SEW EURODRIVE

Manual

Interface Adapter USM21A

Edition 03/2021

26868253/EN

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1 General information

1.1 About this documentation

The documentation at hand 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 the documentation and the 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.

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3 Device structure

3.1 Interface adapter USM21A

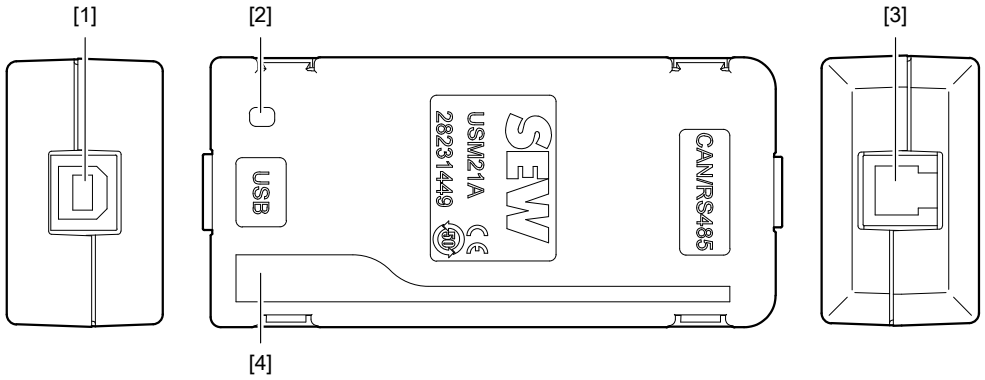
With the interface adapter USM21A, it is possible to connect an engineering PC with a USB interface to the diagnostic slot of a device from SEW-EURODRIVE. The connection is made with a device-specific connection cable. Refer to chapter "Available connection cables" (→ 🗎 7) for information on which cable you need for your device. The connection to the engineering PC and the power supply is made via a USB type B socket. The data is transferred according to the USB 2.0 standard. Operation on a USB 3.0 device is also possible. The matching connection cable is included in the delivery.

The adapter communicates with the device via 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 bus) of the device. The version and baud rate of the interface used is defined in the MOVITOOLS® MotionStudio engineering software, in MOVISUITE® standard or LT Shell depending on the device type and the requirements. For more information, refer to chapter "Available connection cables" (→ 🗎 7).

The interface converter and the device communicate only point-to-point, and the termination of the RS485 and the CAN bus is permanently installed.

The interface adapter is equipped with a status display for the bus and an error display.

The following figure shows the interface adapter, its connections and displays.



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[1] USB socket type B
[2] "Bus status display" (→ 🗎 6)
[3] RJ10 socket
[4] "Interface adapter status display" (→ 🗎 7)

3.1.1 Bus status display

LED	Meaning
Off	No driver is activated for the interface adapter.

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LED	Meaning
Lights up green (RS485) or blue (CAN)	Driver activated, but still no communication between the engineering PC and the device. Possible causes for the interface adapter remaining in this status: • The connection cable to the device is not connected properly or is defective. • The baud rate setting on the device is incorrect. • The device has no operating voltage. • The device address is outside the address range set for the device in the MOVITOOLS® MotionStudio project.
Flashes green (RS485) or blue (CAN)	Bus communication is active. Data is being exchanged between the engineering PC and the device.

3.1.2 Interface adapter status display

LED	Meaning
Off	Normal operating state.
Lights up red	There was an error in the interface adapter.

3.2 Scope of delivery

The scope of delivery includes the following components:

Component	Part number
USM21A interface adapter	28231449
USB connection cable (type A to type B)	
Interface cable (RJ10 to RJ10)	

3.3 Replacement cables

The following replacement cables are available for the interface adapter:

Replacement cable	Part number
USB connection cable (type A to type B)	08186804
Interface cable (RJ10 to RJ10)	08146993

3.4 Available connection cables

A matching connection cable is required to connect the interface adapter to the device. A RJ10 to RJ10 connection cable is included in the delivery and is available as a replacement cable if required (→ 🗎 7). You can purchase additional connection cables from SEW-EURODRIVE. The following table shows the connection cables required for your device.

