

# Anybus<sup>®</sup> Communicator<sup>™</sup> - PROFIBUS to Modbus RTU/Serial

## STARTUP GUIDE

SP2980

Version 1.22

Publication date 2024-05-02



## Important User Information

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# 1. Preface

## 1.1. About This Document

This document describes how to install Anybus® Communicator™.

For additional documentation and software downloads, FAQs, troubleshooting guides and technical support, please visit [www.anybus.com/support](http://www.anybus.com/support).

## 1.2. Document Conventions

### Safety Symbols

**DANGER**

Instructions that must be followed to avoid an imminently hazardous situation which, if not avoided, will result in death or serious injury.

**WARNING**

Instructions that must be followed to avoid a potential hazardous situation that, if not avoided, could result in death or serious injury.

**CAUTION**

Instruction that must be followed to avoid a potential hazardous situation that, if not avoided, could result in minor or moderate injury.

**IMPORTANT**

Instruction that must be followed to avoid a risk of reduced functionality and/or damage to the equipment, or to avoid a network security risk.

## Information Symbols



### NOTE

Additional information which may facilitate installation and/or operation.



### TIP

Helpful advice and suggestions.

## 1.3. Trademarks

Anybus® is a registered trademark of HMS Networks.

All other trademarks are the property of their respective holders.

## 2. Safety

### 2.1. Intended Use

The intended use of this equipment is as a communication interface and gateway.

The equipment receives and transmits data on various physical layers and connection types.

If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

### 2.2. General Safety

**CAUTION**

Ensure that the power supply is turned off before connecting it to the equipment.

**CAUTION**

This equipment contains parts that can be damaged by electrostatic discharge (ESD). Use ESD prevention measures to avoid damage.

**CAUTION**

To avoid system damage, the equipment should be connected to ground.

**IMPORTANT**

Using the wrong type of power supply can damage the equipment. Ensure that the power supply is connected properly and of the recommended type.

## 3. Cybersecurity

### 3.1. General Cybersecurity



#### **IMPORTANT**

It is important to maintain the cybersecurity of the Communicator.

Before connecting the Communicator to a PLC, ensure the PLC is configured and installed in accordance with the PLC supplier hardening guidelines.



#### **IMPORTANT**

To physically secure networks and equipment and to prevent unauthorized access, it is recommended to install the equipment in a locked environment.



#### **IMPORTANT**

After completing the configuration of the Communicator, lock the security switch to prevent unauthorized access to the Communicator built-in web interface.



#### **IMPORTANT**

To avoid exposure of sensitive data, always perform a factory reset before decommissioning the equipment.

Factory reset will reset any on site made configuration changes and set the Communicator to the same state as leaving HMS production.

## 4. Preparation

### 4.1. Cabling

Have the following cables available:

- Power cable.
- Ethernet cable for configuration.
- PROFIBUS cable for connecting to network.
- 7-pin screw terminal block connector is included with the product.

### 4.2. Mechanical Tools and Equipment

Have the following tools available:

- Flat-head screwdriver, size 5.5 mm  
Needed when removing the Communicator from DIN-rail.  
Needed when changing the position of the rotary switches.
- Flat-head screwdriver, size 3 mm  
Needed when connecting the cables to the 7-pin connector.

### 4.3. HMS Software Applications

Download the software installation files and user documentation from [www.anybus.com/support](http://www.anybus.com/support).

#### HMS IPconfig

Use the software application HMS IPconfig and scan your network to discover and change the Communicator IP address and to access the Communicator built-in web interface.



#### NOTE

As an alternative, you can set a static IP address within the same IP address range as the Communicator IP address on the computer accessing the Communicator built-in web interface.



#### NOTE

HMS IPconfig is only available for Windows.

### 4.4. Software License Information

For license agreements regarding the third-party software used in the Communicator, refer to the *LICENSE.txt* file(s) included in the Communicator firmware update package zip file.

To download the Communicator firmware update package zip file, please visit [www.anybus.com/support](http://www.anybus.com/support).



