The SkyHub solution is a hardware and software set designed to enhance UAV capabilities for industrial purposes.

SkyHub solution functions:

- Getting data from an external payload
- Getting flight parameters from a flight controller
- Data converting and recording in a format convenient for processing and analysis
- Implementing custom flight control algorithms
- Extended UAV diagnostics

Features

- Fully isolated and ESD-protected external interfaces
- Reliable and convenient connectors with lock, ideal for airborne applications
- 12 V power output with switch-off function for payload connecting
- 3× UART / 1x RS-232 / 1× I²C / Ethernet / Wi-Fi / Bluetooth interfaces (depends on the SkyHub edition, see Kits)
- Protection against input power’s inverse polarity
- Extended operating temperature range from −25°C to +85°C
Applications

- Custom payload integration with drone
- Advanced UAV flight control scenarios
- Using drones in an adverse environment

Interaction diagram
Kits

SPH Engineering provides various kits for different usage scenarios:

- True Terrain Following (TTF) kit
- Ground Penetrating Radar (GPR) kit (includes TTF kit)
- Gas Detector kit (with or without TTF kit)
- Echosounder kit (includes TTF kit)

Any kit provided includes the SkyHub device, cables, and related software.

One may extend the SkyHub solution capabilities by adding custom payloads using SkyHub SDK. Find more details here: https://github.com/ugcs/skyhub-sdk

The SkyHub device has several editions allowing to connect different payloads:

- 3× UART edition
- 2× UART / 1× I²C edition
- 2× UART / 1× RS-232 edition

Also, one UART / RS-232 can provide either 5 V or 12 V voltage up to 1 A for the payload powering.

Specifications

**GENERAL**

Compatible drones

- DJI M210 / M210 V2
- DJI M600 / M600 Pro
- Custom frames based on DJI A3 flight controller

Temperature range

-25°C to +85°C

Power input

- 15 V to 36 V, 3 W without payload, up to 15 W with payload

Power output

- 12 V, up to 1 A

**COMPUTATIONAL CORE**

System-on-Module

- Digi ConnectCore 6UL
## Computational Core

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>NXP i.MX6UL</td>
</tr>
<tr>
<td>CPU frequency</td>
<td>up to 528 MHz</td>
</tr>
<tr>
<td>RAM</td>
<td>256 Mbytes</td>
</tr>
<tr>
<td>Flash</td>
<td>256 Mbytes</td>
</tr>
<tr>
<td>MicroSD</td>
<td>32 Gbytes, industrial grade</td>
</tr>
<tr>
<td>OS</td>
<td>Yocto Project Linux</td>
</tr>
</tbody>
</table>

## Interfaces

<table>
<thead>
<tr>
<th>Interface</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>UART</td>
<td>up to 3 (depends on the edition selected)</td>
</tr>
<tr>
<td>RS-232</td>
<td>up to 1 (depends on the edition selected)</td>
</tr>
<tr>
<td>I²C</td>
<td>up to 1 (depends on the edition selected)</td>
</tr>
<tr>
<td>Wi-Fi</td>
<td>Dual-band 802.11ac</td>
</tr>
<tr>
<td>Bluetooth</td>
<td>4.2 with BLE support</td>
</tr>
<tr>
<td>Ethernet</td>
<td>10/100 Mbit</td>
</tr>
</tbody>
</table>

## Mechanical

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Dimensions (L × W × H)</td>
<td>109 × 69 × 34 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>245 g with mountings</td>
</tr>
<tr>
<td>TTF kit total weight</td>
<td>413 g</td>
</tr>
</tbody>
</table>