Anybus®

BY HMS NETWORKS

Anybus® Communicator™ - PROFIBUS to Modbus RTU/Serial

STARTUP GUIDE

HMS

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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.

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. Preparation

3.1. Cabling

Have the following cables available:

- Ethernet cable for configuration
- PROFIBUS cable for connecting to the high level network
- Power cable

3.2. Mechanical Tools and Equipment

Have the following tools available:

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

3.3. 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**.
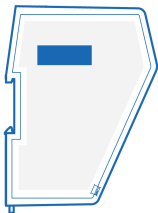
You can also visit www.anybus.com/support and enter the product article number to search for the Communicator support web page. You find the **product article number** on the product cover.

3.4. HMS Software Applications

Download the software installation files and user documentation from
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. Installation

4.1. 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.
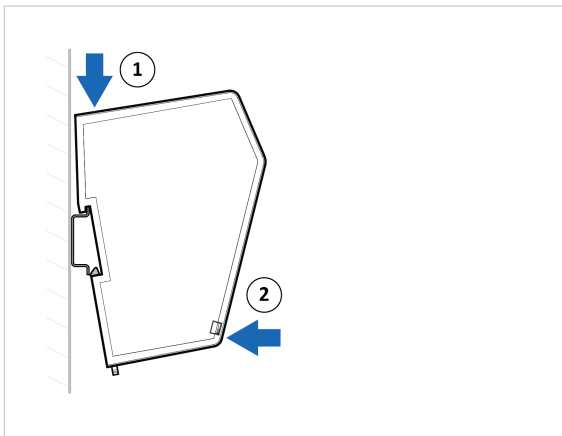

Figure 1. Attach the Communicator on the DIN rail

4.2. Connect to PROFIBUS Network
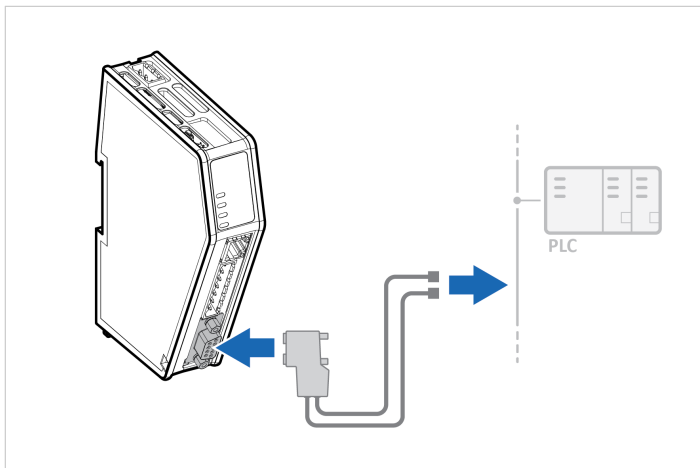
Figure 2. Connect to PROFIBUS network

PROFIBUS Connector	Pin	Description
	1	Shield
	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

4.3. Connect to Serial RS232/RS485 Subnetwork

NOTE
Use minimum 90 oC copper (Cu) wire only.
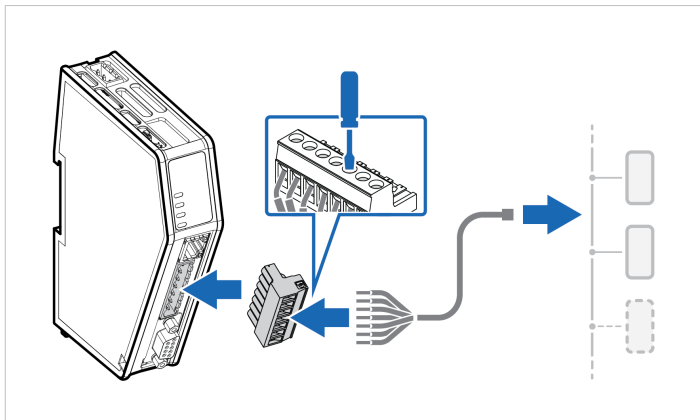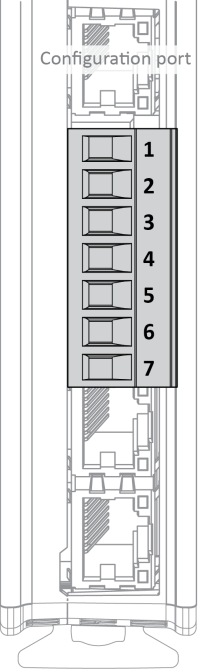
Figure 3. Connect to serial RS232/RS485 subnetwork

