Manual

Interface Adapter USM21A

Edition 11/2018

28516273/EN
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1 General information

1.1 About this documentation

The current version of the documentation is the original.

This documentation is an integral part of the product. The documentation is intended for all employees who perform work on the product.

Make sure this documentation is accessible and legible. Ensure that persons responsible for the systems and their operation as well as persons who work on the product independently have read through the documentation carefully and understood it. If you are unclear about any of the information in this documentation, or if you require further information, contact SEW-EURODRIVE.

1.2 Other applicable documentation

Always use the latest edition of documentation and software.

The SEW-EURODRIVE website (www.sew-eurodrive.com) provides a wide selection of documents for download in various languages. If required, you can also order printed and bound copies of the documentation from SEW-EURODRIVE.

1.3 Rights to claim under limited warranty

Read the information in this documentation. This is essential for fault-free operation and fulfillment of any rights to claim under limited warranty. Read the documentation before you start working with the product.

1.4 Product names and trademarks

The brands and product names in this documentation are trademarks or registered trademarks of their respective titleholders.

1.5 Decimal separator in numerical values

In this document, a period is used to indicate the decimal separator.

Example: 30.5 kg

1.6 Copyright notice

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2 Safety notes

2.1 Preliminary information

The following general safety notes serve the purpose of preventing injury to persons and damage to property. They primarily apply to the use of products described in this documentation. If you use additional components, also observe the relevant warning and safety notes.

2.2 Target group

Software specialist Any work with the software may only be performed by a specialist with suitable training. A specialist in this context is someone who has the following qualifications:

- Appropriate training
- Knowledge of this documentation and other applicable documentation
- SEW-EURODRIVE recommends additional training for products that are operated using this software.

2.3 Designated use

The interface adapter USM21A is designed for connecting an engineering PC with a USB interface to the diagnostic slot of a unit from SEW-EURODRIVE.

2.4 Network security and access protection

A bus system makes it possible to adapt electronic drive technology components to the particulars of the machinery within wide limits. There is a risk that a change of parameters that cannot be detected externally may result in unexpected but not uncontrolled system behavior and may have a negative impact on operational safety, system availability, or data security.

Ensure that unauthorized access is prevented, especially with respect to Ethernet-based networked systems and engineering interfaces.

Use IT-specific safety standards to increase access protection to the ports. For a port overview, refer to the respective technical data of the device in use.
3 Introduction

3.1 Short designation in the documentation

The following short designations are used in this documentation.

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Short designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOVISUITE® standard</td>
<td>MOVISUITE®</td>
</tr>
<tr>
<td>MOVITOOLS® MotionStudio</td>
<td>MOVITOOLS® MotionStudio</td>
</tr>
</tbody>
</table>

3.2 Content of this documentation

This documentation describes how to connect the interface adapter USM21A to the units from SEW-EURODRIVE and put it into operation.
4 Interface adapter USM21A

With the interface adapter USM21A, it is possible to connect an engineering PC with a USB interface to the diagnostic slot of a unit from SEW-EURODRIVE.

The interface adapter is connected to the engineering PC via a type B USB port. The data is transferred according to the USB 2.0 standard. It is also possible to work with a USB 3.0 unit.

The adapter communicates with the unit via an RJ10 socket. Depending on the supported interface standard of the diagnostic interface, the interface adapter is connected to the RS485 interface or the system bus interface (CAN) of the unit. The design and baud rate of the used interface is specified in the engineering software MOVITOOLS® MotionStudio or MOVISUITE®, depending on the unit type and the requirements. For more information, refer to the section "Connecting the interface adapter".