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The following software versions are required as a minimum:

- MOVISUITE® standard: as specified in the table
- MOVITOOLS® MotionStudio: V6.30
- LT Shell V4: V3.1.0.1

Device	Plug connector on the device	Part number of the connection cable	Engineering software[1)]
DRC electronic motor	RJ10	08146993	MT
	D-sub, 9-pin	18123864	MT
MOVIDRIVE® modular with CiA402 device profile (EtherCAT® master without mailbox gateway function)	RJ10	08146993	MS V2.0 (SP9)
MOVIDRIVE® system with CiA402 device profile (EtherCAT® master without mailbox gateway function)	RJ10	08146993	MS V2.0 (SP9)
MOVIDRIVE® technology	D-sub, 9-pin	18123864	MS V2.1 (SP10)
MOVIDRIVE® MDX..B	RJ10	08146993	MT
MOVIFIT® MC/FC/SC	RJ10	08146993	MT
MOVIGEAR®-..-B	RJ10	08146993	MT
MOVIGEAR® performance	M12, 5-pin, A-coded (X4141)	28147111	MS V2.0 (SP9)
MOVIGEAR® performance	M12, 5-pin, B-coded (X4142)	28139038	MS V2.0 (SP9)
MOVIGEAR® performance	RJ10[2)]	08146993	MS V2.0 (SP9)
MOVIMOT® advanced	M12, 5-pin, B-coded (X4142)	28139038	MS V2.2
MOVIMOT® advanced	RJ10	08146993	MS V2.2
MOVIMOT® flexible	M12, 5-pin, A-coded (X4141)	28147111	MS V2.2
MOVIMOT® flexible	M12, 5-pin, B-coded (X4142)	28139038	MS V2.2
MOVIMOT® flexible	RJ10	08146993	MS V2.2
MOVIMOT® flexible (MMF3 only)	D-sub, 9-pin	18123864	MS V2.2
MOVIMOT® performance	RJ10	08146993	MS V2.1 (SP10)
MOVIMOT® performance	M12, 5-pin, B-coded (X4142)	28139038	MS V2.1 (SP10)
MOVIMOT® MM..D	RJ10	08146993	MT
MOVISAFE® DCS..B	RJ10	08146993	MT
MOVISAFE® UCS..B	RJ10	08146993	MT
MOVITRAC® advanced	D-sub, 9-pin via CDM11A diagnostic module, part number 28265092	18123864	MS V2.20
MOVITRAC® B	RJ10	08146993	MT
MOVITRAC® LTE-B+	RJ45	18243681	LT

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Device	Plug connector on the device	Part number of the connection cable	Engineering software[1)]
MOVITRAC® LTE-B+	RJ45	28118677	MT
MOVITRAC® LTP-B	RJ45	18243681	LT
MOVITRAC® LTP-B	RJ45	28118677	MT

1) LT = LT Shell V4, MS = MOVISUITE® standard, MT = MOVITOOLS® MotionStudio

2) Plug connector on the PCB, the device must be opened.

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4 Startup

4.1 Requirements

The required version of the engineering software depends on the device and the bus used. For more details, refer to chapter "Available connection cables" (→ 🗎 7).

