

User Guide

# mobiLink Power



## Disclaimer of liability

The information contained in these instructions corresponds to the technical status at the time of printing of it and is passed on with the best of our knowledge. Softing does not warrant that this document is error free. The information in these instructions is in no event a basis for warranty claims or contractual agreements concerning the described products, and may especially not be deemed as warranty concerning the quality and durability pursuant to Sec. 443 German Civil Code. We reserve the right to make any alterations or improvements to these instructions without prior notice. The actual design of products may deviate from the information contained in the instructions if technical alterations and product improvements so require.

## Trademarks

FOUNDATION™ and HART® are marks of the FieldComm Group of Austin, Texas, USA.

## OpenSource

To comply with international software licensing terms, we offer the source files of open source software used in our products. For details see <https://opensource.softing.com/>

If you are interested in our source modifications and sources used, please contact: [info@softing.com](mailto:info@softing.com)

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Scan the QR code for more product information.

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# 1 About this guide

## 1.1 Read me first

This guide must be read carefully and fully understood by any person working with the mobiLink Power to ensure safe and proper use of the device. Softing does not assume any liability for damages due to improper installation or operation of this product.

This document is not warranted to be error-free. The information contained in this document is subject to change without prior notice. If you have any problems understanding the information and instructions in the guide, please report them to us in writing. To obtain the most current version of the hardware guide, visit the [Download Center](#) on our website.

## 1.2 Objective

This guide explains how to connect and start mobiLink Power and how to use the device to configure and maintain field devices over the USB interface with software applications supported on PCs.

## 1.3 Target audience

This user guide has been written for experienced operation personnel and network specialists responsible for configuring and maintaining field devices including HART, FOUNDATION fieldbus and Profibus PA devices. Any person using a mobiLink Power must have read and fully understood the safety requirements and working instructions in this guide.

## 1.4 Typographic conventions

The following conventions are used throughout our product documentation:

Keys, buttons, menu items, commands and other elements involving user interaction are set in bold font and menu sequences are separated by an arrow

Open **Start** → **Control Panel** → **Programs**

Buttons from the user interface are enclosed in brackets and set to bold typeface

Press **[Start]** to start the application

Coding samples, file extracts and screen output is set in Courier font type

`MaxDlsapAddressSupported=23`

Filenames and directories are written in italic

Device description files are located in C:  
 \<Application name>\delivery\software  
 \Device Description files



**CAUTION**

This symbol is used to indicate a potentially hazardous situation which, if not avoided, may result in minor to moderate damage or injury.



**Note**

This symbol is used to call attention to notable information that should be followed during installation, use, or servicing of this device.



**Hint**

This symbol is used when providing you with helpful user hints.

## 1.5 Document history

Document version	Modifications compared to previous version
1.00	Initial version

## 1.6 Related documentation

The following documentation describes the initial startup of your mobiLink Power and how to operate the device with the supported application software. See the [product website](#) for more info and downloads:

- *Getting Started* - Quick Guide V1.00 (shipped with boxed product)
- *Communication Configuration Tool* - User Guide V2.23
- *MOBILINKdtm* - User Guide V1.30

## 1.7 Document feedback

We would like to encourage you to provide feedback to help us improve the documentation. You can add your comments to the PDF file using the editing tool in Adobe Reader and email your feedback to [support.automation@softing.com](mailto:support.automation@softing.com).

If you prefer to send us your feedback only by email, please include the following information:

- name of document
- document version (as shown on cover page)
- page number

## 2 About mobiLink Power

mobiLink Power is a mobile communication device which interfaces via the USB port with FDI any common FDT frame application and configuration tool (e.g. *Communication Configuration Tool*) on your PC or tablet. Using a specific driver mobiLink Power also connects to the Yokogawa Field device management tool *FieldMate*.

### 2.1 Intended use

mobiLink Power is designed to configure, manage and power HART, FOUNDATION Fieldbus or PROFIBUS PA field devices. It may be used both in full-scale field installations and offsite on the workbench. As mobiLink Power supplies power to the connected devices, a powered HART loop or powered fieldbus segment is not required.

mobiLink Power must not be used in hazardous areas with intrinsic safe circuits. If you need to access intrinsic safe circuits please use our standard [mobiLink](#).



#### Note

Avoid interference with a running system. Exercise utmost care when using mobiLink Power in operational plants. Ensure that working with mobiLink Power does not cause process disruption leading to damage, injury, or death. Follow all safety precautions and work procedures in this document!

