## Revision history

<table>
<thead>
<tr>
<th>Manual version</th>
<th>HW version</th>
<th>Notes</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>2.0</td>
<td>Initial version</td>
<td>November 2020</td>
</tr>
</tbody>
</table>
## Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CISPR</td>
<td>Comité International Spécial des Perturbations Radioélectriques</td>
<td>International Special Committee on Radio</td>
</tr>
<tr>
<td>EV</td>
<td>Evaluation</td>
<td></td>
</tr>
<tr>
<td>ESD</td>
<td>Electro Static Discharge</td>
<td></td>
</tr>
<tr>
<td>FOTA</td>
<td>Firmware over the update</td>
<td></td>
</tr>
<tr>
<td>EMC</td>
<td>Electro Magnetic Compatibility</td>
<td></td>
</tr>
<tr>
<td>GND</td>
<td>Ground</td>
<td></td>
</tr>
<tr>
<td>HIGH</td>
<td>High signal level</td>
<td></td>
</tr>
<tr>
<td>IDE</td>
<td>Integrated development environment</td>
<td></td>
</tr>
<tr>
<td>IEC</td>
<td>International Electrotechnical Commission</td>
<td></td>
</tr>
<tr>
<td>IEEE</td>
<td>Institute for electrical and electronic engineers</td>
<td></td>
</tr>
<tr>
<td>JTAG</td>
<td>Joint Test Action Group</td>
<td></td>
</tr>
<tr>
<td>LED</td>
<td>Light Emitting Diode</td>
<td></td>
</tr>
<tr>
<td>Li-Po</td>
<td>Lithium-Polymer</td>
<td></td>
</tr>
<tr>
<td>LOW</td>
<td>Low signal level</td>
<td></td>
</tr>
<tr>
<td>PC</td>
<td>Personal Computer</td>
<td></td>
</tr>
<tr>
<td>PCB</td>
<td>Printed Circuit Board</td>
<td></td>
</tr>
<tr>
<td>VCC</td>
<td>Supply voltage</td>
<td></td>
</tr>
<tr>
<td>VDD</td>
<td>Voltage Drain Drain</td>
<td></td>
</tr>
</tbody>
</table>
Contents

1 General description 5
   1.1 Introduction ........................................... 5
   1.2 Block diagram ........................................ 6
   1.3 Contents ............................................. 6

2 Functional description 7
   2.1 Adafruit Feather ....................................... 7
   2.2 Calypso Wi-Fi module (2610011025000) .................. 7

3 Hardware description 9
   3.1 Connectors ........................................... 9
      3.1.1 Feather connector ................................. 9
   3.2 Jumpers ................................................ 10
      3.2.1 JP2 .............................................. 10
      3.2.2 JP3 .............................................. 11
   3.3 Push buttons .......................................... 11
      3.3.1 S1 ............................................... 11
      3.3.2 S2 ............................................... 11
   3.4 Schematics ............................................ 13
   3.5 Layout ................................................. 14

4 Software description 16
   4.1 Software architecture ................................ 16
   4.2 Installing the tools ................................... 17
      4.2.1 IDE ............................................... 17
      4.2.2 Installation steps ................................. 17
   4.3 Hardware Setup ....................................... 18
   4.4 Running the quick start example ...................... 18

5 Regulatory compliance information 20
   5.1 Exemption clause ...................................... 20

6 Important notes 21
   6.1 General customer responsibility ....................... 21
   6.2 Customer responsibility related to specific, in particular safety-relevant applications .............. 21
   6.3 Best care and attention ................................ 21
   6.4 Customer support for product specifications ........... 21
   6.5 Product improvements .................................. 22
   6.6 Product life cycle ..................................... 22
   6.7 Property rights ....................................... 22
   6.8 General terms and conditions .......................... 22

7 Legal notice 23
   7.1 Exclusion of liability .................................. 23
   7.2 Suitability in customer applications ................... 23
   7.3 Trademarks ............................................ 23
   7.4 Usage restriction ....................................... 23
# License terms

8.1 Limited license .......................................................... 25
8.2 Usage and obligations .................................................. 25
8.3 Ownership ................................................................. 26
8.4 Firmware update(s) ...................................................... 26
8.5 Disclaimer of warranty .................................................. 26
8.6 Limitation of liability .................................................... 27
8.7 Applicable law and jurisdiction ....................................... 27
8.8 Severability clause ....................................................... 27
8.9 Miscellaneous ............................................................. 27
1 General description

1.1 Introduction

The Würth Elektronik eiSos Calypso Wi-Fi FeatherWing is a development board that offers a secure 2.4 GHz Wi-Fi connectivity solution. It is fully compatible to the popular Adafruit Feather line of development boards and extends the Feathers with Wi-Fi connectivity.