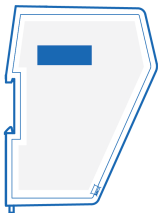
#### TIP

Have the product article number available, to search for the product specific support web page. You find the product article number on the product cover.

## 4.5. Support and Resources



For additional documentation and software downloads, FAQs, troubleshooting guides and technical support, please **scan the QR code to visit the Communicator support web page**.



You can also visit [www.anybus.com/support](http://www.anybus.com/support) and enter the product article number to search for the Communicator support web page. You find the **product article number** on the product cover.

## 5. Installation

### 5.1. DIN Rail Mounting



#### IMPORTANT

The equipment must be electrically grounded through the DIN rail for EMC compliance. Make sure that the equipment is correctly mounted on the rail and that the rail is properly grounded.



#### IMPORTANT

To physically secure networks and equipment and to prevent unauthorized access, it is recommended to install the equipment in a locked environment.

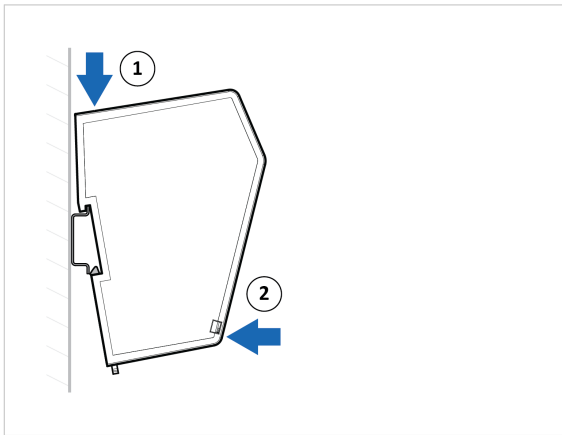


Figure 1. Attach the Communicator on the DIN rail

## 5.2. Connector Port Guide

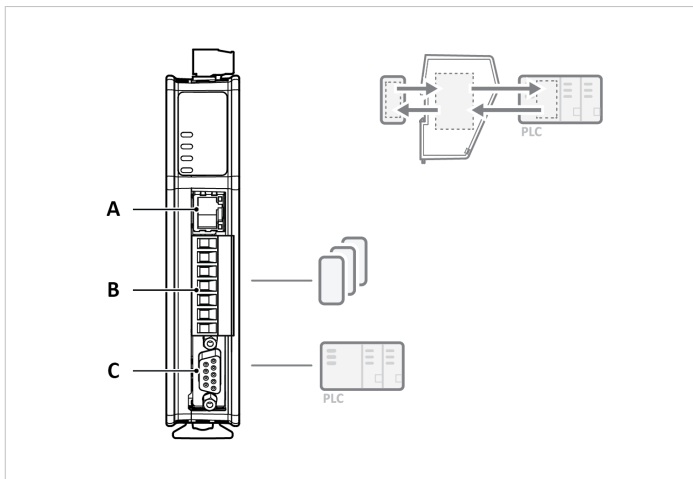


Figure 2. Communicator connector ports

Position	Port Number	Connector Type	Port Usage
A	X1	Ethernet	Configuration port
B	X2	Serial	Serial RS-232/485 Device
C	X3	D-SUB	PROFIBUS network

### 5.3. Connect to PROFIBUS Network

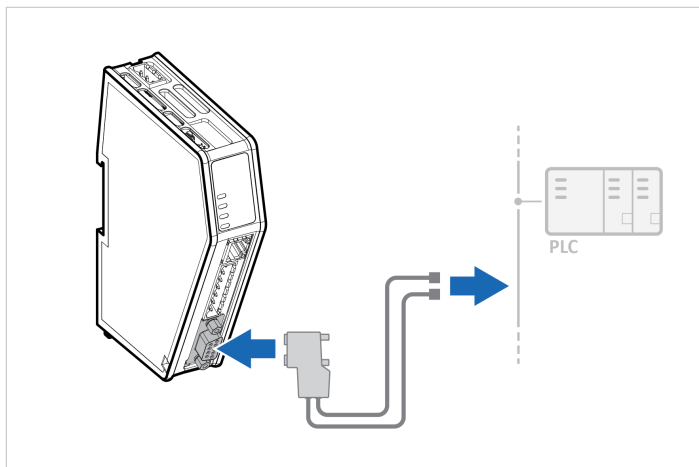


Figure 3. Connect to PROFIBUS network

PROFIBUS Connector	Pin	Description
	1	Not used
	2	Not used
	3	Line B
	4	RTS
	5	GND Bus
	6	+5 V Bus Out
	7	Not used
	8	Line A
	9	Not used
	Housing	PE