### 2.2 Delivery and downloads

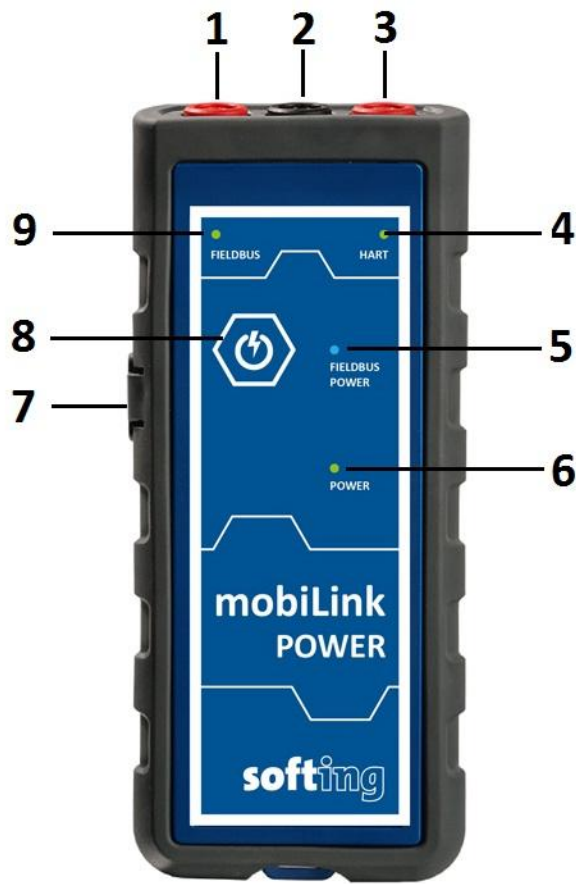
The following components are shipped in the product box:

- mobiLink Power unit
- USB cable (2m)
- set of testing cables red/black with clamp (1m)
- printed Getting Started Guide

The following components are available for download from the product page:

- mobiLink Power manager
- Communication Configuration Tool
- MOBILINKdtm
- PACTware
- mobiLink FDI commServer

### 2.3 Functional description



Position	Function
1 FIELDBUS red (connector)	Foundation Fieldbus (DATA +) PROFIBUS PA (PA+)
2 Common black (connector)	Foundation Fieldbus (DATA -) PROFIBUS PA (PA-) HART (HART N)
3 HART red (connector)	HART (HART P)
4 HART (LED)	indicates that the device is in HART communication.
5 Fieldbus Power (LED)	power supply to field device is preparing (flashing) , active (steady), or overload (slow flashing)
6 Power (LED)	steady green: USB is connected
7 USB (connector)	USB-C Type for communication and power supply
8 Power (button)	ON/OFF power supply
9 FIELDBUS (LED)	indicates that the device is in fieldbus communication



## **3 Safety**

mobiLink Power must be operated by qualified personnel only. The operator is responsible for the transportation, operation and maintenance of the product. Personal safety and protection of the equipment is ensure only if mobiLink Power is used as intended.

To ensure the safety of personnel and equipment, mobiLink Power must be used as intended by the manufacturer and in accordance with this manual. Local laws and regulations applicable to the use of this device must be observed.

### **3.1 Warning of use**

During startup mobiLink Power tries to verify the operation mode against the connected fieldbus. If fieldbus terminals are connected to an operating 4-20 mA link this will compromise the analog process value. Make sure to use the correct connections and mode.

### **3.2 Cleaning and maintenance**

#### **Cleaning**

Periodically wipe the case with a damp cloth. Do not use abrasives or solvents.

#### **Maintenance**

mobiLink Power does not contain any serviceable parts. The device may only be maintained and repaired by Softing. Opening the housing renders the warranty null and void.

## 4 Installing and using mobiLink Power

### 4.1 Unpacking and inspecting mobiLink Power

mobiLink Power is shipped with the parts listed in Chapter [Delivery and downloads](#)<sup>17</sup>.

**Prior to use:**

Before you install mobiLink Power check the integrity of the device as any of the following poses a safety risk:

- external damage to the housing
- damage to insulation of the test leads
- exposure to voltages exceeding the specified parameters
- incorrect storage of the unit
- damage sustained in transit
- incomplete or illegible certificates or labels



**Note**

If the device is damaged, contact Softing Support immediately.