The Calypso Wi-Fi FeatherWing consists of the Calypso radio module that offers Wi-Fi connectivity based on IEEE 802.11 b/g/n with a fully featured TCP/IP (IPv4 and IPv6) stack. With out-of-the-box support to commonly used network applications like SNTP, HTTP(S), MQTT(S) Calypso offers an easy and secure solution to any IoT application.

It has an AT-style command interface on the standard UART and hence can be connected to any of the Feather microcontroller boards. The Arduino (C/C++) drivers and examples (see chapter 4) made available makes it easy to build a prototype to kick-start the application development.

Figure 1: The WE Calypso Wi-Fi FeatherWing (2610039025001)
1.2 Block diagram

Figure 2: Block diagram - Calypso Wi-Fi FeatherWing

1.3 Contents

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>WE Calypso Wi-Fi FeatherWing</td>
<td>1</td>
</tr>
<tr>
<td>Packaging: ESD safe bag</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 1: Contents 2610039025001
2 Functional description

The Calypso Wi-Fi FeatherWing was designed with rapid prototyping in mind. Being fully compatible with the Adafruit ecosystem, this FeatherWing allows the user the flexibility to choose the preferred host microcontroller. The inherent modularity of the ecosystem allows the FeatherWing to be easily integrated into any project. The next sections provide a brief introduction to Adafruit's Feather ecosystem and details on the Calypso Wi-Fi module.

Feel free to check our youtube channel: www.youtube.com/user/WuerthElektronik/videos for video tutorials, hands-ons and webinars relating to our products.

2.1 Adafruit Feather

The Adafruit Feather ecosystem consists of two types of boards apart from a host of accessories:

- **Feather**: Adafruit Feathers are a complete line of development boards from Adafruit that are standalone and stackable. They can be powered either over the on-board micro-USB plugs or using a Li-Po battery. Feathers are portable, flexible and light as their namesake.

- **FeatherWing**: FeatherWings are stackable boards that when used along with a Feather add a certain functionality to the system.

The Feather system with more than 50+ Wings, several different types of accessories and arduino/circuit python based code support provides a perfect ecosystem for rapid prototyping. Please refer to adafruit.com/feather for more details on the Adafruit Feather ecosystem.

2.2 Calypso Wi-Fi module (2610011025000)

The Calypso Wi-Fi module is a compact Wi-Fi radio module based on IEEE 802.11 b/g/n with a fully featured TCP/IP stack. The edge castellated connections, smart antenna configuration and an easy-to-use AT-style command interface enable easy integration of the Calypso into any embedded application.

The module supports IPv4 as well as IPv6 and implements several commonly used network applications like SNTP, DHCPv4, DHCPv6, mDNS, HTTP(S), MQTT(Secure) out-of-the-box. Advanced security features like up to 6 simultaneous secure sockets, secure boot, secure storage and secure OTA update provide a good basis for a secure end product. Whether a serial cable replacement or low power IoT application with cloud connectivity, the Calypso Wi-Fi module offers a robust and standard compliant wireless connectivity solution for low-power and low-medium throughput applications.

Key features

In this section, the features of the Calypso module are summarized in the form of a table. Calypso offers the user to configure and exploit its rich features through an easy-to-use command interface over UART.
<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Radio standards** | IEEE 802.11 b/g/n station  
IEEE 802.11 b/g Access point (for provisioning only)  
Wi-Fi Direct client and group owner |
| **Channels**     | 1-13                                                                        |
| **Security**     | WEP, WPA/WPA2PSK, WPA2 Enterprise (802.1x)                                 |
| **Provisioning** | In AP mode using the on-board HTTPS server                                  |
| **Network layer** | IPv4, IPv6                                                                  |
| **IP addresssing** | Static, LLA, DHCPv4, DHCPv6 with DAD                                      |
| **Transport layer** | TCP, UDP  
SSLv3.0/TLSv1.0/TLSv1.1/TLSv1.2  
Up to 15 simultaneous sockets of which 6 can be secure. |
| **Network applications** | MQTT(Secure) client  
HTTP(S) client  
SNTP client  
HTTP(S) server  
mDNS, DNS-SD  
DHCP server  
Ping |
| **Update**       | Secure FOTA update with fall back mechanism                                 |
| **Security**     | Secure key storage  
Trusted root-certificate catalog  
Encrypted file system  
Secure OTA  
Software tamper detection  
Cloning protection |
| **Power management** | 802.11 power save power modes  
Lower power sleep mode with timed or pin wake-up |

