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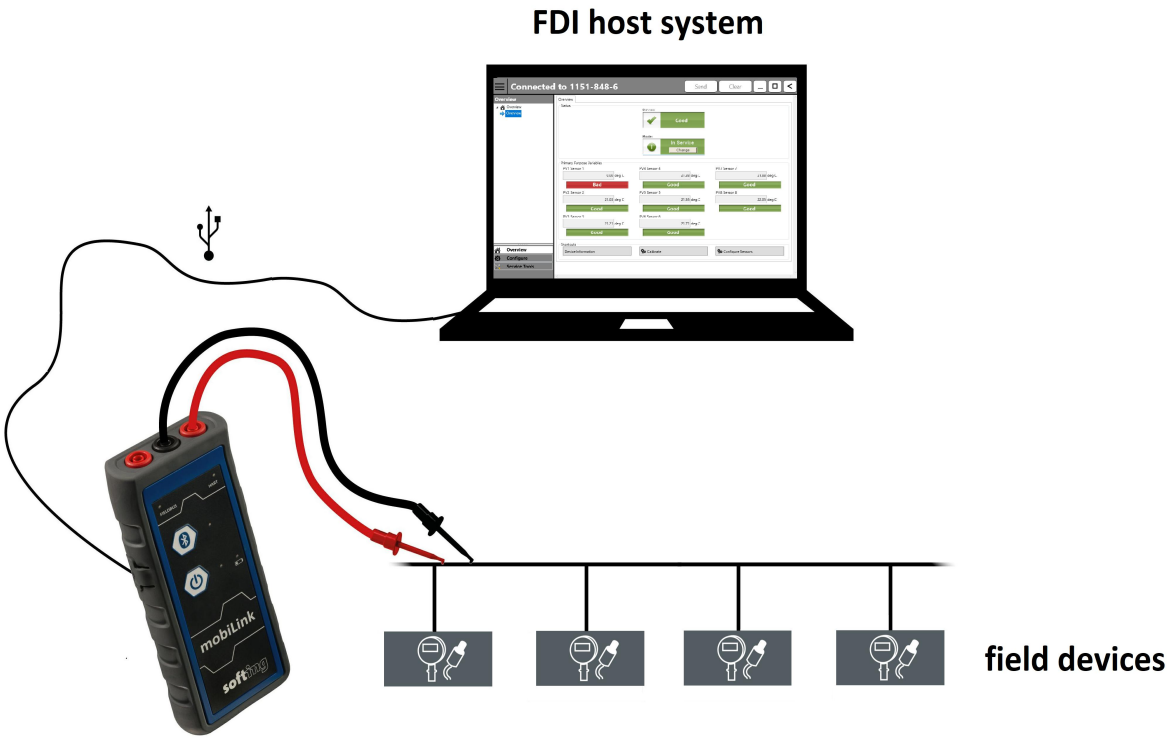
User Guide

mobiLink FDI Communication Servers



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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

Please read this guide carefully before operating the product to ensure safe and proper use. 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.

1.2 Target audience

This guide has been written for experienced operation personnel and network specialists responsible for configuring and maintaining HART, Profibus PA and Foundation Fieldbus devices with an adequate FDI host system. Any person using mobiLink or mobiLink Power must have read and fully understood the safety requirements and instructions described in the user guides.

1.3 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.

1.4 Document history

Document version	Modifications compared to previous version
1.00	Initial version

1.5 Related documentation

The following documentation describes the initial startup of your mobiLink. See the product website for more info and downloads

- mobiLink User Guide
- mobiLink Power User Guide

2 About mobiLink FDI Communication Server

The mobiLink FDI Communication Servers has been developed for mobiLink and mobiLink Power according to FDI Specification version 1.2.0 to help you configure, diagnose and maintain HART, PROFIBUS PA and Foundation Fieldbus field devices via an FDI host system. It has been tested and evaluated with the FDI host system *Emerson Instrument Inspector* (Foundation Fieldbus).

2.1 Software packages

Both mobiLink and mobiLink Power support the network protocols HART, Profibus PA and Foundation Fieldbus (FF) which can be addressed by installing individual software packages.

