



RealSense ID Pro Solution

F50X Product Datasheet

F500 · F505

Revision 005 | July 2026

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Revision History

Revision	Description	Date
001	Initial Public Release	May 2026`
002	Added section 6. Software	May 2026
003	Added section 7. Vision Intelligence	May 2026
004	Updated F505 peripheral mechanical sections	Jul 2026
005	Updated Branding	Jul 2026

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1. Overview

RealSense™ ID Pro is a trusted on-device AI vision platform.

The RealSense ID Pro module runs multiple neural network models on a dedicated NPU within a closed real-time operating system (RTOS), delivering secure and accurate face authentication, body-parts classification, and additional AI vision capabilities. Privacy is built in — authentication requires active user awareness, and anti-spoofing technology guards against attacks using photographs, videos, or masks.

1.1 RealSense ID Pro F500 Solution SKUs

Config	SKU	Label	Description
Module	F500	F500A	The RealSense™ ID Pro F500 module is an embedded device. An SOC controls all boot-up and runtime flows of the F500 module through an internal data link connection.
Peripheral	F505	F505L	The RealSense™ ID Pro F500 integrated into a mechanical housing. The RealSense ID Pro F505 peripheral connects to an external system through an external cable, typically USB2

Throughout this document, "**device**" refers to both the F500 module and the F505 peripheral unless stated otherwise.

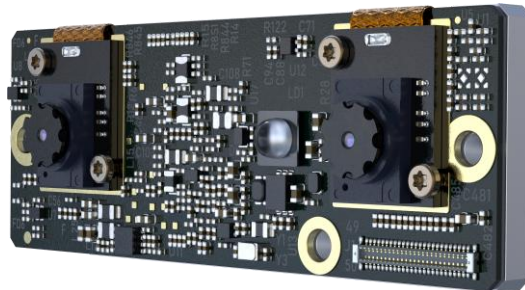


Figure 1-1: RealSense ID Pro F500 Module

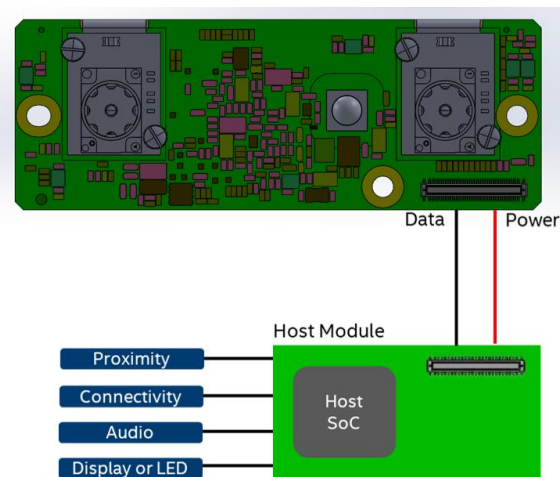


Figure 1-2: RealSense ID Pro F500 Module System Topology

2. Hardware Details

The RealSense™ ID Pro F500 module is a single optical PCB subassembly with processing capabilities that the product will mount into a system chassis and connect to a host. The optical components consist of both image sensors and illumination components.

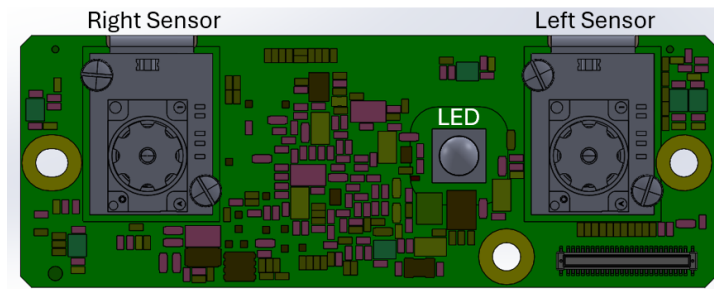


Figure 2-1: RealSense ID Pro F500 Module Front Side



Figure 2-2: RealSense ID Pro F500 Module Back Side

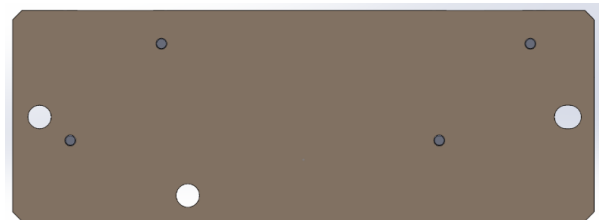


Figure 2-3: RealSense ID Pro F500 Module Rear Side

2.1 Hardware Components

Section	Description
SoC	System on chip
Right Sensor	Full HD Sensor
Left Sensor	Full HD Sensor
LED	850 nm IR LED
Host Connector	IPEX 20708-050E Plug (50-pin)
Crystal	24 MHz
Flash	1 Gb (128 MB) SPI NAND flash — File system

2.2 Processor & Memory

Feature	Specification
CPU	Dual 32-bit RISC (ARM A7) with NEON, up to 720 MHz
RAM	256 MB (up to 1 GHz)
NPU	1.2 TOPS
Cache	32 KB I-Cache + 32 KB D-Cache

2.3 Connectivity & Interfaces

The RealSense™ ID Pro F500 module requires external power and a serial data link for initialization and control, both routed through a single 50-pin host connector interface.

The host system must ensure the power supply can meet the peak power requirements at the selected VDD voltage. If the host implements power gate control, it must ensure there are no conflicts between power sequencing and data link initialization during power-up and power-down cycles.

2.3.1 Data Interface

Interface	Data Rate	Pins
UART (3.3V)	115.2 kbps to 4 Mbps	UART_TX (Pin 47), UART_RX (Pin 49)
USB2	480 Mbps	USB2_DP (Pin 46), USB2_DN (Pin 48)

2.3.2 Power Interface

Pin	Voltage Range	Peak Power
VDD (Pin 51/52)	3.6V to 5.5V	3.6W
GND	—	—

(1) The power range is primarily dependent on illumination power set by the device.

(2) The typical max current for a USB2 port is 450mA.

2.3.3 Power Consumption

State	Avg. Power	Description
Off	0 mW	Power supply from host disabled.
Operation	1.5 W	SOC running continues facial authentication pipeline; optics active (20% LED duty cycle).

2.3.5 Receptacle Pin Out

The module connector is IPEX 20708-050E. The host cable must use an IPEX 20709-050E receptacle.

