

## u-OS devices



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| ID     | Typ  | SW Vers.      |
|--------|--|---------------|
| AC1    | UC20-WL2000-AC                             | all<br>V2.7.0 |
| AC2    | UC20-WL2000-AC-CAN                         |               |
| M3     | UC20-M3000                                 |               |
| M4     | UC20-M4000                                 |               |
| GW     | IOT-GW30                                   |               |
| GW EU  | IOT-GW30-4G-EU                             |               |
| GWNA   | IOT-GW30-4G-NA                             |               |
| IBOX   | FP IOT MD01 LAN S2 00000<br>see ID "GW"    |               |
| IBOXEU | FP IOT MD01 4EU S2 00000<br>see ID „GW EU“ |               |

## u-OS products

This Security Data Sheet provides you with a condensed overview of the security functions of the devices (basic u-OS functionality without extensions). It is an addition to the product specific documentation

- u-control manual / u-control MX0000 manual
- Online documentation u-OS – IOT-GW30
- Quick references / quick start guide

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### Security intended use:

The u-OS based products are intended for use in industrial automation. A u-control station comprising a controller and connected u-remote I/O modules is intended for the control of systems or sub-systems. The u-OS products are often connected to a fieldbus system. The product can be connected to higher-level computer networks via Ethernet and communicate with the Internet via mobile communications. Communication via Ethernet or other bus systems is assumed to be secure; i.e. the customer is responsible for preventing unauthorized access to their devices, systems, machines, and networks by means of access restrictions (e.g., access control, locked control cabinet). Networks with different security levels should only be connected with appropriate security measures, such as routers with firewalls. Communication via the Internet using mobile communications should only take place using secure communication (e.g., VPN or TLS). The u-OS products are based on the Weidmüller Linux operating system u-OS. Individual applications are implemented using installable apps (from the Weidmüller App Hub) or directly installable Docker containers. Operation is web-based and is carried out using a browser. Special security measures must be implemented, which are described in detail in supplementary documentation. References can be found in the “General information” chapter.

The device is not intended for storing or processing personal data or for carrying out financial transactions.

The u-OS products comply with protection class IP20 (according to IEC 60529). Proper use also includes observing the documentation supplied. The products may only be used for the intended applications.

If the products are used in a manner other than that intended by the manufacturer, the protective function they provide may be impaired. All work must only be carried out by trained specialists who are familiar with the applicable regulations and standards for the area of application.

### Note

Only for IOT-GW30-4G-EU and IOT-GW30-4G-NA:

Observe the country-specific radio approvals. Check whether the device has radio approval for your location.

### License terms

Components of free software are integrated into the u-OS products. The license terms can be accessed in u-OS. Observe the license terms.

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## General information

### Additional Security Documents

| Comment   | Reference   |
|---|---|
| Weidmüller Industrial Security website with extensive information on legal requirements (e.g., RED-DA, Machinery Directive, Cyber Resilience Act, NIS2) and solutions with Weidmüller components and security services. | <a href="https://www.weidmueller.com/int/solutions/solutions/industrial_security/index.jsp">https://www.weidmueller.com/int/solutions/solutions/industrial_security/index.jsp</a> |
| The Weidmüller "Industrial Product Security Guideline" recommends security measures at the system level.  | <a href="https://www.weidmueller.com/int/solutions/solutions/industrial_security/index.jsp">https://www.weidmueller.com/int/solutions/solutions/industrial_security/index.jsp</a> |

### Weidmüller PSIRT (Product Security Response Team)

| Comment   | Link  |
|---|---|
| Weidmueller has established a PSIRT and provides information on product-specific security vulnerabilities and their elimination on the Weidmüller website "Security Advisory Board" | <a href="https://support.weidmueller.com/support-center/popular-resources/security-advisory-board">https://support.weidmueller.com/support-center/popular-resources/security-advisory-board</a> |
| Weidmueller publishes security vulnerabilities of its products at VDE @CERT.  | <a href="https://cert.vde.com/en/">https://cert.vde.com/en/</a>   |

### Weidmüller security activities

Weidmüller has implemented a certified Secure Product Development Process according to IEC62443-4-1.

Weidmüller will offer "Secure by Design" products in accordance with IEC62443-4-2. If required, please contact our sales staff

### Additional Support Center information

| Headline | Comment  | Reference   |
|----------|--|---|
| General  | Further product-specific information and help can be found in the Weidmüller Support Center. Use the product type (e.g. IOT-GW30) in the search field. | <a href="https://support.weidmueller.com/support-center/">https://support.weidmueller.com/support-center/</a> |
|          |  |   |
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|          |  |   |