4.2 Configuration in MOVITOOLS® MotionStudio

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

- "Setting up RS485 communication" (→ 🗎 10)
- "Setting up CAN bus communication" (→ 🗎 11)

4.2.1 Setting up RS485 communication

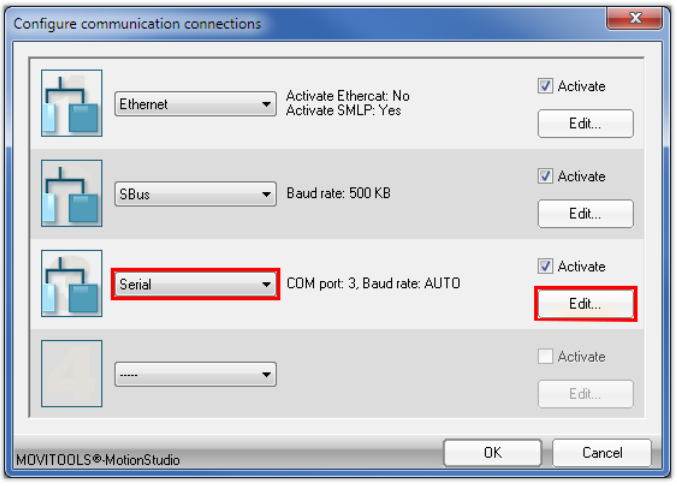
Proceed as follows:

✓ You have installed the required version of the engineering software on the engineering PC. For information on the required version, refer to "Requirements" (→ 🗎 10).

✓ You have not started an engineering software on the engineering PC.

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

   ⇨ This opens the "Configure communication connections" window.
3. Select the "Serial" entry from the drop-down list of a communication connection that is not yet in use.
4. Click the [Edit] button of the communication connection.
   ⇨ The "Serial" window opens.



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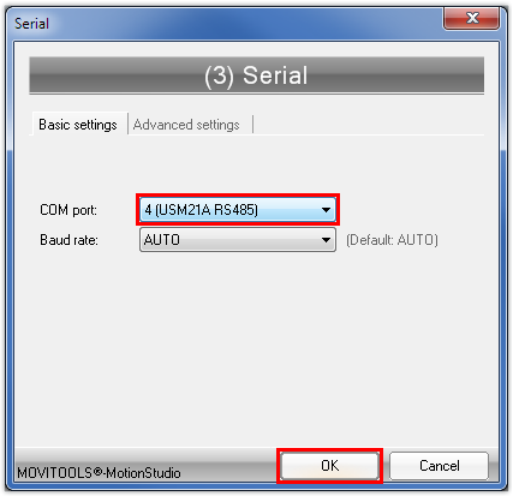
5. In the "COM port" drop-down list, select the port of the engineering PC to which the interface adapter is connected.



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6. Click [OK].
   ⇨ This opens the "Configure communication connections" window.
7. Click [OK].
8. Perform a network scan.

4.2.2 Setting up CAN bus communication

Proceed as follows:

✓ You have installed the required version of the engineering software on the engineering PC. For information on the required version, refer to "Requirements" (→ 🗎 10).

✓ You have not started an engineering software on the engineering PC.

1. Start MOVITOOLS® MotionStudio.
2. To configure the communication connection, click [Configure communication connections] in the toolbar. 
   ⇨ This opens the "Configure communication connections" window.
3. Select the "SBus" entry from the drop-down list of a communication connection that is not yet in use.

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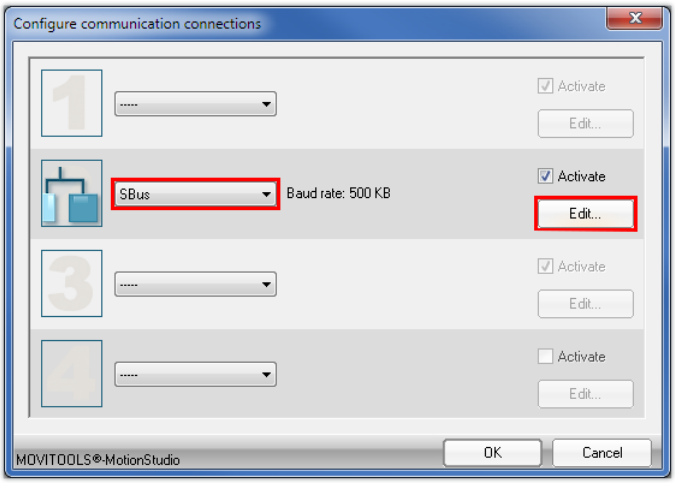
4. Click the [Edit] button of the communication connection.
   ⇨ The "SBus" window opens.