### 4.2 Preparing for startup

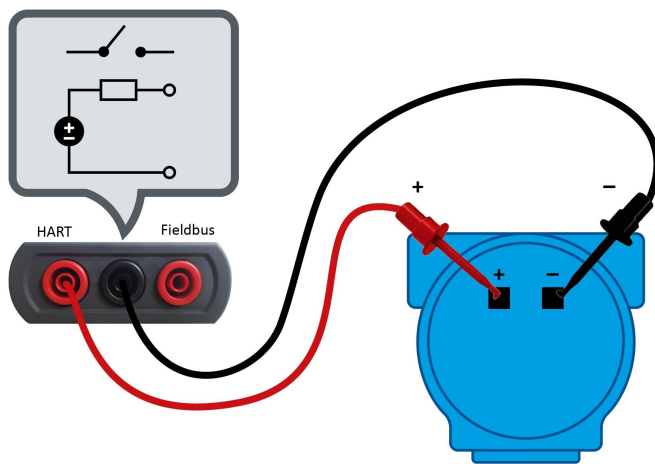
Before using mobiLink Power in combination with the FOUNDATION Fieldbus or PROFIBUS PA protocol for the first time, make sure that your mobiLink Power is running the latest firmware version for the supported protocols. See the [mobiLink product site](#) for the latest firmware version and Chapter [Firmware update](#)<sup>17</sup> on how to install the firmware.

When you connect mobiLink Power to a host device over the USB port, mobiLink Power automatically starts USB communication.

### 4.3 Using mobiLink Power in a HART environment

HART communicates on a 4-20 mA current loop that powers the connected HART devices and indicates the primary process value. mobiLink Power comes with a built-in power supply for 4 .. 20 mA HART devices (including 300 ohm load resistor). No further external components are required. mobiLink Power can source up to 22 mA at 16VDC. This is sufficient for most devices. The analog value as indicated by the device will not be evaluated by mobiLink Power.

Beside this bench operation, mobiLink Power also interfaces with already installed and powered HART loops. This is detected automatically and internal power supply will not be activated under any circumstances.



#### Setting up a HART connection

1. Connect mobiLink Power to a HART environment as shown above.

**⚠ CAUTION**

mobiLink Power may only be connected in parallel to a field device and NEVER in parallel to the load resistor. Otherwise, power detection may fail and the additional voltage supplied over FIELDBUS POWER will distort the measuring results.

2. Connect mobiLink Power via the USB port with your PC (smartphone or tablet). It will start automatically.
3. Press the [power button](#) for about 2 seconds. The FIELDBUS POWER LED starts flashing.



**Note**

The power supply may also be enabled via the mobiLink Power API software.

4. Start an application of your choice on your PC (smartphone or tablet).
5. Select mobiLink Power as HART interface.



**Note**

The mode of operation is selected by the application used (MOBILINKdtm or ComConf). mobiLink Power checks if the electrical conditions on the interface match the selected mode. mobiLink Power must therefore be connected to a HART device or fieldbus segment before the application is started.

- 6. Verify that the HART LED is indicating HART mode. The LED is flashing every 2 seconds. When mobiLink Power is powering the Fieldbus link, the FIELDBUS POWER LED is ON. When the Fieldbus link has its own power supply, FIELDBUS POWER LED is OFF.



**CAUTION**

mobiLink Power will not power the HART loop if an active power source is in use and detected. However, if an external power is added later, the power output will not be deactivated automatically. An additional external power source may damage the system.

If mobiLink Power detects an overload condition or a short circuit on the HART loop, it will deactivate the power supply within less than a second. This mode is indicated by a slowly flashing Fieldbus Power LED flashing slowly. mobiLink Power check the loop at 5 sec intervals, if the overload or short circuit is resolved and restores power if applicable.

## 4.4 Using mobiLink Power in a fieldbus environment

FOUNDATION Fieldbus and PROFIBUS PA use the same physical layer on your mobiLink Power. The device checks the fieldbus voltage and the polarity during start-up. If a problem is detected, mobiLink Power will not set up a connection. mobiLink Power supplies power to field devices. So no further external components are required. In comparison to standard power supplies some limitations apply. As mobiLink Power supplies only up to 40mA and cannot power an entire fieldbus segment. A typical use case is supplying one single device to be configured and parameterized in bench operation mode.

Beside this bench operation mobiLink Power interfaces with fully installed and already powered (and terminated) links. In this case internal power supply will not be activated and mobiLink Power will draw 10mA from the link.