7-pin connector	Pin	Signal
	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

4.4. Rotary Switch Settings

4.4.1. Rotary Switches Default Setting

By default, the value on the three rotary switches are set to **000**.
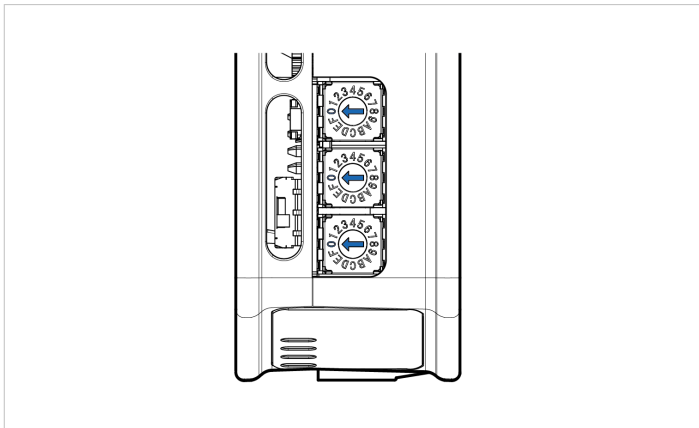
Figure 4. Rotary switches default setting **000**.

4.4.2. 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 sett 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.
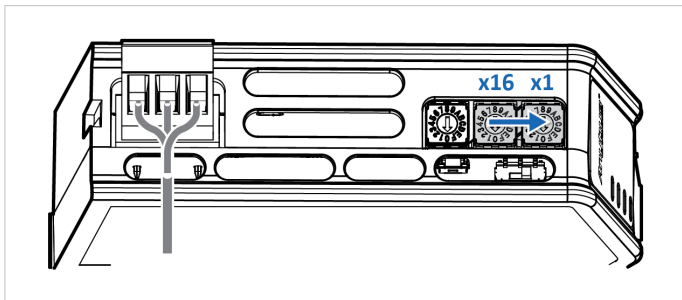
Before You Begin

Ensure that the Communicator is disconnected from power.
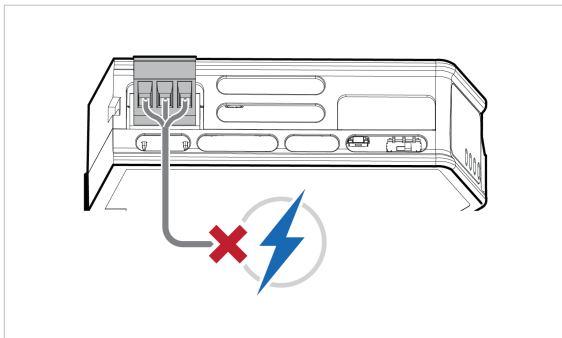
Figure 5. Disconnect Communicator from power

Procedure

Use a screwdriver to change the rotary switch position.

Ensure that the rotary switches engage correctly.
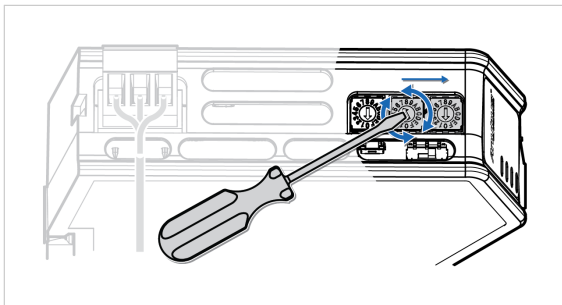
Example 1. To set the node address 12 hex = 18 dec
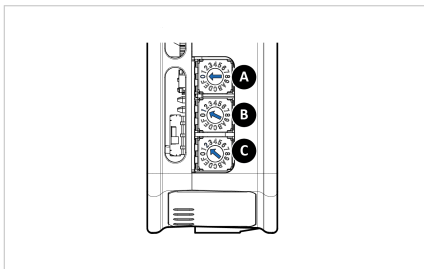
1. The rear rotary switch A is not used, ensure that it is set to 0.
2. Set the center rotary switch B to 1 hex.
3. Set the front rotary switch C to 2 hex.