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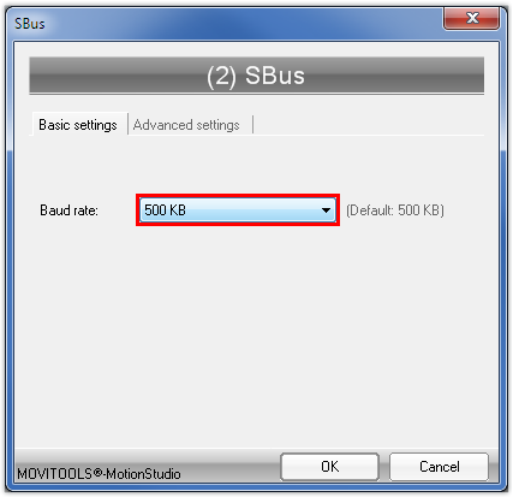
5. Select the value "500 KB" from the "Baud rate" selection list.



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6. Click [OK].
   ⇨ This opens the "Configure communication connections" window.
7. Click [OK].
8. Perform a network scan.

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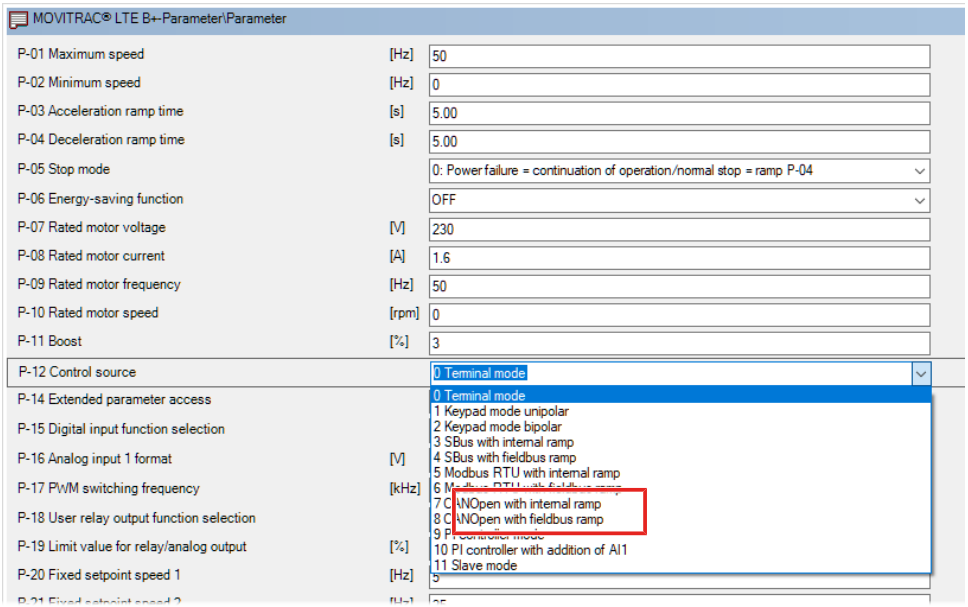
Special feature MOVITRAC® LT..

- Do not select a control signal source for a MOVITRAC® LTE-B+ that uses CANopen because this would prevent the inverters from being scanned.