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## General information

### How to find product information

|                      |   |
|----------------------|---|
| Device type          | <b>Physical/optic:</b> Type plate on device, Label on packaging<br><b>u-OS Welcome Screen :</b> Device information/ Product name<br><b>u-OS Data Hub:</b> u_os_adm/ manufacturer_product_type |
| Software version     | <b>u-OS Welcome Screen :</b> Device information/ u-OS version<br><b>u-OS Data Hub:</b> u_os_adm/ software_version   |
| Hardware version     | <b>Physical/optic:</b> Type plate on device, Label on packaging<br><b>u-OS Data Hub:</b> u_os_adm/ hardware_version   |
| MAC address          | <b>Physical/optic:</b> Type plate on device   |
| Serial number        | <b>Physical/optic:</b> Type plate on device, Label on packaging<br><b>u-OS Welcome Screen :</b> Device information/ Serial number<br><b>u-OS Data Hub:</b> u_os_adm/ serial_number            |
| Supported browsers   | Mozilla Firefox 102 or higher<br>Google Chrome 114 or higher<br>Microsoft Edge 115 or higher  |
| App software version | <b>u-OS Control Center:</b> Apps/ App manager   |

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| Comment  | Reference   |
|--|---|
| The Weidmüller "Industrial Product Security Guideline" recommends security measures at the system level. | <a href="https://www.weidmueller.com/int/solutions/solutions/industrial_security/index.jsp">https://www.weidmueller.com/int/solutions/solutions/industrial_security/index.jsp</a> |

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### Interfaces

| Type   | No   | Default                              | Can be changed       | Comment   |
|--|--|--------------------------------------|----------------------|---|
| <b>Ethernet</b><br>AC1, AC2, M3, GW, GWEU, GWNA              | 2  | Active                               | Yes                  | Disable unused interfaces. To disable interfaces see „Disabling ethernet interfaces“.       |
| M4   | 4  | Active                               | Yes                  |   |
| <b>RS485</b><br>GW, GWEU, GWNA                               | 1  | Active                               | No                   | Active, but not connected with a functionality. It can only used by a specific application. |
| <b>RS232</b><br>GW, GWEU, GWNA                               | 1  | Active                               | No                   | Active, but not connected with a functionality. It can only used by a specific application. |
| <b>CAN</b><br>GW, GWEU, GWNA                                 | 1  | Active                               | No                   | Active, but not connected with a functionality. It can only used by a specific application. |
| <b>USB</b><br>AC1, AC2<br>GW, GWEU, GWNA<br>M3, M4<br>M3, M4 | 1 (device)<br>1 (host)<br>1 (device)<br>2 (host) | Active<br>Active<br>Active<br>Active | No<br>No<br>No<br>No |   |
| <b>Radio 2G, 3G, 4G</b><br>GWEU, GWNA                        | 1  | Active                               | Yes, via SIM card    | No active access from outside. A connection can only be established from the device.        |
| <b>Digital Input</b><br>GW, GWEU, GWNA                       | 2  | Active                               | No                   | Active, but not connected with a functionality. It can only used by a specific application. |
| <b>Digital Output</b><br>GW, GWEU, GWNA                      | 1  | Active                               | No                   | Active, but not connected with a functionality. It can only used by a specific application. |
| <b>Right-sided modul extension</b><br>AC1, AC2, M3, M4       | 1  | Active                               | No                   | Right-sided IO extension via u-remote module bus (backplane).                               |
| <b>Left-sided modul extension</b><br>M3, M4                  | 1  | Active                               | No                   | Left-sided IO extension via u-control moduls. Currently deactivated.                        |

### Network access functions

| Function   | Default                            | Can be changed | Comment   |
|--|------------------------------------|----------------|---|
| DHCP Client  | Active on first Ethernet interface | Yes            | Static IP configuration is recommended.   |
| Network load limiter                                   | Active                             | No             | Rate limiting for prevention of DoS attacks.  |
| <b>Firewall for mobile radio</b><br>GWEU, GWNA, IBOXEU | Active                             | No             | The firewall prevents active access from outside via mobile radio (3G/4G/LTE).          |
| NTP Client   | Active                             | Yes            | A valid time is important for e.g. certificate verification. Choose a valid NTP server. |

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### Component access functions

| Function          | Default  | Can be changed | Comment   |
|-------------------|----------|----------------|---|
| Login & password  | Active   | Yes            | <p>Default credentials: No.<br/>                     When starting for the first time, the user must enter a user name and password. The first user is automatically logged in as admin.<br/>                     Minimum password length is 6 character.</p> <p>Strongly recommended to change to a strong and individual password!<br/>                     Password policy: Minimum password length is 6 character.</p> <p>Note: Extended functionality is planned for future versions</p>   |
| Identity & access | Active   | Yes            | <p>Identity and access management (Users &amp; Roles) can be configured in the u-OS Control Center -&gt; Identity &amp; access. Multiple Users and Roles can be configured. Different permissions can be assigned to Roles.</p> <p>Clients can be created for using APIs e.g. u-OS Data Hub. OAuth 2.0 client credentials flow is used (Identity &amp; access -&gt; Clients).</p> <p>Unauthorized access can be configured for APIs e.g. u-OS Data Hub or Apps (Identity &amp; access -&gt; Access -&gt; Unauthenticated access). This is not recommended in production.</p> <p>Note: Extended functionality is planned for future versions</p> |
| HTTPS             | Active   | Yes            | Secure web access. Recommended for web access.  |
| HTTP              | Deactive | Yes            | Not secure web access. Not recommended, disable function.   |
| SSH               | Deactive | Yes            | SSH access. Not recommended in production.  |