Table 2: Key features

Further details about Calypso Wi-Fi module can be found under
[we-online.com/catalog/en/CALYPSO](http://we-online.com/catalog/en/CALYPSO)
3 Hardware description

This section contains a detailed description of the hardware features of the Calypso Wi-Fi FeatherWing. The design files for this hardware can be downloaded from github.com/WE-eiSmart/FeatherWings-Hardware.

3.1 Connectors

3.1.1 Feather connector

This is the standard set of connectors that is used across the Feather ecosystem. The table below describes the functions of each of the 28 pins as applicable to this FeatherWing.

<table>
<thead>
<tr>
<th>Pin Number</th>
<th>Pin name</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RST</td>
<td>Not connected</td>
</tr>
<tr>
<td>2</td>
<td>3V3</td>
<td>3.3V power supply</td>
</tr>
<tr>
<td>3</td>
<td>AREF</td>
<td>Not connected</td>
</tr>
<tr>
<td>4</td>
<td>GND</td>
<td>Ground</td>
</tr>
<tr>
<td>5</td>
<td>A0</td>
<td>Not connected</td>
</tr>
<tr>
<td>6</td>
<td>A1</td>
<td>(Optional) Calypso APP_MODE_0 pin via JP3</td>
</tr>
<tr>
<td>7</td>
<td>A2</td>
<td>(Optional) Calypso APP_MODE_1 pin via JP3</td>
</tr>
<tr>
<td>8</td>
<td>A3</td>
<td>Not connected</td>
</tr>
<tr>
<td>9</td>
<td>A4</td>
<td>Not connected</td>
</tr>
<tr>
<td>10</td>
<td>A5</td>
<td>Not connected</td>
</tr>
<tr>
<td>11</td>
<td>SCK</td>
<td>Not connected</td>
</tr>
<tr>
<td>12</td>
<td>MOSI</td>
<td>Not connected</td>
</tr>
<tr>
<td>13</td>
<td>MISO</td>
<td>Not connected</td>
</tr>
<tr>
<td>14</td>
<td>U0RX</td>
<td>Calypso UTXD pin</td>
</tr>
<tr>
<td>15</td>
<td>U0TX</td>
<td>Calypso URXD Pin</td>
</tr>
<tr>
<td>16</td>
<td>NC</td>
<td>Not connected</td>
</tr>
<tr>
<td>Pin Number</td>
<td>Pin name</td>
<td>Function</td>
</tr>
<tr>
<td>------------</td>
<td>------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>17</td>
<td>SDA</td>
<td>Not connected</td>
</tr>
<tr>
<td>18</td>
<td>SCL</td>
<td>Not connected</td>
</tr>
<tr>
<td>19</td>
<td>5</td>
<td>Not connected</td>
</tr>
<tr>
<td>20</td>
<td>6</td>
<td>(Optional) Calypso WAKE_UP pin via JP3</td>
</tr>
<tr>
<td>21</td>
<td>9</td>
<td>Not connected</td>
</tr>
<tr>
<td>22</td>
<td>U1TX</td>
<td>Not connected</td>
</tr>
<tr>
<td>23</td>
<td>U1RX</td>
<td>Not connected</td>
</tr>
<tr>
<td>24</td>
<td>12</td>
<td>(Optional) Switch S2 via JP3</td>
</tr>
<tr>
<td>25</td>
<td>13</td>
<td>Not connected</td>
</tr>
<tr>
<td>26</td>
<td>5V</td>
<td>Not connected</td>
</tr>
<tr>
<td>27</td>
<td>EN</td>
<td>Not connected</td>
</tr>
<tr>
<td>28</td>
<td>VBAT</td>
<td>Not connected</td>
</tr>
</tbody>
</table>

### 3.2 Jumpers

![Figure 3: Jumpers and their default state](image)

