

## Secure face authentication behind OLED for unlock and mobile payment



### Powerful combination of design, security and speed – without compromising on data protection

✓ **New freedom in display design**

trinamiX technology allows OEMs to have unmatched new flexibility in your designs, which can now be sleeker and more consumer friendly – no more holes or notches as the technology works behind OLED.

✓ **New level of security for face authentication**

Improved liveness detection through unique skin classification improves security for critical applications and protects user data.

✓ **Excellent user-experience**

Face authentication works in real-time, enabling a seamless user experience for unlocking as well as mobile payment and more.

✓ **Privacy**

The protection of data is our top priority. Face authentication data – including mathematical representations of the face – is encrypted and protected by Qualcomm's® Trusted Execution Environment. It is only stored on-device, without cloud computing involved.



#### Watch how it works

trinamiX solution for secure face authentication

## Secure face authentication behind OLED

Beam Profile Analysis combines 2D image, 3D depth and unique skin detection

### Software

<b>Integration</b>	Android 10 upwards
<b>Secure Environment</b> (TrustZone)	QTEE with Trusted App (TA) and Secure Processing Unit (SPD)
<b>Runtime</b>	< 250ms @ Snapdragon 865 Snapdragon's DSP is used to process the trinamiX technology and face recognition, all within the Qualcomm® Trusted Execution Environment.
<b>FAR @ FRR</b>	1:50.000 @ < 3%
<b>Spoof Acceptance Rate</b> (SAR)	< 1% with FIDO level-C targets including silicone and theatre masks

### Hardware

<b>Camera module</b>	1MP NIR
<b>Laser projector</b>	940 nm VCSEL
<b>Flood illumination</b>	940 nm LED

### Evaluation platforms

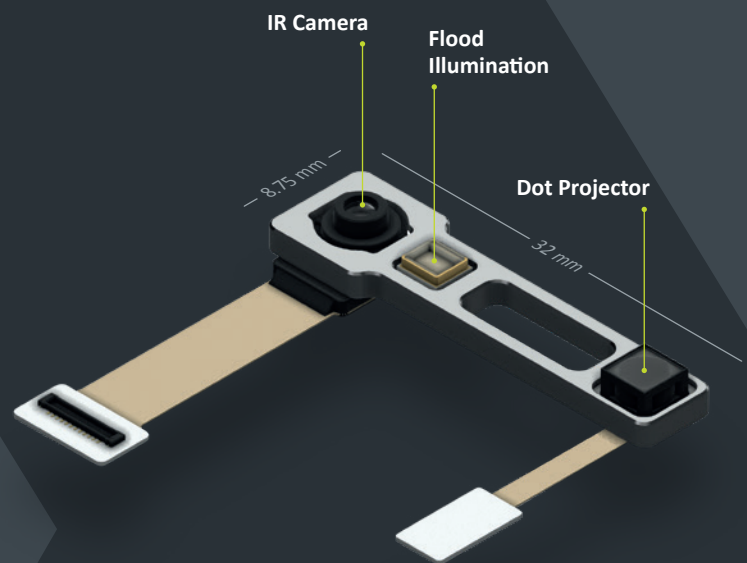
<b>Qualcomm Snapdragon 865</b> (HDK 8250)	Secure environment execution Trusted App on ARMv8 Secure Processing Unit Hexagon DSP
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### Key Operating Figures

<b>Working range</b>	0.2m – 0.65m
<b>Outdoor performance</b>	From darkness to 100kLUX bright sunlight
<b>Field of view</b>	Diagonal = 74°
<b>Unlock duration</b>	< 250 ms
<b>Unlock power consumption</b> (25% OLED transparency)	Peak 2.4A (1ms, 3% duty cycle) Average 186mA

### Contact

**Business Development**  
E samir.zegoulli@trinamix.de  
T +49 173 8868288



### Technology demonstrator (user facing)

The system enhances a regular 2D IR image using proprietary Beam Profile Analysis technology with a laser dot projector to capture

- Flood illuminated IR 2D image
- 3D depth information
- Skin classification

### About trinamiX

- trinamiX GmbH develops and sells cutting-edge 3D vision and infrared sensing solutions for use in both consumer electronics devices and industrial designs. The company's products enable humans and machines to better capture data, with the goal of understanding the world around us. This results in improved decision-making as well as stronger security.
- trinamiX, based in Ludwigshafen, Germany was founded in 2015 as a wholly owned subsidiary of BASF SE. The company employs 150 people worldwide. trinamiX has 85 patents granted.