The center rotary switch B 1 hex = 1 dec and the front rotary switch C 2 hex = 2 dec.

The node address expressed in decimal numbers is therefore 16 x 1 + 2 = 18.

Example 2. To set the node address 7E hex = 126 dec
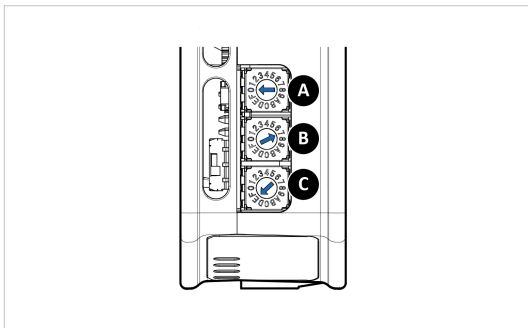
- The rear rotary switch A is not used, ensure that it is set to 0.
- Set the center rotary switch B to 7.
- Set the front rotary switch C to E.

The center rotary switch B 7 hex = 7 dec and the front rotary switch C E hex = 14 dec.

The node address expressed in decimal numbers is therefore 16 x 7 + 14 = 126.

To Do Next

Connect the Communicator to power. See .
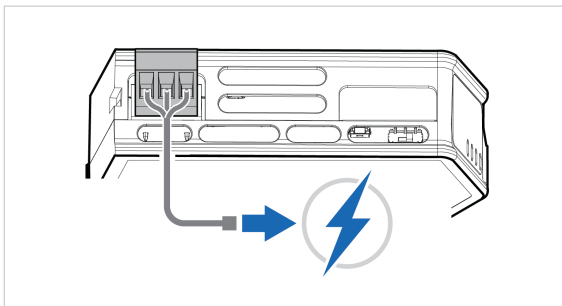
Figure 6. Connect Communicator to power

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.

4.5. 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.
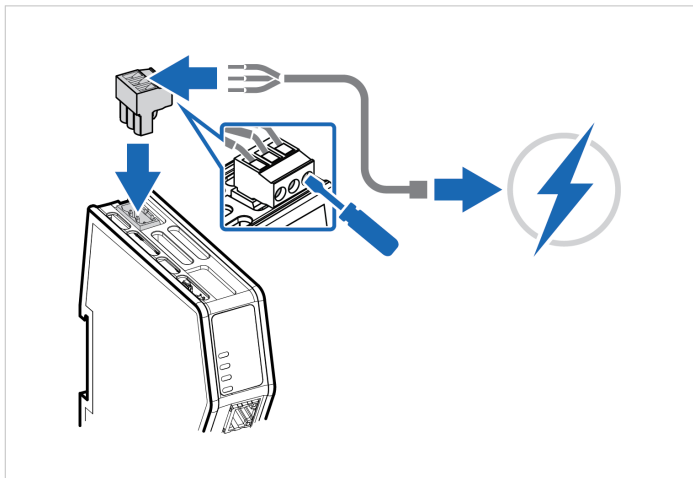
Figure 7. Connect to power

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

4.6. 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 can not be accessed and the Communicator can not 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
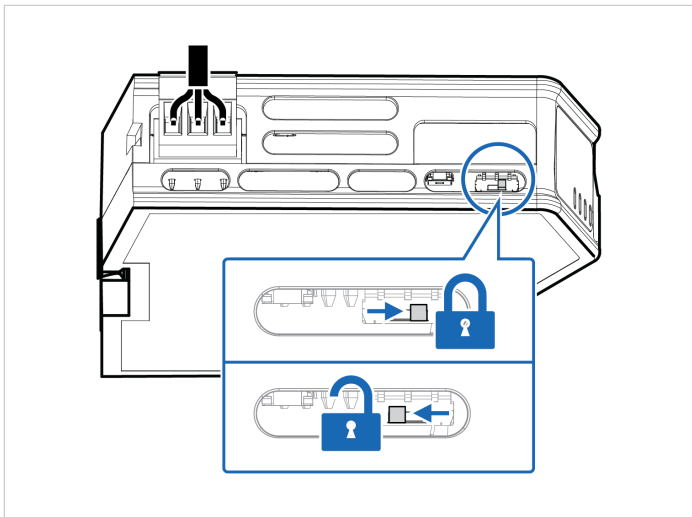
Figure 8. Security switch in locked and unlocked position