#### 3.2.1 JP2

This jumper enables the user to start Calypso Wi-Fi module in different modes through the APP_MODE_0 and APP_MODE_1 pins. Table 4 briefly describes the different application modes of Calypso. Please refer to Section 5.2 of the Calypso user manual for further details. For normal operation in the standard AT-command mode, these jumpers do not need as the lines are pulled down internally.
<table>
<thead>
<tr>
<th>JP1</th>
<th>Function</th>
<th>Jumper set (default)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,3</td>
<td>APP_MODE_0 to HIGH</td>
<td>No</td>
</tr>
<tr>
<td>3,5</td>
<td>APP_MODE_0 to LOW</td>
<td>No</td>
</tr>
<tr>
<td>2,4</td>
<td>APP_MODE_1 to HIGH</td>
<td>No</td>
</tr>
<tr>
<td>4,6</td>
<td>APP_MODE_1 to LOW</td>
<td>No</td>
</tr>
</tbody>
</table>

Table 3: Jumper JP2

<table>
<thead>
<tr>
<th>APP_MODE_0</th>
<th>APP_MODE_1</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>AT command normal mode</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>FOTA mode</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>Provisioning mode</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>AT command terminal mode</td>
</tr>
</tbody>
</table>

Table 4: Calypso Application modes

3.2.2 JP3

This jumper allows the connection of Calypso’s pins APP_MODE_0, APP_MODE_1, WAKE_UP pins to the host microcontroller. Additionally, it allows the general purpose switch S2 to be connected to GPIO 6.

<table>
<thead>
<tr>
<th>JP3</th>
<th>Function</th>
<th>Jumper set (default)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2</td>
<td>S2 to GPIO12</td>
<td>Yes</td>
</tr>
<tr>
<td>3,4</td>
<td>APP_MODE_0 to GPIOA1</td>
<td>No</td>
</tr>
<tr>
<td>5,6</td>
<td>APP_MODE_1 to GPIOA2</td>
<td>No</td>
</tr>
<tr>
<td>7,8</td>
<td>WAKE_UP to GPIO6</td>
<td>No</td>
</tr>
</tbody>
</table>

Table 5: Jumper JP3

3.3 Push buttons

3.3.1 S1

This push button is connected to the /RESET pin of the Calypso Wi-Fi module. Pressing this button resets the module.

3.3.2 S2

S2 is a general purpose push button which is connected to GPIO 6 when a jumper is set between pins 1 and 2 of JP3. This switch can be used to trigger a specific action like switching the Calypso into provisioning mode.
Figure 4: Push buttons
3.4 Schematics

Figure 5: Schematics
3.5 Layout

Figure 6: Assembly diagram
Figure 7: Top, bottom and internal layers
4 Software description

Würth Elektronik eiSos provides a software development kit (SDK) with examples to support all the WE FeatherWings. Here are the salient features of the WE FeatherWing SDK.

- The SDK is open-source and well documented.
- It uses popular open-source tool chain including an IDE.
- The examples are written in Arduino-styled C/C++ for quick prototyping.
- The core components of the SDK are written in pure C to enable easy porting to any microcontroller platform.
- Development platform independent (Windows, Linux or MAC).
- Modular structure of the software stack makes it easy to integrate into any project.

The SDK can be accessed on Github at github.com/WE-eiSmart/FeatherWings.

4.1 Software architecture

The WE FeatherWing SDK is built up in a modular way using a set of open-source tools to enable complete flexibility for the user. The figure 8 shows the architecture of the WE FeatherWing SDK.

- **PlatformIO**: is a cross-platform, cross-architecture, multiple framework professional tool for embedded software development. It provides the tool chain necessary for the software development including building, debugging, code-upload and many more. PlatformIO works well on all the modern operating systems and supports a host of development boards including the Feathers from Adafruit. Further details about PlatformIO can be found under platformio.org

- **Platform interface**: This layer provides abstraction to the peripheral drivers for the platform being used. Currently, this SDK implements an abstraction to the Arduino peripheral drivers for the Feather M0 express platform.

- **WE SDK**: This is a layer of platform-independent pure C drivers for sensors and wireless connectivity modules from Würth Elektronik eiSos. These drivers implement all the necessary functions to utilize full feature set of the sensors and wireless connectivity modules. More details on the SDK and downloads under, we-online.com/wcs-software.

- **Board files**: This layer provides abstraction at a board level and provides functions to configure and control individual FeatherWings from WE.