Pin	Signal	Pin	Signal
2	GND	1	CPU_RXD (Debug UART input)
4	AUDGPIO_2	3	CPU_TXD (Debug UART output)
6	AUDGPIO_1	5	GND
8	GND	7	VCC_IO_1V8
10	CSI_DN1	9	VCC_IO_3V3
12	CSI_DP1	11	VCC_IO_3V3
14	GND	13	-

Pin	Signal	Pin	Signal
16	SDIO_DAT3 (can be used as GPIO too)	15	EXT_RSTn (SoC's PWRON2 signal, 1.8V logic, falling edge sensitive, should be connected to open drain output)
18	SDIO_DAT2 (can be used as GPIO too)	17	GPO_1
20	GND	19	GPO_0
22	SDIO_DAT1_GPIO6	21	GND
24	SDIO_DAT0_GPIO5	23	ISP_EN (In-System Programming mode enable, 1.8V logic)
26	GND	25	SDO1
28	SDIO_CMD_GPO_3	27	SCK1
30	SDIO_CLK_GPO_2	29	SDI1
32	GND	31	SEN1
34	CSI_CKN	33	GPO_4
36	CSI_CKP	35	GND
38	GND	37	CSI_VSD0
40	CSI_DN0	39	SCL_0
42	CSI_DP0	41	SDA_0
44	GND	43	PWM2
46	USB_DP	45	-
48	USB_DM	47	CPU_TXD2 (UART output from F500 module)
50	GND	49	CPU_RXD2 (UART input to F500 module)
52	5V (3.6V-5.5V)	51	5V (3.6V-5.5V)
54	GND	53	GND

2.3.6 Interposer Interconnect Signal Description

Pin	Signal	In/Out	Interconnect Description
1	CPU_RXD	Input	Debug UART RxD or USB AUX_IN (3.3V)
2	GND		Ground
3	CPU_TXD	Output	Debug UART TxD or USB AUX_OUT (3.3V)
5	GND		Ground
8	GND		Ground
9	VCC_IO	Power out	IO level power out (3.3V)
11	VCC_IO	Power out	IO level power out (3.3V)
14	GND		Ground

Pin	Signal	In/Out	Interconnect Description
15	EXT_RSTn	Input	External Reset, Open/GND discrete, of RealSense™ ID Pro F500 module (should be connected to open drain I/O).
17	GPO_1	Output	GPIO Output (No external PU/PD needed) (3.3V)
19	GPO_0	Output	GPIO Output (No external PU/PD needed) (3.3V)
20	GND		Ground
21	GND		Ground
25	SPI - SDO	Output	Secondary SPI port (3.3V)
26	GND		Ground
27	SPI - SCK	Output	Secondary SPI port (3.3V)
28	GPIO_3	Input/Output	General Purpose I/O, defined by FW (No external PU/PD needed) (3.3V)
29	SPI - SDI	Input	Secondary SPI port (3.3V)
30	GPIO_2	Input/Output	General Purpose I/O, defined by FW (No external PU/PD needed) (3.3V)
31	SPI - SEN	Output	Secondary SPI port (3.3V)
32	GND		Ground
35	GND		Ground
38	GND		Ground
44	GND		Ground
46	USB2+		USB 2 differential pair positive
48	USB2-		USB 2 differential pair negative
50	GND		Ground
51	Vin	Power IN	Power IN – 3.6V – 5.5V (Peak power consumption = 3.6W)
52	Vin	Power IN	Power IN – 3.6V – 5.5V (Peak power consumption = 3.6W)
53	GND	Ground IN	Ground
54	GND	Ground IN	Ground

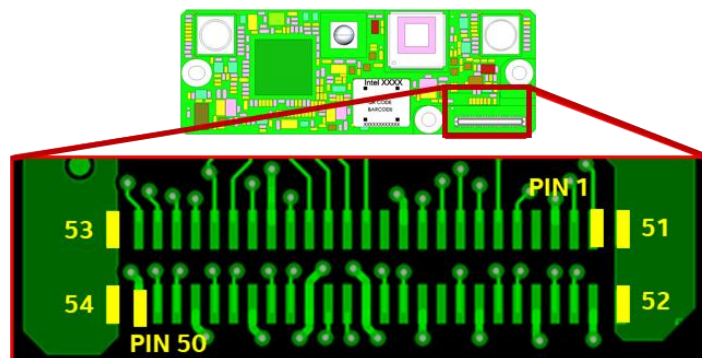


Figure 2-4: RealSense ID Pro F500 Connector Pin 1 Location

2.3.7 Peripheral Pin Out

Pin	Signal	In/Out	Interconnect Description
1	Vin	Power IN	Power IN – 3.6V – 5.5V (Peak power consumption = 3.6W) (This should be connected only when USB power is not connected)
2	SDO	NA	SPI Data Output
3	SDI	NA	SPI Data Input
4	SCK	NA	SPI Clk
5	SEN	NA	SPI Enable (Not Connected)
6	CPU_TXD	Output	Debug UART TxD (3.3V)
7	GPO_1	Output	GPIO Output (No external PU/PD needed).
8	CPU_RXD	Input	Debug UART RxD (3.3V)
9	GPIO_3	Input/Output	General Purpose I/O, defined by FW (No external PU/PD needed) (3.3V)
10	GND		



Figure 2-5: RealSense ID Pro F505 Peripheral Connector Pin 1 Location

2.4 Optical System

The optical system consists of two synced, semi-mechanically aligned sensors capturing images from different perspectives for 3D triangulation and disparity. Both sensors are mounted in portrait orientation with a mono field of view of HFOV = 43° and VFOV = 70°. The RealSense™ ID Pro F500 module utilizes these sensors for multiple AI vision capabilities, with the right sensor providing an additional 1080P RGB output.

2.4.1 IR Illuminators

The optical system consists of an IR LED for face illumination in low or non-uniform lighting. The illumination angle and placement of these components is chosen based on the field of view for both cameras.

The IR illuminators are both tested for eye safety industry standards as defined by the IEC.

Dimension	LED
Orientation	Portrait
Wavelength	850nm
Regulatory	RG0 (IEC-62471)

2.5 Thermal

The RealSense™ ID Pro F500 module is designed to work indoors and outdoors across a wide temperature range.

Parameter	Min	Nom	Max	Unit
Storage temperature (ambient), not powered	-30	—	+70	°C
Backside case temperature, powered	0	—	+55	°C

Notes:

1. All temperatures assume 100% duty cycle. A heat sink may be required for continuous-operation designs.
2. Specification is based on preliminary assessment and will continue quality and reliability to finalize in later datasheet versions.
3. Powered temperature is average across backside case.

2.5.1 Heat Sink

Although peak power reaches 3.6W, the RealSense ID Pro F500 module is expected to dissipate approximately 1.5W during typical AI vision operation, assuming a 20% illumination duty cycle. If required, the system design should include a heat sink to maintain proper operating temperatures for the module.

3. Mechanical

3.1 Mechanical Dimensions

The RealSense ID Pro F500 module compact form factor enables flexible system integration. Mounting position and tilt angle are determined by the installation height, user height range, and approach path.