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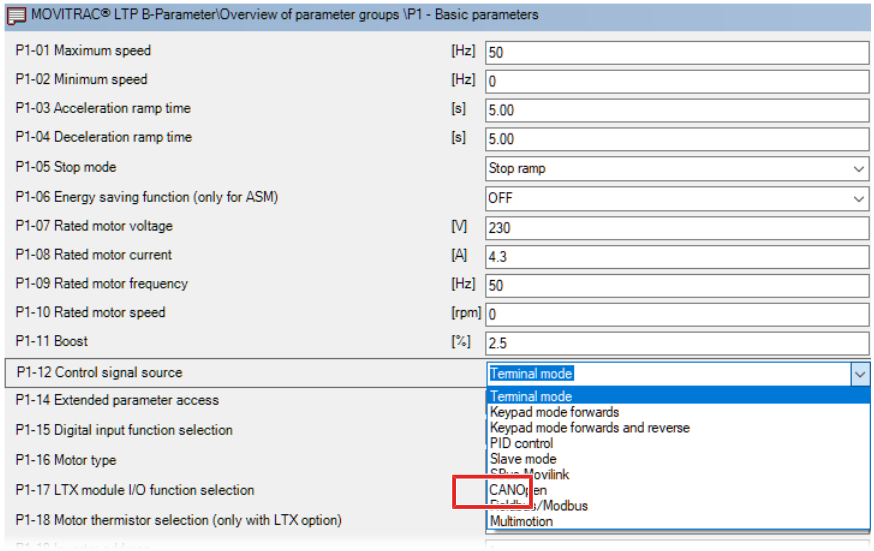
- Do not select a control signal source for a MOVITRAC® LTP-B that uses CANopen because this would prevent the inverters from being scanned.



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4.3 Configuration in MOVISUITE® standard

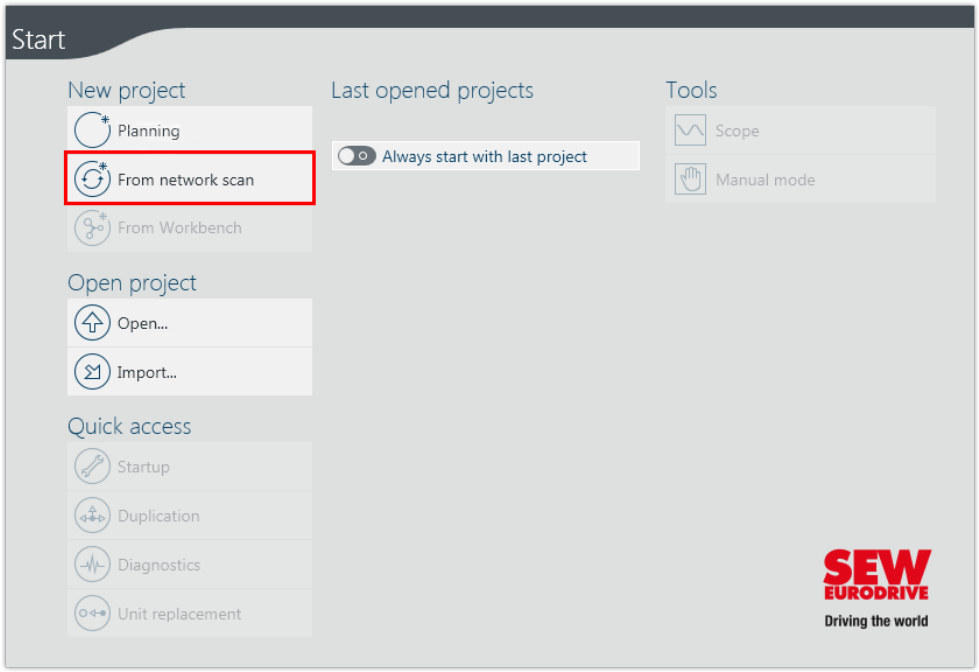
Engineering tasks for components from the MOVI-C® modular automation system from SEW-EURODRIVE are performed using the MOVISUITE® standard engineering software. USM21A interface adapters are also configured in MOVISUITE® standard.

Proceed as follows:

✓ You have installed the required version of the engineering software on the engineering PC. For information on the required version, refer to "Requirements" (→ 🗎 10).

✓ You have not started an engineering software on the engineering PC.