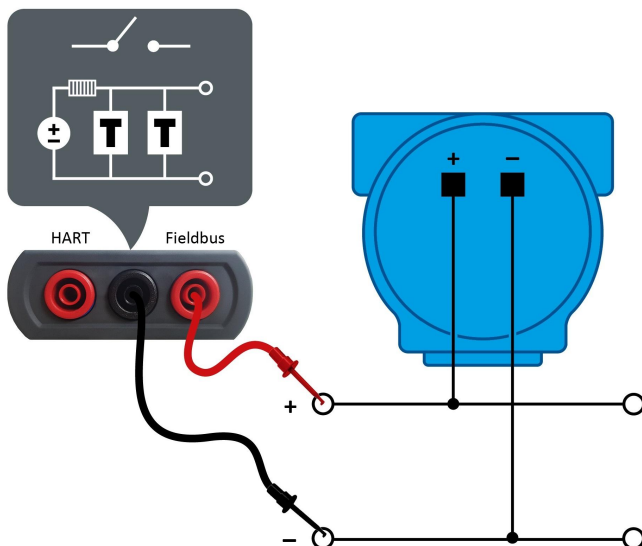
### CAUTION

If an external power supply is connected and activated, mobiLink Power draws approximately 10 mA from the fieldbus segment when connected to your PC, smartphone or tablet. Ensure that the fieldbus power supply covers the additional current. If the power supply is running near its capacity, connecting the mobiLink Power may result in loss of communication.



### Note

If you intend to access field devices over FOUNDATION Fieldbus or PROFIBUS PA you will need to acquire a separate license. See Chapter [Licencing mobiLink Power for FF and PA](#)<sup>16</sup> for details.



### Setting up a fieldbus connection

1. Connect mobiLink Power to a fieldbus environment as shown above.
2. Connect mobiLink Power to your PC (or smartphone or tablet) via USB.

3. Press the [power button](#)<sup>□8</sup> for about 2 seconds. The FIELDBUS POWER LED will start automatically. Power will only be supplied after the FF or PA protocol has been started by the application (Step 5).



**Note**

The power supply may also be enabled via the mobiLink Power API software.

4. Start an application of your choice on your PC (or smartphone or tablet).
5. Select mobiLink Power as fieldbus interface.



**Note**

The mode of operation is selected by the application used (MOBILINKdtm or ComConf). mobiLink Power checks if the electrical conditions on the interface match the selected mode. mobiLink Power must therefore be connected to a HART device or fieldbus segment before the application is started.

6. Verify that the FIELDBUS LED is indicating fieldbus mode. The LED is flashing every 2 seconds. When mobiLink Power is powering the Fieldbus link, the FIELDBUS POWER LED is ON. When the Fieldbus link has its own power supply, FIELDBUS POWER LED is OFF.



**CAUTION**

mobiLink Power will not power on the FF/PA segment if it an active power source is in use and detected. However, if an external power is added later, the power output will not be deactivated automatically. An additional external power source may damage to the system.

If mobiLink Power detects an overload condition or a short circuit on the FF/PA segment, it will deactivate the power supply within less than a second. This mode is indicated by a slowly flashing Fieldbus Power LED flashing slowly. mobiLink Power check the loop at 5 sec intervals, if the overload or short circuit is resolved and restores power if applicable.

#### 4.4.1 FF/PA Segment Termination

mobiLink Power has built-in segment terminators which are automatically activated when power is supplied to the segment. When the segment draws on an external power supply, no terminator is activated by default.

Terminators can be activated and deactivated in the mobiLink API software. If an internal power supply is active, at least one terminator will be switched on (which means it is not possible to deactivate both terminators in this case).

#### 4.4.2 Special notes for PROFIBUS PA

All PROFIBUS PA masters must use the same bus parameters per PA segment. mobiLink Power has been tested and approved in conjunction with the following PA Masters:

- Softing Gateways (pnGate PA/PB, mbGate PA)
- Siemens PA Link (IM-153)
- Pepperl + Fuchs SK3
- Pepperl + Fuchs Basic Segment Coupler

**Restrictions:**

The following PA masters are not able to communicate with mobiLink Power:

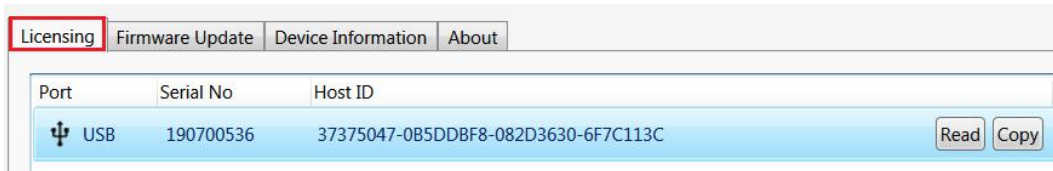
- Pepperl + Fuchs SK1 & SK2


For details on how to set the bus parameters see the corresponding **MOBILINKdtm** User Guide.