The following factors should be considered when designing the system placement and orientation:

1. Sensor and lens field of view
2. User height range and approach path
3. Detection range

3.1.1 Module Dimensions

Dimension	Min (mm)	Nom (mm)	Max (mm)	Tolerance (mm)
X	49.70	49.80	49.90	±0.10
Y	17.90	18.00	18.10	±0.10
Z	—	—	7.10	

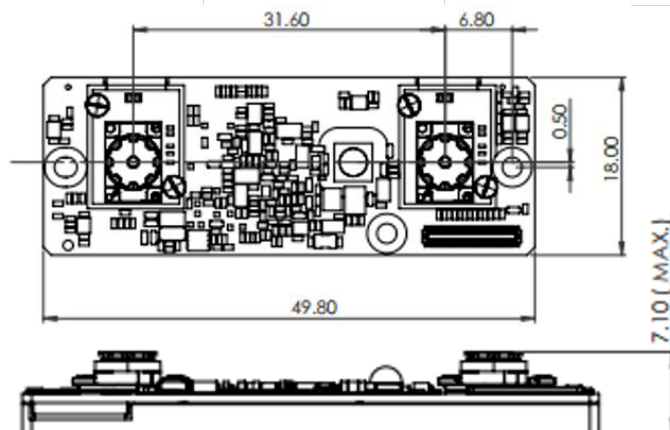


Figure 3-1: RealSense ID Pro F500 Module Dimensions

3.1.2 Peripheral Dimensions

Dimension	Min (mm)	Nom (mm)	Max (mm)	Tolerance (mm)
X	59.9	62.0	62.1	±0.10
Y	32.4	32.5	32.6	±0.10
Z	11.2	11.3	11.4	±0.15

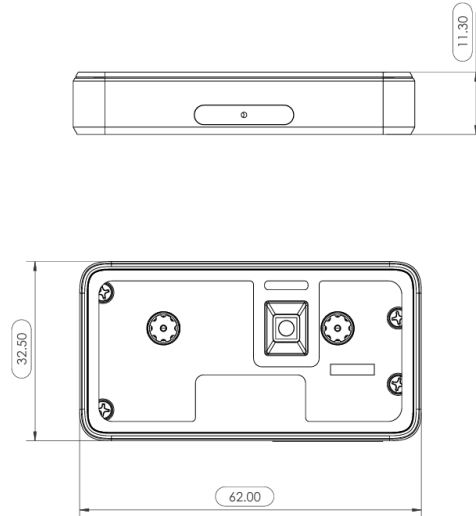


Figure 3-2: RealSense ID Pro F505 Peripheral Dimensions

3.2 Cover Glass

The RealSense™ ID Pro F500 module components must be covered to minimize impact of dust and humidity. The transparent cover glass material stack-up must provide acceptable transmission based on the component wavelengths. The through hole sizes of the cover glass are dependent on the optical component field of view or field of illumination as well as the cone diameter from the optical component to the cover glass. A 3D CAD assessment should be completed to ensure no collision between the cone part of each optical component and the cover glass opening.

Window optical quality

The cover glass material stack-up must provide high transmission efficiency across the specific wavelengths used by the components. The requirements are summarized in the table below:

Requirement	
Camera opening optical transmission	>96% @ 400nm–870nm (0°) >92% @ 400nm–870nm (10°–45°)
IR Illumination opening optical transmission	>96% @ 820nm–870nm (0°) >92% @ 820nm–870nm (10°–45°)
Material	Transparent to both visible and NIR wavelength
Window quality	Optically flat, non-scattering and non-distorting
Window thickness	<2mm preferred

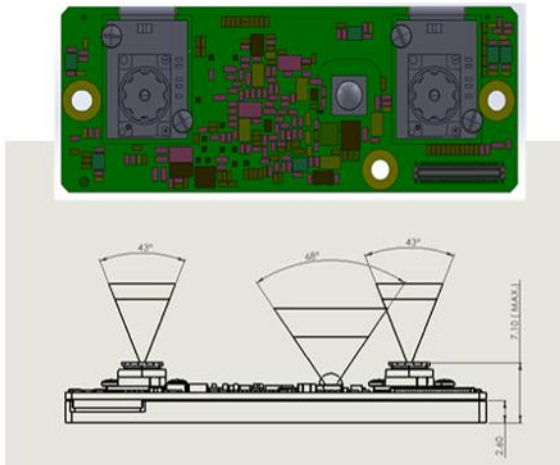


Figure 3-2: RealSense ID Pro F500 Module Through Hole Design

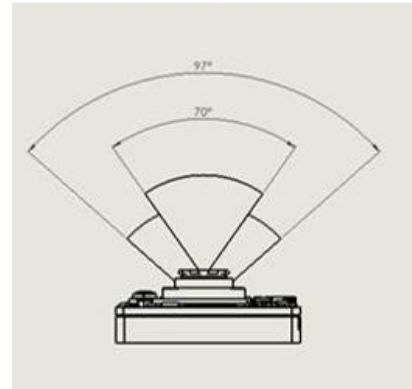


Figure 3-3: RealSense ID Pro F500 Module Vertical FoV

Through-Hole in silkscreen is required for optical transmission. The required aperture (through-hole) sizes in the cover glass depend on two main factors:

1. The Field of View (FOV) or Field of Illumination (FOI) of the optical component.
2. The distance (cone diameter) between the optical component and the cover glass.

Silkscreen and Appearance

The optical transmissivity of a black silkscreen (Die), out of the FOV, is not functionally relevant, as light will not pass through it. In this case, the appearance, as defined by ink color, serves only cosmetic purposes

3.3 Module Installation Guidelines

Recommendations for installing RealSense™ ID Pro F500 module:

- Back plate flatness of 0.1mm
- Thermal interface material shall cover all the back side module area, except the holes for screws/ pins
- Recommended thermal interface material:
 - Thickness: 0.2-0.3mm
 - Thermal conductivity 3-5 W/m-K, (depends on the application and ambient temperature)
 - Hardness: Shore A 40-60
 - For example: TG-ALC High Performance Thermal Pad
- The recommended torque for both screws is 1.6 KgF/cm
- M1.6 screws with Loctite

Notes:

- *Make sure the chassis is stiff, or the module is isolated to avoid transmitting flex forces from the chassis to the module*
- *Applying bending forces to the module may result in degraded performance*
- *Dust protection: dust particles can accumulate over the camera lenses which can be visually unappealing and degrade image quality.*
- *pay attention during the connection of the IPEX 20708-050E connector not to force un-even pressure on the connector in order not to harm it*

3.4 System Tilt & Mounting

The RealSense™ ID Pro F500 module can be assembled in 0°, 90°, 180°, or 270° rotation.

Given the field of view of the cameras and illumination components, assembling the RealSense ID Pro F500 module parallel to a typical mounting surface might not cover the intended user height range for the product requirement. To address this, the module can be assembled at an angle to adjust the minimum and maximum user height coverage.

