigoo choosed Neonode's touch sensor for their demanding 13.3" display touch application in public environments, because image quality, durability and power consumption are key. cTrolleys are currently used in 10 Chinese airports.

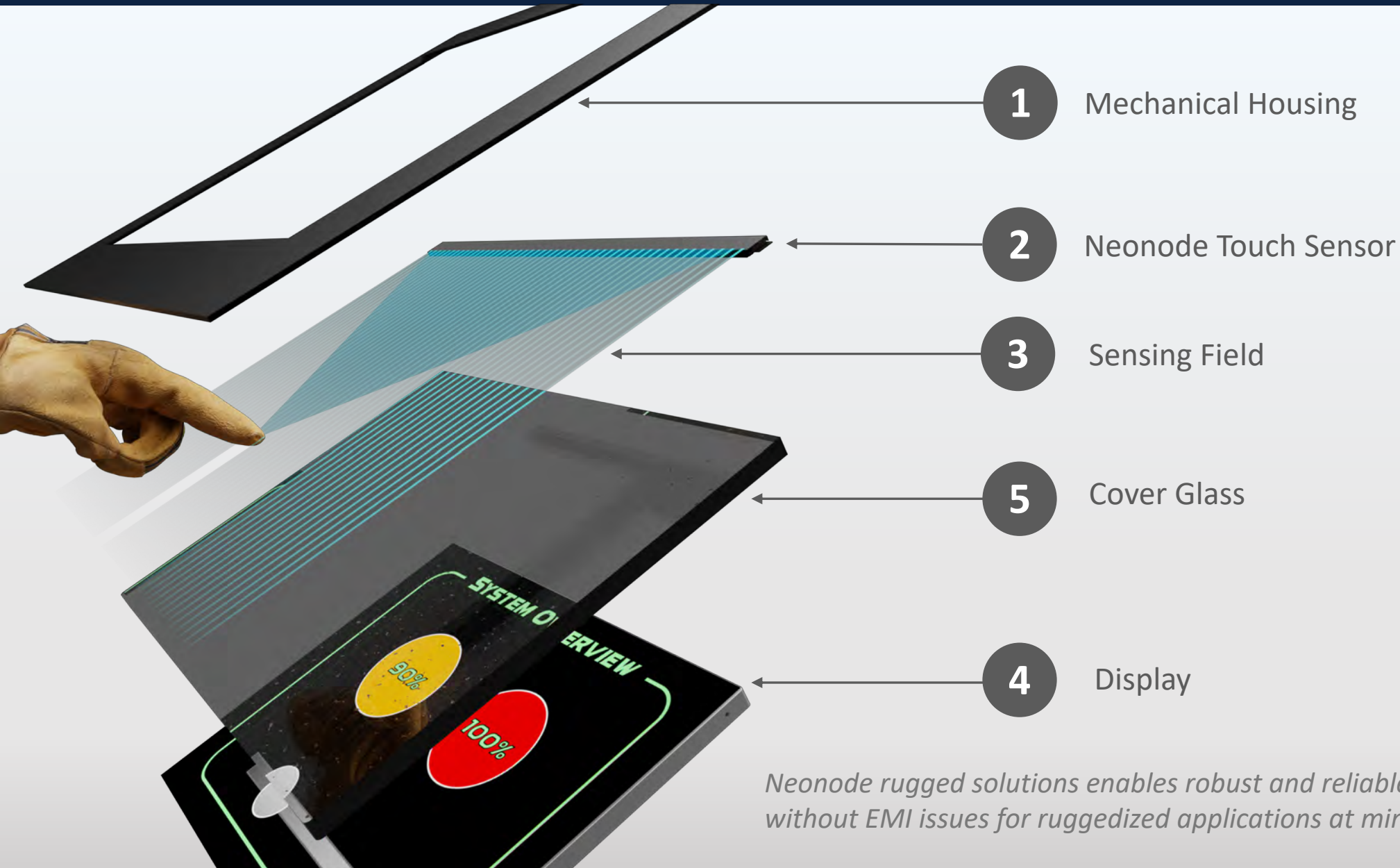
Benefits with Neonode touch sensor:

- Low system power consumption
- Rugged design
- Not sensitive to abuse
- Can use pen or other object to touch-contamination safe
- Low glare
- Freedom of display type (OLED, LCD, E-Ink, Size, Supplier etc.)

"Chigoo is happy to work with Neonode on our new cTrolley. Neonode's touch sensor's fast response time makes the touch interaction with our cTrolley enjoyable and fun, and the modular design streamlined our assembly process, also, in next 3 to 4 years Chigoo plan to deploy 300,000 cTrolley globally to cement its leading role in the forefront of smart luggage carriers," said Chigoo CEO Jack Chen."

Source: Neonode Press release, December 13, 2017





Neonode rugged solutions enables robust and reliable high speed touch sensing without EMI issues for ruggedized applications at minimum system cost.

Item	Specification
Input methods	Finger, hand or glove
Minimum object size (diameter)	5 mm
Number of touch objects	1, 2, or more, depending on application
Touch accuracy	< 5 mm, for sensors $\geq$ 180 mm < 7.5 mm, for sensors < 180 mm
Touch resolution	0.1 mm
Touch activation force	0 N (no activation force required)
Touch active area	Up to 345.6 x 208.5 mm
Response time	16-46 ms (initial touch, at 33 Hz in idle mode) 10 ms (continuous tracking, at 100 Hz in active mode)
Scanning frequency	Configurable up to 900 Hz, depending on product variant. For details, see neonode.com/support

Item	Sensor Variant	Specification
Module size (LxHxW)	0° Type	L x 3.46 x 14.5mm L depending on product variant
	90° Type	L x 3.46 x 15.45mm L depending on product variant
Power consumption I2C interface Active mode (100 Hz)	72mm sensor	57 mW
	208.8mm sensor	80 mW
	345.6mm sensor	104 mW
Power consumption I2C interface Idle mode (25 Hz)	72mm sensor	44 mW
	208.8mm sensor	45 mW
	345.6mm sensor	47 mW

THANK YOU

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