- **User application**: The SDK currently implements a quick start example for each of the FeatherWings.
4.2 Installing the tools

4.2.1 IDE

Although, platformIO provides a versatile command line interface for development, the SDK provides quick start projects for the Visual Studio Code. This popular IDE makes for better code organization as well as code editing. Visual Studio Code is available on all modern operating systems. Support for extensions, built-in Git and a versatile code editor make it a well rounded tool for embedded software development. Please refer to code.visualstudio.com for more details on Visual Studio Code.

4.2.2 Installation steps

- Install Visual Studio Code on the platform of your choice following the instructions under code.visualstudio.com/docs
• Follow the instructions under platformio.org/install/ide?install=vscode to install PlatformIO IDE extension.

4.3 Hardware Setup

The quick start examples in the SDK are written to be run on Adafruit’s Feather M0 express. The hardware setup is as simple as stacking up the FeatherWing on top of the M0 Feather and powering up the board.

4.4 Running the quick start example

• Clone or download the WE FeatherWing SDK from Github. github.com/WE-eiSmart/FeatherWings

• Open the workspace of interest with the filename <FeatherWing>.code-workspace in Visual Studio code.

• Build and upload the code from the PlatformIO tab as shown in the Figure 9

• After successful upload, click on Monitor to view the debug logs in the serial terminal (See Figure 9).
Figure 9: Running the quick start example
5 Regulatory compliance information

Pursuant to Article 1 (2.) of the EU directive 2014/53/EU, Article 1 (2.) the directive does not apply to equipment listed in Annex I (4.): custom-built evaluation kits destined for professionals to be used solely at research and development facilities for such purposes.

Nevertheless this evaluation board has been tested to satisfy general EMC requirements. Following standards have been applied:

• IEC 61000-4-3
• IEC 61000-4-4
• IEC 61000-4-6
• CISPR 16-2-1
• CISPR 16-2-3

5.1 Exemption clause

Relevant regulation requirements are subject to change. Würth Elektronik eiSos does not guarantee the accuracy of the before mentioned information. Directives, technical standards, procedural descriptions and the like may be interpreted differently by the national authorities. Equally, the national laws and restrictions may vary with the country. In case of doubt or uncertainty, we recommend that you consult with the authorities or official certification organizations of the relevant countries. Würth Elektronik eiSos is exempt from any responsibilities or liabilities related to regulatory compliance.

Notwithstanding the above, Würth Elektronik eiSos makes no representations and warranties of any kind related to their accuracy, correctness, completeness and/or usability for customer applications. No responsibility is assumed for inaccuracies or incompleteness.
6 Important notes

The following conditions apply to all goods within the wireless connectivity product range of Würth Elektronik eiSos GmbH & Co. KG:

6.1 General customer responsibility

Some goods within the product range of Würth Elektronik eiSos GmbH & Co. KG contain statements regarding general suitability for certain application areas. These statements about suitability are based on our knowledge and experience of typical requirements concerning the areas, serve as general guidance and cannot be estimated as binding statements about the suitability for a customer application. The responsibility for the applicability and use in a particular customer design is always solely within the authority of the customer. Due to this fact, it is up to the customer to evaluate, where appropriate to investigate and to decide whether the device with the specific product characteristics described in the product specification is valid and suitable for the respective customer application or not. Accordingly, the customer is cautioned to verify that the documentation is current before placing orders.

6.2 Customer responsibility related to specific, in particular safety-relevant applications

It has to be clearly pointed out that the possibility of a malfunction of electronic components or failure before the end of the usual lifetime cannot be completely eliminated in the current state of the art, even if the products are operated within the range of the specifications. The same statement is valid for all software sourcecode and firmware parts contained in or used with or for products in the wireless connectivity and sensor product range of Würth Elektronik eiSos GmbH & Co. KG. In certain customer applications requiring a high level of safety and especially in customer applications in which the malfunction or failure of an electronic component could endanger human life or health, it must be ensured by most advanced technological aid of suitable design of the customer application that no injury or damage is caused to third parties in the event of malfunction or failure of an electronic component.

6.3 Best care and attention

Any product-specific data sheets, manuals, application notes, PCN’s, warnings and cautions must be strictly observed in the most recent versions and matching to the products firmware revisions. This documents can be downloaded from the product specific sections on the wireless connectivity homepage.