## 5.4. Connect to Serial RS232/RS485 Subnetwork

**NOTE**

Use minimum 90 oC copper (Cu) wire only.

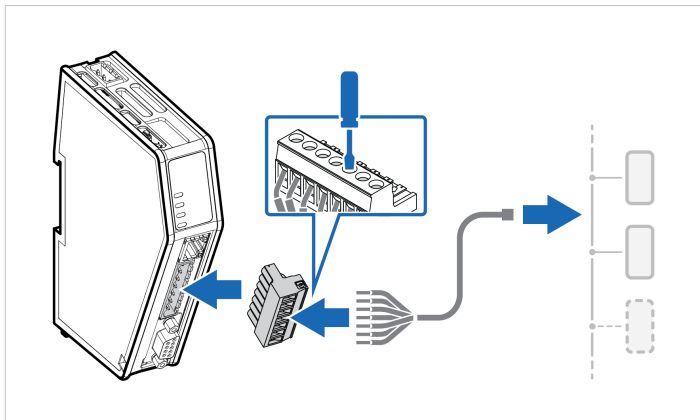
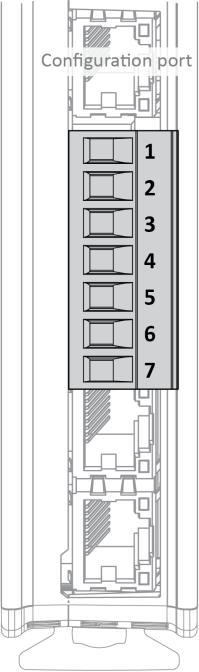


Figure 4. Connect to serial RS232/RS485 subnetwork

7-pin connector	Pin	Signal
 <p>The diagram shows a vertical 7-pin connector. Above the connector is a 'Configuration port'. The pins are numbered 1 through 7 from top to bottom. Pin 1 is the topmost pin, and pin 7 is the bottommost pin. The connector is shown in a cutaway view, revealing the internal contacts.</p>	1	+5 V OUT
	2	RS485+ A
	3	RS485- B
	4	Signal GND
	5	Functional Earth (FE)
	6	RS232 Tx Transmit Data
	7	RS232 Rx Receive Data

## 5.5. Rotary Switch Settings

### 5.5.1. Rotary Switches Default Setting

By default, the value on the three rotary switches are set to **000**.

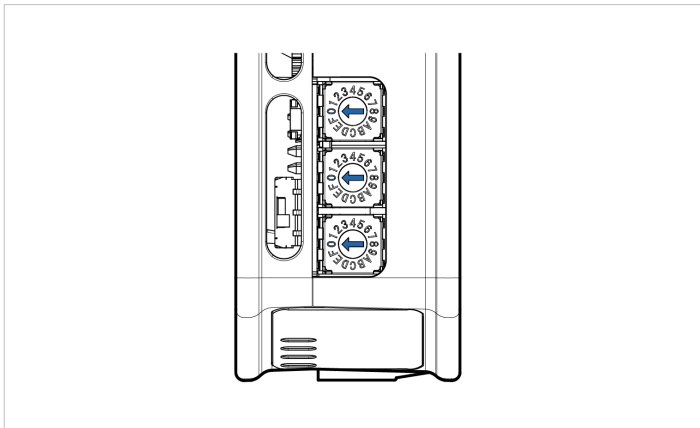


Figure 5. Rotary switches default setting **000**.