These can be downloaded from the product website:

- Install_MobilinkHARTFDICommServer32.exe
- Install_MobilinkHARTFDICommServer64.exe
- Install_MobilinkProfibusFDICommServer32.exe
- Install_MobilinkProfibusFDICommServer64.exe
- Install_MobilinkFFFDICommServer32.exe
- Install_MobilinkFFFDICommServer64.exe

2.2 Software and functionality

The mobiLink FDI Communication Server is a OPC-UA communication server accessed by the FDI host system working as a client.

Note
For communication with FF devices and PROFIBUS PA devices, you will first have to activate an optionally available FF or PROFIBUS PA license for your mobiLink or mobiLink Power. For more information see the mobiLink User Guide or and mobiLink Power User Guide.

2.3 Supported FDI host systems

The following host system is supported with this software version:

- Emerson Instrument Inspector

3 Installing mobiLink FDI Communication Server

Before you can work with your mobile communication device mobiLink or mobiLink Power within the FDI host system, install required software package[7] mentioned above.

1. Download the latest version of the mobiLink FDI Communication Servers from the mobiLink product website.
2. Double click the .exe file for 32 or 64 bit to start the installation.
3. Follow the installation instructions.
4. If your FDI host system requires the FDI package of the communication server, install one of the FDI package you find here: *ProgramData\Softing\<protocol>CommunicationServer\FDIPackage*.

   Note
   FDI host systems which have not been tested and evaluated (see Chapter 7[16]) must first exchange their digital certificates[12] and thereby confirm each others identity before establishing a secure communication.

5. Start the FDI host system. See the quick start instructions further down in this document.

4 Using mobiLink FDI Communication Server

The Softing mobiLink FDI Communication Servers support up to 10 connected mobiLink and mobiLink Power devices. These are called channels. For each connected mobiLink a separate set of parameters is provided to configure the access to the network. If you want to change parameters (wiring of the mobiLink device), you must first deactivate the connected channel and then reactivate the channel. See Chapter 7 16 for details.

CAUTION

Before activating a channel for a specific mobiLink with a specific serial number, please make sure that this channel is not already activated for another communication server (i.e. PROFIBUS PA or Foundation Fieldbus). You can run only one communication server per mobiLink.

4.1 Parameters

The following parameters apply to the mobiLink FDI Communication Servers.

4.1.1 General parameters

Parameter	Meaning	Default value	Valid Range
Serial number	Serial number of the mobiLink or mobiLink Power		
Activate channel	Access via mobiLink is active Access via mobiLink is inactive	False	TRUE (255) FALSE (0)

4.1.2 HART parameters

Parameter	Meaning	Default value	Valid Range
ScanRange Start	Start address of the scan	0	0 .. 63
ScanRange End	End address of the scan	1	0 .. 63

Note

Devices with an address out of the scan range will not be accessible by the FDI host system. Reducing the scan range will increase the speed of scanning.

Parameter	Meaning	Default value	Valid Range
MasterType	mobiLink works as a primary master. mobiLink works as a secondary master.	 Secondary Master	Primary Master
PreambleCounts	number of preamble bytes used for HART communication	5	5 .. 20

4.1.3 Profibus PA parameters

Parameter	Meaning	Default value	Valid Range
ScanRange Start	Start address of the scan	0	0 .. 126
ScanRange End	End address of the scan	126	0 .. 126

Note
Devices with an address out of the scan range will not be accessible by the FDI host system. Reducing the scan range will increase the speed of scanning.