### 4.4.3 Licensing mobiLink Power for FF and PA

To use mobiLink Power for FOUNDATION Fieldbus and PROFIBUS PA you will need to activate a corresponding license. The license is optional and is not included in the standard delivery.

1. Open the mobiLink Power Manager you downloaded previously to read out the Host ID.
2. Select the **Licensing** tab.



3. Click **[Read]** for the mobiLink Power you wish to license. The Host ID is displayed.
4. Click **[Copy]**.
5. Go to the Softing Industrial website and click the  icon in the upper right corner to register yourself or select this [My Softing Portal](#) link. When you are registered and logged in you are directed to the **My Softing** page.
6. Click **[Register License]**.
7. Enter the **license key** from your License Certificate in the license key input field. You will have received the License Certificate when you purchased the FOUNDATION Fieldbus or PROFIBUS PA license.
8. Paste the host ID you copied in Step 4 into the **Host ID** field of the My Softing page.

#### Register License

Please enter your License Key and your Host ID. If you want to get notified in case of new releases, just check enable release info.

Activate License:

License Key


12345-ABCDE-67890-FGHIJ

Host ID

Enable Release Info

Register License

Cancel


9. Click **[Register License]**.  
A license file is generated.
10. Click **[Download]** to save the license file to your PC.
11. Switch to the mobiLink Power Manager application.
12. Select the mobiLink Power with the corresponding Host ID.
13. Click the icon  to search for the license file on your PC and click **[Open]**.

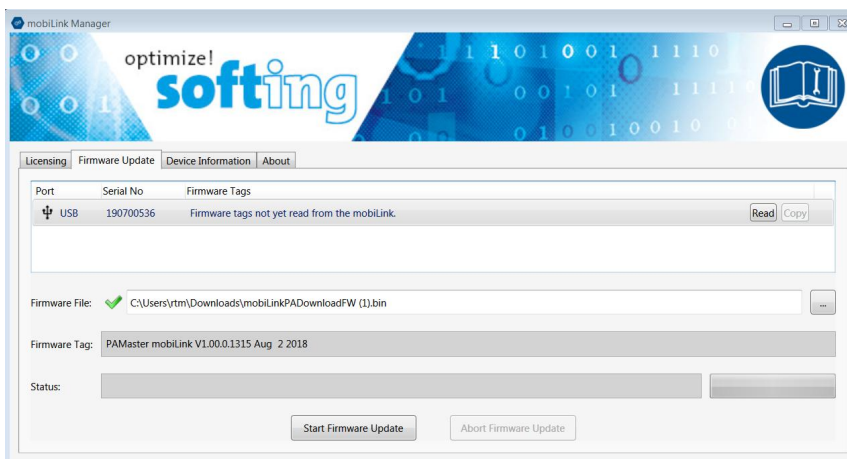


14. Click **[Transfer License]**.  
The progress bar shows the installation status.  
You will be notified when the installation is completed.

## 4.5 Updating the firmware

For updating the mobiLink Power firmware you can choose among three different firmware files each addressing one of the supported protocols: HART, FOUNDATION Fieldbus and PROFIBUS PA.

1. Download the latest firmware version from the [mobiLink product site](#) to your PC. Each supported protocol has its own firmware version. So you will have to choose one or all of three files (HART, FF, PA) for download.
2. Start the mobiLink Power Manager on your PC.
3. Select the **Firmware Update** tab.
4. Select a mobiLink Power device.  
The window will display all devices to which you are connected.
5. Click the icon  to select the firmware file you just downloaded.  
The version of the firmware is shown in the Firmware Tag field.



6. Click **[Start Firmware Update]**.  
The progress bar in the bottom right corner indicates the update status. When the update is completed you will see the status message **Firmware update succeeded**.

## 5 Installing mobiLink Power

Before you can work with your mobiLink Power install either the FDI CommServer, the MOBILINKdtm (for FDT frame applications) or the Communication Configuration Tool (ComConf). To update the mobiLink Power firmware and manage optional licenses you will also need to install the mobiLink Manager. You find all software applications for download from the [mobiLink product site](#).