3.4.1 Human Height

Parameter	Min	Nom	Max	Unit
Vertical range @ 55cm	105	—	198	cm
System tilt	—	19	—	°
Height placement (sensor center line position)	—	1.2	—	m

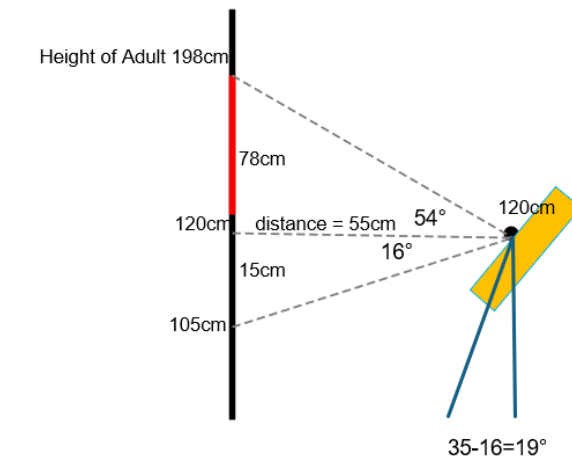


Figure 3-4: RealSense ID Pro F500 Module Tilt Profile and Field of View

3.5 Optical Isolation

It is recommended to isolate the cameras from the illumination components to prevent reflections off the cover material. Not properly isolating the cameras can result in leakage light from the illumination components.

Recommendation:

- Install a soft gasket between the cover glass and the module
- The gasket material must be compliant (soft) to prevent transferring chassis flex forces to the module
- Keep distance minimal between the cover-glass and the module
- Around the LED, there is a keep-out zone within which the gasket must be positioned. The exact dimensions should be taken from the CAD

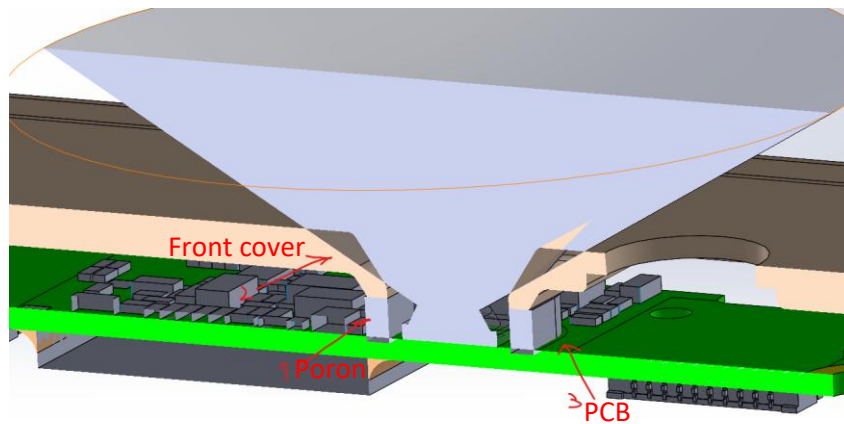


Figure 3-5: RealSense ID Pro F505 Peripheral Poron Assembly

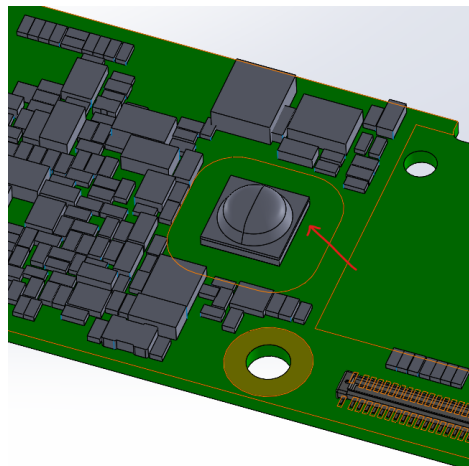


Figure 3-6: LED Keep Out Zone Indication

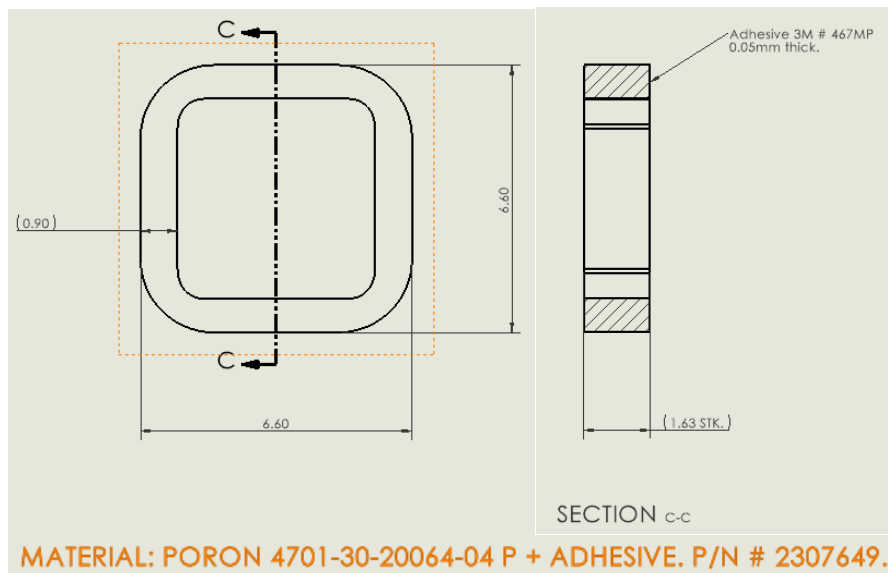


Figure 3-7: Poron Dimensions and Material Definitions

Note: Max recommended Poron squeeze is 20%

4. System Integration

The overall system design is owned by the host system OEM, with the RealSense™ ID Pro F500 module as a subassembly component. RealSense provides assembly recommendations to ensure proper module function, while design parameters such as user sensing and feedback remain the OEM's responsibility.

4.1 Product Assembly

4.1.1. Product Assembly Recommendation

The RealSense ID Pro F500 module is intended to be assembled into the system in a horizontal or landscape orientation. The RealSense ID Pro F500 module should be secured to ensure the camera and illumination extrinsic specifications are not exceeded for post assembly and throughout the thermal operating range of the product.

Alignment Parameter	Tolerance	Unit
YAW (camera to camera)	1	deg
PITCH (camera to camera)	1	deg
ROLL (camera to camera)	1	deg
YAW (camera to illumination)	1	deg
PITCH (camera to illumination)	1	deg
ROLL (camera to illumination)	1	deg

4.1.2. Product Design Recommendation

The product design and assembly recommendations for the RealSense ID Pro F500 module are dependent on optimizing the optical performance by minimizing moisture and dust impacts.

Name	Description
Ingress Protection	The system integrator will define ingress protection level based on the installation location of the product (e.g. indoor/outdoor). The RealSense ID Pro F500 optical elements should be protected from dust and moisture accumulation.
Anti-Fog Coating	If this is a design consideration based on the installation location of the product, a coating should be applied to the glass to prevent fogging from occurring. Initial testing has shown that a standard glass coating (e.g. DuPont de-icing spray) proved insufficient.
Enclosure	Based on installation location of the product (e.g. indoor/outdoor), we recommend designing metal enclosure and not use plastic materials that might allow humidity to pass through.
Purging	Guarantee below 5% humidity during assembly.
Pressurizing (*)	0.5psig with N2 (nitrogen) so no humidity will be able to enter the system.
Desiccant (*)	Replaceable bag/capsule - Molecular Sieve (ZEOLITE) or Activated Alumina.