4.1 Scope of delivery

The delivery with part number 28231449 includes the following components:

- Interface adapter USM21A
- USB connection cable
- Interface cable with 2 RJ10 connectors

4.1.1 Optional scope of delivery

The following connection cables can be optionally obtained from SEW-EURODRIVE:

<table>
<thead>
<tr>
<th>Optional scope of delivery (connection cables)</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interface cable with RJ10 connector and 9-pin D-sub connector</td>
<td>18123864</td>
</tr>
<tr>
<td>Interface cable with RJ10 connector and M12 socket</td>
<td>28111680</td>
</tr>
<tr>
<td>USB connection cable</td>
<td>08186804</td>
</tr>
<tr>
<td>Interface cable with 2 RJ10 connectors</td>
<td>08146993</td>
</tr>
</tbody>
</table>
4.2 Features of the interface adapter

The interface adapter USM21A has the following additional features:

- The interface adapter and the unit communicate exclusively on a peer-to-peer basis.
- The termination of the RS485 and CAN bus lines is installed permanently, so only one device can be connected to the RJ10 socket of the interface adapter.
- The USB port of the engineering PC provides the voltage supply.
- LEDs that are visible through the transparent housing provide the status display.

4.3 LEDs on the interface adapter

Three LEDs are installed on the interface adapter USM21A, to the right and left of the USB port. These LEDs shine through the transparent housing.

**INFORMATION**

The interface adapter USM21A performs a self-test when connecting it to the USB interface of a PC. When doing so, each LED lights up briefly in the color sequence "green" – "blue" – "red".

[1] "RS485" LED
[2] "CAN" LED
[3] "Error" LED
### 4.3.1 "RS485" LED

<table>
<thead>
<tr>
<th>LED</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off</td>
<td>No driver is activated for the interface adapter.</td>
</tr>
<tr>
<td>Green</td>
<td>Driver activated, but no communication yet between the engineering PC and the unit. Possible causes for the interface adapter remaining in this status:</td>
</tr>
<tr>
<td></td>
<td>• The connection cable to the unit is not connected properly or is defective.</td>
</tr>
<tr>
<td></td>
<td>• The baud rate setting on the unit is incorrect.</td>
</tr>
<tr>
<td></td>
<td>• The device has no operating voltage.</td>
</tr>
<tr>
<td></td>
<td>• The unit address is outside the address range set for the unit in the MOVITOOLS® MotionStudio project.</td>
</tr>
<tr>
<td>Green, flickering</td>
<td>Active RS485 communication. Data is being transferred between the engineering PC and the unit.</td>
</tr>
</tbody>
</table>

### 4.3.2 "CAN" LED

<table>
<thead>
<tr>
<th>LED</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off</td>
<td>No driver is activated for the interface adapter.</td>
</tr>
<tr>
<td>Blue</td>
<td>Driver activated, but no communication yet between the engineering PC and the unit. Possible causes for the interface adapter remaining in this status:</td>
</tr>
<tr>
<td></td>
<td>• The connection cable to the unit is not connected properly or is defective.</td>
</tr>
<tr>
<td></td>
<td>• The baud rate setting on the unit is incorrect.</td>
</tr>
<tr>
<td></td>
<td>• The device has no operating voltage.</td>
</tr>
<tr>
<td></td>
<td>• The unit address is outside the address range set for the unit in the MOVITOOLS® MotionStudio project.</td>
</tr>
<tr>
<td>Blue, flickering</td>
<td>Active CAN bus communication. Data is being transferred between the engineering PC and the unit.</td>
</tr>
</tbody>
</table>

### 4.3.3 "Error" LED

<table>
<thead>
<tr>
<th>LED</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off</td>
<td>Standard operating state.</td>
</tr>
<tr>
<td>Red</td>
<td>There was an error in the interface adapter.</td>
</tr>
</tbody>
</table>
## 4.4 Connecting the interface adapter

Connecting an engineering PC to a unit via the interface adapter USM21A requires various connection cables.

A shielded USB connection cable of type USB A-B, which is included in the delivery, is required to connect an engineering PC to the interface adapter. SEW-EURODRIVE recommends exclusively using the supplied USB connection cable.