Parameter	Meaning	Default value	Valid Range
StationAddress	This is the address assigned to the mobiLink PA master.	0	0 .. 126
SlotTime (Tsl)	Slot Time. The time interval that the master waits for the response of a participant before it repeats the telegram or sends the next telegram. The lower limit of the slot time is the sum of Max Tsdr + Tqui + 14.	320	37 .. 16383
MinStationDelay	Min Station Delay Responder (Min Tsdr). The minimum time interval that must elapse before a participant is allowed to answer.	11	11 .. 1023
MaxStationDelay	Max Station Delay Responder (MaxTsdr). The time interval within which a participant must answer.	250	37 .. 65535
TargetRotationTime	Target Rotation Time (Ttr). Maximum duration of a token circulation.	20000	256 .. 16777215
HighestStationAddress e	The highest station address addressed by the mobiLink PA master.	126	1 .. 126
QuietTime	Quiet Time (Tqui). The time interval required by a transmitting station to switch to reception.	0	0 .. 255
SetupTime	Setup Time (Tset). The time interval that may elapse between receipt of a telegram and the required response to it. The upper limit value results from the difference of 494 -Tqui.	32	1 .. 255
GapUpdateFactor	The number of token cycles after which a newly added master can be included in the token ring.	1	0 .. 100
MaxRetryLimit	The maximum number of repetitions if a station doesnot respond.		0 .. 7

4.1.4 FF parameters

Parameter	Meaning	Default value	Valid Range
ScanRange Start	Start address of the scan		16 .. 255
ScanRange End	End address of the scan		16 .. 255

Note
Devices with an address out of the scan range will not be accessible by the FDI host system. Reducing the scan range will increase the speed of scanning.

Parameter	Meaning	Default value	Valid Range
Node Address	Node address assigned to mobiLink or mobiLink Power.	252	16 .. 247 252 .. 255
Slot Time	H1 bus time unit. See also Max Response Delay and Min Inter PDU Delay.	8	1 .. 4095
First unpolled node address	The first node address which mobiLink or mobiLink Power ignores when detecting connected devices. Together with the number of unpolled nodes this defines the range of addresses which are not taken into account.	20	20 .. 248
Number of unpolled nodes	The number of nodes starting from the first unpolled node address which mobiLink or mobiLink Power ignores when detecting connected devices. Together with the first unpolled node address this defines the range of addresses which are not taken into account. The last unpolled node may not exceed the value 247.Devices with an address outside the polled range are not taking part in the bus communication and are therefore not detected during the scan. If all nodes are to be considered the value must be set to 0.	0	0 .. 228
Max Response Delay	Maximum time interval in slot times which may lapse between request and response. Devices which do not respond within this interval are excluded from the bus communication. Each device has its own value for this parameter. The set value should be at least as large as the largest value of all devices connected to the H1 segment. The values of the individual devices can be found in the respective device description.	10	1 .. 11
Min Inter PDU Delay	Minimum time interval in slot times which has to lapse between two frames on the bus so the frames can be processed. Each device has its own value for this parameter. The set value should be at least as large as the largest value of all devices connected to the H1 segment. The values of the individual devices can be found in the respective device description.	16	0 .. 255

4.1.5 Using mobiLink FDI Communication Server mobiLink Power

If you want to use mobiLink Power with Fieldbus Power switched on, first deactivate the channel before pressing the "Fieldbus Power" button on the mobiLink device and then activate the channel again.

5 Certificates

FDI communication is based on OPC UA providing secure communication. Therefore the certificates of the server (mobiLink Communication Server) and the client (FDI host system) have to be exchanged. This is typically done by copying the own certificate of the server (Softing mobiLink FDI communication server) into the trusted folder of the client (FDI host system) and copying the own certificate of the client to the trusted folder of the server.

You will find the certificates of the Softing mobiLink FDI communication servers here:

- C:*ProgramData**Softing**Mobilink<protocol>CommunicationServer**CertificateStores**own**certs*

Copy the own certificate of the host system to C:

- C:*ProgramData**Softing**Mobilink<protocol>CommunicationServer**CertificateStores**TrustedCertificates**certs*

Certificates for the Emerson Instrument Inspector Application and the Softing FDI communication servers are managed automatically. For other FDI host systems please refer to the framework's user guide.