(*) Might not be required due to the small dimensions of the enclosure, but nice to have to provide best protection against humidity.

4.1.3. Optical Assembly Considerations

The RealSense™ ID Pro F500 module ships with a removable protective film over the camera and illumination components. This film must be removed before assembly — the module will not function with it in place. It is recommended that the cover glass has similar film protection to minimize dust and fingerprints during handling. Assembly should be performed in a clean room environment of greater than 10,000 PPM to minimize dust and particles on the lens and cover glass. Operators handling components directly should wear gloves and a mask.

The following steps should be followed during assembly and validation:

1. Remove the protective film from the module optical components.
2. Remove the protective film from the cover glass.
3. Remove the liner from the cover glass edge protecting the adhesive.
4. Assemble the module and cover glass.
5. Validate the device.
6. Clean the cover glass and apply protective film for shipping.

5. Security

The RealSense™ ID Pro F500 module is designed with security as a foundational principle. All biometric data, firmware, and runtime code are protected using industry-standard cryptographic mechanisms, implemented in hardware where possible. Security is enforced at every stage: boot, runtime, firmware update, and data storage.

1. Security Features Overview

The following table summarizes the security features implemented in the F450 module:

Security Feature	Design	Details
Bootloader	HW Locked Flash	System Root of Trust (ROT). Verifies and loads FW.
Secure FW Boot	AES-256-CTR SHA-256 ECDSA-P256	Verifies FW integrity and authenticity.
Biometric DB Storage	AES-256-CTR	Protects biometric user data.
FW Update	AES-256-CTR SHA-256 ECDSA-P256	Verifies FW image authenticity and integrity before applying update.

2. Security Objectives

The RealSense ID Pro F500 module is designed to meet the following security objectives:

- Prevent device spoofing
- Prevent man-in-the-middle attacks
- Preventing replay attacks
- Prevent hardware flash read attacks (data is encrypted)
- Prevent malicious hardware flash replacement (data is verified)
- Prevent unauthorized firmware updates (signature verification required)

3. Cryptographic Algorithms

Algorithm	Usage
SHA-256	Bootloader hash for platform attestation. FW payload digest for update verification.
AES-256-CTR	Encryption of biometric data and application FW at rest on external flash. Decryption at boot into DRAM.
ECDSA-P256	Signature verification of bootloader and FW image during secure boot and FW update.
TRNG (RNG)	Generation of session values used to prevent replay attacks on the host data link.

4. Privacy

The F500 module is designed to protect user privacy by ensuring that biometric data never leaves the device in plaintext. All face features are stored encrypted on internal flash and decrypted only in DRAM within the SoC package at runtime.

- Biometric data is never transmitted to the host in raw form.
- Face authentication is performed entirely on-device.
- No cloud connectivity is required or used.
- Authentication requires active user awareness — the module does not authenticate passively.

6. Software

Each RealSense ID release includes the following deliverables, available at our opensource GitHub repo:

<https://github.com/realsenseai/RealSenseID/releases/latest>:

- Firmware binaries — for flashing the RealSense™ ID Pro device (the same firmware binary is used for both).
- Windows tools installer — includes the compiled host SDK library, a viewer tool for evaluating and exploring product capabilities, a firmware upgrade tool, and a CLI tool.
- Android sample APK — a reference application for Android-based host integrations.

Firmware and SDK must always be updated together from the same release to ensure compatibility.

6.1 Firmware (FW)

6.1.1 Update procedure

The RealSense ID SDK provides two tools for performing a FW upgrade on the RealSense ID Pro device: *rsid-fw-upgrade.exe* and *rsid-viewer.exe*.

FW must always be upgraded using a compatible SDK version. Using an older SDK tool to flash a newer FW version may result in a compatibility error.

For a step-by-step FW upgrade tutorial, refer to [link].

6.1.1.1 FW Rollback

FW rollback is supported. To perform a rollback, use the SDK version that is compatible with the target FW version and follow the standard FW update procedure.

Rollback is supported down to SDK version 3.3.2 / FW 2.11.2.5, which is the earliest version that introduced RealSense ID Pro.

⚠ Rollback carries the following risks:

- Device settings — settings that are not supported in the target FW version may be reset or corrupted.
- Database — rolling back to an older DB version will break the existing database. Ensure you have a backup or are prepared to re-enroll users.

6.1.2 Communication Interfaces

The RealSense ID Pro device provides two physical communication interfaces for host-device communication:

Interface	Supported Functions
USB	UVC (preview stream) + CDC (control path)
UART	Control path only

6.2 Biometric Features Database

The RealSense™ ID Pro device supports storing up to 10,000 biometric features on-device, with each feature requiring 1KB of storage.

6.2.1 DB Performance

Feature extraction time from the on-device database scales with the number of enrolled users:

Number of Features	Matching Time
500	~5ms
5,000	~55ms
10,000	~110ms

6.2.2 DB Versioning

The database is versioned with no backward compatibility. When a new database version is introduced, it will be announced in the release notes along with a migration script to convert existing features and prevent data loss.

6.3 SDK

The RealSense ID Host SDK is open source and available at <https://github.com/realsenseai/RealSenseID>.

Resource	Location
General documentation & build instructions	README.md
API documentation	include/RealSenseID/README.md
Embedded API documentation	embedded/README.md
Sample code (multiple languages)	samples
Useful tools	tools
Latest SDK release	https://github.com/realsenseai/RealSenseID/releases/latest

6.3.1 Android Requirements

6.3.1.1 Android SDK

The SDK supports Android 8.1 (Oreo, API level 27) and above. Prebuilt libraries are provided for arm64 and x64 architecture. For other architectures, the SDK source code can be used to build the required library.

6.3.1.2 Power Requirements

Android deployments require careful attention to power delivery. Authentication and anti-spoofing operations on the F50x series may require up to 4.5W, which can exceed the USB power output of standard tablets. In such cases, an externally powered USB hub is recommended to ensure stable operation.

A USB Type-C cable with Power Delivery (PD) support is required. USB Type-A cables may not supply sufficient power in all scenarios.

7. Vision Intelligence

7.1 Supported lighting conditions

The device operates across a wide range of lighting conditions, from complete darkness (0 lux) to direct sunlight (50,000 lux). In low-light or dark environments, the integrated IR LED provides the necessary illumination for reliable operation.



Figure 7-1: Different Lighting Supported Scenes

7.2 Supported operating distances

The device supports authentication at distances from 30cm to 150cm. When operating at High security level, the maximum distance is limited to 100cm, which is the recommended configuration for high-security deployments such as ATMs and border control.

7.3 Face Recognition

The RealSense ID face recognition engine is NIST-evaluated and ranked Tier 1 in accuracy.

- 1:1 verification — confirms a person matches a known identity.
- 1:N identification — matches a person against a database of enrolled users.
- External image support — feature extraction and comparison from both device-captured images and external identity documents such as a passport or driver's license.