6.4 Customer support for product specifications

Some products within the product range may contain substances, which are subject to restrictions in certain jurisdictions in order to serve specific technical requirements. Necessary information is available on request. In this case, the field sales engineer or the internal sales person in charge should be contacted who will be happy to support in this matter.
6.5 Product improvements

Due to constant product improvement, product specifications may change from time to time. As a standard reporting procedure of the Product Change Notification (PCN) according to the JEDEC-Standard, we inform about major changes. In case of further queries regarding the PCN, the field sales engineer, the internal sales person or the technical support team in charge should be contacted. The basic responsibility of the customer as per section 6.1 and 6.2 remains unaffected. All wireless connectivity module driver software “wireless connectivity SDK” and it’s source codes as well as all PC software tools are not subject to the Product Change Notification information process.

6.6 Product life cycle

Due to technical progress and economical evaluation we also reserve the right to discontinue production and delivery of products. As a standard reporting procedure of the Product Termination Notification (PTN) according to the JEDEC-Standard we will inform at an early stage about inevitable product discontinuance. According to this, we cannot ensure that all products within our product range will always be available. Therefore, it needs to be verified with the field sales engineer or the internal sales person in charge about the current product availability expectancy before or when the product for application design-in disposal is considered. The approach named above does not apply in the case of individual agreements deviating from the foregoing for customer-specific products.

6.7 Property rights

All the rights for contractual products produced by Würth Elektronik eiSos GmbH & Co. KG on the basis of ideas, development contracts as well as models or templates that are subject to copyright, patent or commercial protection supplied to the customer will remain with Würth Elektronik eiSos GmbH & Co. KG. Würth Elektronik eiSos GmbH & Co. KG does not warrant or represent that any license, either expressed or implied, is granted under any patent right, copyright, mask work right, or other intellectual property right relating to any combination, application, or process in which Würth Elektronik eiSos GmbH & Co. KG components or services are used.

6.8 General terms and conditions

Unless otherwise agreed in individual contracts, all orders are subject to the current version of the “General Terms and Conditions of Würth Elektronik eiSos Group”, last version available at www.we-online.com.
7 Legal notice

7.1 Exclusion of liability

Würth Elektronik eiSos GmbH & Co. KG considers the information in this document to be correct at the time of publication. However, Würth Elektronik eiSos GmbH & Co. KG reserves the right to modify the information such as technical specifications or functions of its products or discontinue the production of these products or the support of one of these products without any written announcement or notification to customers. The customer must make sure that the information used corresponds to the latest published information. Würth Elektronik eiSos GmbH & Co. KG does not assume any liability for the use of its products. Würth Elektronik eiSos GmbH & Co. KG does not grant licenses for its patent rights or for any other of its intellectual property rights or third-party rights.

Notwithstanding anything above, Würth Elektronik eiSos GmbH & Co. KG makes no representations and/or warranties of any kind for the provided information related to their accuracy, correctness, completeness, usage of the products and/or usability for customer applications. Information published by Würth Elektronik eiSos GmbH & Co. KG regarding third-party products or services does not constitute a license to use such products or services or a warranty or endorsement thereof.

7.2 Suitability in customer applications

The customer bears the responsibility for compliance of systems or units, in which Würth Elektronik eiSos GmbH & Co. KG products are integrated, with applicable legal regulations. Customer acknowledges and agrees that it is solely responsible for compliance with all legal, regulatory and safety-related requirements concerning its products, and any use of Würth Elektronik eiSos GmbH & Co. KG components in its applications, notwithstanding any applications-related information or support that may be provided by Würth Elektronik eiSos GmbH & Co. KG. Customer represents and agrees that it has all the necessary expertise to create and implement safeguards which anticipate dangerous consequences of failures, monitor failures and their consequences lessen the likelihood of failures that might cause harm and take appropriate remedial actions. The customer will fully indemnify Würth Elektronik eiSos GmbH & Co. KG and its representatives against any damages arising out of the use of any Würth Elektronik eiSos GmbH & Co. KG components in safety-critical applications.

7.3 Trademarks

AMBER wireless is a registered trademark of Würth Elektronik eiSos GmbH & Co. KG. All other trademarks, registered trademarks, and product names are the exclusive property of the respective owners.