## 5.5.2. Set a Node Address with Rotary Switches

### About the Rotary Switch Settings

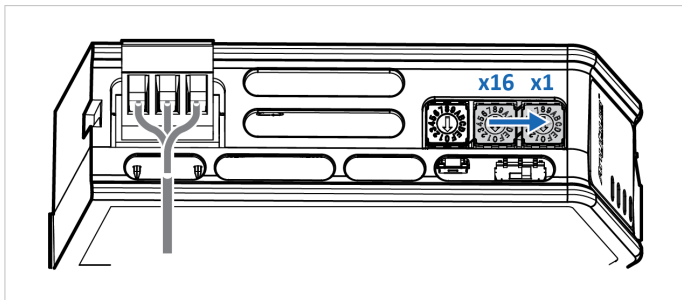
To set a node address for the PROFIBUS server, use the rotary switches located on the top front of the Communicator .



#### TIP

Use Windows Calculator (or similar application) to convert between hexadecimal (hex) and decimal (dec).

- The default node address setting is 000.
- When the node address setting is 000, you can set the node address via the Communicator built-in web interface.
- The node address values are set in hexadecimal (hex).
- Minimum value is 00.
- Supports PROFIBUS node addresses 0-126 Dec (0-7E Hex).
- Each node address may only occur once in the network.
- The node address is read from the center rotary switch x16 to the front rotary switch x1.
- The rear rotary switch is not used, ensure that it is set to 0.



**Before You Begin**

Ensure that the Communicator is disconnected from power.

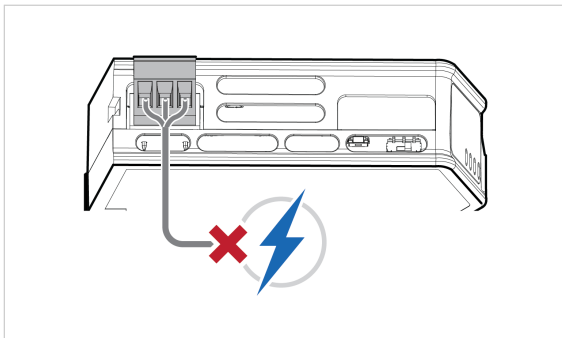
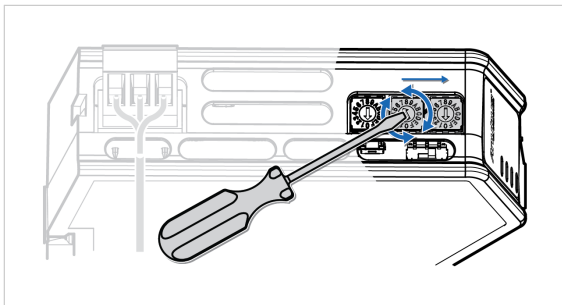


Figure 6. Disconnect Communicator from power

**Procedure**

Use a screwdriver to change the rotary switch position.

Ensure that the rotary switches engage correctly.



## To Do Next

Connect the Communicator to power. See [Connect to Power](#) (page 17).

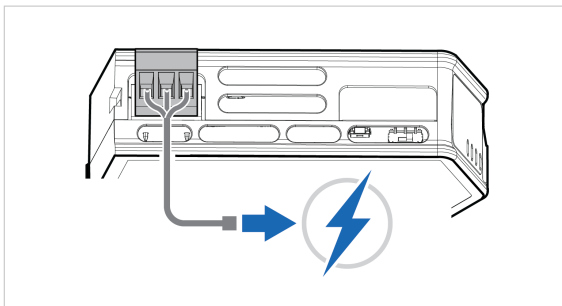


Figure 7. Connect Communicator to power

## Result

The set node address is active as soon as the Communicator is powered on.



### NOTE

Changing the address settings on the rotary switches during operation is ignored. For a new address to take effect, power cycle the Communicator.

## 5.6. Connect to Power

**CAUTION**

Ensure that the power supply is turned off before connecting it to the equipment.

**IMPORTANT**

Using the wrong type of power supply can damage the equipment. Ensure that the power supply is connected properly and of the recommended type.