7.3.1 KPIs & accuracy benchmarks

FPR – False Positive Rate (wrong recognition, one out of many to say that “Eyal” is “Joe”)

FNMR – False Non-Match Rate (percentage that I won’t know that “Eyal” is “Eyal”)

FPR	FNMR
1:1000	0.05%
1:10K	0.1%
1:100K	0.32%
1:1M	0.55%
1:2.5M	0.72%

7.4 Anti-Spoofing

RealSense ID implements a multi-spectral Presentation Attack Detection (PAD) architecture that is fundamentally different from conventional approaches. Rather than relying on a single model, the system operates RGB, NIR, and stereo depth channels as fully independent, parallel AI models — each trained exclusively on its own spectral domain. This combined approach provides robust resistance to all known presentation attacks, including sophisticated 3D silicon mask artifacts.

The system has achieved zero successful attacks in iBeta Level 1 and Level 2 certification testing, and Level 3 testing is currently in progress.

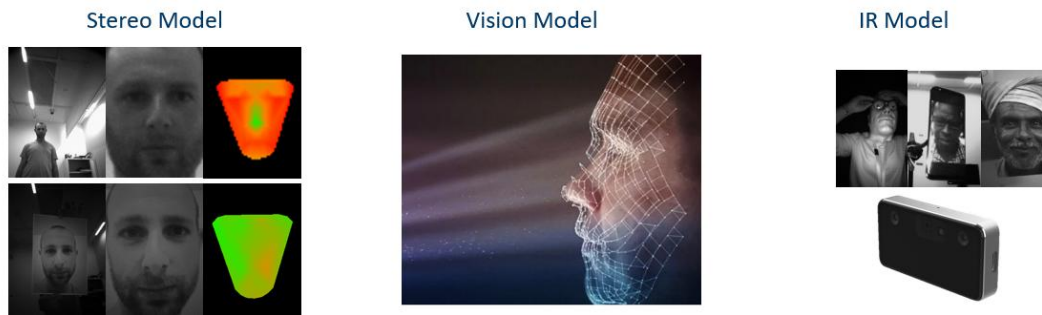


Figure 7-2: Multi-Spectral Anti-Spoofing Models

7.5.2 KPIs & benchmark results

The device supports three configurable security levels, selectable via the SDK API.

Security Level	TPR	TNR	Recommended For
Standard	99.2%	1.3%	Default for most deployments — optimal balance of security and user experience
Enhanced	97.4%	0.3%	Deployments requiring stronger spoof resistance with moderate impact on TAR
High (*)	96.1%	0.02%	Security-sensitive applications such as ATMs and border control

(*) High security level is most effective in controlled environments where the user faces the camera directly under normal lighting conditions.

7.5 Body-Parts Classification

7.5.1 Overview & use cases

The body-parts classifier detects the following human body parts for every person present in the sensor's field of view: person, foot, leg, arm, and hand. Detected body parts can be used to identify tailgating attempts — where an unauthorized individual tries to pass through a security gate immediately behind an authorized user, in scenarios where only single-person entry is permitted.

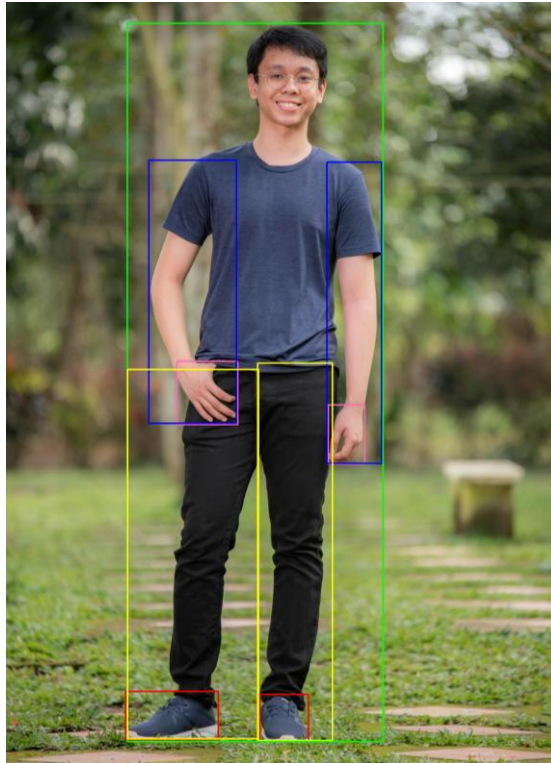


Figure 7-3: Body Parts Detection example - different body parts appear with different color

7.5.2 KPIs & benchmark results

Body Part	F1 Score	Recall	Precision
Person	89.7%	95.6%	84.4%
Feet	88.3%	84.1%	92.9%
Arm	80.2%	83.3%	77.3%
Leg	80.9%	81.5%	80.3%
Hand	80.2%	72.4%	90.0%