7.4 Usage restriction

Würth Elektronik eiSos GmbH & Co. KG products have been designed and developed for usage in general electronic equipment only. This product is not authorized for use in equipment where a higher safety standard and reliability standard is especially required or where
a failure of the product is reasonably expected to cause severe personal injury or death, unless the parties have executed an agreement specifically governing such use. Moreover, Würth Elektronik eiSos GmbH & Co. KG products are neither designed nor intended for use in areas such as military, aerospace, aviation, nuclear control, submarine, transportation (automotive control, train control, ship control), transportation signal, disaster prevention, medical, public information network etc. Würth Elektronik eiSos GmbH & Co. KG must be informed about the intent of such usage before the design-in stage. In addition, sufficient reliability evaluation checks for safety must be performed on every electronic component, which is used in electrical circuits that require high safety and reliability function or performance. By using Würth Elektronik eiSos GmbH & Co. KG products, the customer agrees to these terms and conditions.
8 License terms

This License Terms will take effect upon the purchase and usage of the Würth Elektronik eiSos GmbH & Co. KG wireless connectivity products. You hereby agree that this license terms is applicable to the product and the incorporated software, firmware and source codes (collectively, “Software”) made available by Würth Elektronik eiSos in any form, including but not limited to binary, executable or source code form.

The software included in any Würth Elektronik eiSos wireless connectivity product is purchased to you on the condition that you accept the terms and conditions of this license terms. You agree to comply with all provisions under this license terms.

8.1 Limited license

Würth Elektronik eiSos hereby grants you a limited, non-exclusive, non-transferable and royalty-free license to use the software and under the conditions that will be set forth in this license terms. You are free to use the provided Software only in connection with one of the products from Würth Elektronik eiSos to the extent described in this license terms. You are entitled to change or alter the source code for the sole purpose of creating an application embedding the Würth Elektronik eiSos wireless connectivity product. The transfer of the source code to third parties is allowed to the sole extent that the source code is used by such third parties in connection with our product or another hardware provided by Würth Elektronik eiSos under strict adherence of this license terms. Würth Elektronik eiSos will not assume any liability for the usage of the incorporated software and the source code. You are not entitled to transfer the source code in any form to third parties without prior written consent of Würth Elektronik eiSos.

You are not allowed to reproduce, translate, reverse engineer, decompile, disassemble or create derivative works of the incorporated Software and the source code in whole or in part. No more extensive rights to use and exploit the products are granted to you.

8.2 Usage and obligations

The responsibility for the applicability and use of the Würth Elektronik eiSos wireless connectivity product with the incorporated Firmware in a particular customer design is always solely within the authority of the customer. Due to this fact, it is up to you to evaluate and investigate, where appropriate, and to decide whether the device with the specific product characteristics described in the product specification is valid and suitable for your respective application or not.

You are responsible for using the Würth Elektronik eiSos wireless connectivity product with the incorporated Firmware in compliance with all applicable product liability and product safety laws. You acknowledge to minimize the risk of loss and harm to individuals and bear the risk for failure leading to personal injury or death due to your usage of the product. Würth Elektronik eiSos’ products with the incorporated Firmware are not authorized for use in safety-critical applications, or where a failure of the product is reasonably expected to cause severe personal injury or death. Moreover, Würth Elektronik eiSos’ products with the incorporated Firmware are neither designed nor intended for use in areas such as military, aerospace, aviation, nuclear control, submarine, transportation (automotive control, train control, ship control), transportation signal, disaster prevention, medical, public information network etc. You shall inform Würth Elektronik eiSos about the intent of such usage before
design-in stage. In certain customer applications requiring a very high level of safety and in which the malfunction or failure of an electronic component could endanger human life or health, you must ensure to have all necessary expertise in the safety and regulatory ramifications of your applications. You acknowledge and agree that you are solely responsible for all legal, regulatory and safety-related requirements concerning your products and any use of Würth Elektronik eiSos' products with the incorporated Firmware in such safety-critical applications, notwithstanding any applications-related information or support that may be provided by Würth Elektronik eiSos. YOU SHALL INDEMNIFY WÜRTH ELEKTRONIK EISOS AGAINST ANY DAMAGES ARISING OUT OF THE USE OF WÜRTH ELEKTRONIK EISOS' PRODUCTS WITH THE INCORPORATED Firmware IN SUCH SAFETY-CRITICAL APPLICATIONS.

8.3 Ownership

The incorporated Firmware created by Würth Elektronik eiSos is and will remain the exclusive property of Würth Elektronik eiSos.