**IMPORTANT**

Before you connect the Communicator to power, ensure that the PROFIBUS address is set on the rotary switches. If the PROFIBUS address is set when the Communicator is operating, you must power cycle the Communicator for the new setting to take effect.

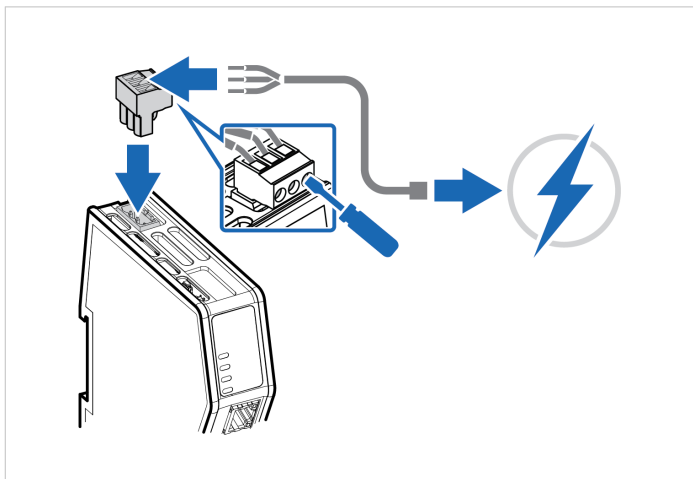
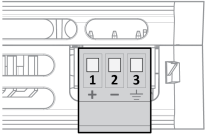


Figure 8. Connect to power

## Power Connector Pinout

Power port	Pin	Description
	1	12-30 VDC Power Connector
	2	Ground (GND)
	3	Functional Earth (FE)

## 5.7. Security Switch



### IMPORTANT

After completing the configuration of the Communicator, lock the security switch to prevent unauthorized access to the Communicator built-in web interface.

When the security switch is in its locked position, the Communicator built-in web interface cannot be accessed, and the Communicator cannot be configured using the built-in web interface. Network specific parameters, configured via the PLC is still available.

### To Lock and Unlock the Security Switch

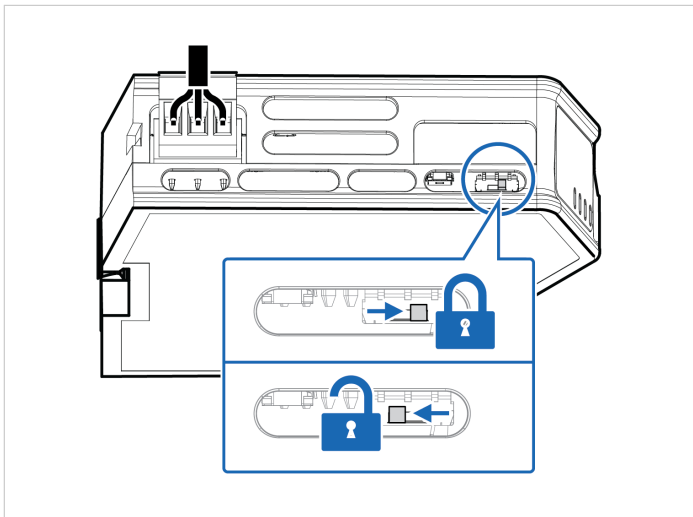


Figure 9. Security switch in locked and unlocked position

Use a pointed object, such as a ballpoint pen.

- To **lock** the security switch, push the toggle towards the **Communicator front**.
- To **unlock** the security switch, push the toggle towards the **Communicator back**.