It is possible to connect the interface adapter to the following units from SEW-EURODRIVE:

Key to the connection cables:

- **RJ10** = 2 x RJ10 connectors
- **D-sub** = RJ10 connector and 9-pin D-sub connector (available as option)
- **M12** = Optional design: RJ10 connector and M12 socket (available as option)

<table>
<thead>
<tr>
<th>Device</th>
<th>Interface</th>
<th>Connection cable</th>
<th>Engineering software</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RS485</td>
<td>CAN</td>
<td>RJ10</td>
</tr>
<tr>
<td>MOVIDRIVE® B</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>MOVITRAC® B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MOVIFIT® MC/FC/SC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MOVIMOT® MM..D</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MOVISAFE® UCS..B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MOVISAFE® DCS..B</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In preparation:

- MOVIGEAR® B
- DRC electronic motor

<table>
<thead>
<tr>
<th>Device</th>
<th>Interface</th>
<th>Connection cable</th>
<th>Engineering software</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RS485</td>
<td>CAN</td>
<td>RJ10</td>
</tr>
<tr>
<td>MOVIGEAR® B</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>DRC electronic motor</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

When using an EtherCAT® master without mailbox gateway function:

- MOVIDRIVE® modular with CiA402 device profile
- MOVIDRIVE® system with CiA402 device profile

<table>
<thead>
<tr>
<th>Device</th>
<th>Interface</th>
<th>Connection cable</th>
<th>Engineering software</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RS485</td>
<td>CAN</td>
<td>RJ10</td>
</tr>
<tr>
<td>MOVIDRIVE® modular with CiA402 device profile</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>MOVIDRIVE® system with CiA402 device profile</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

MOVIDRIVE® technology

<table>
<thead>
<tr>
<th>Device</th>
<th>Interface</th>
<th>Connection cable</th>
<th>Engineering software</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RS485</td>
<td>CAN</td>
<td>RJ10</td>
</tr>
</tbody>
</table>

MOVIGEAR® performance

<table>
<thead>
<tr>
<th>Device</th>
<th>Interface</th>
<th>Connection cable</th>
<th>Engineering software</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RS485</td>
<td>CAN</td>
<td>RJ10</td>
</tr>
</tbody>
</table>

|        | X | X | X | | |
5 Startup

5.1 Requirements

The following engineering software versions can be used for operating the interface adapter USM21A:

<table>
<thead>
<tr>
<th>Engineering software</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOVISUITE®</td>
<td>Version V1.2.1253.0 or later</td>
</tr>
<tr>
<td>MOVITOOLS® MotionStudio</td>
<td>RS485: Version V6.3.0.0 or later</td>
</tr>
<tr>
<td></td>
<td>CAN: in preparation</td>
</tr>
</tbody>
</table>

**INFORMATION**

When starting up and operating the interface adapter, make sure that only the engineering software is open that is used for engineering the respectively connected unit (for more details, see section "Connecting the interface adapter"). Any other engineering software must be closed.

5.2 Configuring the interface adapter in MOVITOOLS® MotionStudio

The interface adapter is connected either to the RS485 interface or the CAN bus interface (in preparation), depending on the device type. It is necessary to configure the corresponding communication connection.

- "Setting up RS485 communication“ (→ § 12)
5 Startup
Configuring the interface adapter in MOVITOOLS® MotionStudio

5.2.1 Setting up RS485 communication

Proceed as follows:

✔ You have installed the MOVITOOLS® MotionStudio engineering software, version 6.3.0.0 or higher, on the engineering PC.
✔ The MOVISUITE® engineering software is closed.

1. Start MOVITOOLS® MotionStudio.
2. To configure the communication connections, click in the toolbar on the [Configure communication connections] symbol.