8.4 Firmware update(s)

You have the opportunity to request the current and actual Firmware for a bought wireless connectivity Product within the time of warranty. However, Würth Elektronik eiSos has no obligation to update a modules firmware in their production facilities, but can offer this as a service on request. The upload of firmware updates falls within your responsibility, e.g. via ACC or another software for firmware updates. Firmware updates will not be communicated automatically. It is within your responsibility to check the current version of a firmware in the latest version of the product manual on our website. The revision table in the product manual provides all necessary information about firmware updates. There is no right to be provided with binary files, so called "Firmware images", those could be flashed through JTAG, SWD, Spi-Bi-Wire, SPI or similar interfaces.

8.5 Disclaimer of warranty

THE Firmware IS PROVIDED "AS IS". YOU ACKNOWLEDGE THAT WÜRTH ELEKTRONIK EISOS MAKES NO REPRESENTATIONS AND WARRANTIES OF ANY KIND RELATED TO, BUT NOT LIMITED TO THE NON-INFRINGEMENT OF THIRD PARTIES’ INTELLECTUAL PROPERTY RIGHTS OR THE MERCHANTABILITY OR FITNESS FOR YOUR INTENDED PURPOSE OR USAGE. WÜRTH ELEKTRONIK EISOS DOES NOT WARRANT OR REPRESENT THAT ANY LICENSE, EITHER EXPRESS OR IMPLIED, IS GRANTED UNDER ANY PATENT RIGHT, COPYRIGHT, MASK WORK RIGHT, OR OTHER INTELLECTUAL PROPERTY RIGHT RELATING TO ANY COMBINATION, MACHINE, OR PROCESS IN WHICH THE WÜRTH ELEKTRONIK EISOS’ PRODUCT WITH THE INCORPORATED Firmware IS USED. INFORMATION PUBLISHED BY WÜRTH ELEKTRONIK EISOS REGARDING THIRD-PARTY PRODUCTS OR SERVICES DOES NOT CONSTITUTE A LICENSE FROM WÜRTH ELEKTRONIK EISOS TO USE SUCH PRODUCTS OR SERVICES OR A WARRANTY OR ENDORSEMENT THEREOF.
8.6 Limitation of liability

Any liability not expressly provided by Würth Elektronik eiSos shall be disclaimed. You agree to hold us harmless from any third-party claims related to your usage of the Würth Elektronik eiSos’ products with the incorporated Firmware, software and source code. Würth Elektronik eiSos disclaims any liability for any alteration, development created by you or your customers as well as for any combination with other products.

8.7 Applicable law and jurisdiction

Applicable law to this license terms shall be the laws of the Federal Republic of Germany. Any dispute, claim or controversy arising out of or relating to this license terms shall be resolved and finally settled by the court competent for the location of Würth Elektronik eiSos’ registered office.

8.8 Severability clause

If a provision of this license terms is or becomes invalid, unenforceable or null and void, this shall not affect the remaining provisions of the terms. The parties shall replace any such provisions with new valid provisions that most closely approximate the purpose of the terms.

8.9 Miscellaneous

Würth Elektronik eiSos reserves the right at any time to change this terms at its own discretion. It is your responsibility to check at Würth Elektronik eiSos homepage for any updates. Your continued usage of the products will be deemed as the acceptance of the change. We recommend you to be updated about the status of new firmware and software, which is available on our website or in our data sheet and manual, and to implement new software in your device where appropriate. By ordering a wireless connectivity product, you accept this license terms in all terms.
List of Figures

1 The WE Calypso Wi-Fi FeatherWing (2610039025001) .......................... 5
2 Block diagram - Calypso Wi-Fi FeatherWing ................................. 6
3 Jumpers and their default state .................................................. 10
4 Push buttons .............................................................................. 12
5 Schematics .................................................................................. 13
6 Assembly diagram ....................................................................... 14
7 Top, bottom and internal layers ................................................... 15
8 Software architecture ................................................................. 17
9 Running the quick start example .................................................. 19

List of Tables

1 Contents 2610039025001 ............................................................... 6
2 Key features ............................................................................... 8
3 Jumper JP2 ................................................................................. 11
4 Calypso Application modes ......................................................... 11
5 Jumper JP3 ................................................................................ 11
more than you expect

Internet of Things

Monitoring & Control

Automated Meter Reading

Contact:
Würth Elektronik eiSos GmbH & Co. KG
Division Wireless Connectivity & Sensors
Max-Eyth-Straße 1
74638 Waldenburg
Germany
Tel.: +49 651 99355-0
Fax.: +49 651 99355-69
www.we-online.com/wireless-connectivity