## Security Switch Status LED

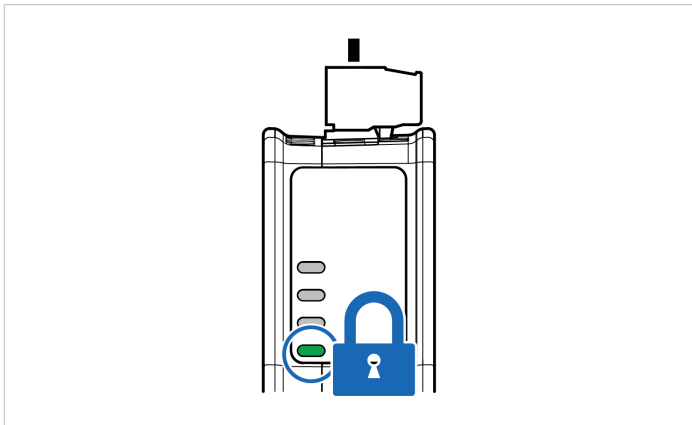


Figure 10. Security switch locked status LED

When the security switch is in its:

- locked position, the security switch status LED turn solid green.
- unlocked position, the security switch status LED is turned off.

## 5.8. Lock the Cables

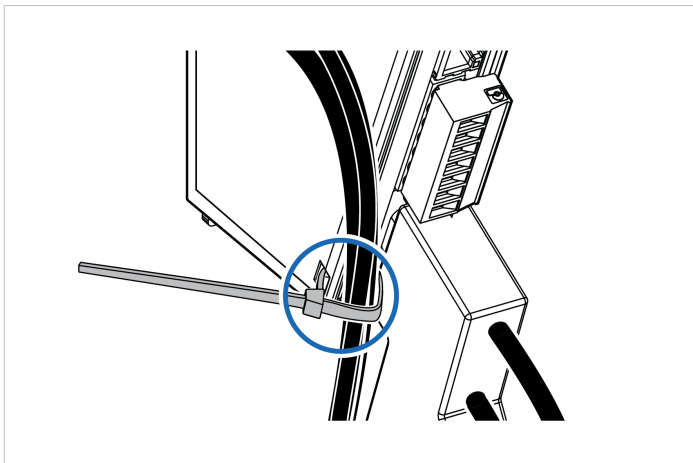


Figure 11. Lock the cables

To strain relieve the cables, place a cable tie in the holder and lock the cables.

## 5.9. DIN Rail Demount

### Before You Begin



#### IMPORTANT

Be careful when removing the Communicator from the DIN-rail. If not removed properly, the DIN rail locking mechanism and the product cover can break.

Have a flat-blade screwdriver, size 5.5 mm, available.

### Procedure

Remove the Communicator from the DIN rail:

1. Insert the screwdriver into the Communicator DIN rail locking mechanism.
2. To unlock the Communicator DIN rail locking mechanism, turn the screwdriver clockwise.