1. Download the latest MOBILINKdtm or Communication Configuration Tool software.
2. Double-click the setup file to start the installation.



**Note**

You will need administration access rights to install the software. Start the setup as described above and authorize the installation with your access data in a UAC dialog. Make sure that "Softing AG" is mentioned in the UAC dialog as verified publisher. If you are logged on as administrator you will only need to confirm your choice.

3. Select the installation language.
4. Follow the install wizard instructions.



**Note**

Contact [Softing Support](#) if an error occurs during installation.

5. Repeat the download and installation steps for the mobiLink Power Manager.

## 6 Technical data

<b>Fieldbus Interface (Foundation Fieldbus / PROFIBUS-PA)</b>	
Connection	Polarized 4 mm banana type jacks (red /black)
Physical Layer	according to IEC 61158-2, Type 1: 31.25 Kbit/s, voltage mode
Nominal input current (Fieldbus)	10 mA (with $U_{\text{fieldbus}} > 9.0 \text{ V}$ )
Fieldbus Terminator	2 Fieldbus Terminators included (switchable by software)
Input Voltage	+9 ... +32 V
Fieldbus Power Output (switchable by software)	10,5 ... 25,5V, 40mA
<b>HART Interface</b>	
Connection	4mm banana type jacks (red / black)
Physical Layer	HART FSK compliant modem
switchable HART Power Supply	min. 16V @22,5mA internal resistor 300Ohm max. 25,5V
<b>USB</b>	
Speed	USB 2.0 Full Speed
Connector	USB Type C
Electrical	5 V, 500 mA port sensible to ESD
<b>Environmental Conditions</b>	
Ingress protection	IP54 (with USB covered with cap)
Operating temperature	-20 °C .. +50 °C
Drop	1 m

## 7 Declaration of conformity

This product is in conformity with the provisions of the following European Directives.

- 2014/30/EU "EMC" The EMC Directive 2014/30/EU "Electromagnetic Compatibility" ensures that electrical and electronic equipment does not generate, or is not affected by, electromagnetic disturbance.
- 2011/65/EU "RoHS" The RoHS Directive 2011/65/EU "Restriction of Hazardous Substances" covers the use and the amount of certain hazardous substances that can be used in electrical and electronic equipment to prevent these substances from entering the production process and thereby keep them out of the waste stream.
- 2012/19/EU "WEEE" The WEEE Directive 2012/19/EU "Waste of electrical and electronic equipment" is closely linked to the Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS Directive). It ensures that customers can return there WEEE free of charge.

## EU-Konformitätserklärung EU Declaration of Conformity



Wir  
We

**Softing Industrial Automation GmbH**  
**Richard-Reitzner-Allee 6**  
**D-85540 Haar**

erklären hiermit in alleiniger Verantwortung, dass das Produkt  
*declare under our sole responsibility that the product*

Modell / Typ  
*Model / Type*

**mobiliLink Power**

mit den Anforderungen der folgenden Richtlinien übereinstimmt  
*complies with the requirements of the following directives:*

**EMV Richtlinie 2014/30/EU**

*EMC directive 2014/30/EU*

**ROHS-Richtlinie 2011/65/EU, ergänzt durch DELEGIERTE RICHTLINIE (EU) 2015/863**

*ROHS directive 2011/65/EU, amended by COMMISSION DELEGATED DIRECTIVE (EU) 2015/863*

Angewandte harmonisierte Normen  
*Applied harmonised standards:*

**EN 61326-1:2013**

**EN IEC 63000:2018**

**Haar, 27.07. 2020**

Ort, Datum  
*Place, Date*

.....  
Geschäftsführer  
*Managing Director*

## 7.1 Certification marks

mobiLink Power is an internationally certified product conforming with the required standards and regulations indicated by the following certification marks:



### CE

The CE mark indicates that the product conforms to EU health, safety and environmental requirements and that compliance with the above EU Directives has been made and can be requested from Softing Industrial Automation GmbH.



### WEEE

The WEEE mark (Waste of Electrical and Electronic Equipment) indicates that the product including batteries must be disposed of separately from normal waste at the end of its operational lifetime. Packaging material and worn components shall be disposed of in compliance with national law and local waste-disposal regulations.



### HART

The HART mark indicates that this product support the HART communication protocol (Highway Addressable Remote Transducer) on 4-20mA loops.



### Fieldbus Foundation




The Fieldbus Foundation mark indicates that this product supports the Fieldbus specification for host devices.

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