3. Select the "Serial" communication connection and edit the communication parameters of the serial RS485 interface.

4. Select the COM port that is assigned to the interface adapter.

5. Apply the settings and perform the network scan in MOVITOOLS® MotionStudio.
5.3 Configuring the interface adapter in MOVISUITE®

The engineering tasks for the MOVI-C® units from SEW-EURODRIVE are performed with the MOVISUITE® engineering software. The interface adapter USM21A is also configured in MOVISUITE®.

Proceed as follows:

- You have installed the MOVISUITE® engineering software, version 1.2.1253.0 or higher, on the engineering PC. All the necessary drivers are now installed.
- The MOVITOOLS® MotionStudio engineering software is closed.

1. Start MOVISUITE®.
2. Create a new MOVISUITE® project from a network scan.
3. Activate the network type "USB" and the slide switch "Scan". Apply the settings and perform the network scan.
6  Service

6.1  Waste disposal

Dispose of the product and all parts separately in accordance with their material structure and the national regulations. Put the product through a recycling process or contact a specialist waste disposal company. If possible, divide the product into the following categories:

- Copper
- Electronic parts
- Plastics
Technical data
Markings

7.1 Markings

The interface adapter USM21A complies with the following directives and regulations:

<table>
<thead>
<tr>
<th>Marking</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| CE      | CE mark to state compliance with the following European guidelines:  
          • EMC Directive 2014/30/EU  
          • RoHS Directive 2011/65/EU |
| 50      | RoHS Directive (Restriction of Hazardous Substances) of the People’s Republic of China to confirm compliance with the regulations of the ACPEIP (Administration on the Control of Pollution caused by Electronic Information Products) |

7.2 General

<table>
<thead>
<tr>
<th>General technical data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part number</td>
</tr>
<tr>
<td>Interference immunity</td>
</tr>
<tr>
<td>Ambient temperature</td>
</tr>
<tr>
<td>Storage temperature</td>
</tr>
<tr>
<td>Degree of protection</td>
</tr>
</tbody>
</table>
| Interfaces                       | • RJ10 socket (device connection)  
                                        • USB socket type B (PC connection) |
| Mass                             | 200 g |
| Dimensions (L x W x H)           | 92.5 mm x 43 mm x 25 mm |
7.3 Environmental conditions

<table>
<thead>
<tr>
<th>Environmental conditions</th>
<th>Climates requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Extended storage:</td>
</tr>
<tr>
<td></td>
<td>EN 60721-3-1 class 1K2 temperature -25 °C to +70 °C</td>
</tr>
<tr>
<td></td>
<td>• Transportation:</td>
</tr>
<tr>
<td></td>
<td>EN 60721-3-2 class 2K3 temperature -25 °C to +70 °C</td>
</tr>
<tr>
<td></td>
<td>• Operation (fixed installation, weatherproof):</td>
</tr>
<tr>
<td></td>
<td>EN 60721-3-3 class 3K3 temperature 0 °C to +60 °C</td>
</tr>
<tr>
<td>Chemically active substances</td>
<td>• Extended storage:</td>
</tr>
<tr>
<td></td>
<td>EN 60721-3-1 class 1C2</td>
</tr>
<tr>
<td></td>
<td>• Transportation:</td>
</tr>
<tr>
<td></td>
<td>EN 60721-3-2 class 2C2</td>
</tr>
<tr>
<td></td>
<td>• Operation (fixed installation, weatherproof):</td>
</tr>
<tr>
<td></td>
<td>EN 60721-3-3 class 3C2</td>
</tr>
<tr>
<td>Mechanically active substances</td>
<td>• Extended storage:</td>
</tr>
<tr>
<td></td>
<td>EN 60721-3-3 class 1S1</td>
</tr>
<tr>
<td></td>
<td>• Transportation:</td>
</tr>
<tr>
<td></td>
<td>EN 60721-3-3 class 2S1</td>
</tr>
<tr>
<td></td>
<td>• Operation (fixed installation, weatherproof):</td>
</tr>
<tr>
<td></td>
<td>EN 60721-3-3 class 3S1</td>
</tr>
</tbody>
</table>
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