

Quick Reference Guide

P/N 20001908, Rev. GA

August 2009

ProLink® II

Installation and Startup

For customer service, phone the support center nearest you:

- In the U.S.A., phone **800-522-MASS** (800-522-6277) (toll-free)
- In Canada and Latin America, phone +1 303-527-5200
- In Asia:
 - In Japan, phone 3 5769-6803
 - In other locations, phone +65 6777-8211 (Singapore)
- In Europe:
 - In the U.K., phone 0870 240 1978 (toll-free)
 - In other locations, phone +31 (0) 318 495 555 (The Netherlands)

Customers outside the U.S.A. can also send an email to Micro Motion customer service at:

Flow.Support@Emerson.com



BEFORE YOU BEGIN

About these instructions

This quick reference guide explains basic installation guidelines for Micro Motion® ProLink® II software.

For complete instructions about installation and use, refer to the ProLink II manual.

WARNING

An improper connection between ProLink II and the transmitter can cause an explosion.

To avoid causing an explosion, be sure to connect ProLink II to the transmitter using safe methods. To avoid causing an explosion:

- Do not open a non-intrinsically safe wiring compartment in a hazardous area.
- Do not use the computer running ProLink II in a hazardous area.

Note: If you have a Model 2700 transmitter with transmitter software earlier than v3.4, and you have the concentration measurement application installed, you cannot access the concentration measurement functions with ProLink II v2.1 or later. Contact Micro Motion for alternative solutions.

PC requirements

To install and run ProLink II, your PC must meet or exceed the following requirements:

- 200 MHz Pentium processor
- One of the following:
 - Windows XP with Service Pack 1 and 128MB RAM
 - Windows 2000 with Service Pack 3 and 128MB RAM
- 80MB of available hard disk space
- Video with support for 256 or more colors
- CD-ROM Drive
- An available serial port or USB port

Installation kits

Micro Motion provides ProLink II installation kits for the following connection types:

- RS-485 to serial port (RS-232)
- RS-485 to USB port
- Bell 202 to serial port (RS-232)
- Bell 202 to USB port

The installation kits include signal converters and assorted adapters, cables, and testers. If you need a ProLink II installation kit, contact Micro Motion.

Note: If you do not use a signal converter supplied by Micro Motion, it is your responsibility to ensure that your equipment provides equivalent functionality. See the ReadMe.txt file in the ProLink II installation directory, or contact Micro Motion customer support for assistance or additional information.

Note: A Windows driver is required for correct operation of the Bell 202 USB signal converter. This driver is provided with the installation kit. Ensure that the driver is installed before attempting to connect through the USB port. If this driver is not installed, Windows will not recognize the USB converter when it is plugged into the USB port.

STEP 1. Install the ProLink II software

To install ProLink II software:

1. Insert the ProLink II CD-ROM into the PC's CD-ROM drive.
2. If the setup program does not start automatically, locate and run the SETUP.EXE file. The file is located in the root directory on the CD-ROM (e.g., D:\setup.exe, where "D" is your CD-ROM drive letter).

Note: The user who installs the ProLink II software must have permission to write to the registry.

3. Follow the on-screen instructions to complete the installation. If you have a previous version of ProLink II installed on your PC, you may be prompted to remove it before installing the new version.

Warning: The ProLink II site key is associated with a specific disk drive and specific folder on your PC. If you decide to move ProLink II after installation, you will have to transfer the license and reinstall ProLink II. To avoid this step, be sure to install ProLink II into a location that you can use permanently.

4. Follow the on-screen instructions to generate the temporary license. This license will allow you to run ProLink II with full functionality for seven days, starting from the current date and time.
5. A site key is required for a permanent license. Follow the instructions in the ProLink II manual to obtain and configure a site key.

Warning: The temporary license will expire after seven days, and ProLink II will not connect to a transmitter. Be sure to configure the site key before the temporary license expires.

In typical installations, the manual is installed with the ProLink II program, and can be opened from the Micro Motion folder in the Windows Start menu. You can also find the ProLink II manual on the installation CD, in the root directory.

Note: Adobe Acrobat Reader is required to read the ProLink II manual. The self-extracting setup file for this program is provided in the root directory of the ProLink II installation CD, if Acrobat Reader is not already installed on your system. The ProLink II setup program does not install Acrobat Reader automatically.

STEP 2. Connect the PC to the transmitter

1. Connect the appropriate signal converter to your PC's serial or USB port, using adapters as required.
 - For connections using the Bell 202 physical layer, use the Bell 202–RS-232 signal converter.
 - For connections using the RS-485 physical layer, use the RS-485–RS-232 signal converter.
2. Connect the two leads of the signal converter to the appropriate terminals on your transmitter. See Table 1.