1. Start MOVISUITE® standard.
2. Click [From network scan].



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⇨ The "Communication..." window opens.

3. Click [USB].

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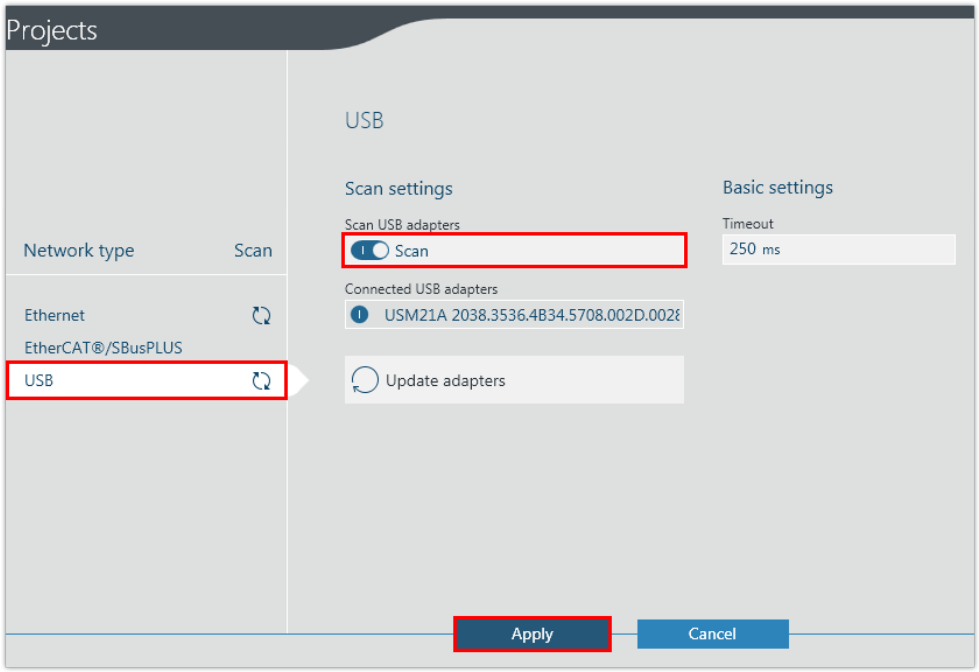
4. Activate the "Scan" slide switch.
5. Click [Apply] to start scanning.



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4.4 Configuration in LT Shell

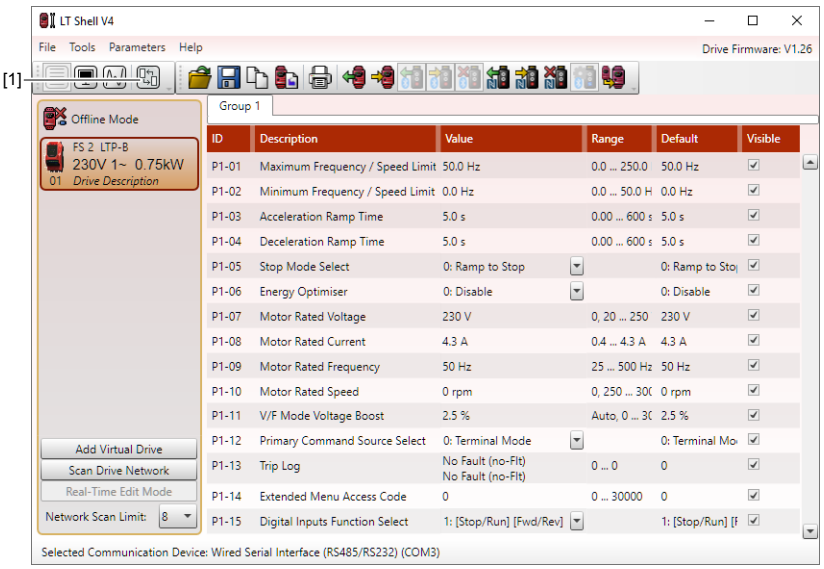
The engineering tasks for MOVITRAC® LTE-B+ and MOVITRAC® LTP-B units are performed using the LT Shell software. The USM21A interface adapter is also configured in LT Shell.