### Software and Data

| Function         | Default   | Can be changed | Comment   |
|------------------|-----------|----------------|---|
| Backup & restore | On demand |                | Local Backup & Restore of Apps, data and settings via web browser is supported. The Backup is encrypted.  |
| Firmware update  | On demand |                | <p>Firmware updates, APP offline installations and other SWUs are signed. Signiture is checked in installation process.</p> <p>The signature verification mechanism can be disabled via the u-OS Control Center. Disabling this mechanism is not recommended for production environments and shall be restricted to development and testing purposes only. The signature verification is enabled by default.</p> <p>Local firmware update via Web browser is supported (Welcome screen / u-OS control center / Software &amp; updates / Update &amp; installation).</p> <p>Remote firmware update be performed via hawkBit. For hawkBit configuration navigate to Welcome screen / u-OS Control Center / Software &amp; updates / hawkBit</p> |
| Logging          | Yes       | No             | u-OS system log can be opened in the u-OS Control Center. The log is not persistent.  |

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## Technical information

### Software and Data

| Function                     | Default   | Can be changed | Comment   |
|------------------------------|-----------|----------------|---|
| App and service installation | On demand |                | <p>The u-OS operating system allows the system to be individually expanded using Apps, Docker containers or native services.</p> <p>Best security practices</p> <ul style="list-style-type: none"> <li>• Make sure that you only download updates from trustworthy sources (e.g. Weidmüller APPHUB or Weidmüller Support Center)</li> <li>• Check cyclically for new updates for the devices you are using.</li> <li>• Install software updates and security fixes as quickly as possible.</li> <li>• Bring the machine or system into a safe state before the update.</li> <li>• Test the new software before installing it on a large scale.</li> <li>• Make sure that service personnel are present at the machine or system during an automatic update so that they can react in the event of a security incident.</li> <li>• Create and update your security risk analysis.</li> </ul> |

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## Technical information

### Services and Ports

**Note:**

- Additional ports may be available through installed Apps, Docker containers or services.

| Function                      | Port                    | Protocol | Default  | Can be changed | Comment                              |
|-------------------------------|-------------------------|----------|----------|----------------|--------------------------------------|
| HTTP<br>all                   | 80                      | TCP      | Deactive | Yes            | Web access unsecure                  |
| HTTPS<br>all                  | 443                     | TCP      | Active   | Yes            | Web access secure                    |
| SSH<br>all                    | 22                      | TCP      | Deactive | Yes            | Secure Shell Protocol                |
| Codemeter<br>all              | 22350                   | TCP      | Active   | No             | Licence management                   |
| LLMNR<br>all                  | 5355                    | TCP/UDP  | Active   | No             | Link-Local Multicast Name Resolution |
| mDNS<br>all                   | 5353                    | UDP      | Active   | No             | Multicast DNS                        |
| DHCP<br>all                   | 67                      | UDP      | Active   | No             | Dynamic Host Configuration Protocol  |
| avahi-daemon<br>all           | Dynamic (32768 - 61000) | UDP      | Active   | No             | Multicast DNS Queries                |
| SFTP<br>all                   | 22                      | SSH      | Deactive | Yes            | SSH File Transfer Protocol           |
| TLS versions supported<br>all |                         |          |          |                | Supported version 1.2 and 1.3        |

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### Disabling ethernet interfaces

#### Note:

- Disabling of interfaces should only be performed by trained personnel and administrators.

Before disabling or enabling an interface, the following conditions must be met:

- SSH access must be enabled.
- An administrator must be connected to the device terminal.

#### Explanation

- Auto-connect: Prevents an interface from automatically establishing a connection when a cable is plugged in.
- Disconnect: Terminates the current active connection of the interface.

### Disabling an interface

Disable auto-connect:

- `sudo nmcli connection modify "<eth0|eth1|eth-x4|eth-x5|eth-x6|eth-x7>" connection.autoconnect no`

Disconnect the interface:

- `sudo nmcli device disconnect <eth0|eth1|eth-x4|eth-x5|eth-x6|eth-x7>`

### Enabling an interface

Enable auto-connect:

- `sudo nmcli connection modify "<eth0|eth1|eth-x4|eth-x5|eth-x6|eth-x7>" connection.autoconnect yes`

Connect the interface:

- `sudo nmcli device connect <eth0|eth1|eth-x4|eth-x5|eth-x6|eth-x7>`

**Important:** Always ensure that at least **one interface remains enabled**, otherwise you may lose access to the device. The interface names can be seen on the user interface as described in our handbook.