Table 1. Transmitter terminals for ProLink II connections

Transmitter	Terminals for connection type							
	HART/ Bell 202		HART/ RS-485		Modbus/ RS-485		Service port	
	PV+	PV–	A	B	A	B	A	B
IFT9701/9703	4-20 +	4-20 –						
RFT9712	17	16	21	22				
RFT9739								
• Rack-mount	Z30	D30	Z22	D22	Z22	D22		
• Field-mount	17	18	27	26	27	26		
• Model 1700/2700 with analog outputs	1	2	5	6	5	6	8	7
• LFT field-mount with output option codes 1, 3								
Model 1700/2700 with intrinsically safe outputs ⁽¹⁾	1	2					8	7
• Model 2700 with configurable input/ outputs	1	2					8	7
• LFT field-mount with output option code 4								
• Model 2700 with FOUNDATION™ fieldbus							8	7
• LFT field-mount with output option code 6								
Model 2700 with PROFIBUS-PA							8	7
Model 2200S	HART clips							

Table 1. Transmitter terminals for ProLink II connections (Continued)

Transmitter	Terminals for connection type								
	HART/ Bell 202		HART/ RS-485		Modbus/ RS-485		Service port		
	PV+	PV-	A	B	A	B	A	B	
Model 2400S with analog outputs	1 or HART clips	2						Service port clips	
Model 2400S with DeviceNet								Service port clips	
Model 2400S with PROFIBUS-DP								Service port clips	
Series 3000									
• Panel-mount with solder-tail or screw-type connectors	c2	a2	c32	a32	c32	a32	c32	a32	
• Panel-mount with I/O cables	14	15	24	25	24	25	24	25	
• Rack-mount	c2	a2	c32	a32	c32	a32	c32	a32	
• Field-mount	2	1	11	12	11	12	11	12	
• Model 1500/2500	21	22			33	34	33	34	
• LFT DIN rail with output option codes 2, 5, 8									
Model 7826/7828 ⁽²⁾					3	4			
Model 7829 ⁽²⁾					3	4			
Model 7835/7845/7846/7847 ⁽²⁾					11	12			
Model 7835 EXD ⁽²⁾					3	4			
MVD™ Direct Connect™ with no barrier ⁽³⁾					3	4			
MVD Direct Connect with MVD™ Direct Connect™ I.S. barrier									
• Connection to barrier ⁽⁴⁾					13	14			
• Connection to core processor ⁽³⁾					3	4			
Core processor ⁽³⁾⁽⁵⁾					3	4			

(1) If connecting to terminals 1 and 2, terminals must be externally powered, with a minimum of 250 Ω and 17.5 volts. Requirement does not apply to service port.

(2) Transmitter version with advanced electronics option only.

(3) Connection is not intrinsically safe.

(4) Intrinsically safe connection.

(5) *Connecting directly to the core processor terminals is supported for sensor-mounted core processors (4-wire remote installations) or stand-alone core processors (remote core processor with remote transmitter installations).*

3. Add resistance if required. Many HART connections require added resistance. See Table 2. For additional information, see the ProLink II manual or the transmitter manual.

Table 2. Added resistance for ProLink II connections

Transmitter	Resistance range for connection type			
	HART/ Bell 202	HART/ RS-485 ⁽¹⁾	Modbus/ RS-485 ⁽¹⁾	Service port
IFT9701/9703	250–600 Ω			
RFT9712	250–1000 Ω	⁽¹⁾		
RFT9739				
• Rack-mount	250–1000 Ω	⁽¹⁾	⁽¹⁾	
• Field-mount	250–1000 Ω	⁽¹⁾	⁽¹⁾	
• Model 1700/2700 with analog outputs	250–600 Ω	⁽¹⁾	⁽¹⁾	⁽¹⁾
• LFT field-mount with output option codes 1, 3				
Model 1700/2700 with intrinsically safe outputs	250–600 Ω			⁽¹⁾
• Model 2700 with configurable input/outputs	250–600 Ω			⁽¹⁾
• LFT field-mount with output option code 4				
• Model 2700 with FOUNDATION fieldbus				⁽¹⁾
• LFT field-mount with output option code 6				
Model 2700 with PROFIBUS-PA				⁽¹⁾
Model 2200S	250–600 Ω			
Model 2400S with analog outputs	250–600 Ω			⁽¹⁾
Model 2400S with DeviceNet				⁽¹⁾
Model 2400S with PROFIBUS-DP				⁽¹⁾
Series 3000	250–600 Ω	⁽¹⁾	⁽¹⁾	

Table 2. Added resistance for ProLink II connections (Continued)

Transmitter	Resistance range for connection type			
	HART/ Bell 202	HART/ RS-485 ⁽¹⁾	Modbus/ RS-485 ⁽¹⁾	Service port
<ul style="list-style-type: none"> Model 1500/2500 LFT DIN rail with output option codes 2, 5, 8 	250–600 Ω		(1)	
Model 7826/7828 ⁽²⁾			(1)	
MVD Direct Connect			(1)	

(1) RS-485 connections may require added resistance if the connection is long-distance or if there is external noise that interferes with the signal. Add two 120-Ω resistors in parallel with the output, one at each end of the communication segment.