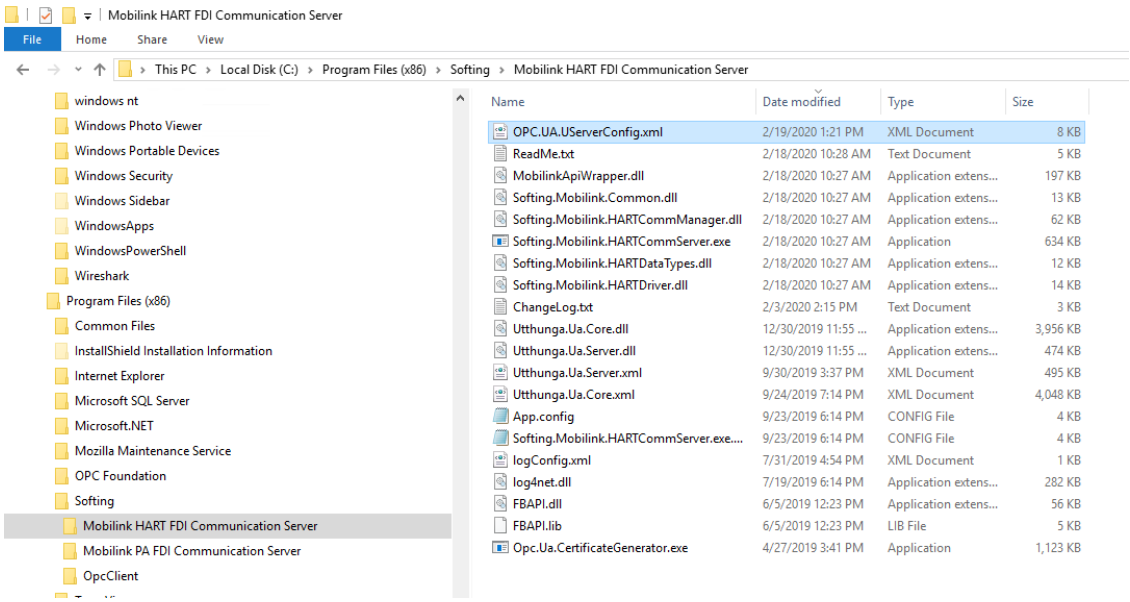
6 Changing a port number

The following chapter describes how to change the port number used to access and communicate with the communication server. The mobiLink HART FDI Communication Server uses port number 9555, the mobiLink Profibus FDI Communication Server uses port number 9556 and the mobiLink FF FDI Communication Server uses port number 9557 as default.

Caution
Only change the port number if the FDI host system you use does not support the default port settings. The Emerson Instrument Inspector[16] will no longer work if you change the port number.

Note
You need administrator rights to save the changes. If you cannot save the changed port number, you will first need to open Notepad with administrator rights. Click **Start** and type **Notepad**. Right-click on the program that appears in the search results and click **Run as Administrator**.

1. Open Windows Explorer.
2. Select **Program Files → Softing → Mobilink<*protocol*>CommunicationServer**.
3. Select the file **OPC.UA.UServerConfig.xml** in Windows Notepad.