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
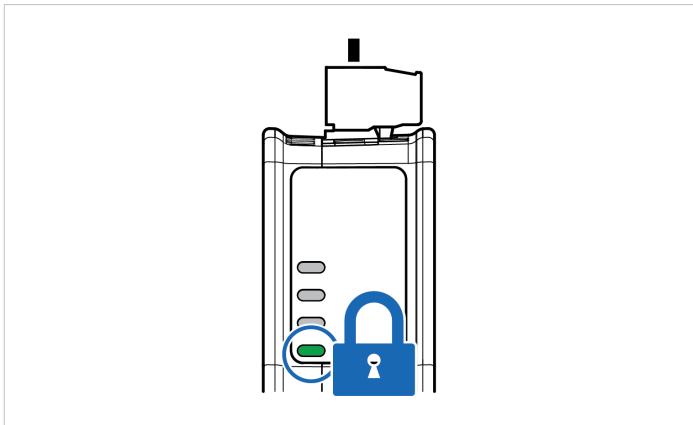
Figure 9. Security switch locked status LED

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.

4.7. Lock the Cables
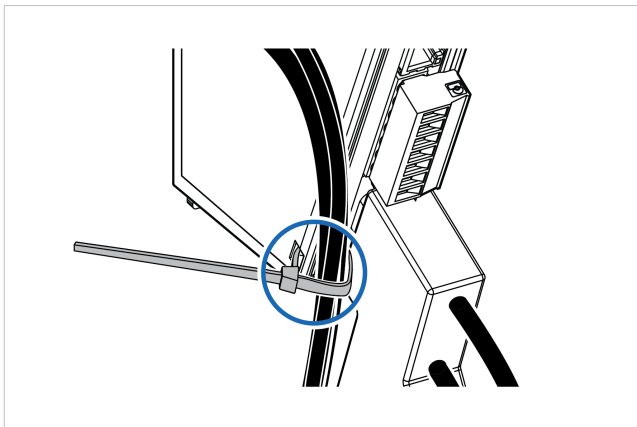
Figure 10. Lock the cables

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

4.8. 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 11. Unlock the Communicator

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

Figure 12. Unhook the Communicator

5. Configuration

5.1. Connect to PC and Power

Figure 13. Connect to PC and Power

1. Connect an Ethernet cable between the Communicator configuration port and your PC.
2. Connect the Communicator to a power supply.

5.2. Find the Communicator on Your PC

The Communicator default IP address is 192.168.0.10.
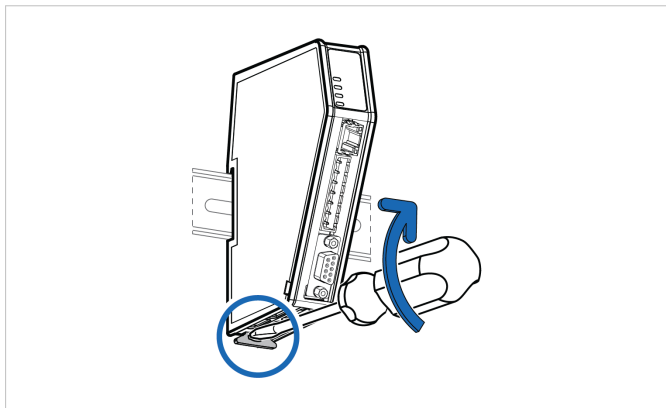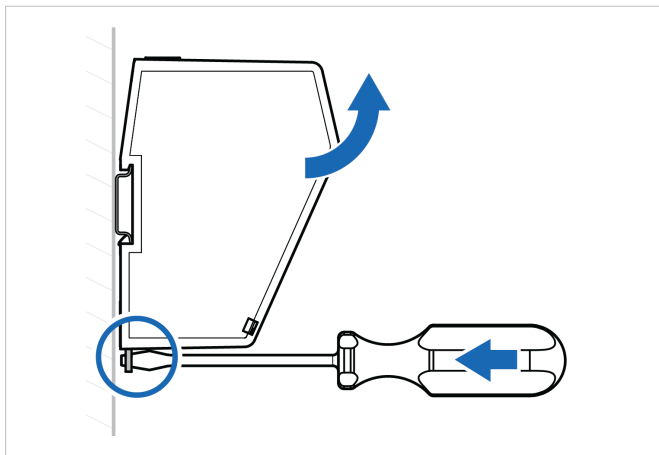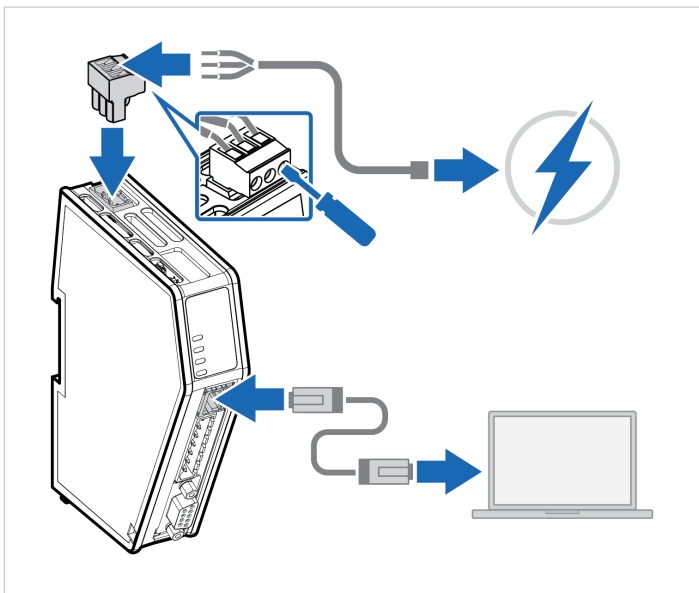
To be able to access the Communicator built-in web interface you may need to adjust the IP settings, choose one of the following methods:

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 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 and enter the product article number to search for the Communicator support web page. You find the product article number on the product cover.

5.3. Configure the Communicator

Figure 14. 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.

Support and Resources

If you need more in-depth information about the configuration, please visit
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
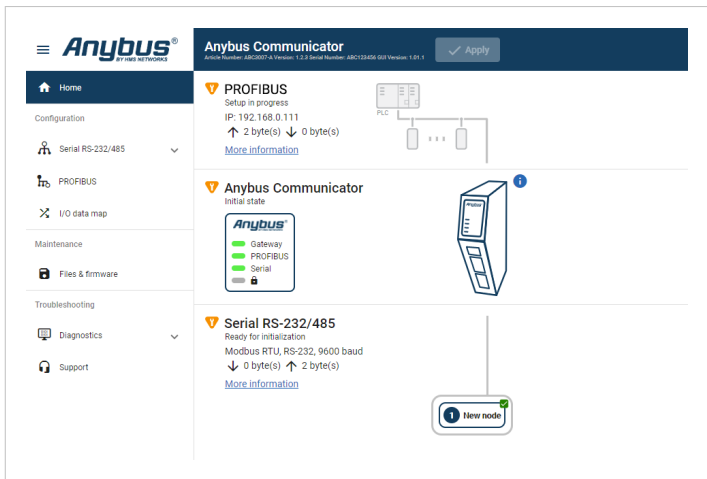cover.

6. Technical Data

For complete technical specifications and regulatory compliance information, please visit
www.anybus.com.

6.1. 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: 160 mA @ 24 V Max: 400 mA @ 12 V
Storage temperature	-40 to +85 °C
Operating temperature	-25 to +70 °C
Humidity	EN 600068-2-78: 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

7. Communicator LED Indicators

> **NOTE**
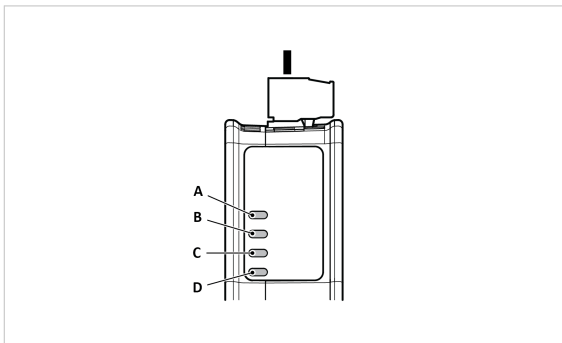> Before you can verify operation you must configure the Communicator.

Figure 15. 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**
Off	No power	No data exchange	No power/ Subnetwork not running/Node is switched off via a control word	No power/Security switch is unlocked
Green, flashing	Startup phase	Clear, data exchange	Running, one or more nodes are offline	N/A
Green, solid	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

7.1. 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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