(2) Transmitter version with advanced electronics option only.

- For Modbus network connections, ensure that ProLink II is the only Modbus master currently active on the network.

There are additional methods for connecting ProLink II to your transmitter, including connecting over a network. See the ProLink II manual for complete information.

STEP 3. Configure the connection and connect

To connect to a Model 7826 or Model 7828 (transmitter versions only):

- Start ProLink II software.
- In the Connection menu, click **Connect to Densitometer/Viscometer**.
- Set **Serial Port** to the PC COM port you are using to connect to the device.
- If you know the address of the device and you want to communicate with this product only:
 - Enter the address in the **From Address** and **To Address** fields.
 - Click **Connect**.
- If you do not know the address, or if you want to communicate with multiple devices:
 - Enter an address range in the **From Address** and **To Address** fields.
 - Click **Connect**.

ProLink II will poll all addresses in the specified range, and populate the **Found** dropdown list with all Model 7826/7828 devices found in that range.

When polling is complete, select the desired address from the **Found** dropdown list and use other ProLink II windows to work with the associated device. To interact with a different device, return to the Connection window and select the address of the new device.

6. If ProLink II fails to connect:
 - Try adding resistance to the connection. See Table 2.
 - Swap the leads and try again.
 - Ensure that ProLink II is the only Modbus master currently active on the network.

To connect to all other transmitters:

1. Start ProLink II software.
2. In the Connection menu, click **Connect to Device**.
3. Use the **Protocol** parameter to specify your connection type. For HART/Bell 202 connections using the converter supplied by Micro Motion, enable **Converter Toggles RTS**.
4. Set **Serial Port** to the PC COM port you are using to connect to the transmitter.
5. Specify additional communication parameters.
 - If you are making a service port or HART/Bell 202 connection, default values are used for all remaining communication parameters. No configuration is required.
 - If you are connecting to an MVD Direct Connect system, set the remaining communication parameters to any of the supported values listed in Table 3. The core processor auto-detects incoming communications settings and switches to match.

- If you are connecting to any Model 2400S transmitter using the service port:
 - For point-to-point connections, you can use a service port connection type.
 - For multidrop network connections, you can use any RS-485 connection type and specify the transmitter's Modbus address. The transmitter auto-detects incoming communications settings and switches to match. The service port auto-detection limits are described in Table 4.
- For all other connection types:
 - Default values for Series 1000/2000/3000 transmitters and LF meters are listed in Table 5.
 - Default values for RFT97xx and IFT97xx transmitters are listed in Table 6. If your transmitter is not using default values, refer to site documentation for the values you are using.
 - Default values for density and viscosity meters are listed in Table 7.

Note: ProLink II automatically sets data bits appropriately for the configured protocol. Even though a data bits parameter may be configured in the transmitter, you do not need to configure it in ProLink II. HART protocol is always 8 data bits. If your transmitter is configured for Modbus with 7 data bits, specify Modbus ASCII; if your transmitter is configured for Modbus with 8 data bits, specify Modbus RTU.

Table 3. MVD Direct Connect auto-detection limits

Parameter	Option
Protocol	Modbus RTU (8-bit) Modbus ASCII (7-bit)
Baud rate	Standard rates from 1200 to 38,400
Parity	Even, odd, none
Stop bits	1, 2

Table 4. Model 2400S service port auto-detection limits

Parameter	Option
Protocol	Modbus RTU (8-bit) Modbus ASCII (7-bit)
Address	Responds to both: <ul style="list-style-type: none"> • Service port address (111) • Configured Modbus address (default=1)
Baud rate	Standard rates from 1200 to 38,400
Stop bits	0, 1
Parity	Even, odd, none

Table 5. Default communication values for Series 1000/2000/3000 transmitters and LF meters