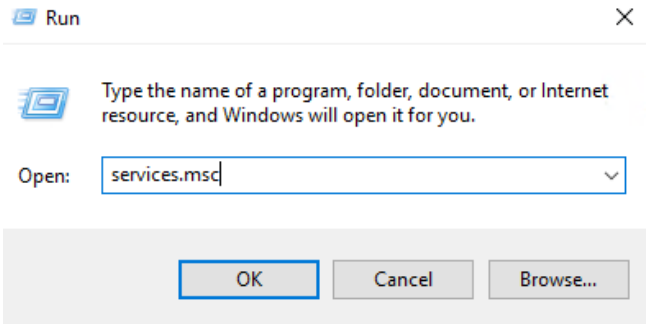


4. Change the **port number** (last 4 digits behind the IP address).

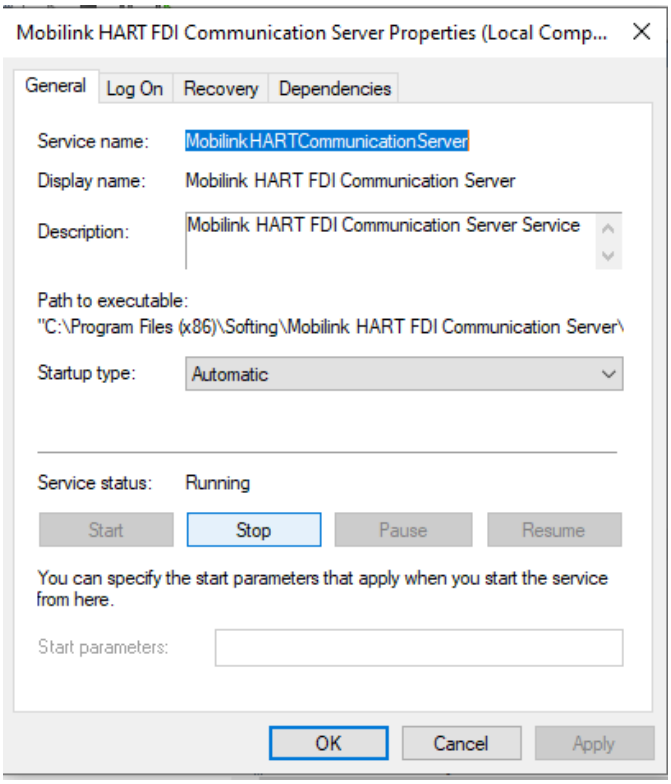
5. Save the file.

6. Right-click Windows **Start** and click **Run.**

7. Enter *services.msc* and click **[OK]**.



The Windows Services Manager opens. Here you can start, stop, pause, resume and restart any of the Windows services.



8. Right-click the service for which you have changed the port number (i.e. Mobilink HART FDI Communication Server) and select click **[Start]** to restart the communication server with the changed port number.

7 Working with the Emerson Instrument Inspector

This chapter describes how to set up and configure a mobiLink Power device with the Emerson Instrument Inspector.

7.1 Preparation

- Ensure that the latest fully-licensed version of the Emerson Instrument Inspector is installed and running on your PC. You need at least Version 2.4.0.5.
- Ensure that your mobiLink Power is connected to your PC.
- Ensure that your mobiLink Power is connected to an FF network.
- Ensure that your mobiLink Power has an FF license.
- Download the mobiLink Power User Guide for details on how to connect your mobiLink device.

The following limitations apply to the current version of the mobiLink FDI Communication Servers:

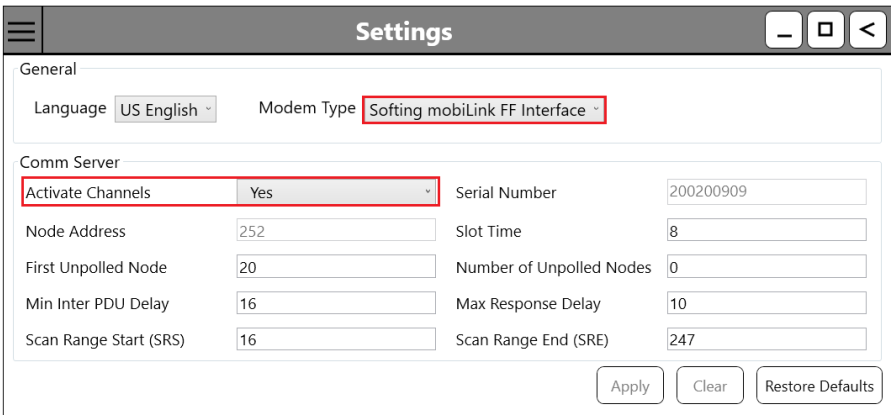
- Supports only mobiLink Power.
- Supports only Emerson field devices.
- Supports only one mobiLink Power at a time.

7.2 Configuration

Note

The Emerson Instrument Inspector is running only on port 9557.

1. Start the Emerson Instrument Inspector.
2. Open the **Settings** page.
3. Make sure that the **Softing mobiLink FF Interface** is selected as **Modem Type**.



4. Check the communication parameters[10] and change **Activate Channels** to **Yes** to activate the mobiLink.

5. Click the icon [<] to return to the field device overview.
   The scanning will start automatically and all Emerson devices within the configured scan range will be displayed.

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