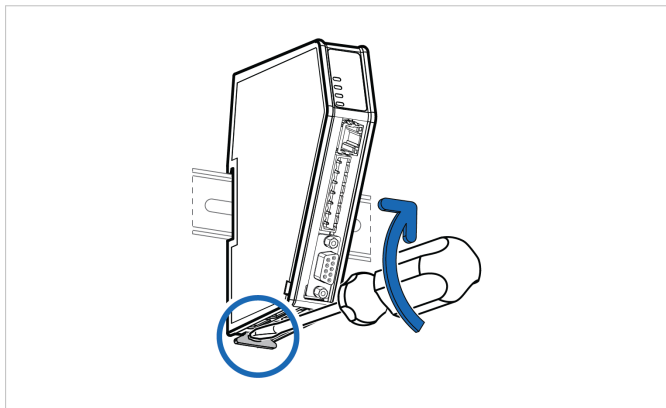


Figure 12. Unlock the Communicator

3. Hold the screwdriver in the DIN rail locking mechanism while you unhook the Communicator from the DIN rail.

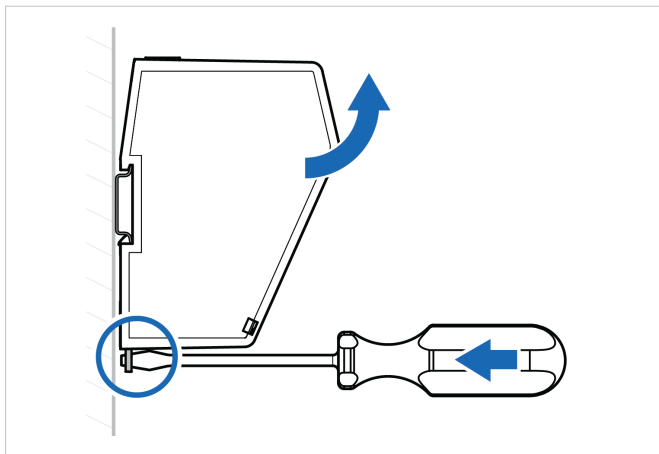


Figure 13. Unhook the Communicator

## 6. Configuration

### 6.1. Connect to PC and Power

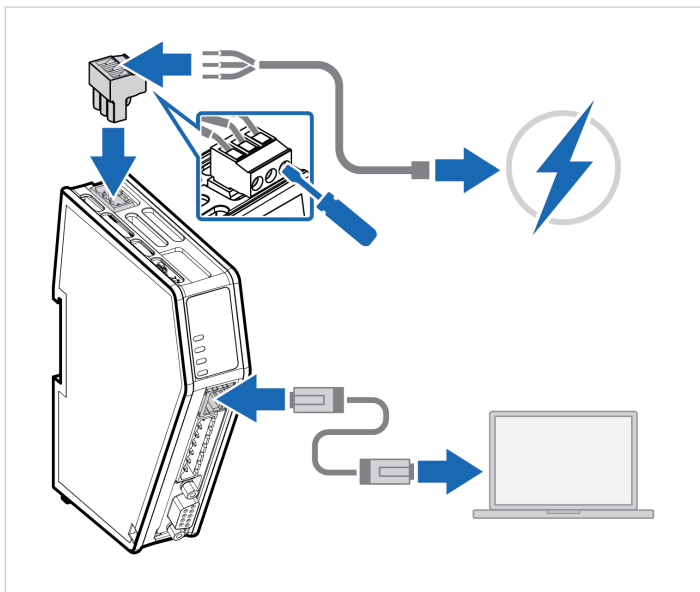


Figure 14. Connect to PC and Power

## 6.2. Find the Communicator on Your PC

The Communicator default IP address is 192.168.0.10.

To be able to access the Communicator built-in web interface you may need to adjust the IP settings, choose one of the following methods:

### Option 1 | Set a static IP address on the PC



On the PC accessing the Communicator built-in web interface, set a static IP address within the same IP address range as the Communicator IP address.

To access the Communicator built-in web interface, ensure that port 80 TCP is open in your PC Windows Firewall.

Note that when you change to a static IP address on your PC, internet access is lost.

### Option 2 | Change the IP address on the Communicator configuration port



Use the software application HMS IPconfig to find and change the IP address on the Communicator configuration port, to one within the same IP address range as the PC accessing the Communicator built-in web interface.

To download the installation files, please visit [www.anybus.com/support](http://www.anybus.com/support) and enter the product article number to search for the Communicator support web page. You find the product article number on the product cover.

## 6.3. Configure the Communicator

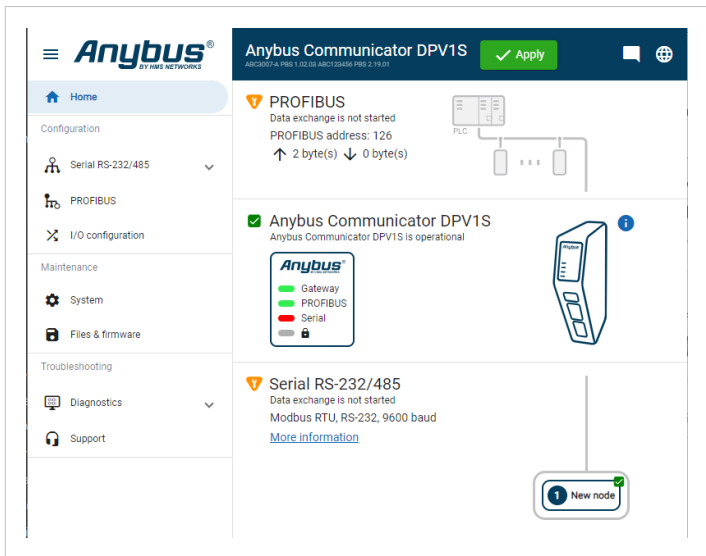



Figure 15. The Communicator built-in web interface Home page

Open the Communicator built-in web interface in HMS IPconfig or enter the Communicator IP address in your web browser.