Transmitter	Physical layer	Protocol	Default values			
			Baud	Stop bits	Parity	Address
• Model 1500/2500 • LFT DIN rail	Bell 202 ⁽¹⁾	HART	1200	1	odd	0
	RS-485 ⁽²⁾	Modbus RTU	9600	1	odd	1
• Model 1700/2700 • LFT field-mount	Bell 202 ⁽¹⁾	HART	1200	1	odd	0
	RS-485 ⁽²⁾⁽³⁾	HART	1200	1	odd	0
Model 2200S	Bell 202 ⁽⁴⁾	HART	1200	1	odd	0
	RS-485 ⁽⁵⁾					
Model 2400S with analog outputs	Bell 202 ⁽¹⁾	HART	1200	1	odd	0
	RS-485 ⁽⁶⁾	Modbus (RTU or ASCII)	Auto-detect	Auto-detect	Auto-detect	1
Series 3000	Bell 202 ⁽¹⁾	HART	1200	1	odd	0
	RS-485 ⁽²⁾	Modbus RTU	9600	1	odd	1

(1) Connection to primary mA output, or to HART clips if available.

(2) Connection to RS-485 terminals.

(3) Available only on Model 1700/2700 transmitters with analog outputs or LF transmitters with output option codes 1 or 3.

(4) Connection to HART clips.

(5) Connection to RS-485 terminals.

(6) Connection to service port.

Table 6. Default communication values for RFT97xx and IFT97xx transmitters

Transmitter	Physical layer	Protocol	Default values			
			Baud	Stop bits	Parity	Address
IFT9701/ IFT9703 ⁽¹⁾	Bell 202 ⁽²⁾	HART	1200	1	odd	0
RFT9712	Bell 202 ⁽²⁾	HART	1200	1	odd	0
	RS-485 ⁽³⁾	HART	1200	1	odd	0
RFT9739 v2	Bell 202 ⁽²⁾	HART	1200	1	odd	0
	RS-485 ⁽³⁾	HART	1200	1	odd	0
RFT9739 v3	Bell 202 ⁽²⁾	HART	1200	1	odd	0
	RS-485 ⁽³⁾⁽⁴⁾					
	<ul style="list-style-type: none"> • Std. comm Modbus RTU 9600 1 odd 1 • User defined HART 1200 1 odd 0 					

(1) IFT9701/9703 communication parameters are not configurable. The settings shown here are always in effect.

(2) Connection to primary mA output.

(3) Connection to RS-485 terminals.

(4) Dip switch settings on the transmitter are used to select either Std. comm or User defined.

Table 7. Default communication values for density and viscosity meters

Transmitter	Physical layer	Protocol	Default values			
			Baud	Stop bits	Parity	Address
Model 7826/28	RS-485 ⁽¹⁾	Modbus RTU	9600	2	none	1
Model 7829	RS-485 ⁽¹⁾	Modbus RTU	9600	2	none	1
Model 7835/7845/78 46/7847	RS-485 ⁽¹⁾	Modbus RTU	9600	2	none	1
Model 7835 EXD	RS-485 ⁽¹⁾	Modbus RTU	9600	2	none	1

(1) Connection to RS-485 terminals.

6. Click the **Connect** button. ProLink II will attempt to make the connection.

- If you are making a service port connection to a Model 1700/2700, Model 2400S, LFT field-mount, or Model 2200S transmitter, you can make the connection at any time.

- If you are connecting to a Model 1500/2500, Series 3000, or LFT DIN rail mount transmitter, the RS-485 terminals are available in service port mode for 10 seconds after transmitter power-up.
 - If a service port connection is made during this interval, the terminals will remain in service port mode until the next power cycle, and you can make a service port connection at any time.
 - If no connection is made during this interval, the terminals switch to RS-485 mode and you can make an RS-485 connection at any time.

If the terminals are in one mode and you want to use the other mode, you must power cycle the transmitter to reset the mode, then make the appropriate connection at the appropriate time.

- If you are using any other connection type, you can make the connection at any time.

7. If ProLink II fails to connect:

- Try adding resistance to the connection. See Table 2, the ProLink II manual, or the transmitter manual.
- For Modbus connections, swap the leads and try again.
- For Modbus connections, ensure that ProLink II is the only Modbus master currently active on the network.
- If you are using Modbus ASCII protocol to connect to the Model 2400S transmitter with analog outputs, ensure that Modbus ASCII support is enabled on your transmitter.
- For HART connections to Model 1700/2700 transmitters with the intrinsically safe outputs option board, ensure that the terminals are externally powered.
- For HART connections to the USB port:
 - Ensure that you have checked the box labeled **Converter Toggles RTS** in the ProLink II **Connect** window.
 - Ensure that the required Windows driver is installed on your PC. If this driver is not installed, Windows will not recognize the USB converter when it is plugged into the USB port.
- For additional troubleshooting suggestions, see the ProLink II manual.

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