8. Appendix: Reference Diagrams & Drawings

8.1 USB Interposer Reference Design

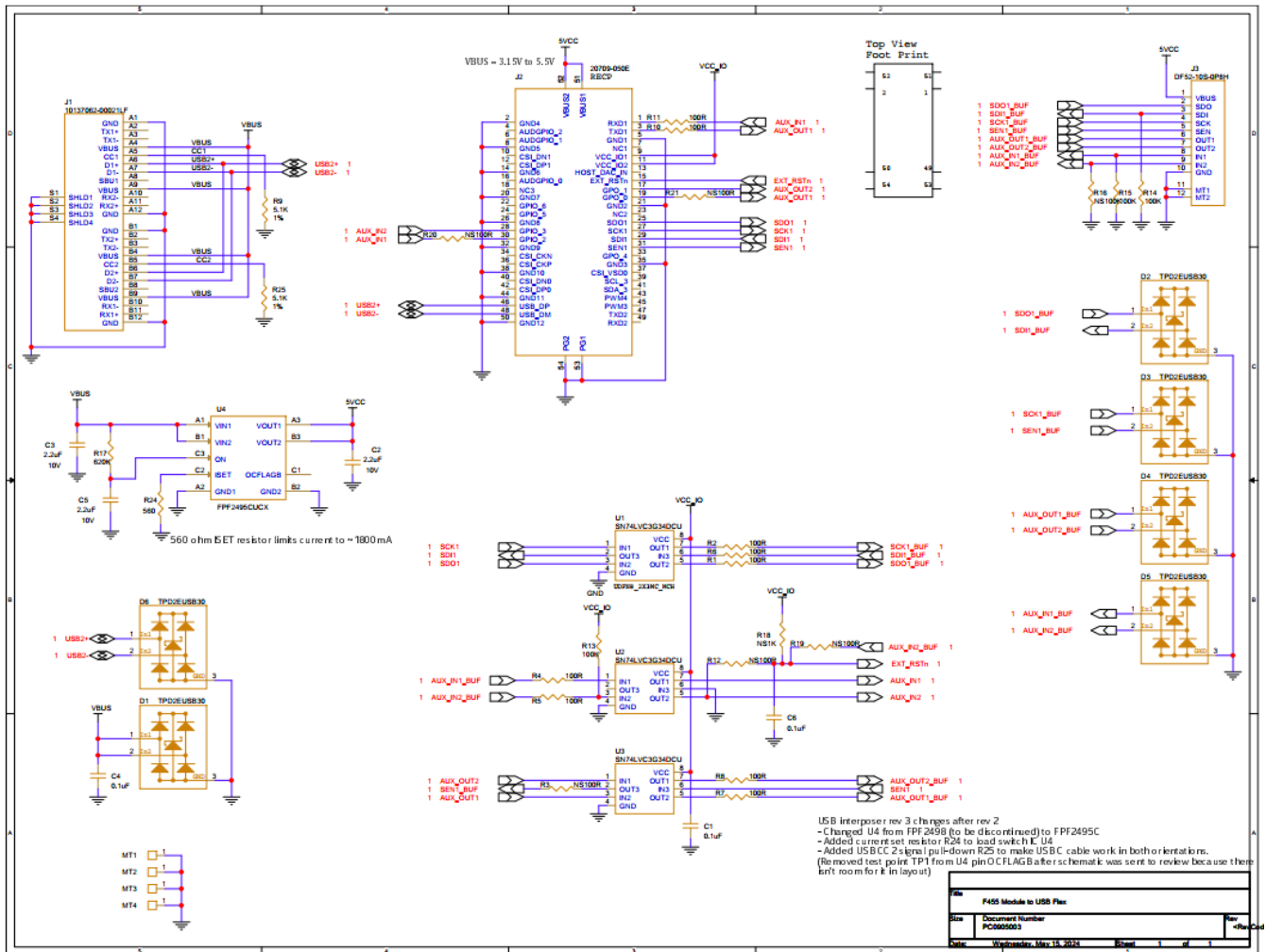


Figure 8-1: RealSense ID Pro F500 USB Interposer Reference Design

8.2 Mechanical Drawings

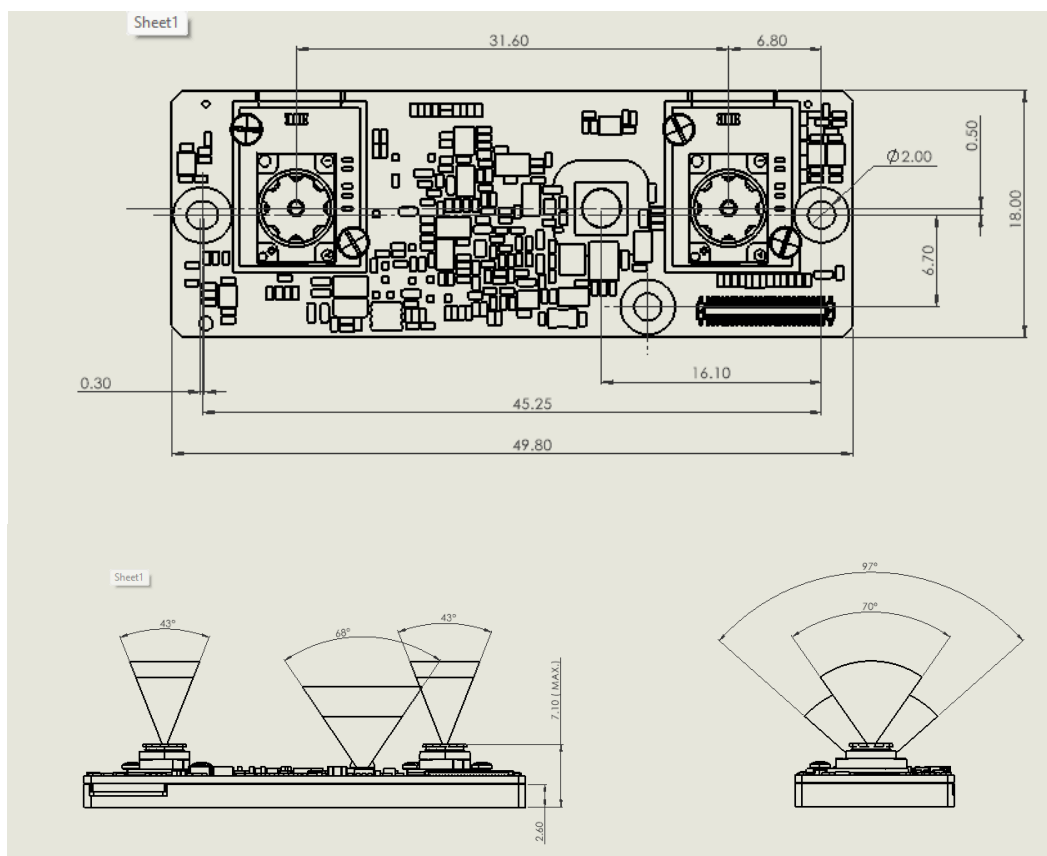


Figure 8-2: RealSense ID Pro F500 Mechanical Drawings

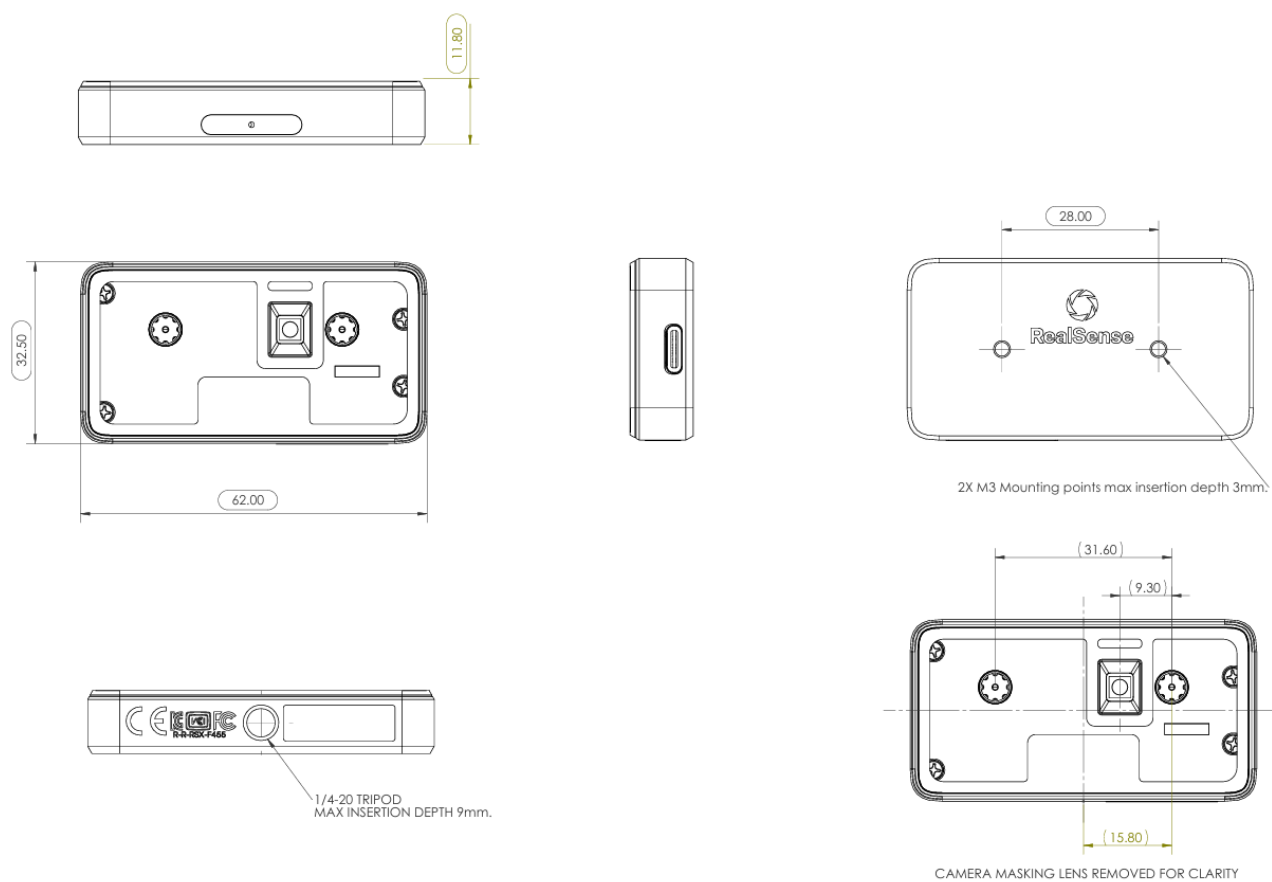


Figure 8-2: RealSense ID Pro F505 Mechanical Drawings

9. Regulatory Compliance

9.1 Regulatory Compliance

9.1.1 Manufacturer's Information

RealSense Inc.
20400 Stevens Creek Boulevard,
Suite 290,
Cupertino, CA 95014, USA

9.1.2 EU Single Place of Contact

EaseCert | GPSR Compliance
Wald str. 33, 54413 Damflos, Germany
compliance@easecert.com;
www.easecert.com
Tel: +49 170 5738 555

9.1.3 UK Single Place of Contact

RealSense, Inc.
Attn: Miro Mlejnek
16 Hallsfield Swindon SN6 6LS
United Kingdom
realsense@realsenseai.com
<https://realsenseai.com>

9.1.4 FCC Part 15 Declaration of Conformity



RealSense ID Peripherals F500

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

RealSense Inc., 20400 Stevens Creek Boulevard, Suite 290, Cupertino, CA 95014

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

CAUTION: To comply with the limits of the Class B digital device, pursuant to Part 15 of the FCC Rules, this device must be installed with computer equipment certified to comply with Class B limits. All cables used to connect to the computer and peripherals must be shielded and grounded. Operation with non-certified computers or non-shielded cables may result in interference to radio or television reception.

9.1.5 Canada

CAN ICES-3 (B)/NMB-3(B)

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Interference-Causing Equipment Standard ICES-003.

Le présent appareil numérique n'émet pas de bruits radio électriques dépassant les limites applicables aux appareils numériques de la classe B prescrites dans la présente norme sur le matériel brouilleur, NMB-003.

9.1.6 European Directives



This product complies with all applicable European directives.

CAUTION: To keep the product in compliance with the European CE requirement, the device must be installed with CE certified computer equipment which meets the Class B limits. Operation with non-certified computers or incorrect cables may result in interference to other devices or undesired effect to the product.

9.1.7 Australia



Due to the very small size of the product, the marking has been placed in this datasheet.

9.1.8. Japan



この装置は、クラスB機器です。この装置は、住宅環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。取扱説明書に従って正しい取り扱いをして下さい。 VCCI-B