Proceed as follows:

✓ You have installed the required version of the engineering software on the engineering PC. For information on the required version, refer to "Requirements" (→ 🗎 10).

✓ You have not started an engineering software on the engineering PC.

1. Start LT Shell.
   ⇨ The main window opens.



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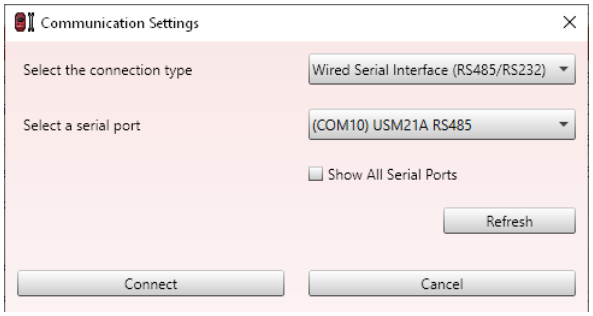
2. To configure the communication connection, click [1] in the toolbar.
   ⇨ The "Communication setting" window opens.



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3. Select "Wired serial interface (RS485/RS232)" from the "Select connection type" drop-down list.
4. In the "Select COM port" drop-down list, select the port of the engineering PC to which the interface adapter is connected.
5. Click the [Connect] button.
   ⇨ The "Communication setting" window closes.
6. Perform a network scan.

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5 Service

5.1 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:

- Iron, steel or cast iron
- Stainless steel
- Magnets
- Aluminum
- Copper
- Electronic parts
- Plastics

The following materials are hazardous to health and the environment. These materials must be collected and disposed of separately.

- Oil and grease

  Collect used oil and grease separately according to type. Ensure that the used oil is not mixed with solvent. Dispose of used oil and grease correctly.
- Screens
- Capacitors

Waste disposal according to WEEE Directive 2012/19/EU

This product and its accessories may fall within the scope of the country-specific application of the WEEE Directive. Dispose of the product and its accessories according to the national regulations of your country.

For further information, contact the responsible SEW-EURODRIVE branch or an authorized partner of SEW-EURODRIVE.

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6 Technical data

6.1 Markings

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

Mark	Meaning
CE	CE mark to state compliance with the following European guidelines: • EMC Directive 2014/30/EU • RoHS Directive 2011/65/EU
50	RoHS Directive (**R**estriction **o**f **H**azardous **S**ubstances) of the People's Republic of China to confirm compliance with the regulations of the ACPEIP (**A**dministration on the **C**ontrol of **P**ollution caused by **E**letronic **I**nformation **P**roducts)

6.2 General

General technical data	
Part number	28231449
Interference immunity	Meets requirements of EN 61800-3
Ambient temperature	0 to 40 °C
Storage temperature	-25 °C to +70 °C according to EN 60721-3-3, class 3K3
Degree of protection	IP20 in accordance with EN 60529
Interfaces	RJ10 socket (device connection) USB socket type B (PC connection)
Mass	200 g
Dimensions (L × W × H)	92.5 mm × 43 mm × 25 mm

6.3 Environmental conditions

Climatic conditions
- Extended storage: EN 60721-3-1 class 1K2 temperature -25 °C to +70 °C
- Transport: EN 60721-3-2 class 2K3 temperature -25 °C to +70 °C
- Operation (fixed installation, weatherproof): EN 60721-3-3 class 3K3 temperature 0 °C to +60 °C

Chemically active substances
- Extended storage: EN 60721-3-1 class 1C2
- Transport: EN 60721-3-2 class 2C2
- Operation (fixed installation, weatherproof): EN 60721-3-3 class 3C2