The built-in web interface takes you through the steps to configure the Communicator.

### Web Interface Language Settings

The default web interface language is **English**. To change language, click the **Language** icon  and select a new language from the list. The language change takes effect immediately.

## Support and Resources

If you need more in-depth information about the configuration, please visit [www.anybus.com/support](http://www.anybus.com/support) and enter the product article number to search for the Communicator support web page. You find the product article number on the product cover.

## 7. Technical Data

For complete technical specifications and regulatory compliance information, please visit [www.anybus.com](http://www.anybus.com).

### 7.1. Technical Specifications

Article identification	ABC3000
Configuration connector	RJ45
Communication connector	PROFIBUS DSUB connector
Serial connector	7-pin screw connector
Power connector	3-pin screw connector
Power supply	12-30 VDC, Reverse voltage protection and short circuit protection
Power consumption	Typical: 90 mA @ 24 V (2.2 W) Max: 3 W
Storage temperature	-40 to +85 °C
Operating temperature	-25 to +70 °C
Humidity	EN 60068-2-78: Damp heat, +40°C, 93% humidity for 4 days EN 60068-2-30: Damp heat, +25°C – +55°C, 95% RH, 2 cycles
Vibration	See datasheet
Housing material	Plastic, See datasheet for details
Protection class	IP20
Product weight	150 g
Dimensions	27 x 144 x 98 mm (W x H x D) with connectors included
Mounting	DIN-rail

## 8. Communicator LED Indicators



### NOTE

Before you can verify operation, you must configure the Communicator.

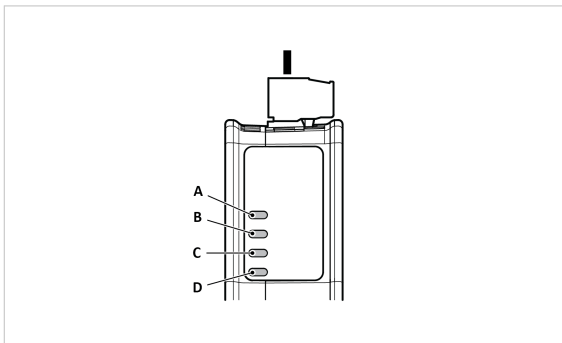


Figure 16. Communicator status (A), High level Network/Client (B), Subnetwork 2 (C) and (D) Security Switch

	LED A	LED B	LED C	LED D
Operation status	Gateway status	PROFIBUS	Subnetwork	Security switch
<b>Off</b>	No power	No data exchange	No power/ Subnetwork not running/Node is switched off via a control word	No power/Security switch is unlocked
<b>Green, flashing</b>	Startup phase	Clear, data exchange	Running, one or more nodes are offline	N/A
<b>Green, solid</b>	Operational	Operate, data exchange	Running	Security switch is locked

	LED A	LED B	LED C	LED D
Operation status	Gateway status	PROFIBUS	Subnetwork	Security switch
Red, solid	N/A	FATAL event	N/A	N/A
Red, one flash	N/A	Parameterization error	N/A	N/A
Red, two flash	N/A	PROFIBUS configuration error	N/A	N/A
Green/Red, flashing	Power up self-test/ Firmware update/ Firmware recovery	N/A	N/A	N/A

## Fatal Error and Exception Error

**Fatal error:** A fatal error causes the Communicator firmware application to crash in an uncontrolled manner.

**Exception error:** An exception error causes the Communicator to enter a controlled error state. The Communicator firmware application is still running.

LED	Fatal error	Exception error
A	Red, solid	Red, solid
B	Red, solid	Off
C	Red, solid	Off
D	Off	Off

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