This device is a Class B information technology device. This device is intended for use in a home environment, but if this device is used close to a radio or television receiver it may cause reception interference. Please handle according to the instruction manual correctly. VCCI-B

9.1.9 South Korea



인증 번호: R-R-RSX-F455

제조사: RealSense, Inc.

상품명: RealSense ID Peripheral

모델: F500

제조국: 태국

인증 번호: R-R-RSX-F450

제조사: RealSense, Inc.

상품명: RealSense ID Module

제조국: 태국

9.2. Ecology Compliance

9.2.1 China RoHS Declaration



China RoHS Declaration

产品中有害物质的名称及含有信息表

Name & Content Information of Hazardous Substances in Product

部件名称 Component Name	有害物质 Hazardous Substance									
	铅 Pb	汞 Hg	镉 Cd	六价铬 Cr (VI)	多溴联 苯 PBB	多溴二 苯醚 PBDE	邻苯二甲酸二 (2- 乙基) 己酯 DEHP	邻苯二 甲酸丁 基苄酯 BBP	邻苯二 甲酸二 正丁酯 DBP	邻苯二 甲酸二 异丁酯 DIBP
印刷电路板组件 Printed Board Assemblies	×	○	○	○	○	○	○	○	○	○
电缆 Cables	×	○	○	○	○	○	○	○	○	○
注 1: ○:表示该有害物质在该部件所有均质材料中的含量均不超出电器电子产品有害物质限制使用国家标准要求。 ×:表示该有害物质至少在该部件的某一均质材料中的含量超出电器电子产品有害物质限制使用国家标准要求。 Note 1: ○: indicates that the content of this hazardous substances in all homogeneous materials of the component does not exceed the requirements of the national standard for the restriction of the use of hazardous substances in electrical and electronic products. ×: indicates that the content of this hazardous substances in at least one homogeneous material of the component exceeds the requirements of the national standard for the restriction of the use of hazardous substances in electrical and electronic products. 注 1: 以上未列出的部件,表明其有害物质含量均不超出电器电子产品有害物质限制使用国家标准要求。 Note 1: For components not listed above, the hazardous substance content does not exceed the national standard requirements for the restriction of the use of hazardous substances in electrical and electronic products.										
除非另外特别的标注,此标志为针对所涉及产品及其零部件的环保使用期限标志. 某些可更换的零部件可能会有一个不同的环保使用期限(例如,电池单元模块). 此环保使用期限只适用于产品在产品手册中所规定的条件下工作. The Environment-Friendly Use Period (EFUP) for all enclosed products and their parts are per the symbol shown here, unless otherwise marked. Certain field-replaceable parts may have a different EFUP (for example, battery modules) number. The Environment-Friendly Use Period is valid only when the product is operated under the conditions defined in the product manual.										

9.2.2 Waste Electrical and Electronic Equipment (WEEE)



"In the EU, this symbol means that this product must not be disposed of with household waste. It is your responsibility to bring it to a designated collection point for the recycling of waste electrical and electronic equipment. For more information, contact the local waste collection center or your point of purchase of this product."

9.2.3 Turkey

Türkiye Cumhuriyeti: EEE Yönetmeliğine Uygundur