Mechanically active substances
- Extended storage: EN 60721-3-3 class 1S1
- Transport: EN 60721-3-3 class 2S1
- Operation (fixed installation, weatherproof): EN 60721-3-3 class 3S1

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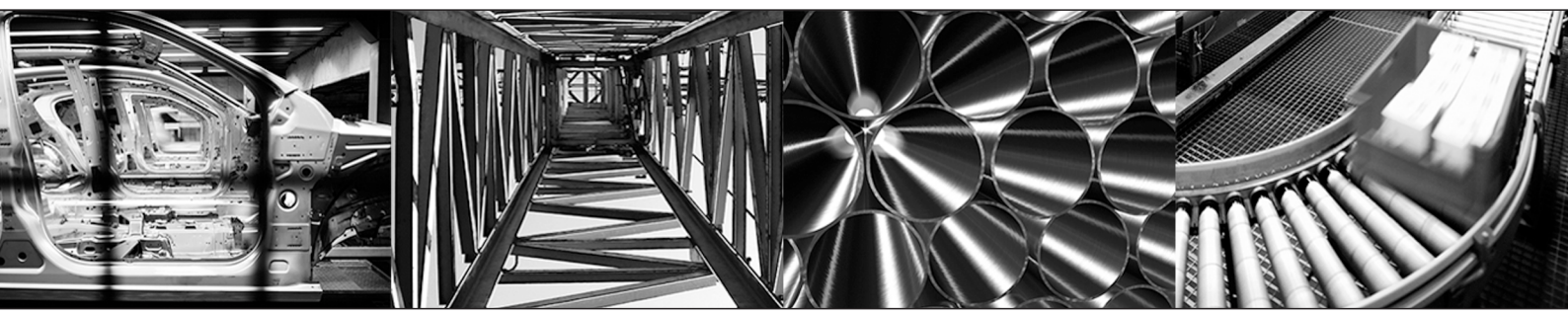

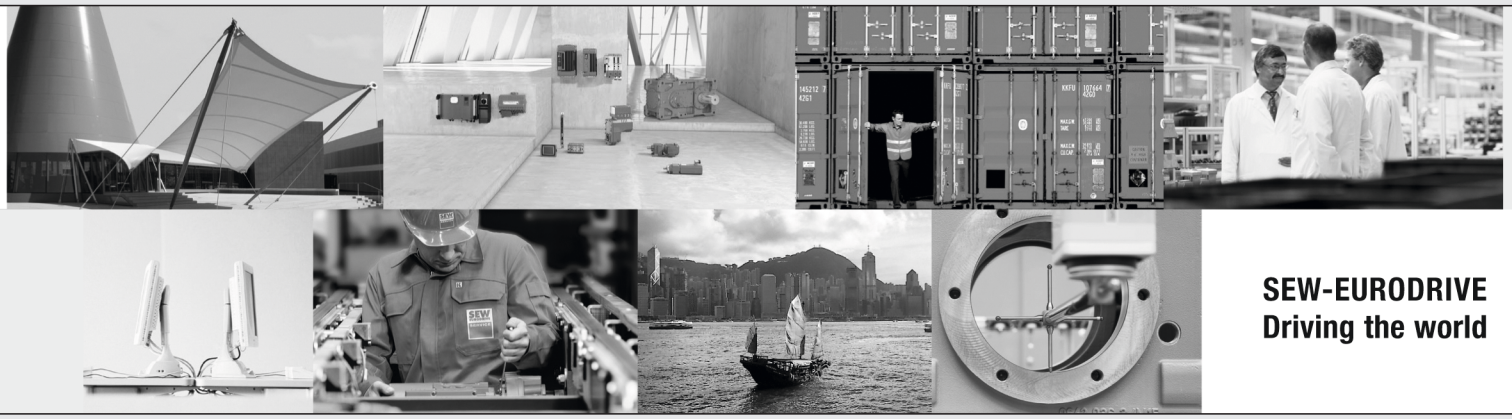

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Driving the world

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